Fourth Report of the Committee on New Direction of Economic and Industrial Policies

- Industrial Structure in 2040 Led by Growth Investment -

June 3, 2025

Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council

Ministry of Economy, Trade and Industry

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I. Introduction

1. Basic understanding of social macro environment

(Continuation of turning points)

- As indicated in the Second Report in June 2023, there come **"turning points" for domestic investment and wages** that had been sluggish and caused Japan's long-term economic stagnation, which **still continue at higher levels than those observed last year**. With respect to domestic investment, **in FY2024, private-sector capital investment hit a record high 108 trillion yen for the first time in the past 30 years**. **Also, with respect to the wage increase rate, the 2025 annual wage negotiations between management and labor unions have broken the 2024 wage increase rate.**[1]
- As noted in the Second Report, this turning point is the product of efforts by private companies but **underpinned by the shifts in the business environment for private-sector's business operations**: **changes in the social macro environment in Japan and overseas** and **more aggressive industrial policies of the government**.[2] These two changes **have continued and progressed**.

(Changes in the social macro environment at home and abroad)

- First, the **uncertainty in the world is continuously on the rise and has hit the highest-ever level since the corona pandemic**. In these few years, the international community has undergone growing domestic and inter-state disparity, skewed wealth distribution due to digitalization, inter-state disparity due to national particularism, heavy use of unilateral measures by major powers, the division between western developed countries and authoritarian states due to Russia's invasion of Ukraine, and other issues. On top of these issues, the U.S. tariff measures, etc., have further exacerbated the uncertainty in the world economy. However, the policy uncertainty of Japan remains relatively stable compared with other countries.[3]
- Further, **each country has continuously strengthened their industrial policies**.[4] We can also see European countries and the U.S. have attempted to **introduce tariffs or strengthen tax incentives such as accelerated depreciation of investment**, in addition to their cumulative efforts.[5]
- Moreover, global **inflation continues to proceed**. While inflation calms in European countries and the U.S. after its temporary surge, the **consumer price index inflation rate also goes high in Japan where deflation continued for a long time, even compared with that in major countries**.[6] However, there is no change to the state of Japan as a cheap country because cumulative inflation of Japan falls short of that of European countries and the U.S., and the **real effective exchange rates** reflecting commodity prices **indicates a weaker yen equivalent to that in 1971**, under the influence of long-term and structural stagnation in inflation rates associated with cost-cutting race. In particular, the price increase in Japan is marked by the gap between the producer price index and the consumer price index, the cause of which can be considered that, while the producer price index has increased reflecting the rising prices of imported materials, the consumer price index has not increased as much the producer price index because companies have been unable to sufficiently pass such rising prices mainly on to consumers.[7]
- In addition, we have seen **aggravation of structural labor shortage** arising from the combination of population decrease and **labor participation that has reached the highest level in the world**. Labor shortage DI has **recently** reached a highest ever level that can be comparable with that in the bubble period.[8]

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[1] See Reference Materials, P44.
[2] See Reference Materials, P42.
[3] See Reference Materials, P28.
[4] See Reference Materials, P35.
[5] See Reference Materials, P36.
[6] See Reference Materials, P32.
[7] See Reference Materials, P31.
[8] See Reference Materials, P33.

(Aggressive government industrial policies)

- In light of the above changes in the social macro environment, the Ministry of Economy, Trade and Industry (METI) started to strengthen industrial policy as the New Direction of Economic and Industrial Policies (for details, see Supplementary Note) since the General Meeting of the Industrial Structure Council in 2021.[9] In addition to the cumulative efforts made so far, METI has steadily taken additional measures based on the Third Report of the Committee issued in June 2024.[10]
- For example, **out of government support for advance investment of 20 trillion yen using the GX Economy Transition Bond, METI released estimates of the support amounts for about 14 trillion yen**.[11] METI also presented policies to enable the **emissions trading system to start fully-fledged operation in FY2026** and the already ongoing GX initiatives to make a significant leap towards 2040, by developing the GX2040 Vision[12] and submitting the Bill to revise GX Promotion Act based thereon.[13] In addition, METI presented the direction of its policies towards 2040 in the 7th Strategic Energy Plan[14] approved by the Cabinet in February 2025 that proclaims the **unification of policies on energy and industry** in order to cope with the **increase in power demand associated with the developments of DX (digital transformation), GX (green transformation), etc**.
- Further, for DX, METI **has allocated to the tune of 4 trillion yen of budget**[15] from the FY2021 supplementary budget through the FY2023 supplementary budget, including attraction of TSMC to Kumamoto and support to the Rapidus project. **In addition**, METI **revised the Act on Facilitation of Information Processing, etc.**, to secure necessary financial resources and induce large-scale public/private investments,[16] and **established the Framework for Strengthening the AI and Semiconductor Industrial Infrastructure to provide public support of 10 trillion yen or more to these sectors by FY2030**.[17]
- Furthermore, METI **submitted the Bill to revise the Subcontract Act to change the term "subcontractor" to "entrusted SMEs"**[18] to entrench the habit of price shifting in the entire supply chains, and **proposed the strengthening of metabolic functions of economy through the submission of the Bill for the act on early business revitalization**.[19] Moreover, for measures taken by relevant ministries towards creation of10 billion yen firms, labor-saving investments, etc., METI has compiled the Leading Medium Enterprises Growth Promotion Package 2025 that exceeds 1 trillion yen in total.[20]

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[9] See Reference Materials, P39.
[10] See Reference Materials, P42.
[11] See Reference Materials, P130.
[12] See "Revised GX2040 Vision—Decarbonized Growth Economic Structure GX Promotion Strategy" (February 2025). (https://www.meti.go.jp/press/2024/02/20250218004/20250218004-1.pdf); Reference Materials, P126.
[13] Reference Materials, P129.
[14] See "Seventh Strategic Energy Plan" (February 2025) (https://www.enecho.meti.go.jp/category/others/basic_plan/pdf/20250218_01.pdf); Reference Materials, P126.
[15] See Reference Materials, P94.
[16] See Reference Materials, P97.
[17] See Reference Materials, P96.
[18] See Reference Materials, P110.
[19] See Reference Materials, P90.
[20] See "Leading Medium Enterprises Growth Promotion Package 2025" (February 2025). (https://www.kantei.go.jp/jp/singi/katsuryoku_kojyo/pdf/sokusin_package.pdf)
See Reference Materials, P114.

(Supplementary Note: What is the New Direction of Economic and Industrial Policies?)[21]

- So far, the Japanese economy has been a "cost-cutting economy" in which companies attempt to reduce domestic investment to secure immediate profits against the background of prolonged deflation. The government's efforts to create new values were also insufficient because it mainly took measures to improve the market environment to remove constraints on the private sector's activities based on the principle that the private sector should be the primary actor.
- In response to such situation, since 2021, METI has started to consider the measures to strengthen industrial policies reflecting the global trend, under the title of "New Direction of Economic and Industrial Policies." METI shifted to an approach to strengthen industrial policy towards the solution of social and economic problems by mobilizing all relevant policies and having the public and private sectors take one step forward, which is neither a traditional industrial policy led by the public sector nor a neo-liberal policy in which the public sector ensures not to disturb the private sector.
- Specifically, METI will consider the above measures to **realize three positive cycles of "expansion of domestic investment, acceleration of innovation, and people's income growth"** by **[1] continuing** such consideration over the **medium to long term** (at least 5–10 years) under the frameworks of **"mission-oriented industrial policy (covering eight sectors)" and "updating socioeconomic operating-system (OS) (covering four sectors)**," and **[2] mobilizing all kinds of policies on budgets, taxes, regulations, standardization, etc., on a large-scale, long-term, and systematic basis**.
  - Mission-oriented industrial policy (Eight sectors)
    - Starting from global social issues, it is intended to accelerate world-level strategic investments by cultivating domestic demand that expands over the medium to long term even under the population decline and continuing the implementation of measures from both supply and demand aspects including those of overseas (government support is the "national strategic investment" that will expand national wealth).
    - Missions of eight sectors: "GX," "DX," "globalization and economic security," "health," "inclusive regional growth of the region that contributes to coping with a declining birthrate," "disaster resilience," "biomanufacturing," and "resource-autonomous circular economy"
  - Updating socioeconomic operating-system (OS) (Four sectors)
    - Realization of the missions requires cross-thematic infrastructure development of an economic and social structure to supplement individual industrial policies. This has contributed to the three positive cycles of domestic investment, innovation, and income growth even outside of individual missions.
    - Socioeconomic operating-system (OS) of four sectors: "human resources," "innovation / startup," "value creation management," and "EBPM and data-driven administration"

2. Basic idea of future economic and industrial policies

- Although the turning point continues due to the above changes in the social macro environment and the effects of the proactive industrial policies, **production and consumption are still weak**.[22] Furthermore, the U.S. **tariff measures might bring about structural changes in the Japanese and global economies, and thus in the international order**, making the situation unpredictable. It is a **crucial moment to reach** a continuously **rising growth path**.

(Urgent issues such as high prices, labor shortages, and responses to the U.S. tariff measures)

- First, the Japanese economy is **struggling with overcoming high prices and labor shortage**. As the **producer price index has been increasing more than the consumer price index**, it is **important to promote price shifting, including labor costs**. Also, amid the growing sense of labor shortage, the **measures against high prices can also be promoted by overcoming the constraint of labor shortage and bringing about fundamental**

[21] See Reference Materials, P39, P40.
[22] See Reference Materials, P54.

improvement of supply capacity through labor-saving investments.

- Additionally, while working to maintain and strengthen the international economic order based on free and fair rules, the government will continue to promote consultations with the U.S. regarding U.S. tariff measures, including a strong request for a review of a series of tariff measures, it will be important to provide **consultation services, financial support**, and make other efforts while seeking **exemption from the tariff measures**.

(Improvement of terms of trade that serve as a main factor for prolonged stagnation of real wages)

- While dealing with the pressing issues, we **need to improve the terms of trade by adding high values in order to sustainably increase real wages in the medium to long term** at the same time, but we have only reached half-way.
- A factor breakdown of the stagnation of real wages in the past 3 decades indicates that, although the **increase in labor productivity in Japan was comparable to that in other major developed countries**, the impact of the **deterioration of terms of trade**—Japan being **unable to sufficiently raise export prices in products/services while importing resources at high prices**—**were greater than that of the increased social security burden or the labor's share**. **It would be fair to say that price shifting in foreign trade was not enough for Japan as a whole**.[23]
- It has been pointed out that, in general, it is easier for companies to endeavor to conduct cost-cutting in deflation, while it is easier to endeavor to add high values in inflation.[24] It could also be considered that Japan was surrounded by a macro environment in which companies were likely to fall into a management with a cost-cutting mindset to survive in the market because they were unable to charge higher prices under deflation in Japan in the past 20 years even if they have been offered high value-added or new products. However, terms of trade have yet to be improved,[25] despite the fact that the **macro environment in which companies can easily add high values** is being put into place, as reflected in an increase in the expected inflation rate.[26]
- Towards the conversion to the "growth-oriented economy driven by wage increases and investment," **high value addition through growth investment or other efforts are necessary** to enable **price shifting in all over Japan** to allow **increase in export prices**.

3. Progress made in the Fourth Report from the perspective of the New Direction of Economic and Industrial Policies

- Now is the time to overcome the above issues and shift from the **cost-cutting mindset** persisted for 30 years to the **growth mindset driven by wage increase and investment**. To do so, it is necessary to dispel the **deep-rooted pessimism about Japan's future, a typical excuse of that is declining population**.
- As a matter of national character, Japanese people particularly **appreciate the long-term nature of things and highly prefer to avoid uncertainty**;[27] thus, it is important to share a bright future with rationality and feasibility, as common understanding to **enhance the predictability for companies, people and the government**, for the purpose that the public and private sectors entrench the expansion of domestic investment[28] and the wage increase.
- For domestic investment, Chairman TOKURA of the Japan Business Federation (hereinafter "Keidanren") presented the domestic investment "outlook"—the private-sector capital investment amount of "100 trillion yen in FY2027"—at the First Public-Private Partnership Forum on Increasing Domestic Investment (hereinafter the "Domestic Investment Forum")[29] held in December 2022.[30] Furthermore, in response to the Fiscal Year 2023 Economic Outlook

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[23] See Reference Materials, P55.
[24] See Reference Materials, P9.
[25] See Reference Materials, P32.
[26] See Reference Materials, P55.
[27] See Reference Materials, P29.
[28] See Reference Materials, P30.
[29] See Japan's Cabinet Secretariat website "Public-Private Partnership Forum on Increasing Domestic Investment". (https://www.cas.go.jp/jp/seisaku/kokunai_toushikakudai_forum/index.html).
[30] See Reference Materials, P46.

and Basic Stance for Economic and Fiscal Management (hereinafter the "Government Economic Outlook") (approved by the Cabinet on January 23, 2023) that projected the domestic investment of 103.5 trillion yen for FY2023, Chairman TOKURA of Keidanren announced the domestic investment target—private-sector capital investment of 115 trillion yen for FY2027—at the Second Domestic Investment Forum in April 2023.[31] Under the leadership of Prime Minister Kishida, this target was upgraded to that of the public and private sectors, under which they will work together to realize the target.
Afterward, the domestic investment has maintained a high growth rate, followed by the "FY2025 Government Economic Outlook" (approved by the Cabinet on January 24, 2025) that projected the domestic investment of 111.1 trillion yen for FY2025; the FY2027 public-private target of 115 trillion yen for domestic investment is expected to be achieved ahead of schedule. In response to this, at the Sixth Domestic Investment Forum in January 2025, Chairman TOKURA of Keidanren announced an ambitious target of private capital investment of "135 trillion yen for FY2030 and 200 trillion yen for FY2040." Responding to this, Prime Minister Ishiba also announced that the government will work together with the private sector to realize the target, and thereafter, the public-private domestic investment target was updated.[32]

- In this way, the **positive cycles based on forward guidance has already been realized, in which a medium-term target is set, and the public and private sectors achieve the target ahead of schedule by their efforts and then set a more ambitious target**. It is important to **expand** such efforts to not only domestic investment but also **wages, industrial structure, macro economy, etc.**, and to realize them in a holistic and consistent manner.[33]
- Based on such problem awareness, the Committee on New Direction of Economic and Industrial Policies started a two-year project last term to create "A Future Outlook In 2040" last term that will enable enhancing well-being even under population decline." The purpose of the Future Outlook is to encourage positive challenges from a big-picture perspective to be shared by concerned parties, amid the growing pessimism for the future including population decline. Specifically, on the premise of population decline, the scenario is intended to enhance the predictability of domestic investment, wage increase, and consumption increase by showing macro-economic changes such as those in business investment based on changes in industrial structure, future demand including consumer spending, etc. In other words, it is intended to neither make a correct prediction nor indicate non-contiguous ideal states without any thought of feasibility.
- The **3rd Report in June 2024** provided a qualitative future outlook. Specifically, first, the Report clarifies that in the world's history there are turning points behind changes, and that there are **global structural changes** that require a non-conventional approach. On this basis, we provided directions by formulating a **single (qualitative) future outlook that is feasible enough as an extension of the New Direction of Economic and Industrial Policies**.
- In light of Basic Policy on Economic and Fiscal Management and Reform, Grand Design and Action Plan for a New Form of Capitalism (approved by the Cabinet in June 2024),and related policies enacted over the past year such as the GX2040 Vision and the 7th Strategic Energy Plan, **this Fourth Report** first presents the "Appendix: A Future Outlook in 2040" that **refines the qualitative outlook** developed in the Third Report, and then **quantifies** it using economic models, and also estimated the employment structure. **Towards the realization of "A Future Outlook in 2040," this Report offers the directions of policies on the issues to be focused on**.
- As mentioned above, the present Future Outlook aims to enhance the predictability of domestic investment, wage increase, and consumption increase, the quantification of which therefore **emphasis on the way of thinking of changes in the figures** rather than the precision of figures. Also, the estimate in this time is not definitive, but rather a **starting point for discussions, policies, and actions that will continue over the medium to long term**, and it will be **revised and updated** as necessary.
- **In addition**, it is the **first time in about 20 years since the New Economic Growth Strategy**

[31] See Reference Materials, P47.
[32] See Reference Materials, P48.
[33] See Reference Materials, P45.

in 2006 that METI formulates the **future outlook that reflects 20 or more industrial classifications and makes it easy to conceive the transformation of industrial structure**.[34]

4. Structure of the Fourth Report

- "II. Quantification of 'A Future Outlook in 2040'" shows the premises (e.g., **the thoughts on quantification, and the basic structure of economic models**) and **the inputs such as demographics**, and then describes **the outlook of macro economy ,the future transformation of industrial structure** and transformation of the employment structure that are estimated by quantification.
- "III. Issues to Be Focused Based on the Quantification of 'A Future Outlook In 2040' and on the Recent Economic Environment" **shows the problem awareness and main proposed plans for issues that should be addressed with special efforts as economic and industrial policies**, based on **the quantified estimates** and **the recent macroeconomic environment**.
- "IV. Progress of measures toward long-term targets and possible policies that need to be considered in the future" is predicated on "A Future Outlook In 2040" presented in this Report, and, for the eight missions and four OSs, summarizes: [1] the long-term targets set out in the Second Report, and [2] **the progress of measures** that have been undertaken **since the Third Report**, and then indicates [3] **measures that need to be considered** in the future.

[34] See Reference Materials, P58.

II. Quantification of "A Future Outlook in 2040"

1. Premise of quantification

(1) Thoughts on the quantification of "A Future Outlook in 2040" and structure of the economic model used

- On the premise of the proactive strengthening of economic and industrial policies of the New Direction, the quantification of "A Future Outlook in 2040" indicates the following two cases: **the New Direction Case where the increase in domestic investment and wage continues** at a turning point and **the Base Case where the increase in domestic investment and wage stagnates** as in the past 3 decades.
- For the purpose of the quantification, the **Research Institute of Economy, Trade and Industry (hereinafter "RIETI") developed a Cobb-Douglas economic model in collaboration with Chairman Fukao of RIETI and about 10 economists**[35]. From the perspective of embodying the "positive cycles of domestic investment, innovation, and income growth," RIETI calculated wage increases by setting the expansion of labor input and investment (capital) as a starting point and described a consistent economic growth.
- The total factor productivity (hereinafter "TFP") is calculated by deducting the contribution of the increased input of labor and capital from the quantitative change in the output; RIETI **precisely broke down the qualitative change in labor and capital and broke down the current concept of TFP into accountable factors to the extent possible**, using the methods including the one developed by the group of Zvi Griliches and Dale Jorgenson at Harvard University.[36] The quality of labor reflects the qualitative change in labor input and more specifically, includes the change in labor composition such as educational level, age distribution, gender, and occupational classification. Similarly, the quality of capital takes into account the change in the capital composition such as the increased rate of ICT equipment.
- **For the New Direction Case**, RIETI **drew up the Input-Output table (IO table) for 2040** that explains business relationships between industries according to the scale of domestic investment in order to **reflect the future shift in the industrial structure in line with the "Appendix: A Future Outlook in 2040(available in Japanese only)**."

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[35] The details of the estimation of foreign import demand for Japanese goods and services in the base case were estimated by Ken Itakura, Professor, Graduate School of Economics, Nagoya City University, as follows.
Simulations using the GTAP model (Corong et al. 2017) and the GTAP database, 11th edition (Aguiar et al. 2022) were conducted to estimate foreign import demand for Japanese goods and services in the future. The scenarios were based on future population and economic estimates for countries around the world, and future estimates from the United Nations, World Population Prospects : 2024 Edition, and the International Monetary Fund, World Economic Outlook Projections: October 2024 Edition were used. The GEMPACK software (Horridge et al. 2018) was used to perform the simulations. The simulation results were summarized to obtain i) changes in the prices of Japan's goods and services imports; ii) changes in the prices and volumes of goods and services exports from Japan; and iii) Japan's share of foreign imports.)

[36] See RIETI "What is necessary to Improve the Potential Growth Rate of Japan: Analysis Using JIP Database 2023". (https://www.rieti.go.jp/jp/publications/summary/23110010.html)
Since Solow (1957) gained the result from the growth accounting analysis that a seven-eighth of the increased labor productivity in the U.S. in 1909–1949 was the increase in the total factor productivity (TFP) (calculated by deducting the contribution of capital deepening from the growth in labor productivity), many researchers have endeavored to improve production factor input data. The estimated figure of TFP increase is called a measure of economists' ignorance because it is calculated as a residual; the figure has gradually become smaller by taking into consideration the improvement in quality of labor due to dissemination of education, fluctuation of working hours, measurement of capital service input reflecting the difference between capital costs by capital goods, and other factors. These studies have enabled the explanation of economic growth by reference to the accumulation of human capital and the composition of capital goods, rather than the TFP growth which is hard to explain because the larger portion of economic growth is calculated as a residual difference.
What has most contributed to reducing TFP, a measure of economists' ignorance, is the measurement of increasing quality of labor.
The modern growth accounting analysis based on industry-level data uses the method developed by the group of Zvi Griliches and Dale Jorgenson of Harvard University, in which it is considered that the more the working hours of those with high-wage attributes become longer, the more the quality of labor has improved, according to the total working hours and hourly wage (including social security burden on the company) by worker attribute such as gender, age, educational status, position at work, and industry. This suggests that a company pays a high wage to a worker with certain attributes because the company expects the worker with such attributes will make a greater contribution to the company's production.

(2) Demographics

- For population, we used the median figures for the birth/death rate in the "Population Projection for Japan"[37] by the National Institute of Population and Social Security Research (hereinafter "IPSS"): the 2040 **total population** is set to 112,83 million (**annual variation rate of -0.6%**) and **working age population**, 62,13 million (**annual variation rate of -1.0%**). In addition, these figures assume that foreign laborers will continue to increase at the same pace in the future.

[37] See IPSS "Population Projection for Japan" (April 2023).
(https://www.ipss.go.jp/pp-zenkoku/j/zenkoku2023/pp_zenkoku2023.asp)

(3) Labor's share

- In this economic model, the labor's share is deemed as the labor cost in production. The labor's share in 2020 is calculated by industry with reference to RIETI's JIP Database 2023.[38]
- We used the industry-specific labor's share in 2020 as a benchmark and then reflected the occupation-specific labor substitution by AI and robots in each industry, based on the research by Chairman Fukao of RIETI and others about the satisfiability of the labor of AI and robots.[39]

2. Input

(1) Transformation of industrial structure

- We have reflected **the future transformation of industrial structure** in this Report using the 2021 Input-Output table (IO table) as a benchmark, along the lines of the **"Appendix: A future Outlook in 2040(available in Japanese only)" as refined in light of the state of strengthened industrial policies that could be achieved by continuing the New Direction of Economic and Industrial Policies presented in the Third Report**, as well as of **the relevant policies such as the "GX2040 Vision" and the "the 7th Strategic Energy Plan"** enacted in the past year.
- **In response to the changing demand structure by the creation of new values (e.g., green demand), there are industries competing in the global marketplace and those taking on a challenge to improve the quality of life**. Specifically in this Report, we reflected the **establishment of domestic manufacturing bases and the promotion of research and development in the former industries, and the promotion of added value creation, labor saving, and digitalization in the latter ones** mainly for the individual industries selected in the Future Outlook.
- Furthermore, we reflected the demand changes by industry in private consumption[40][41], in light of changes in population composition in Japan associated with low birthrate and aging population[42].

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[38] See RIETI "JIP Database 2023".
(https://www.rieti.go.jp/jp/database/JIP2023/)

[39] To estimate how the rate at which AI and robot technology is replacing human-centered jobs varies across occupations and industries, detailed occupational and industry-specific Automation Risk Index (ARI, Automation Risk Index) developed by Fukao et al. (2025a, RIETI PDP, #25-P-008)) on the ARI were used in this study. They used a survey of AI and robotics experts conducted jointly by RIETI and Nomura Research Institute in the fall of 2024, and jobtag data estimated by the Japan Institute for Labour Policy and Training (JILPT) on the skills and abilities needed by workers in different occupational categories to calculate the ARI for 2040. The ARI by occupation in 2040 was calculated using the jobtag data estimated by the Japan Institute for Labour Policy and Training (JILPT) regarding the skills and abilities of workers needed by each occupation, and then the ARI by industry was calculated by aggregating the labor input data by occupation and industry from the Basic Survey on Wage Structure covering the year 2019 as weights. Since the introduction of AI and robot technology is expected to proceed relatively quickly in large establishments, this point was reflected in the estimates using data on the distribution of establishment size by industry from the Economic Census of Activity Survey covering the year 2020.
Kyoji Fukao, Kenta Ikeuchi, Yoshiaki Hase, Cristiano Perugini, and Fabrizio Pompei (2025a), "Advances in AI and Robot Technology and Employment and Wages in Japan," RIETI Policy Discussion Paper, No. 2
-P-008. (https://www .rieti.go.jp/jp/publications/summary/25040010.html

[40] For estimates of the impact of demographic changes on macroeconomic savings rates, we are grateful to Professor Taku Unayama, Institute of Economic Research, Kyoto University (RIETI Faculty Fellow), for providing us with the data for Taku Unayama and Taro Ohno (2018), "On Trends in the Saving Rate by Household Attributes in Japan: Update and Discussion," RIETI Discussion Paper, 18-J-024, for providing back data and advice on estimation methodology.

[41] For household consumption, see Taku Unayama and Taro Ohno (2017), "Is the Aging of the Population the Cause of the Decline in the Savings Rate?" Economic Research, 68 (3), pp. 222-236. was calculated in conjunction with RIETI with reference to the consumption ratio versus disposable income given by RIETI. Disposable income is the sum of the primary allocation (the sum of property income (net), operating surplus/mixed income, and employer compensation) and the secondary allocation (the sum of cash benefits and current transfers (net), in addition to deductions for taxes, social contributions, etc.), while reflecting the amount of benefits from the pension financing verification for pensions and other payments, Other payment items received were treated as generally growing proportionally to economic growth through 2040.

[42] The estimation of changes in demand structure associated with the aging of society was discussed by Dr. Sagiri Kitao,

(2) Domestic investment

- As for domestic investment, we have realized the positive cycles based on forward guidance. In the New Direction Case, we have inputted the **proposed target of domestic investment of 200 trillion yen and nominal increase rate of 4% per year for FY2040 announced by Keidanren at the 6th Public-Private Partnership Forum on Increasing Domestic Investment[43] held in January 2025**.

(3) Labor participation

- Labor participation rate is cited from the "Labor Supply and Demand Estimates"[44] by the Japan Institute for Labour Policy and Training ("JILPT"). The New Direction Case applies the JILPT's "baseline growth rate / gradual labor participation scenario" and the number of workers of 63.75 million (−0.5% per year) as of 2040. On the other hand, the Base Case applies the JILPT's "per capita zero growth / unchanged labor participation scenario" and the number of workers of 57.68 million (−1.0% per year).
- In Addition, the Cabinet Office's "Economic and Fiscal Projections for Medium to Long Term Analysis"[45] also cites the JILPT's "Labor Supply and Demand Estimates," but the Higher Economic Growth (HG) Case and Transferring to a New Economic Stage (TN) Case are based on the labor participation rate in the JILPT's "economic revival / progressive labor participation scenario." The number of workers in the JILPT's scenario used in the New Direction Case is 3.59 million workers fewer than that used in the Cabinet Office's "Economic and Fiscal Projections for Medium to Long Term Analysis," which is a conservative assumption.
- The per capita working hours in both the New Direction and Base Cases are based on the above scenarios of JILPT (in the "baseline growth rate / gradual labor participation scenario," the working hours of full-time workers decrease as their paid leave utilization rate increases, and the working hours of part-time workers increase, which had been on a declining trend as working patterns become increasingly diversified, while in the "zero growth (per capita) / unchanged labor participation scenario," the figures are stable). We had the per capita working hours of people aged 65 or more reduced based on the age distribution of workers and on the past trend. In consideration of the above, we applied 96

Project Advisor, University of Tokyo Economic Consulting, Inc. and Dr. Daigo Nakata, Senior Research Fellow, Research Institute of Economy, Trade and Industry, Japan, regarding the estimation method. Details are as follows.
Due to changes in the demographic structure, demand for goods and services whose per capita consumption varies significantly by age is expected to fluctuate significantly. However, the macroeconomic model constructed in this analysis does not explicitly incorporate the heterogeneity of individuals within the household sector, especially differences by age, making it difficult to adequately capture changes in the demand structure associated with the aging of society as it is. To reflect these changes in the model, we used consumption data and future population estimates to adjust the expenditure parameters using the following methodology. In consumption surveys such as the Household Income and Expenditure Survey, it is difficult to directly calculate consumption by age group using micro data because expenditures are aggregated on a household basis. In this analysis, we used the results of the National Institute of Population and Social Security Research's (NIPSS) National Transfer Accounts (NTA) project, in which Senior Research Fellow Nakata serves as a member, to estimate age-specific consumption profiles. The NTA estimates the age-specific consumption profiles for each individual expenditure item by using the attribute information of household members. Specifically, estimates of public and private consumption by age are obtained for consumption in the four areas of medical care, long-term care, childcare, and education, which are strongly dependent on age, as well as for other consumption. From this, the total expenditure share of each item as of 2020 is decomposed into per capita expenditure shares by age. Assuming that these per capita shares remain unchanged over time, the future per capita expenditure shares are recalculated based on the Institute for Social and Human Research's population estimates for 2040. The new expenditure share thus obtained is applied to the equilibrium calculation for 2040. The results show that, if the birthrate declines and the population ages, demand for medical and long-term care services, which are mostly spent by the elderly, will increase while demand for childcare and education, which are mainly spent by the young, will decrease, compared to the case where no such adjustment is made.

[43] See Reference Materials, P48.

[44] See JILPT "Labor Supply and Demand Estimates".
(https://www.jil.go.jp/institute/siryo/2024/284.html)

[45] See Cabinet Office "Economic and Fiscal Projections for Medium to Long Term Analysis" (submitted to the Council on Economic and Fiscal Policy as of January 17, 2025).
(https://www5.cao.go.jp/keizai2/keizai-syakai/shisan/r7chuuchouki2.pdf)

billion hours (-0.5% per year) and 86.1 billion hours (-1.1% per year) to the total working hours in the New Direction Case and the Base Case, respectively.

(4) Exogenous factors of total factor productivity (TFP)

- We calculated the values of TFP on the assumption that utilization of AI, etc., would progress more in the New Direction Case than in the Base Case as the results of the qualitative improvement of investment and labor due to their structural changes in respective industries, and of the effect of technological innovation by AI, etc., found in the research by Chairman Fukao of RIETI, in light of the cutting-edge research in economics in the world and of the information on occupations that comprise domestic industries. Specifically, we reflected the **changes of TFP by industry due to replacement of existing labor by generative AI, robots, etc.**, rather than the past performances, as the improvement in the quality of labor and capital associated with the increase in investment in workers who embody technology and in generative AI and robots, along with labor replacement by AI, etc.

(5) Prices

- In the New Direction Case, we set the consumer price index (CPI) to 2.0% (i.e., the price stability target of the Bank of Japan), and endogenously calculated other deflators by industry from within the economic model by using CPI as a benchmark.
- In the Base Case, we set CPI to 0.9% with reference to the Projection of Past Trend (PP) Case in the Cabinet Office's "Economic and Fiscal Projections for Medium to Long Term Analysis."[46]

3. Outlook of macro economy

(1) GDP and per-capita GDP

- In the New Direction Case, the labor input is estimated to decline due to population decline, but if domestic investment expands, the **labor productivity will rise through intensified capital equipment**, and the **GDP growth rate until 2040 will grow by +3.1% in nominal terms (+1.7% in real terms)**. As a result, the nominal GDP in the New Direction Case increases by 1.8 times from 547 trillion yen in FY2021 to 975 trillion yen in FY2040. In the Base Case, because the labor input is less than that in the New Direction Case due to the influence of labor participation rate and the domestic investment stagnates, the GDP growth rate will be +0.5% in nominal terms (+0.1% in real terms). As a result, the nominal GDP in the Base Case increases by 1.1 times from 547 trillion yen in FY2021 to 607 trillion yen in FY2040.

(2) Labor productivity

- The labor productivity is **+3.7% in nominal terms (+2.3% in real terms)** in the New Direction Case, and +1.7% in nominal terms (+1.2% in real terms), in the Base Case.

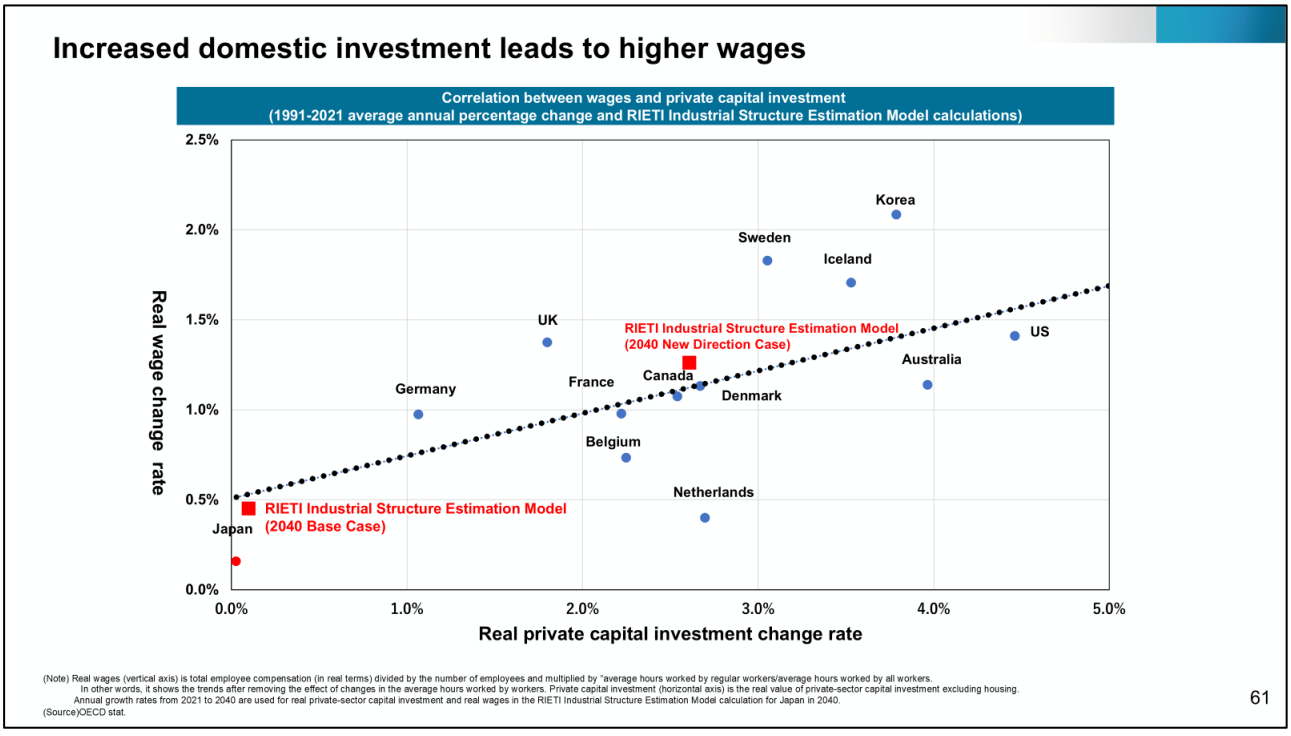
[46] See Cabinet Office "Economic and Fiscal Projections for Medium to Long Term Analysis" (submitted to the Council on Economic and Fiscal Policy as of January 17, 2025).
(https://www5.cao.go.jp/keizai2/keizai-syakai/shisan/r7chuuchouki2.pdf)

(3) Wages

- In the New Direction Case, the **wage growth rate is +3.3% in nominal terms (+1.3% in real terms)**, indicating that the **wage increase**, which has continued for several years, **will continue to exceed the base-pay increase in accordance with the annual wage negotiations between management and labor unions (+5%)[47] until 2040**. As a result, the nominal wage (average hourly wage) will increase by 1.9 times from 2,885 yen/hour in FY2021 to 5,366 yen/hour for FY2040. In the Base Case, the wage growth rate is 1.5% in nominal terms (+0.6% in real terms), and nominal wage (average hourly wage) will increase by 1.3 times from 2,885 yen/hour in FY2021 to 3,800 yen/hour for FY2040.
- In addition, a simplified estimation of "disposable income" (obtained by deducting social security contributions from wages) based on data released by the Cabinet Office and the Ministry of Health, Labor and Welfare (MHLW) shows that the **New Direction Case will see +2.9% to +3.2% in nominal terms (+0.9% to +1.2% in real terms)**, **even with increased social security burden, or +3.0% to +3.3% in nominal terms (+1.0% to +1.3% in real terms)** if efforts to reduce the burden are made. **In the Base Case**, even if efforts to reduce the burden are made, the disposable income remains **+1.2% to 1.3% in nominal terms (+0.3% to 0.4% in real terms)**.

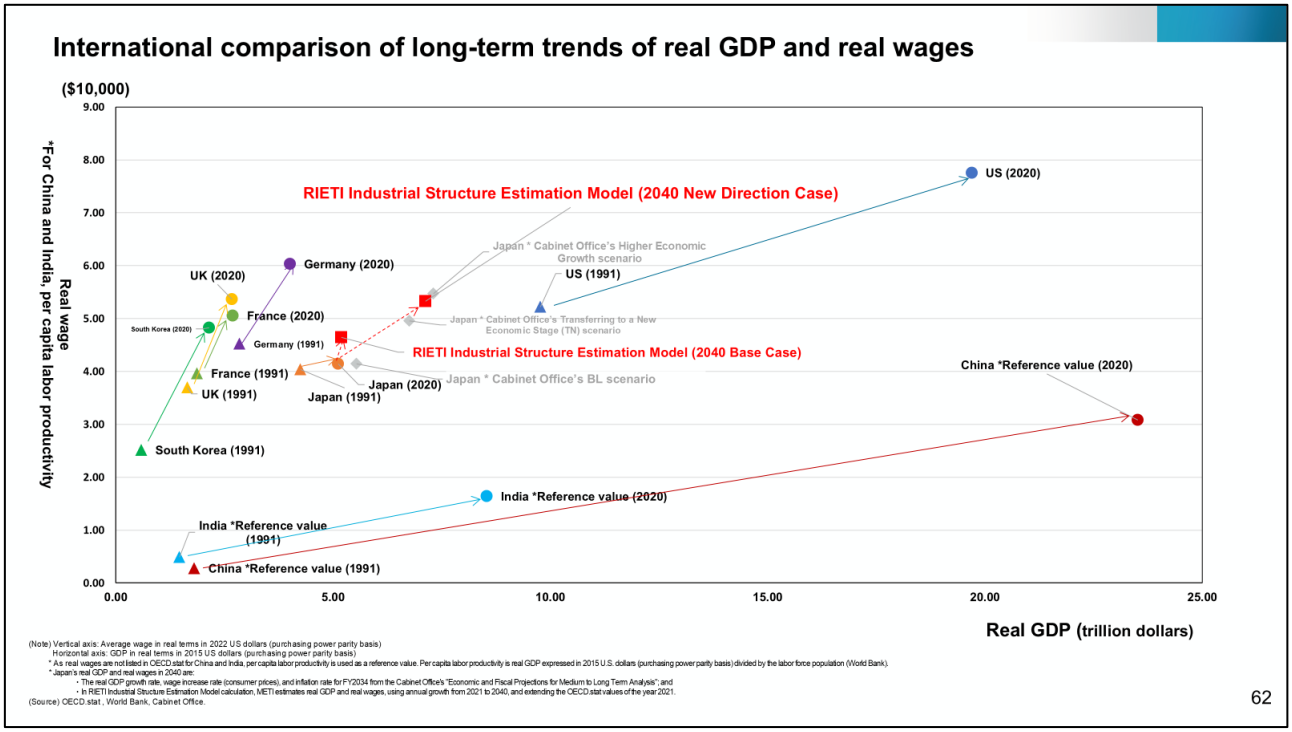
(4) International comparison with other countries

- **Compared with the combination of investment growth and wage hike in other countries** in the past 3 decades, Japan's combination of growth factors of "domestic investment of +4.0% in nominal terms (+2.6% in real terms) and wages of +3.3% in nominal terms (+1.3% in real terms)" is **in the median level** and is not a totally unattainable level.



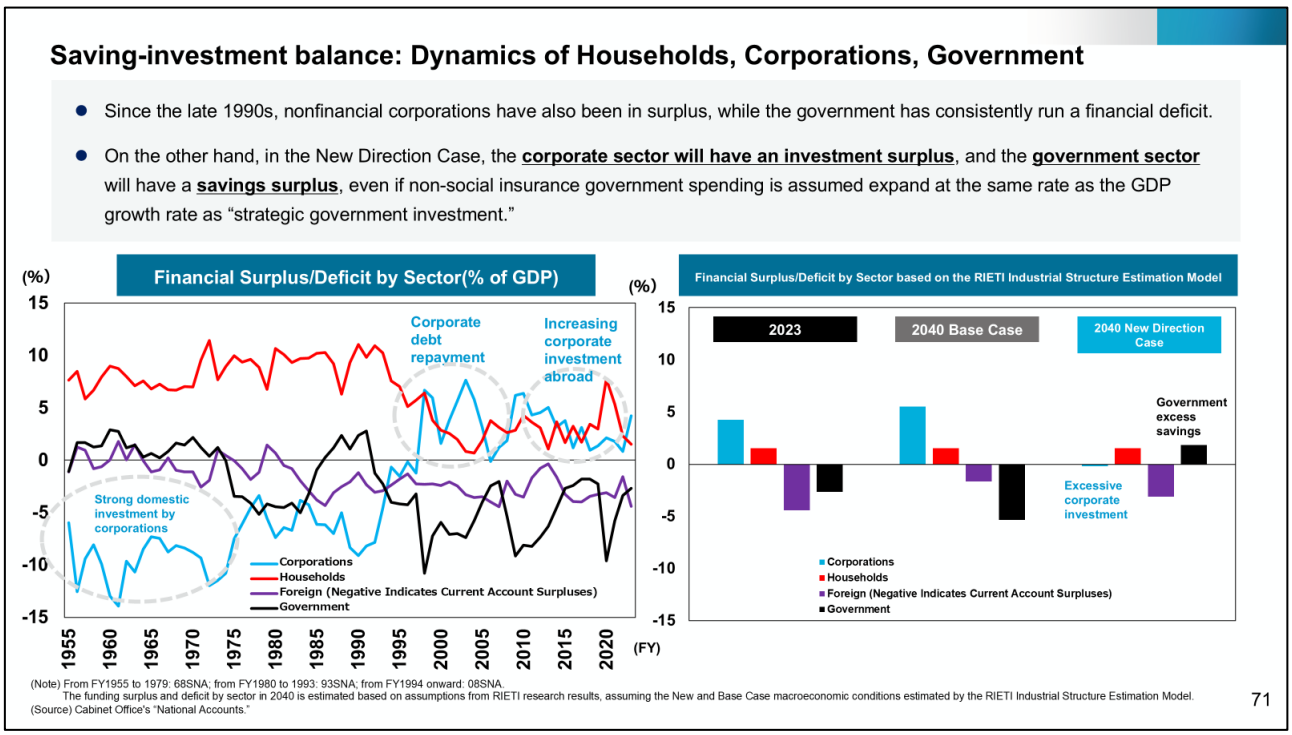
- In 2040, Japan will see "+1.7% real GDP growth and +1.3% real wage hike." When compared internationally with the current purchasing power parity of other nations, this means Japan's GDP will be larger than that of medium-sized nations with populations of less than 100 million, and its **per capita real wages will be similar to those of France and the U.K.** In the Base Case, the per capita real wage will remain lower than the current situation in Korea.

[47] In 2024, the annual wage negotiations between management and labor unions resulted in a base-pay increase of 5.10% for all enterprises (4.45% for SMEs), and according to the Monthly Labour Survey, the total nominal cash wages in 2024 increased by 2.8% over the previous year. For the gap between the numerical value of base-pay increase agreed at the annual wage negotiations between management and labor unions and that of wage growth rate, the regular wage increase and the wage increase for the employees who are not subject to the negotiations could be considered as the factors of such gap, but it is assumed they are to some extent relevant.



(5) Savings-investment (IS) balance

- As for the **"IS balance" (saving-investment by sector: firms, government, households, and foreign countries)**, an important concept for macroeconomic management, the **New Direction Case** shows the **corporate sector will see investment surplus**, while the **government sector will be in financial surplus** even under the assumption that government spending on non-social security insurance will expand at the same rate as GDP growth as "strategic government investment." **In the Base Case, the corporate sector will maintain financial surplus** while the **government sector will keep investment surplus** even with the assumption that non-corporate government spending is estimated to stay unchanged in real terms as seen in the past 3 decades.



4. Industrial structure transformation in the future

(1) High value addition to manufacturing industry (Manufacturing industry X)[48]

- In the Base Case, the manufacturing industry continues to compete on the quantity and quality of goods, as in the past 3 decades, in which labor productivity increases to a certain degree **(+1.6%)** but employment does not increase **(-0.8%)**.
- In the New Direction Case, the manufacturing industry **globally competes** on not only the quantity and quality of goods but also **high-value addition through demand creation**, by the **differentiation through GX and frontier technologies**, **servitization through DX (e.g., DX and maintenance)**, or other means, which result in the **increase in production value (+3.4%) and export value (+3.4%), and also in the wage increase (+3.1%) at around the average for all industries** that amounts to the increase by 1.8 times from 3,003 yen/hour for FY2021 to 5,316 yen/hour for FY2040.
- The increase in production and export values is expected to result in high value addition through the trade of new products/services for new demand, rather than the confines of share expansion based on the existing product classifications.[49] In such trade, conventional trade of goods and trade of services are often integrated in seamless manners,[50] and services that can be recorded as "information and communications" or "professional services" can also be included in the output of the "manufacturing industry." Even for the trade involving particular products, a wide variety of trade types,[51] including

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[48] "Manufacturing industry X" means an image of advanced manufacturing industry that transforms society as with GX (green social transformation) and DX . It signifies that a manufacturing industry transformed in various forms transforms society itself, by introducing innovative technology into the stage of production process or finished products, selling services, not products, promoting innovation in business models such as enhancement of after-sales services including maintenance, or other means, as well as by adding high values to products themselves, and at least signifies that the transformation is not confined to the expansion of business scale while staying with conventional technology or business structure or by improving quality of products/services. Other than the prior discussions outside or within Japan, transformations of different manufacturing industries are discussed under various assumptions in and outside Japan, the common thread of which is a clear view that the manufacturing industry will develop in the future without staying with the conventional structure. Based on such wide-ranging discussions, we decided to use "Manufacturing industry X" as a general term for the development into an agent that can more widely transform society. In addition to the transformation, it should be noted that, for example, issues surrounding manufacturing industry have become diversified such as responses to labor shortage and achievement of economic security.

- An example of early discussions outside Japan: The World Economic Forum has formulated a briefing paper titled "Advanced Manufacturing" in October 2023. This paper discusses advanced manufacturing, with examples, while placing it as contemporary transformation on par with mechanization in the 18th century, mass production in the 19th century, and standardization and automaton in the 20th century, and characterizing it as what will be influential from perspectives from resilience, efficiency, sustainability, humanity, innovation. (https://jp.weforum.org/publications/advanced-manufacturing-a-new-narrative/)

Also, there is a project named Manufacturing-X in Germany. This project is led by the Steering Committee Manufacturing-X of the Plattform Industrie 4.0—an organization that promotes Industrie 4.0 in Germany—to establish the data link infrastructure for the manufacturing industry. Although this Manufacturing-X is similar to Japan's Manufacturing Industry X in their names, it can be said that the former is a discussion confined to the data link infrastructure and thus more limited than the latter that includes a wide range of high value addition. (https://www.plattform-i40.de/IP/Redaktion/EN/Downloads/Publikation/Manufacturing-X_long.html)

- Examples of earlier discussions in Japan: The Manufacturing Industries Bureau, METI, has formulated the Smart Manufacturing Development Guideline in 2024 in cooperation with the New Energy and Industrial Technology Development Organization (hereinafter "NEDO"). The Guideline provides references for optimizing the whole process of manufacturing (manufacturing chain, i.e., respective chains of engineering, supply, production, service) using digital technology, taking into consideration that many enterprises are confused by the diverse points of discussion for DX in manufacturing. (https://www.meti.go.jp/press/2024/06/20240628004/20240628004.html)

[49] It is assumed that business models can be diverse as follows: e.g., the trade of materials produced without CO2 reflecting the recognition that the value of decarbonization deserves high prices; the trade of component materials underpinning the performance of quantum computers reflecting the recognition that their essentiality deserves high prices; the trade involving transport machinery in the form of mobility services, rather than the trade of such machinery itself, based on the value different from the product quantity; or the trade of universal robots based on the value of their AI-based technical functions which are newly accepted as worthwhile.

[50] For example, we assume sales of services providing the way of producing goods, or of services focusing on the value provided by goods.

[51] The global trends that business development progresses beyond the concept of industry have already been pointed out in

trade in services, will become further widespread in the manufacturing industry in the future (by Manufacture Industry X), beyond the framework of existing types of business in which the products are manufactured.

- As can be seen in the **increase in the employment of data processing specialists**, along with almost unchanged employment of production process workers,[52] **occupational composition of employment will change along with the high value addition in the manufacturing industry**, resulting in the **increase in employment for the manufacturing industry as a whole (+0.3%)**.

(2) New demand development of information and communications industry, & professional services.

- In the Base Case, the information and communications industry and the specialized services industry[53] will expand service imports (+4.0%) and improve the labor productivity to a certain extent (+2.0%), but experience the decline in employment (-2.4%), in line with the accelerating trend of the past 3 decades.
- In the New Direction Case, the information and communications industry and the specialized services industry will **create new added value by cultivating new demand through frontier technologies, etc.**, by **adding high values in the manufacturing industry** and by **labor saving, etc., in the service industry, etc.**, in which value added will rise (+3.6%), along with the expansion of production (+3.8%) and exports (+7.0%), as well as the **increase in imports necessary for intermediate inputs** to each industry (+6.2%).
- The specialized services industry will create demand mainly in the field of "other services for businesses"[54] by cultivating new demand and adding new value, and the hardware necessary for creation of added value will create demand for electronic and optical products including semiconductors. As for semiconductors, it is encouraged to expand production and export to globally compete based on hardware as well as servitization through DX. **Information and communication (including content),** professional services**, and semiconductors will expand** (+7.0%) specifically as exports of goods and services.
- Employment **structural changes (e.g., improved quality of information processing technicians**)[55] will send up the **wage level stronger than other industries** (+3.7%), which becomes twice from 3,171 yen/hours for FY2021 to 6,362 yen/hour for FY2040.

(3) Essential services industry (Advanced essential services industry)

- As for the essential services industry[56] in the Base Case, labor-saving and digitalization are insufficient as in the past 3 decades, and amid a labor shortage, **supply will not keep up with demand** due to sluggish labor productivity (+1.7%).[57]

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the past meetings of the Industrial Structure Council (e.g., a report of the Fundamental Issues Subcommittee, New Growth Policy Committee, Industrial Structure Council: "Impact of Knowledge Recombination—Essence of Change in Modern Industrial Structure"), which is a general fact that is gradually emerging in some industries.
However, because the details of such fact have not been confirmed in existing statistics such as national economic accounting, and the analysis of the details of trans-industry trade is not intended in this future outlook, we have decided to present the outlook based on the traditional industrial classification.

[52] See Reference Materials, P82

[53] In the accurate industrial classification of the JIP Database, they correspond to "research," "advertising," "rental of office equipment and goods," and "other services for businesses."

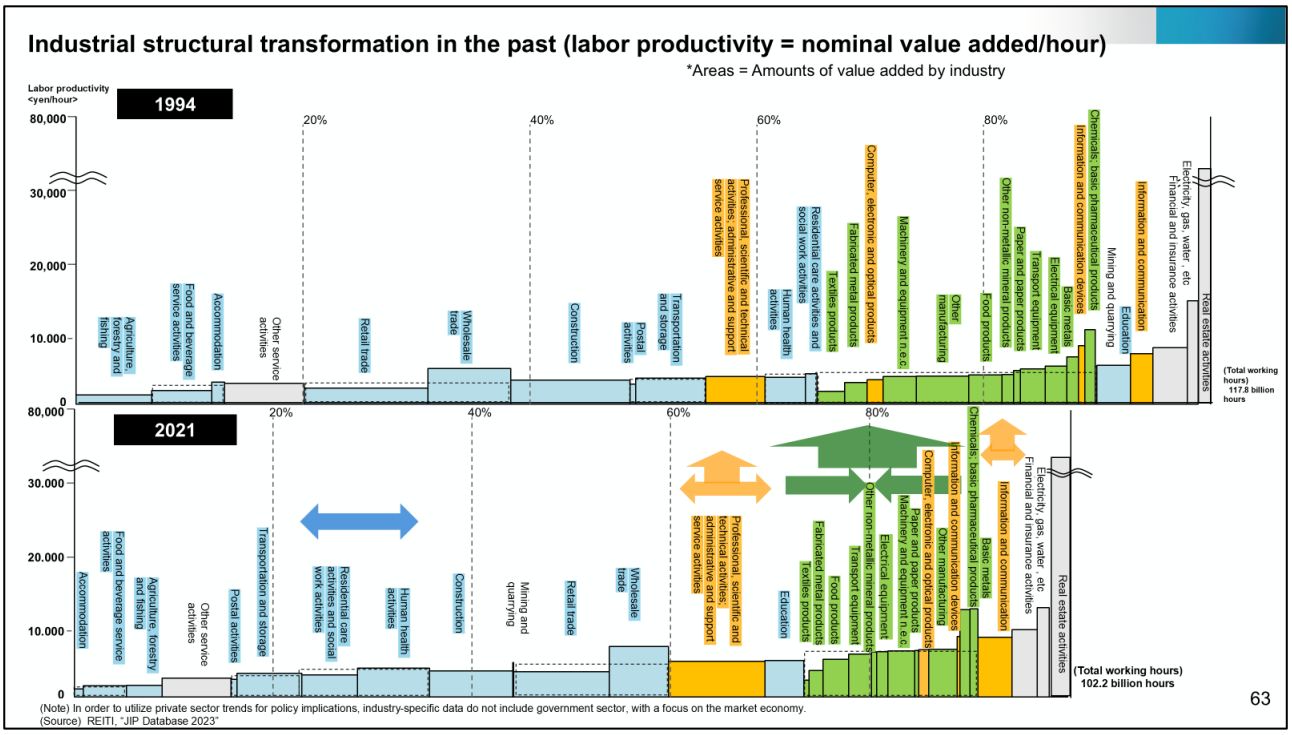
[54] In the statistical changes from 1994 to 2021, the industry with the biggest increase in domestic production was the "other services for businesses" under the "professional, scientific and technical activities; administrative and support service activities." (See Material 3 for the 24th the Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council, p. 47.)

[55] See Reference Materials, P81.

[56] Referring to tourism such as food, beverage and accommodations services, retail/wholesale, human health and residential care activities, transportation and storage, construction, etc.

[57] Taking as an example the residential care activities , MHLW has recently estimated labor shortage of 0.57 million workers for 2040, and the latent demand is 11 trillion yen of added value = 2.72 million employed workers × stable per capita labor productivity (calculated using the value of the labor productivity for 2021 in JIP2023). On the other hand, the Base Case shows 3 billion hours of labor input × 3,139 yen/hour of labor productivity in real terms = 9 trillion yen of added value in real terms. Therefore, it is expected that business activities corresponding to the original latent demand based on public nursing care insurance envisaged at this time will not be realized. On this basis, in the New Direction Case, business

- In the New Opportunity Case, the essential services industry **will be responsible for a major part of the expansion of domestic demand through consumer spending, and labor productivity will increase (+3.6%) due to high value-added by inbound travel and differentiation through the use of unique regional resources and culture, as well as complementary and advanced labor-saving and digitalization[58] measures**. While labor input will decrease (-0.6%), **wages will rise (+3.2%) to catch up with other industries**, increasing 1.8 times from 2,702 yen/hour in FY2021 to 4,918 yen/hour in FY2040. In addition, **exports in the food, beverage and accommodations services will expand as a result of inbound travel and the expansion of service exports with high added value through differentiation, etc. by utilizing the region's unique resources and culture**.
- As for employment, the employment of **information processing technicians, etc.**, is expected to **increase**,[59] which could absorb middle class workers as **advanced essential workers fully capable of using labor-saving and digital technologies**.



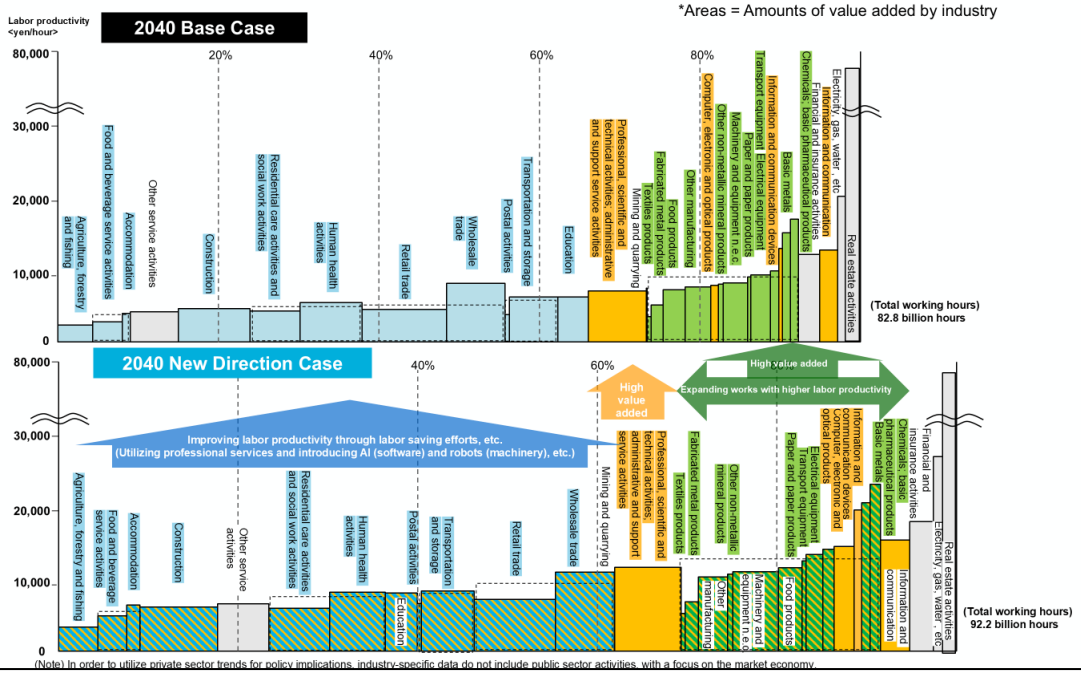
activities will be performed more than latent demand because the decline in labor input will be moderate and result in 4.4 billion hours, and the real labor productivity will increase to 3,938 yen/hour (i.e., 17 trillion yen of real added value). It is considered that these business activities (including services that are not covered by public insurance) are intended to develop new demand.

[58] It is also pointed out that in promoting digitalization, care must be taken not to fall into labor polarization through mere labor substitution. See comments by Commissioner Shuto at the 27th Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council (April 22, 2025). (summarized after the excerpt below) "It is debatable whether a wage increase in advanced essential services through labor saving and productivity improvement alone will lead to a broad wage increase that will contribute to the formation of a middle class. In some aspects, the impact of the introduction of new technologies in the past has brought about labor polarization. How we can proceed, rather than simply strengthening distribution, and how we as an industry can form a sustainable wage level needs to be discussed a little more broadly."

[59] See Reference Materials, P82.

Industrial structural transformation in the future (labor productivity = nominal value added/hour)

*Areas = Amounts of value added by industry



(Note) In order to utilize private sector trends for policy implications, industry-specific data do not include public sector activities, with a focus on the market economy.

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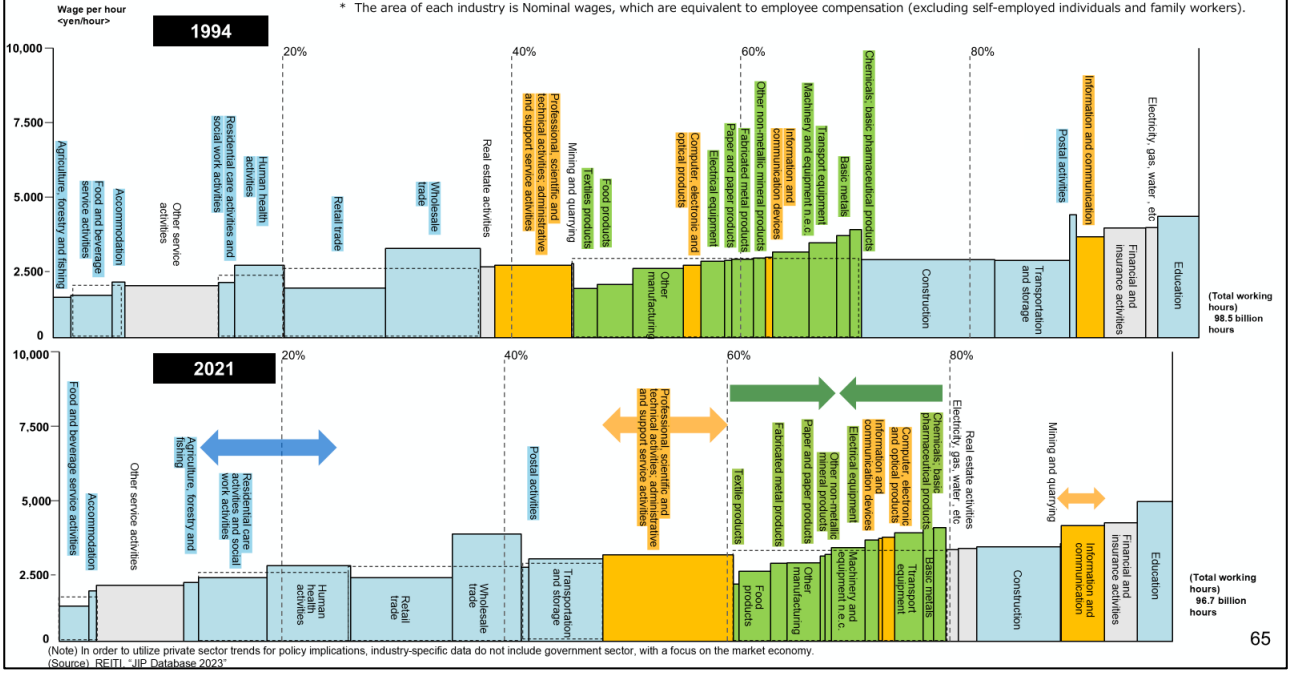
Industrial structural transformation in the past (wage = nominal employee compensations/hour)

* The area of each industry is Nominal wages, which are equivalent to employee compensation (excluding self-employed individuals and family workers).



(Note) In order to utilize private sector trends for policy implications, industry-specific data do not include government sector, with a focus on the market economy.
(Source) REITI, "JIP Database 2023"

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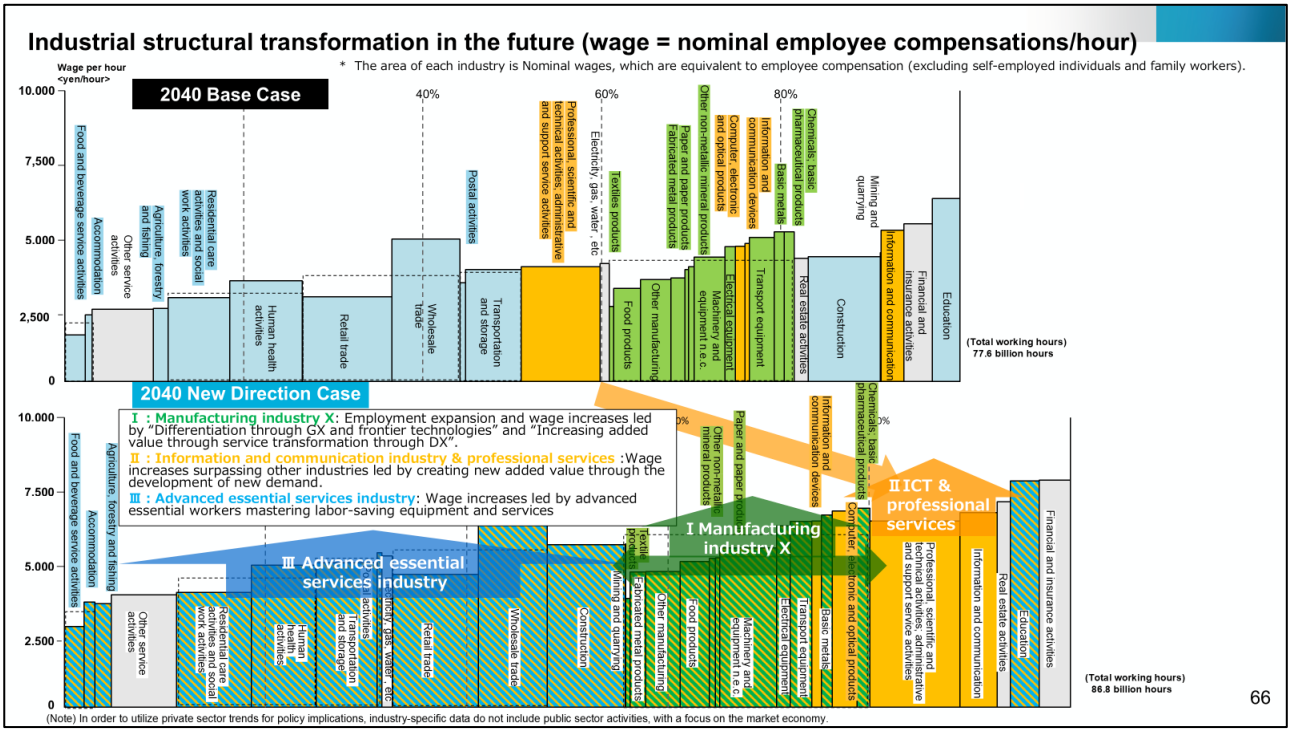
Industrial structural transformation in the future (wage = nominal employee compensations/hour)
Wage per hour <yen/hour>
* The area of each industry is Nominal wages, which are equivalent to employee compensation (excluding self-employed individuals and family workers).
2040 Base Case
2040 New Direction Case
Ⅰ : Manufacturing industry X: Employment expansion and wage increases led by "Differentiation through GX and frontier technologies" and "Increasing added value through service transformation through DX".
Ⅱ : Information and communication industry & professional services :Wage increases surpassing other industries led by creating new added value through the development of new demand.
Ⅲ : Advanced essential services industry: Wage increases led by advanced essential workers mastering labor-saving equipment and services
Ⅲ Advanced essential services industry
Ⅰ Manufacturing industry X
Ⅱ ICT & professional services
(Total working hours) 77.6 billion hours
(Total working hours) 86.8 billion hours
(Note) In order to utilize private sector trends for policy implications, industry-specific data do not include public sector activities, with a focus on the market economy.
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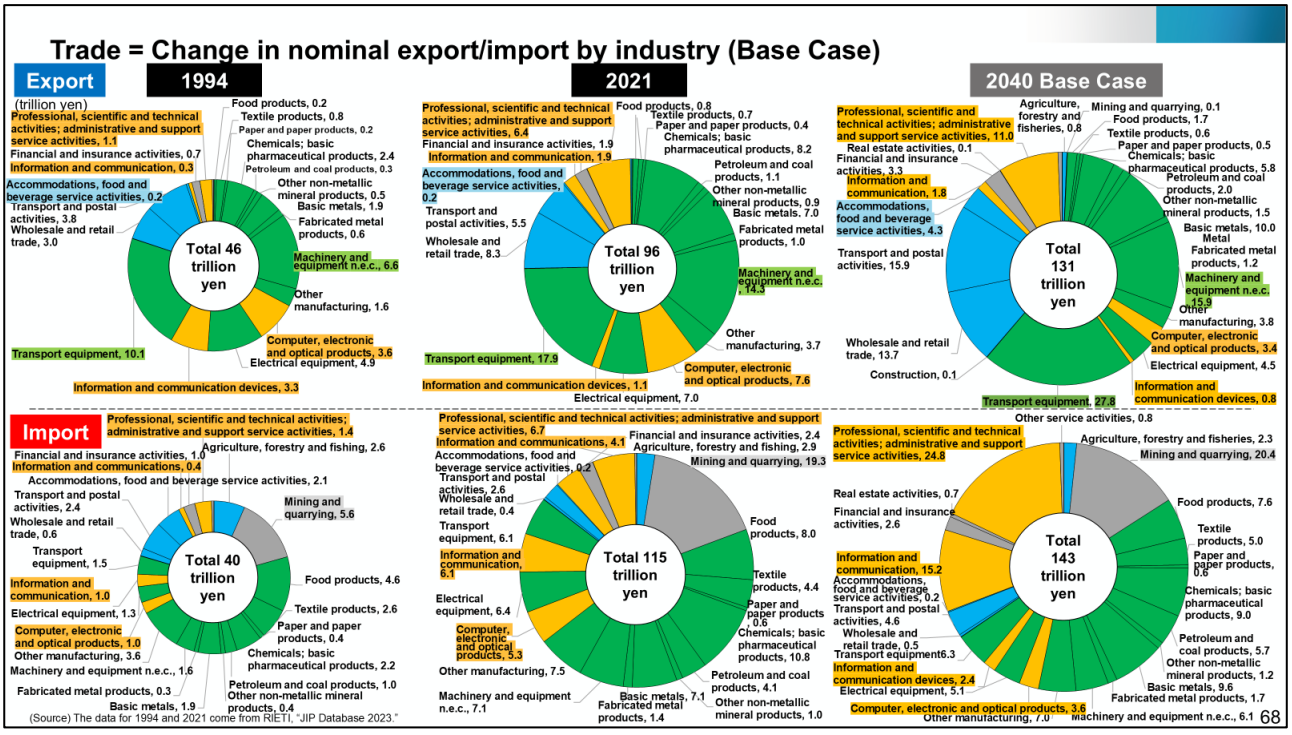
Trade = Change in nominal export/import by industry (Base Case)
Export
1994
2021
2040 Base Case
(trillion yen)
Total 46 trillion yen
Total 96 trillion yen
Total 131 trillion yen
Import
Total 40 trillion yen
Total 115 trillion yen
Total 143 trillion yen
(Source) The data for 1994 and 2021 come from RIETI, "JIP Database 2023."
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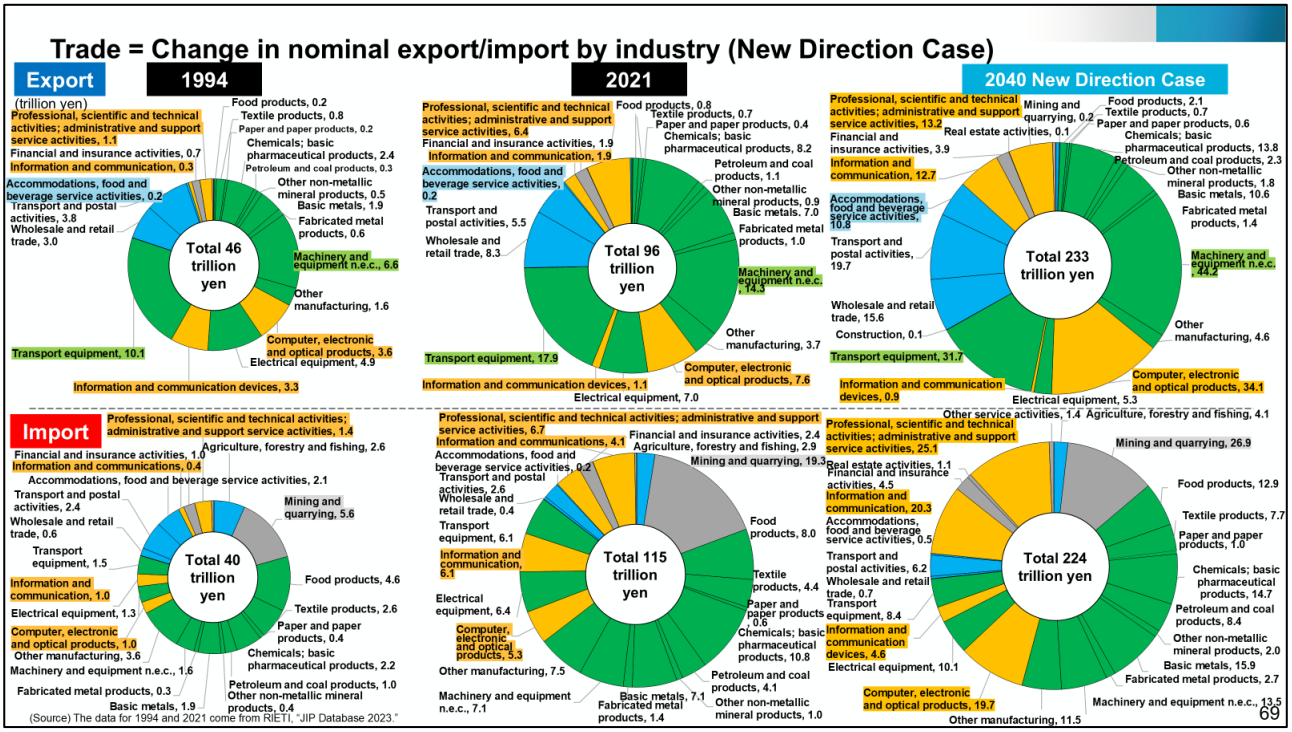

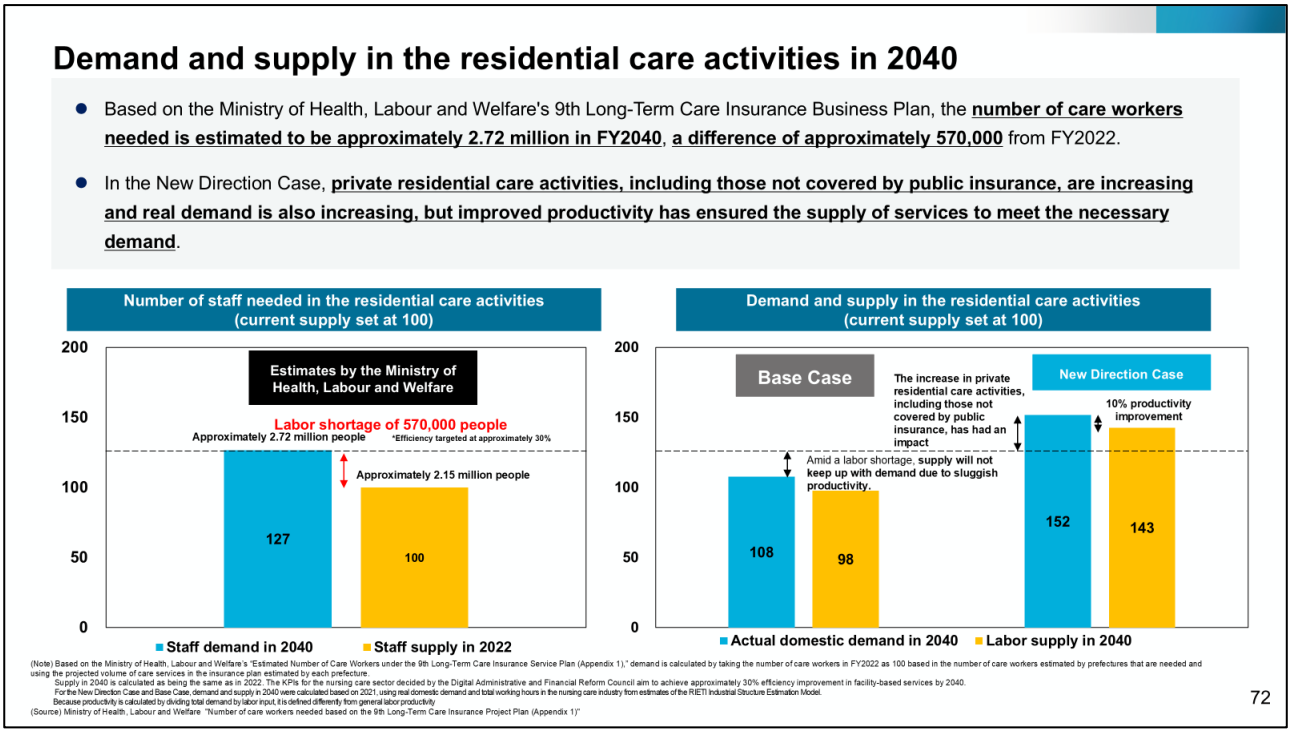

5. Estimation of Employment Structure (Human Resources) 2040 Considering Future Industrial Structural Transformation

(1) Estimation Method for Employment Structure Projections

- In conjunction with the quantification of a future outlook in 2040, we estimated the employment structure necessary to realize the projected industrial structure within that scenario.
- The specific calculation method is as follows
  - Regarding the demand for human resources in 2040, employment figures by industry under New Direction Scenario are disaggregated using the ratios for **industry, occupation, and educational background based on the latest data (2020).** Based on that, we consider the following: **①Changes in job types due to the impact of automation by industry. ②Changes in the educational composition of job types.**

- Regarding the supply of human resources in 2040,ssuming that **the latest trends of employment figures by industry and occupation continue**, we estimate and disaggregate the ratios for industry , occupation ,and educational background for employment figures in 2040.[60]Regarding education, under the assumption that there will be no significant changes in the last school completed, adjust the current ratios (2020) will be adjusted according to age groups while taking into account the rising university enrollment rates.
- In this estimation, based on the aforementioned assumptions, we project the demand and supply of human resources for 2040 and analyze the differences between the two are analyzed as mismatches.

(2) Results of the Employment Structure Projections for 2040 (Overall)

- In the "A Future Outlook in 2040 and New Direction Case," it is projected that while labor supply will decrease due to population decline caused by low birth rates and an aging population, significant shortages will not occur thanks to **the promotion of AI and robotics utilization, as well as improvements in labor quality through reskilling (covering a shortfall of approximately 2 million workers)**. Moving forward, policy responses will be necessary to realize this scenario.
- On the other hand, if the current trends in labor supply continue, **there is a risk of mismatches occurring between different job types and educational backgrounds. This necessitates strategic human resource development and the promotion of smooth labor mobility**.

(3) Mismatch Between Job Types

- With the advancement of generative AI and robotics, there is a possibility of **an excess of approximately 3 million workers in administrative, sales, and service roles**. In many industries, there is a trend toward shortages of researchers and engineers.
- In particular, there is a risk of **a shortage of about 3 million workers across various industries who are responsible for the utilization of AI and robotics.**

(4) Mismatch between educational backgrounds

- There is **a risk of a shortage of over 1 million science and engineering graduates, particularly among researchers and engineers**. Additionally, there is a risk of **a shortage of nearly 1 million high school graduates, particularly in production processes, including those from junior colleges and technical colleges**.
- While demand for administrative positions is decreasing, there is **a possibility of an excess of approximately 300,000 graduates in the humanities**, as their supply is currently on the rise.

[60] Utilization of the 2023 Labor Supply and Demand Estimates (JILPT) Labor Participation Gradual Scenario

Estimation Method for Employment Structure Projections

A Future Outlook in 2040 and New Direction Case

<Assumptions>

- ✓ **Domestic investment :** Aiming for 200 trillion yen in fiscal year 2040 with **a nominal growth rate of +4%** **(as per the public-private target of the Domestic Investment Forum)**
- ✓ Taking into consideration **A future outlook around 2040(qualitative) * , the GX2040 Vision, and the 7th Strategic Energy Plan,**among others
- ✓ Taking into account the impact of the promotion of AI and robotics utilization, as well as improvements in labor quality through reskilling and other measures.

* June 2024, Industrial Structure Council - Committee on New Direction of Economic and Industrial Policies 'Third Report

<Future outlook by industry>

- ○ **Manufacturing industry X**
  - ➢ Differentiate through GX and frontier technologies, and create new demand through service transformation via DX, leading to high value-added employment expansion and wage increases
- ○**Information and communication industry・Professional services industry**
  - ➢ Create new added value by developing new demand, resulting in wage increases that surpass other industries.
- ○ **Advanced essential Service**
  - ➢ Utilize labor-saving equipment and services effectively to achieve wage increases

the Estimation of the Employment Structure in 2040 ⇩ Using the output (industrial structure) under the New Direction Case.

<Human Resource Demand>

✓ Employment figures by industry under New Direction Scenario are disaggregated using the ratios for **industry , occupation ,and educational background based on the latest data (2020).**

✓ Based on that, we consider the following:

1. Changes in job types due to the impact of automation by industry.

2. Changes in the educational composition of job types.

⇔ **Analyze the differences between the two are analyzed as a mismatches.**

<Human Resource Supply>

✓ Assuming that **the latest trends of employment figures by industry and occupation continue**, we estimate and disaggregate the ratios for industry , occupation ,and educational background for employment figures in 2040. *

※Regarding education, under the assumption that there will be no significant changes in the last school completed, adjust the current ratios (2020) will be adjusted according to age groups while taking into account the rising university enrollment rates。

*Utilization of the 2023 Labor Supply and Demand Estimates (JILPT) Labor Participation Gradual Scenario

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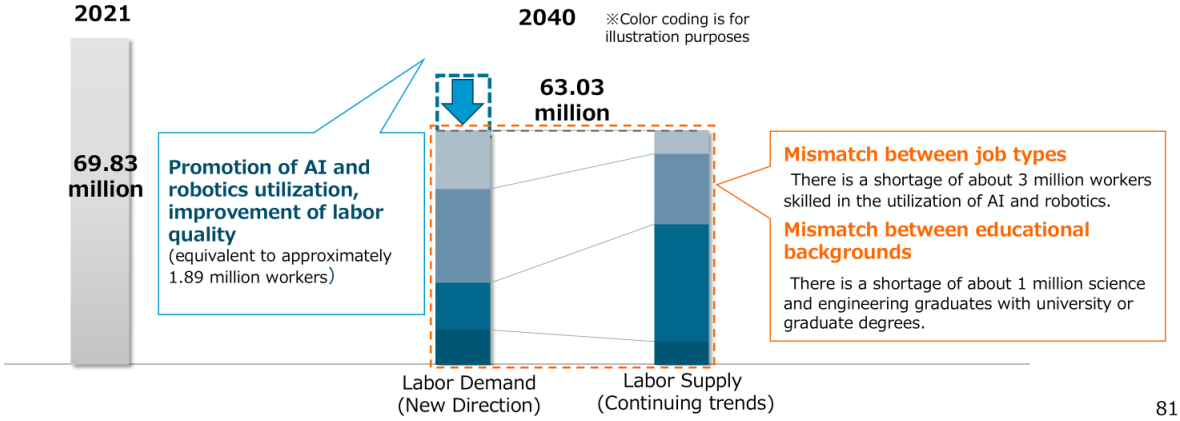
the Estimation of the Employment Structure in 2040

- In the "A Future Outlook in 2040 and New Direction Case," it is projected that while labor supply will decrease due to population decline caused by low birth rates and an aging population, significant shortages will not occur thanks to **the promotion of AI and robotics utilization, as well as improvements in labor quality through reskilling (covering a shortfall of approximately 2 million workers)**. Moving forward, policy responses will be necessary to realize this scenario.
- On the other hand, if the current trends in labor supply continue, **there is a risk of mismatches occurring between different job types and educational backgrounds**. **This necessitates strategic human resource development and the promotion of smooth labor mobility**.



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Mismatch Between Job Types

- With the advancement of generative AI and robotics, there is a possibility of **an excess of approximately 3 million workers in administrative, sales, and service roles**. In many industries, there is a trend toward shortages of researchers and engineers.
- In particular, there is a risk of **a shortage of about 3 million workers across various industries who are responsible for the utilization of AI and robotics**.

		Administrative and managerial workers	Professional and engineering workers (Personnel responsible for the utilization of AI and robotics)	Administration officer	Sales workers	Service workers	Manufacturing process workers	Transport and machine operation workers	Carrying, cleaning, packaging and related workers, etc.
All Industries	**Labor Demand in 2040** (Labor supply in 2040, assuming current trends continue)	124 (175)	1387 (1338)	498 (172)	1166 (1380)	735 (786)	714 (724)	865 (583)	193 (169)	415 (269)
	Mismatch with Supply *Current Employment Figures as of 2021	**51** *143*	**-49** *1281*	**-326** *196*	**214** *1420*	**51** *834*	**10** *880*	**-281** *885*	**-24** *244*	**-146** *516*
Breakdown of Labor Demand by Major Industries in 2040	Manufacturing	24	206	130	196	52	0.7	642	10	52
	Information and communications	3.9	131	46	43	14	0.3	3.9	0.2	0.8
	Wholesale and retail trade	25	58	28	186	489	5.8	102	4.3	106
	Construction	19	42	13	84	23	0.6	38	14	5.7
	Accommodations	1.8	6.9	5.6	4.9	3.9	86	1.0	0.3	6.5
	Eating and drinking services	2.6	2.8	1.0	7.4	8.7	172	1.9	0.5	12
	Transport and postal activities	5.8	21	18	68	5.8	2.9	6.4	128	81
	Medical, health care and welfare	5.5	450	94	107	1.6	255	6.5	10	14

(Note) The industry classifications are based on the Japan Standard Industrial Classification, and the occupational classifications are based on the Japan Standard Occupational Classification. Additionally, there are occupational classifications not included in the table, so the total mismatch does not equal zero. Only the major classifications of industries and occupations are listed.

(Unit: Ten Thousands) 82

Mismatch between educational backgrounds

- There is a risk of **a shortage of over 1 million science and engineering graduates, particularly among researchers and engineers**. Additionally, there is a risk of **a shortage of nearly 1 million high school graduates, particularly in production processes, including those from junior colleges and technical colleges**.
- While demand for administrative positions is decreasing, there is **a possibility of an excess of approximately 300,000 graduates in the humanities**, as their supply is currently on the rise.

		High School Graduates	Junior College / Technical College Graduates	University Graduates (Science and Engineering)	Graduate School Graduates (Science and Engineering)	University Graduates (Humanities)	Graduate School Graduates (Humanities)
All Industries	**Labor Demand in 2040** (Labor Supply in 2040, assuming current trends are extended)	2112 (2075)	1212 (1160)	685 (625)	227 (181)	1545 (1573)	83 (90)
	Mismatch with Supply *Current Employment Figures as of 2021	**-37** *2735*	**-52** *1240*	**-60** *563*	**-47** *154*	**28** *1332*	**7** *70*
Breakdown of Labor Demand by Major Industries in 2040	Administrative and managerial workers	27	13	23	4.0	50	1.6
	Professional and engineering workers	190	311	210	151	438	57
	Personnel responsible for the utilization of AI and robotics	94	52	78	87	155	27
	Administration officer	295	251	157	31	397	12
	Sales workers	214	122	76	7.5	271	3.9
	Service workers	277	196	39	2.0	119	1.7
	Manufacturing process workers	442	147	82	23	107	3.8
	Transport and machine operation workers	110	21	8.2	1.1	28	0.3
	Carrying, cleaning, packaging and related workers, etc.	214	60	17	1.2	56	0.6

(Note) The occupational classifications are based on the Japan Standard Occupational Classification, and the educational classifications are based on the categories from the 2020 National Census. There are educational classifications (Others) not included in the classification table, so the total mismatch does not equal zero. Only the major classifications of occupations are listed.

(Unit: Ten Thousands) 83

6. Regions

- We have advanced the development of respective economic models for Tokyo and other areas, based on the quantification of “A Future Outlook in 2040.” We are at work on the economic model in the joint research with RIETI, which is planned to be published.

III. Issues to be focused based on the quantification of "A Future Outlook in 2040" and on the recent economic environment

1. Policy implications based on quantification and current economic conditions

- **Japanese economy can grow even with declining population, if Japan can transform a "growth-oriented economy driven by investment and wage hike,"** where the domestic economy will not shrink as well as the foreign demand will be gained.
- The world is getting more uncertain. For example, the current **US tariff policy will possibly bring about structural changes in Japan and the world economy, as well as in the international order**. It is uncertain whether each industry will grow steadily in line with the future outlook estimated in this report. Therefore, it is essential **to keep reacting flexibly to possible changes in the global situation in the future**.
- On the other hand, **in the medium to long term, there is no way to change the importance of shifting to a high value added economic and industrial structure. Some have pointed out that from the perspective of improving terms of trade, it is once again necessary for Japan to create a comparative advantage[61].** In other words, it is essential in any situation to **drive expansion of domestic demand through domestic investment and wage hike**, and to **provide irreplaceable goods and services with high value-added to the world** even in an unstable international economic environment, as a medium-sized nation that needs to import resources, food, and other goods essential for economic and social activities.
- To actualize this in the highly uncertainty conditions, **the government should not go back to the neo-liberal approach as seen in the past 3 decades**, but rather, **should continue intensifying the economic and industrial policy of the "New Direction" in vigilant new direction of economic and industrial policies ,** if necessary including large-scale, long-term, and systematic fiscal policies under consideration of financial resources for stable policy actions or framework for flexible spending, **by mobilizing all kinds of policy options such as subsidies, tax incentives, regulations and standardization et al.**
- In light of these analysis on the past, current, and future socioeconomic situations, **what we need now is growth investment to gain higher value added**. We The nation should increase the predictability of the private companies by aligning the eyes of the public and private sectors while having a dialogue between the government and the private sector ,and remove actual obstacles toward domestic investment and wage hike one by one from both the tangible and intangible aspects. To this end, METI will address the following [1] through [3].
  - **[1] Structural reforms to encourage growth investment that will generate new value added**
  - **[2] Local economies/industries capable of sustainable growth even under higher prices and labor shortages**

Enhancing economic infrastructure (energy, trade, etc.) to actualize growth investment

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[61] See remarks by Chairperson Ito at the Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council (April 22, 2025).
(Summarized with excerpts below)
"The key word in high value-adding is terms of trade. During the period from Japan's high economic growth to the bursting of the bubble economy, Japan's terms of trade were improving all the time. In the early stage, there was a discussion about how to develop heavy and chemical industries such as the steel industry, and later there was a discussion about upgrading the industrial structure, which was probably controversial on both sides. Some argued that there was no point in working hard on something that had no comparative advantage, but in response, MITI at the time argued that comparative advantage should be created, meaning that expansion should not be based on volume, but that added value and terms of trade, not increasing the production volume, would be extremely significant. I believe that the same argument is being made here as it was then. In addition, I think it is important to envision how terms of trade and added value will grow in the future, taking into account technological progress. I would like to emphasize that the issue of where to invest is once again becoming important, and that it is not enough to just increase the volume of investment in the dark."

2. Policy direction [1] - Structural reforms to encourage growth investment that will generate new value added -

- We will address the following (1) to (4) to add high values through public-private investment in highly strategic sectors and cross-sectoral structural reforms.

(1) Encouraging high-value-added growth investment

- To create a new social framework that will encourage **companies** to actualize growth investment and policy system, with their **main business focus placed on next-generation investment** that will contribute to high value addition, the following main measures will be implemented.
  - Continue and strengthen investment under public-private partnership in strategic areas, such as GX, DX, economic security, health, biomanufacturing, and contents sectors.
  - Proceed with the review for the improvement of the environment to attract growth investment in Japan, by taking policy actions, including corporate tax incentives, to encourage R&D and capital investment towards growth investment-oriented structures.
  - Towards the amendment of the Companies Act, proceed with the consideration of the promotion of stock-based human investment and M&A, the conclusion of contracts for limitation of liability of executive directors and executive officers, the information disclosure of real shareholders, the realization of virtual-only shareholders' meeting, the revision of requirements for shareholder proposal rights, the streamlining and rationalization of shareholders' meeting, etc., in order to create a business environment that encourages risk-bearing business decisions.
  - Make efforts such as to enhance the funding ecosystem utilizing public-private investment funds, etc., including Japan Investment Corporation ("JIC"), revitalize the bond market, and enhance the disclosure of human capital investments, in order to create an environment where appropriate risk capital is supplied to companies that intend to make growth investment.
  - Consider the development of taxation system related to organizational restructuring, an evolution of competition policies, etc., in order to promote restructuring of their business portfolio.

(2) Creating higher value-added industrial structure, through digitalization and servitization

- To create a business environment encouraging companies to **compete with the world in terms of quantity, as well as high value addition**, through digitalization and servitization, including **the promotion of Manufacturing industry X**, the following main measures will be implemented.
  - Promote industrial policies for AI/data towards the creation of top players, as well as seek to create basic infrastructures for semiconductors, computing resources, etc., through advanced execution, etc., of the Framework for Strengthening the AI and Semiconductor Industrial Infrastructure, in order to promote the industry-wide digitalization to eventually strengthen international competitiveness.
  - Promote the further expansion of use cases through the Ouranos Ecosystem, the development of social infrastructures such as digital lifelines, and the consideration of industrial property rights suitable for the AI/DX era, in order to promote the promoting of data distribution/utilization compatible with the protection of industry interests.
  - Make efforts such as the promotion of Secure by Design in light of international collaboration, the strengthening of security measures throughout the whole of supply chain in consideration of ensuring effectiveness by making them a requirement for government procurement, etc., and the facilitation of promotion and R&D of cyber security industry, in order to ensure cyber security essential for promoting DX.
  - Make efforts such as the creation of domestic and overseas hubs/opportunities to disseminate information, the enhancement of human resources, technology, and industrial infrastructure, the establishment of systems for international cooperation and regulatory response, including inter-state ones, and the establishment of the system of support from overseas bases, all in accordance with the Strategy for Entertainment and Creative Industries, in order to enhance the global competitiveness of the contents industry that is expected to grow in the future.

(3) Establishing new ecosystem for generating innovations persistently

- To create an appropriate social system to enhance **R&D, which supports differentiation through frontier technologies, etc.**, to the world's highest level once again, the following main measures will be implemented.
  - Attract domestic and international private investment by mobilizing all relevant policies such as those for formation of rules for human resources, R&D, base creation, startup, standardization, etc., and providing start-to-finish support, while identifying strategic technological areas and using the quantum industry policy as a model, in order to accelerate social implementation of technology that is strategically important for Japan and expected to support industries in the future.
  - Work to establish a start-to-finish system for standardization from strategy formulation to standards development/utilization, formulate standardization strategy roadmaps for various fields, and realize continuous development/negotiation of standards under a full-fledged system, as well as strengthen domestic certification authorities, such as by enhancing the authentication infrastructure for global responses, in order for Japan to stand at the forefront of promoting strategic standardization in sectors with high uncertainty, etc. amid an intensifying global race to capture markets.
  - Consider how university accounting should be flexible to enable the management of "growing universities" that can compete in the world, as well as promote dialogue between industries, and universities, national research institutes, etc., expansion of industry-academia-government collaboration and formation of its base, and promote collaboration between Japanese universities and Japanese or overseas companies, in order to revitalize Japan's capacity in basic science.
  - Strengthen the "Startup Development Five-year Plan," and make efforts such as the strengthening of their connection with the global ecosystem, the support for startups from their creation to commercialization, the promotion of public/private procurement towards demand creation, and the diversification of the exit/growth path such as the promotion of M&A, or offering of incentives after listing in order to create startups that play important roles for innovation and serve as drivers of economic growth.
  - Proceed with the promotion of strengthened global connection in R&D, the improvement of the environment for companies to take a risk to start growth investments such as R&D/human investments, and other measures, in order to improve the appeal of Japan as an innovation base and accelerate investment in R&D/innovation in Japan.
  - Promote policies on intellectual property rights in response to the changes of the times such as digitalization/AI, while enhancing support depending on business phases so that companies or universities can formulate/implement open and closed strategies based on IP analysis or other means.

(4) Restructuring human resources system in response to industrial structural transformation

- To **encourage investment in human resources with main focus put on next generations** and eliminate mismatch **by sharing possible future demand for human resources between the public and private sectors** under structural workforce shortages, the following main measures will be implemented.
  - Clarify future demand for human resources in all industries based on the Estimation of Employment Structure and strengthen the development of human resources, including formulation of the Industrial Human Resources Development Plan, in cooperation with related government agencies based on such analytical findings, in order to eliminate mismatch in labor supply and demand in anticipation of future decline in population and transformation of industrial structure.
  - Facilitate reskilling support and job-focused employment and grasp and inspect the situation in the government based on the passage of five years since the enforcement of the laws related to the reform of work styles, in order to promote labor market reforms, including facilitating labor mobility to growing sectors.
  - Consider policies to support funding and staffing by industry to educational institutions or other organizations, while working to promote the acquisition of doctoral degrees by corporate researchers through joint research projects with universities or other institutions and the extensive development of best practices in industry-academia partnerships at the primary and secondary levels of education, in order to foster top/specialized human resources required by industry.

- Consider specific measures such as the strengthening of collaboration with overseas universities (including endowed courses) and the revision of relevant systems and promote the improvement of the environment and other measures for that purpose, in order to recruit top-class human resources.

3. Policy direction [2] - Local economies/industries capable of sustainable growth even under higher prices and labor shortages -

- To unleash potentials of local economies that will serve as a catalyst for Japan's economic growth, the following measures (1) through (4) will be implemented.

(1) Drastically beefing up growth potentials of medium-sized firms/SMEs that will drive the local economy

- To realize improved productivity and wage hike of **leading** medium-sized firms/SMEs **that play important roles for growth of local economies**, the following main measures will be implemented.
  - Make efforts such as the law enforcement in accordance with the Amended Subcontract Act and the Amended Act on the Promotion of Subcontracting SMEs, the enhancement of the effectiveness of the Partnership Building Declaration, and appropriate business practices of government procurement, in order to realize appropriate business practices throughout the supply chain, aiming to secure necessary cashflow for wage hike.
  - Promote the formulation of industry-specific labor-saving plans, effective execution of subsidies, accompaniment support by expert advisors to improve productivity, while supporting high value addition, entry into new lines of business, and innovation creation by SMEs, in order to promote not only worker replacement but also SMEs' fundamental productivity improvement and labor-saving, amid a serious labor shortage.
  - Proceed with efforts to foster region's digital skills development, enhance the DX Acceleration Local Labs, promote matching between SMEs and support organizations using the Mirasapo Connect, upgrade monitoring, and promote DX in support organizations, in order to promote DX in SMEs, support organizations, regional financial institutions, etc.
  - Strengthen support for growth investment to promote growth of SMEs that will drive regional growth and wage hike. At the same time, accelerate development of soft infrastructures to build a mechanism to enable autonomous emergence of growing companies. Select intensive support recipient companies with high spillover effects to local economy and build support systems in each local community, while continuing to work to establish the framework for the integrated implementation of the following measures by the Organization for Small & Medium Enterprises and Regional Innovation, JAPAN (SME Support JAPAN): the accompaniment support, the Support for R&D and capital investment, the promotion of overseas expansion and utilization of high-level foreign human resources, the development of financial infrastructure, and the improvement of the environment essential for sustainable growth and support thereto. Promote improvement and strengthening of support SMEs and small businesses in light of desirable functions and roles of regional support organizations, in order to effectively support SMEs and small businesses that underpin inclusive regional growth.
  - Promote efforts such as the rolling-out of human capital management, the promotion of the "Regional HR" model, the matching of side/multiple jobs, the further promotion of the Guidelines on Human Resources Utilization, the support for formulation and implementation of corporate human resources strategies through accompaniment support by support organizations such as the Yorozu Support Centers, and the promotion of women's health, in order to establish the functions of management and human resources development allowing local SMEs to stably acquire human resources.
  - Promote M&A and business succession to enhance management capabilities through the change or rejuvenation of management.
  - Encourage well-disciplined operations of SMEs, while accelerating revitalization of industries such as through the steady promotion of the "revitalization/re-challenge support facilitation package," in order to promote appropriate replacement of industries.
  - Implement measures such as the promotion of the accompaniment support towards the acquisition or utilization of industrial property rights or other rights, in order to realize that leading medium enterprises and SMEs earn money from intellectual properties.
  - Support the establishment of a system for export support businesses by the private sector, while promoting the recruitment of high-level foreign human resources in the Consortium consisting of interested parties in respective regions, in order to promote

overseas expansion of leading medium enterprises and SMEs to activate local economy.

(2) Creating local economic zones that will remain sustainable even under structural labor shortages

- To maintain and foster the **supply of essential services in local communities, even with decreased population**, through the improvement in productivity by **making advanced essential services a feasible business operation**, the following main measures will be implemented.
  - Promote the formulation of industry-specific labor-saving plans, the effective execution of subsidies, the advisory project to support productivity improvement, etc., in order to promote SMEs' fundamental productivity improvement and labor-saving amid a serious labor shortage. [Republished]
  - Amid the difficulty of supplying the services (e.g., retail and nursing care) that support the local livelihood, consider the support for new mutual aid-type business entities (i.e., local cooperative platforms), mainly composed of cooperatives, resident-invested companies, or other organizations, that aim to improve productivity such as by labor-saving, digitization, and collaboration, and maintain and develop supply of services so that they can secure profits to the extent that they do not fall into a chronic deficit structure.
  - Proceed with updating the policies for small businesses (local-zebra companies) such as the improvement/enhancement of measures to promote autonomous management and disaster prevention of small businesses, and the building of a mechanism for creating an ecosystem for local-zebra companies (e.g., collaboration with companies outside the region), in order to promote inclusive regional growth.

(3) Promotion of industrial locations at local communities

- To **eliminate constraints on industrial sites or infrastructure that could serve as bottlenecks for attracting investment**, amid the increase in Japan's attractiveness as an industrial location against the backdrop of geopolitical risks, etc., the following main measures will be implemented.
  - Provide the support for the acquisition of industrial lands in view of advancement of GX and DX and the necessary infrastructure development, such as the matching of industrial sites, the expediting of land use adjustment procedures, the effective land use based on the considerations regarding the inspection/amendment of the Soil Contamination Countermeasures Act, and the strengthening of support for industrial site development carried out by local governments themselves or through public-private partnerships, in order to deal with the lack of comprehensive industrial sites and infrastructure. Also, support the efforts to provide stable supply of industrial water.
  - Promote comprehensive measures to facilitate the decentralization and strengthening of base functions, including the mobility of human resources, from the perspective of promoting the establishment of functions (e.g., corporate headquarters or R&D functions) that add high value to the local economy as the foundations for long-term growth.
  - Relevant ministries and agencies will build a cooperative framework to consider the direction of fostering industrial human resources on a regional basis, in order to develop regional higher education systems tailored to the industrial structure of each region.
  - Strategically attract promising foreign companies such as by approaching them with a proposal to operate their business in Japan, in order to promote inward direct investment in strategic areas (e.g., GX or DX) in which mid- to long-term growth is expected.

(4) Promotion of innovation at local communities

- To **realize high value-added local economies** by promoting the creation of innovation in each region, the following main measures will be implemented.
  - Make efforts such as improving an environment to foster startups as regional innovation players through promotion of capital procurement for startups by municipalities, supporting the creation of innovation hubs by local universities and national research

and development agencies, constructing local models utilizing content, and local stories and products, and establishing regional centers designed to foster top-level IT human resources, in order to realize the “Regional Innovation Creation Plan” that aims to create regional innovations.

- Aim to improve sales and upgrade management of leading medium enterprises and SMEs through the acquisition and utilization of intellectual properties, including industrial property rights, and make efforts such as the formation of local IP ecosystems
- Revise the “Blueprint for Industrial Development based on the Fukushima Innovation Coast Framework” around this summer to present nationwide reference visual images of reconstruction efforts in Fukushima, enhanced by the Regional Revitalization 2.0.

4. Policy direction [3] - Enhancing economic infrastructure to actualize growth investment -

- We will work on the following (1) through (3) to address risks at home and abroad and enhance highly competitive locations that will make Japan an attractive investment destination of choice in the world.

(1) Steadily actualizing the GX2040 Vision and the 7th Strategic Energy Plan

- To **accelerate efforts to simultaneously achieve stable energy supply, economic growth, and decarbonization**, in accord with the GX2040 Vision and the 7th Strategic Energy Plan, the following main measures will be implemented.
  - In order to further accelerate efforts for GX, the government will promote the effective utilization of the GX Economy Transition Bonds and the full operation of the emissions trading system, while reviewing the GX League to make it a framework that will encourage GX in the industries that, although not being covered by the system, their emission reduction efforts through their entire supply chains will contribute to GX.
  - Efficiently and effectively promote the “development of new industrial sites” and “development of decarbonized power sources,” based on the uneven regional distribution of clean energy such as decarbonized power sources. Consider incentive measures to encourage companies engaged in DX utilizing digital technology (e.g., AI/robots) to use decarbonized power, while promoting the development of data centers essential for the purpose thereof by organizing issues of electric power and telecommunications.
  - While promoting the creation of a GX market including visualization of GX value, promote the building of an efficient system for the collection and sorting through demonstration and other means, and the necessary institutional reforms, while supporting capital investment and other activities to ensure stably supplied recycled materials and strengthen the competitiveness of domestic recycling and manufacturing industries for the transition to the circular economy.
  - In order to promote intensified energy-saving practices, non-fossil fuel conversion, and demand response (hereinafter “DR”), the government will make efforts for the following support and regulations in an integrated manner: [1] strengthening of capital investment for energy-saving and of diagnosis support, establishment of local energy-saving support systems in cooperation with financial institutions or other entities, the system promoting the improvement of efficiency of data centers; [2] support for electrification or non-fossil fuel conversion, or a system for reporting the possibility of introducing a solar power generation system to factories or other facilities; and [3] introduction of safety-assured battery storage or promotion of DRready for equipment.
  - Aim at well-balanced power source composition to avoid over-dependent on a specific power or fuel source, and use decarbonized power sources such as renewable energy and nuclear power to the maximum. Promote the full introduction of renewable energy as a major power source while making efforts for the coexistence with local communities and the reduction of the public burden, expand the introduction of perovskite solar cells and floating offshore wind energy, promote the social implementation, etc., of next-generation geothermal power generation, as well as build resilient domestic supply chains. For nuclear power, with a basic premise ensuring safety, the government will work on the acceleration of resumption of the operations of power plants, the development and installation of next-generation advanced reactors, and the acceleration of the back-end process such as the nuclear fuel cycle and the final disposal. For thermal power, secure LNG-fired thermal power as means of transition and promote the decarbonization of thermal power by utilizing hydrogen, ammonia, CCUS, etc., as well as constantly consider measures such as a Reserve Power Plants system.
  - Based on the verification of power system reform and for the achievement of the compatibility between stable electricity supply and decarbonization, the government will consider the following institutional measures: [1] development of business/financing environment to decarbonize power sources based on stable supply as a major premise; [2] establishment of mechanisms for the power grid development and location inducement, and the supply-demand operation, intended for efficient power use; and [3] creation of the environment for retail business to realize energy supply at stable prices through the market.

- Promote the consideration of how to monitor new markets and the introduction of more sophisticated market monitoring, in order to ensure the reliability of existing and new electricity markets.
- While promoting fuel conversion to natural gas in the fields where electrification is difficult, for hydrogen and its derivatives which can serve as a key to decarbonization in such wide range of fields, continue to implement integrated regulatory and supportive continue to implement integrated regulatory and supportive policies, including the support for technological development, manufacturing, construction, etc., of various facilities and related infrastructures, and the consideration of institutional measures in the fields of electricity, transportation, etc., towards the further building of supply chains such as by providing support focusing on the price gap or support for hub development. Promote the formulation of action plans to address problems in expanding the introduction of biofuel, and take necessary measures. Promote the lowering of the cost of e-fuels, e-methane, etc., the efforts for the establishment of early supply or large-scale production technology, the improvement of investment environment, and other measures.
- For oil and natural gas, establish an LNG reserve mechanism such as by improving the oil/gas development and diversifying the sources of supply in consideration of geographical proximity and relationships with supplier countries, etc., improving the financing environment, and institutionally securing the Strategic Buffer LNG (SBL). Also, make efforts such as the enhancement of disaster management skills and the maintenance/strengthening of the service station (SS) network, in order to ensure the fuel supply system in respective regions. Compile support systems based on support measures, etc., in other countries, develop detailed rules for the Act on Carbon Capture and Storage Business (CCS Business Act), and promote advanced projects, in order to build a competitive Carbon Capture and Storage (CCS) value chain.
- Promote efforts such as accelerating R&D, building supply chains, and promoting the introduction of batteries, in order to establish a manufacturing base for batteries, sub-materials, and manufacturing equipment, and to capture the next-generation battery market (e.g., all-solid-state batteries).
- Present the policies for the next five years, including those on decommissioning of nuclear reactors, ALPS treated water, measures for the lifting of evacuation orders, and restoration of industries, with a view to accomplishing the full reconstruction of Fukushima—the basis of Japan’s energy policy.

(2) Restructuring appropriate business environment in increasingly uncertain global economy

- To **enhance the predictability of the international business environment** with an eye to acquiring foreign demand, as the global economy gets fragmented further, the following main measures will be implemented.
  - Promote the maintenance and strengthening of rules-based international economic order in collaboration with like-minded countries nations, by using various forums (WTO, G7, G20, OECD, APEC, etc.), negotiations on bilateral economic partnership agreements (EPAs) with emerging economies (GCC, UAE, Bangladesh, Türkiye, etc.), and multilateral economic partnership agreements such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), and the Regional Comprehensive Economic Partnership (RCEP).
  - Develop region- and country-specific strategies and create win-win package deals that serve national interests of both Japan and the partner country. Also, the overall direction of trade strategies, including region- and country-specific ones, will be incorporated in the future White Papers on International Economy and Trade, which will be basically updated every year, taking into account changes in the global security situation.
  - Ensure that carbon border adjustment measures introduced by other countries as climate change policies do not become trade restrictive, by responding appropriately in cooperation with countries sharing the awareness of the issue so that such measures adopted by countries as a climate change policy will not be excessively trade restrictive.
  - Promote both rule-making and the implementation of individual projects through the Asia Zero Emission Community (AZEC), in order to facilitate the introduction of Japanese decarbonization technologies while building a local decarbonization market in which these technologies appropriately evaluated.

- Continue to support corporate demonstration/FS projects with an eye on coordination with other measures and priority, in order to strengthen cooperation in the Global South.
- Simultaneously with strengthening economic cooperation with like-minded countries, the government will support the overseas expansion of Japanese companies, including startups, to help them take on challenges in those countries that serve as global test beds for cutting-edge services and high-tech sectors.
- Promote cooperation between like-minded countries through multilateral frameworks such as G7 and bilateral frameworks, while further promoting policies such as the introduction of non-price factor to demand-side policy tools, to ensure that products with non-price value (stable supply, cyber security, respect to human rights in their supply chains, etc.) will be fairly valued in the market.
- Support the interface between trade platforms for digitization of trade procedures and other systems in order to ensure efficient and stable trade practices. Also, strengthen the risk response capabilities of the Nippon Export and Investment Insurance (NEXI) in order to address uncertainty due to the increase in geopolitical risks.
- Promote the acquisition of foreign demand by Japanese companies through the provision of training and related programs on Japan's systems to influential individuals in governments and industrial communities of other counties to encourage them to reform or establish their systems.

(3) Establishing and beefing up economic security

- To cope with threats/risks surrounding Japan, the following main measures will be implemented to **strengthen Japan's economic power such as the building of resilient industrial/technological infrastructures**.
  - Ensure information security and then enhance economic intelligence capabilities to analyze threats/risks based on public-private partnership, and consider the support for overseas business development and the strengthening of data security for the purpose of ensuring Japan's autonomy and indispensability, in order to take measures to improve the autonomy and indispensability from the perspective of economic security.
  - Build and deploy a "Run Faster Cooperation Framework" that enables Japan to work with like-minded countries, primarily in the Indo-Pacific region, to take concerted measures to support and defend industries, with the aim of protecting and fostering markets and technologies of priority areas such as AI, quantum computing, advanced semiconductors, and defense industry.
  - Work to secure the stockpiles of critical minerals and form a proactive national upstream development project, in order to ensure stable supply of critical minerals and prepare for the potential impacts of supply disruptions on the supply chains of Japan and other countries.
  - Consider how to manage investment and export for preventing technology outflow, as well as enhance outreach to leading medium enterprises and SMEs for measures to prevent technology outflows, in order to protect Japan's technology, etc., from economic security threats/risks.
  - To strengthen the technological base of the space industry, which underpins Japan's economic security, efforts will be made to build autonomous supply chains that enable the mass production of satellites and more frequent rocket launches, and other support for technological development, with a view to standardizing development processes and contributing to international rulemaking.
  - To enhance the industrial competitiveness of the defense industry, the government will collaborate with relevant ministries and agencies, including the Ministry of Defense and the Acquisition, Technology & Logistics Agency, to advance discussions on industrial strategies, and will continue to support research and technological development by startups and other entities with dual-use technologies for both civilian and defense applications.
  - Implement effective enforcement of border measures such as trade remedy measures to deal with the overcapacity problem.

IV. Progress of measures toward long-term goals and possible policies that need to be considered in the future

- The New Direction of Economic and Industrial Policies has presented the measures to strengthen **large scale, long-term, and systematic** industrial policies, under the framework of **mission-oriented industrial policy** and cross-cutting **restructuring of socioeconomic operating-system (OS)**, by **regarding the solution of social issues—referred to as missions—as an engine of growth**. Accordingly, the **realization of the three virtuous cycles of domestic investment, innovation, and income growth** is set as the goal of the New Direction as a whole.
- For each of the eight missions and four OSs, this chapter **sets long-term goals for the foreseeable future** and **summarizes the progress of measures that have been undertaken since the Third Report**. On this basis, **measures required in the future** will be **exhaustively summarized, including the important policies covered in Chapter III**.

<Mission-oriented industrial policy>

- For the purpose of promoting investment in high value-added fields, it is important to cultivate **domestic demand that expands over the medium to long term even under the population decline** and, at the same time, foster suppliers by large scale, long-term, and systematic supports, while setting the **solution of global social issues** as a starting point. In this way, it is intended to accelerate world-level strategic investments by continuing the implementation of measures for both supply and demand sides including the capture of overseas markets. The government support in the New Direction is not “support for private companies” but the “national strategic investment” that will expand national wealth.

(1) Realization of a carbon-neutral society (GX)

① Long-term goals for the foreseeable future

- For 10 years, public-private investment of over 150 trillion yen, and government support of 20 trillion yen will be realized.
- Achieve carbon neutrality in 2050.

② Progress since the Third Report

[GX2040 Vision and the 7th Strategic Energy Plan]

- For improving the predictability of the business environment and promoting domestic investment that will maintain and strengthen high-value-added industrial processes essential for Japan's growth, the "GX2040 Vision" was formulated as a medium- to long-term outlook.
- In addition, whether it is possible to secure decarbonized power sources meeting expectation of stronger electricity demand due to the progress of DX and GX is directly connected to Japan's economic growth and industrial competitiveness. Taking these factors into consideration, in February 2025, the "GX2040 Vision," the "7th Strategic Energy Plan," and the "Plan for Global Warming Countermeasures" were developed in an integrated manner.

[Pro-growth carbon pricing concept]

- A bill to revise the GX Promotion Act was passed to develop the foundation for carbon pricing, including the emissions trading system (hereinafter referred to as 'GX-ETS'), which is scheduled to become fully operational in fiscal year 2026.Continued to conduct analysis, etc., on carbon leakage potential.
- Considered strengthening support for upstream development overseas and other measures to strategically secure base metals and critical minerals, such as copper resources, necessary to respond to electrification associated with the progress of GX and DX and to promote related domestic investment.
- As for the Green Innovation Fund which has supported R&D of innovative technologies, some funded projects have faced cost increases, etc., due to drastic and unpredictable changes in the environment. In response, the government has introduced additional budgetary measures for the companies and organizations implementing these projects as these cost increases could hinder the implementation of the projects at the speed and scale originally planned.
- Also, for the projects on floating offshore wind power generation, perovskite solar cells, and water electrolysis, the implementation of new R&D and demonstration was reviewed and approved by the Green Innovation Project Subcommittee.

[International expansion strategy]

- Promoting the building of GX supply chains with like-minded countries through the coordination of GX investment promotion measures.
- By utilizing AZEC, which is a cooperative framework for decarbonization in Asia, promoted sector-specific efforts, including support for policy design in Asian countries through the Asia Zero Emissions Center established in August 2024 and the introduction of Japanese GX technologies in Asian countries, in an integrated manner with GX initiatives.
- Working with relevant ministries and agencies and partner countries to embody the coordination of policies, including rule-making, and the further formulation of individual projects to promote them in accordance with the "Action Plan for Next Decade" adopted at the second AZEC Leaders Meeting in October 2024.
- Proceeding with the efforts for the formulation of rules on transition finance in Asia.
- Strengthening efforts to prevent LNG from becoming a stranded asset in cooperation with the IEA and other organizations.
- Working to establish the standards for the creation of bio-product value (measurement methods for calculating Life Cycle Assessment (LCA) values, methods for proving "raw CO2") in order to market bio-derived materials and products.

[Just transition, GX for society as a whole, including leading medium enterprises and SMEs]

- The GX League's GX Human Resources Market Creation WG developed the “GX Skills Standards” as a common ““rule” for the labor mobility market for GX human resources. It is simultaneously promoting the acquisition of new skills and smooth labor mobility to growing sectors, including green sectors, through job change support for career advancement of incumbents and reskilling support for employees by companies.
- The FY2024 supplementary budget provided support for the development of innovative products and services that contribute to GX, as well as support for replacement of equipment with energy-saving one and for energy-saving diagnosis, with partial enhancement of such support including the expansion of eligibility for subsidies and the addition of support menu. The government has established the Community Partnership for Energy Conservation that supports the energy-saving efforts by SMEs and other entities in local communities, in cooperation with financial institutions and energy conservation support organizations, while the SME Support JAPAN provided consultation services, and trainings for SMEs and support organizations.
- For the provision of the business development support, covering from R&D to commercial capital investment, etc., and the accompaniment commercialization support on an area-by-area basis, which are intended for deep tech startups and other companies in the GX field, the government allocated 41 billion yen in the initial budget for FY2024 (a five-year total amount of 200 billion yen), while the Cabinet approved 30 billion yen for the initial budget for FY2025.
- The government is promoting GX in local communities and lifestyle.

③ Measures required in the future

[GX2040 Vision and the 7th Strategic Energy Plan]

- Circumstances are uncertain for energy-related technology innovation, energy policy trends in each country, progress of DX/GX, etc., as of 2040. In this context, we will pursue every possible option under the policy of utilizing all available technologies.
- In light of the 7th Strategic Energy Plan, the government, in addition to thorough energy conservation, will take measures to improve the business environment to expand the supply of decarbonized energy sources such as renewable energy and nuclear power, which will contribute to improving the energy self-sufficiency, as well as promote the social implementation of low-carbon hydrogen and its derivatives, including ammonia, e-methane, e-fuels, and other new technologies such as Carbon dioxide Capture, Utilization and Storage (CCUS).
- In particular, Japan’s economic growth and industrial competitiveness depend on whether Japan can secure sufficient decarbonized power sources to meet expectation of stronger electricity demand due to the progress of DX and GX. Under these circumstances, it is necessary to use both renewable energy and nuclear power to the maximum.
- Towards 2040, Japan’s economic growth is expected to be driven by GX industries that create added value through products and services utilizing clean energy such as decarbonized electricity. On the other hand, since supply bases of clean energy such as decarbonized power sources are unevenly distributed in different regions, we will examine appropriate “GX industrial locations” to stimulate investment in the vicinity of clean energy supply areas, taking into account the perspective of effective and efficient infrastructure development.
- In order to promote intensified energy-saving practices, non-fossil fuel conversion, and DR, the government will make efforts for the following support and regulations in an integrated manner: [1] strengthening of capital investment for energy-saving and of diagnosis support, establishment of local energy-saving support systems in cooperation with financial institutions or other entities, the system promoting the improvement of efficiency of data centers; [2] support for electrification or non-fossil fuel conversion, or a system for reporting the possibility of introducing a solar power generation system to factories or other facilities; [3] introduction of safety-assured batteries or promotion of DRready for equipment.
- Based on the verification of power system reform and for the achievement of the compatibility between stable electricity supply and decarbonization, the government will consider the following comprehensive institutional measures: [1] development of business/financing environment to decarbonize power sources; [2] establishment of mechanisms for the power grid development and location inducement, and the supply-demand operation, intended for efficient power use; and [3] creation of the environment for retail business to supply for consumers at stable prices through the market.
- Promote the consideration of how to monitor new markets and the introduction of more

sophisticated market monitoring, in order to ensure the reliability of existing and new electricity markets.
- Present the policies for the next five years, including those on decommissioning of nuclear reactors, ALPS treated water, measures for the lifting of evacuation orders, and restoration of industries, with view to accomplishing the full reconstruction of Fukushima.

[Pro-growth carbon pricing concept]
- Will gradually introduce an emissions trading system and a surcharge on fossil fuel supply as carbon pricing schemes in order to improve the predictability of investment return and promote GX investment.
- Continue to promote further efforts in the Green Innovation Fund Projects to achieve carbon neutrality in 2050.
- In collaboration with the Japan Fair Trade Commission and METI, we will encourage efforts by enterprises, including the implementation of public awareness campaigns, to address challenges in collaborations among enterprises. Additionally, we will continue to enhance the predictability of the business environment to promote the advancement of GX, taking into account the current state of efforts by enterprises.

[International expansion strategy]
- In the framework of AZEC, the government will, in accordance with “the Action Plan for Next Decade” adapted by the leaders in October 2024, [1] promote “AZEC Solutions,” including rule-making to facilitate activities that contribute to decarbonization, [2] launch initiatives such as developing roadmaps for decarbonization in the power, transportation and industry sectors, which are major sources of emissions, and [3] further formulate/implement individual projects. Accordingly, the government will seek to build regional decarbonization markets in which Japanese’ decarbonization technologies and services are appropriately evaluated.
- Contribute to global emissions reduction through the promotion of the Joint Crediting Mechanism (hereinafter “JCM”).
- Ensure that carbon border adjustment measures introduced by other countries as climate change policies do not become trade restrictive, by responding appropriately in cooperation with countries sharing the same awareness of the issue

[Just transition, GX for society as a whole, including leading medium enterprises and SMEs]
- Will examine the feasibility of reskilling support without job change of incumbents, the possible measures for further penetration of the GX Skills Standards, the utilization of measures related to safety net, etc., in order to respond to the labor supply and demand newly emerged in the industrial structural transformation along with the promotion of GX and to its impact on local economy.
- Will continue to provide the business development support, covering from R&D to commercial capital investment, etc., and the accompaniment commercialization support on an area-by-area basis, which are intended for deep tech startups and other companies in the GX field (a five-year total amount of 200 billion yen) and support the financing through the capital injection from GX Acceleration Agency from risk mitigation perspectives.
- Will calculate/visualize emissions, develop emissions reduction plans, and provide capital investment support that contributes GX initiatives, as well as enhance the systems of local energy conservation support across the country in cooperation with financial institutions, energy conservation support organizations, and local governments, in order to encourage GX initiatives by leading medium enterprises and SMEs. Also, local financial institutions, the Chambers of Commerce, local governments, and other organizations will cooperate to promote the establishment of push-type support systems to support GX initiatives by leading medium enterprises and SMEs.
- Will review the GX League to make it a framework that will encourage GX in the industries that, although not being covered by the system, their emission reduction efforts through their entire supply chains will contribute to GX.

(2) Realization of a digital society (DX)

① Long-term goals for the foreseeable future

- By 2030, the total sales (semiconductor-related) of companies producing semiconductors in Domestic will exceed 15 trillion yen.
- Provide public support of 10 trillion yen or more for the AI/semiconductor sector by FY2030, encourage public-private investment of more than 50 trillion yen over the next 10 years, and realize an economic ripple effect of about 160 trillion yen.
- Expand the Ouranos Ecosystem—an initiative originating in Japan that creates new value through data sharing and utilization—in conjunction with mission-oriented industrial policy, against the backdrop of the global movement toward building data-driven economic zones.
- Realize an ecosystem for digital skills development through the accumulation and visualization of individual digital skills information.

② Progress since the Third Report

[Individual corporate DX]

- DX related measures have been taken at over 70% of companies, which indicates certain progress in DX efforts.
- Conducted a fundamental review of the Digital Governance Code that summarizes the matters to be addressed by business owners for DX. Specifically, focusing on the enhancement of corporate value through the promotion of DX, METI revised the content and structure of the Code with emphasis on the smooth conveyance of information to business owners, and placed particular emphasis on key issues—the utilization and linkage of data, the development and securing of digital human resources, and the importance of cybersecurity. In addition, METI selected some initiatives that conform to the Digital Governance Code, under the titles of DX Stocks (listed companies) and DX selection (leading medium enterprises and SMEs and other companies).
- In particular, METI promoted extensive corporate DX through regional support organizations such as regional financial institutions, IT venders, and consultants to accelerate the productivity improvement and growth of SMEs (significant enhancement of the collection of DX support cases based on the DX support guidance, building of databases on DX cases, etc.). Also, METI worked to expand the sources of support for DX across the country, through the strengthening of cooperation between DX Acceleration Local Labs and Yorozu Support Centers. Furthermore, METI took measures to add the support for post-introduction IT utilization (intended to promote continued IT utilization) to the items of subsidized expenses of the IT introduction subsidies that support the introduction of IT tools for the purpose of improving labor productivity of SMEs.
- NEDO and METI jointly formulated and announced the Guidelines for Building Smart Manufacturing to solve the management challenges faced by manufacturers.

[Digital industrial infrastructure]

(Semiconductors and electronic components)

- On November 22, 2024, the formulation of the Framework for Strengthening the AI and Semiconductor Industrial Infrastructure was approved by the Cabinet. From the perspectives of strengthening of industrial competitiveness, economic security, and energy policy, METI will provide public support of 10 trillion yen or more, provide intensive support for technological development, and capital investment plans, required for a seven-year period through FY2030, and provide multi-year subsidies, contracts and financial supports to encourage public-private investment of more than 50 trillion yen over the next 10 years.
- Continue to develop domestic production bases and human resources to supplement missing pieces in Japan’s semiconductor supply chain. In particular, to enable the mass production of next-generation semiconductors, METI provided R&D support and submitted the necessary bill (i.e., the Bill for the Act to Partially Amend the Act on the Facilitation of Information Processing and the Act on Special Accounts) to the 217th Diet session, which was enacted in April 2025.
- Continued and strengthened the development of manufacturing infrastructure and the support for R&D (in particular, support for missing pieces in the semiconductor and electronic components supply chain in Japan, e.g., design and development of next-generation semiconductors, and development of next-generation memories and advanced packages).

- Promoted infrastructure development associated with the establishment of semiconductor manufacturing bases. Hokkaido, Iwate, Hiroshima and Kumamoto prefectures have been developing industrial water, sewage, and road infrastructure.

(Information processing infrastructure)
- Promoted efforts to encourage innovation by excellent domestic/overseas companies and human resources.
  - The development of computational resources necessary for the development and utilization of AI was promoted through public-private cooperation.
  - Supported businesses working on the establishment of the Data Ecosystem that involves the use of data by many AI developers, the feedback given in the course of such use, and the further qualitative/quantitative enhancement of data infrastructure.
  - Supported the development of foundation models—core technology of generative AI—in terms of the procurement of computational resources and of community activities.
- In order to promote energy conservation in data centers, METI promoted consideration of the support for technological development, including improvement of the efficiency of computational resources, while promoting institutional responses, from the perspective of accelerating the consistent implementation of technologies that are available and contribute to efficiency and the development and social implementation of cutting-edge technologies.

(Batteries)
- Approved 7 plans for batteries, 20 for battery part materials, and 5 for battery manufacturing equipment by utilizing the Economic Security Fund towards the expansion of the manufacturing infrastructure for batteries, component materials, and manufacturing equipment.
- Held a director-general level dialogue based on the Memorandum of Cooperation on Battery Supply Chain signed with Canada, and reaffirmed that both countries continue to cooperate, exchange information and take further action in order to build sustainable and reliable global battery supply chains.
- For the purpose of creating new innovation in the battery sector through the promotion of technological development of next-generation batteries and the development of human resources, METI is supporting the capital investment and technological development to manufacture next-generation all-solid-state batteries and their component materials, and the development of recycling technologies for batteries. Also, for developing human resources in the battery sector, METI provided battery education programs at 29 high schools and technical colleges in total, utilizing educational materials developed through industry-academia-government collaboration. Furthermore, the industry selected 12 key themes that can be used by employees at battery companies, and thereby created more technical educational materials.

(Advanced information and communication infrastructure)
- Continued international collaboration, including Japan-US one, and support for R&D, including Proof of Concept (PoC) at overseas sites, in order to expand the use of open Radio Access Network (RAN). METI also supported R&D of energy-saving base stations, etc., including local 5G, in the Post-5G Information and Telecommunications System Infrastructure Enhancement R&D Project.
- Supported the tax-based promotion of the introduction of local 5G to promote the dissemination of local 5G and clarified the needs for support for the creation of good use cases, and the effective outputs.

[Digital infrastructure platform]
(Ouranos ecosystem)
- Making efforts to expand the Ouranos Ecosystem by establishing an appropriate cross-policy system to implement data linkage communities in various industrial sectors and value chains.
- Promoting the formulation and updating of technical reference models, technological specifications, guidelines, and guidebooks for system design/building, and the publication and enhancement of open-source software (OSS) and Software Development Kits (SDKs) for developers.

- Revised the Enforcement Regulations and Guidelines for the Act on the Promotion of Information Processing and established a certification system for public interest digital platform operators in July 2024, and granted the first certification in September 2024.
- In cooperation with the Digital Agency, METI is promoting the formulation of criteria/standards in the digital domain by the Information Promotion Agency (hereinafter “IPA”).
- In accordance with the Digital Lifeline Development Plan, METI is promoting the nationwide development of digital lifelines (hardware, software, and rules) that conform to common specifications, etc., and fundamentally promote the use of automated driving, drones, and other digital services by the public.

(Cyber security)

- Towards the strengthening of measures throughout the supply chain, METI compiled the directions of the Cybersecurity Measures Evaluation System for Strengthening Supply Chains in April 2025 in order to establish a framework to define the levels of cross-industry security measures and visualize the measures taken by each company efforts at companies in cooperation with IPA.
- As for the IoT Product Security Conformity Assessment Scheme (hereinafter “JC-STAR”), the minimum conformity level (★1), which is commonly applicable to all product categories, has started to operate since March 2025. METI added the description on the use of JC-STAR to the “Guidelines for the Establishment of Standards for Cybersecurity Measures for Government Agencies and Related Agencies,” in order to promote the use of IoT products with the JC-STAR conformity label in government procurement, etc., while encouraging industries to use JC-STAR. At the same time, METI has made progress in discussions and coordination with other countries to ensure interoperability with similar systems in Europe, the U.S., and other countries.
- To ensure cybersecurity in the semiconductor-related industry, where domestic investment is being vigorously promoted, METI launched a framework to facilitate information sharing on cybersecurity measures and to follow up on the progress of various initiatives. In parallel, METI also worked on developing Operational Technology (OT) security guidelines specifically for semiconductor device manufacturers. For the purpose of ensuring software security in industries, etc., METI considered ways and means that allow all companies to efficiently use Software Bill of Materials (SBOM), and formulated the “Guidance on Introduction of SBOM for Software Management ver. 2.0” (i.e., revision of ver. 1.0) in August 2024.
- As for SMEs’ information security measures, METI conducted a survey to clarify the state of efforts and damage, and published the survey results in May 2025. Also, for SMEs across Japan, METI formulated a preliminary draft of the guidelines for securing/developing human resources to promote security measures in the company and utilizing security human resources from outside the company. For the “Cybersecurity supporters service” after the revision of criteria, METI made efforts to promote and disseminate them utilizing government publicity and other means.
- In order to build an ecosystem for the expansion of the security market, METI promoted the structuring of the security industry and the research on industrial promotion models in other countries and, in March 2025, formulated the Strategy for Vitalization of the Cybersecurity Industry—a policy package to foster/promote domestic cybersecurity products/services. In order to promote the use of “Registered Information Security Specialist (RISS)”, METI conducted a demonstration project to encourage matching with SMEs, and proceeded with the consideration of measures to promote the use of registered security specialists, including the renewal of the certificate renewal system. Also, in order to foster high-level security personnel, METI started the eighth session of the Core Human Resources Development Program—a one-year education training program provided for critical infrastructure companies at the Industrial Cyber Security Center of Excellence (ICSCoE) in IPA —in July 2024 and continued to hold the Security Camp to discover/foster next-generation information security human resources.
- To enhance the public and private sectors’ capabilities in cyber situational awareness and response, a research and development program aimed at strengthening advanced cyber defense functions and analytical capabilities (under the Important Technology Development Program for Economic Security) started in July 2024. In addition, efforts are underway to enhance the capabilities of the Information-technology Promotion Agency (IPA)—which serves

as an information hub for both the public and private sectors—to collect and analyze cyber intelligence, including geopolitical information, utilizing the FY2025 budget.

(AI governance)
- Announced the Guide to Evaluation Perspectives for AI Safety, and the Guide to Red Teaming Methodology on AI Safety, as initiatives by the AI Safety Institute (hereinafter "AISI").
- In light of the recent changes in the market environment (e.g., the growing prevalence of generative AI), METI formulated and announced the "Contract Checklist for AI Utilization and Development," with the aim of ensuring an appropriate allocation benefits and risks among contracting parties, and promoting the utilization of AI.
- Revised the "AI Guidelines for Business" which is intended for businesses to conduct social implementation of AI and appropriate governance.

[Digital human resources infrastructure]
- Promoted measures to foster digital skills development in cooperation with relevant ministries and agencies to achieve the goal of developing 2.3 million digital workforce on a government-wide basis.
- Revised the Digital Skill Standards in August 2023 and July 2024, in light of the emergence of generative AI.
- Rolled out the "MITOU project" to local regions and other corporations in accordance with the Startup Development Five-year Plan.
- Started discussions aiming to realize an ecosystem for digital skills development through the building of a platform that enables the accumulation/visualization of data on the digital skills/upskilling of digital skills and the skill assessment through examinations.
- Started the discussions on the renewal of the Information Technology Engineer Examination (examination categories, questions, etc.) to respond to the DX or Generative AI era and the implementation of DX in examination administration in anticipation of a further increase in the number of examinees.

(Semiconductor human resources)
- The Leading-edge Semiconductor Technology Center (hereinafter "LSTC"), an institution responsible for next-generation R&D and high-level human resources development, established the human resources development committee and started consideration on fostering and securing human resources who will be engaged in design/manufacturing.
- Promoted international cooperation on the promotion of semiconductor human resources development.
- Launched an advanced design talent development program to cultivate the next generation of engineers and architects capable of high-level semiconductor design.

(Battery human resources)
- Provided battery education programs at 29 high schools and technical colleges in total, utilizing educational materials developed through industry-academia-government collaboration. Furthermore, the industry selected 12 key themes that can be used by employees at buttery companies, and thereby created more technical educational materials.

[Web3.0]
- Clarified challenges and future directions related to use case creation, technological development, human resources development, globalization, and other matters, through the advisory board and workshops to be held as part of the FY2023 Demonstration Project for the Construction of Digital Public Goods Utilizing Web 3.0 and Blockchain.

③ Measures required in the future
[Individual corporate DX]
- In order to promote extensive corporate DX through regional support organizations such as regional financial institutions, IT venders, consultants, etc. METI will continue to consider how model cases should be created in line with the DX support guidance and how the coordination among support organizations should be made.
- It is important to create an environment where each company can make a relative comparison

to understand where it stands based on the fact that DX has made progress to a certain degree. METI will improve self-diagnostic tools that allow companies to promote their DX efforts further by understanding their positions in relation to DX initiatives.

- Will examine possible policy actions that will contribute to pushing ahead with DX at companies through quantitative analysis on what impact a DX initiative will have on corporate values.

[Digital industrial infrastructure]
(Semiconductors and electronic components)

- Will utilize the Framework for Strengthening the AI and Semiconductor Industrial Infrastructure that provides public support of 10 trillion yen or more, provide intensive support for technological development, and capital investment plans, required for a seven-year period through FY2030, and provide multi-year subsidies, outsourcing opportunities and financial supports to encourage public-private investment of more than 50 trillion yen over the next 10 years, from a perspective of strengthening of industrial competitiveness, economic security, and energy policy.

(Information processing infrastructure)

- Will promote the development of foundation models, covering area-specific models for social implementation and non-linguistic fields (e.g., sound and images), for enhanced capabilities of generative AI development and utilization thereof.
- Promote the development of frontier AI by establishing development environments in preparation for the AGI era, including international collaboration.
- In order to promote AI development in the robotics field, METI will build mechanisms of data collection and model development necessary for AI development, and of positive cycle of AI implementation to robots and utilization of AI-implemented robots.
- For social implementation of AI, METI implemented a prize-funded research and development program—a system to provide compensation for the achievements of R&D.
- In order to promote energy conservation at data centers, METI will visualize their goals, implementation policies, and performances, by clarifying the technology level that should be introduced (i.e., energy efficiency that must be met) and introducing a pledge and review system. Also, METI will promote the consideration of evaluation indicators for energy efficiency of information processing, with an eye on their international standardization.
- Amid the progress of AI utilization in various fields, METI will advance the sophistication of computational resources, by building test bed environments that allow the use of various AI semiconductors and developing software families that allow the use of these AI semiconductors with high efficiency and convenience, as computational resources are highly efficiently and conveniently provided from a perspective of energy conservation, etc.
- METI will accelerate DX through the AI utilization and promote the effective collaboration of power and communication systems (Watt-Bit Collaboration) through efficient power/communication infrastructures, for the simultaneous achievement of economic growth and decarbonization, and the achievement of resilient national land.
- METI will promote the consideration of modernization of corporate information systems from the perspective of promoting the introduction of AI.
- As digital investment expands globally, Japan will promote the overseas expansion of generative AI-related services developed domestically—particularly into the rapidly growing and geographically close APAC region—in order to achieve economies of scale and improve the country's digital trade balance. In doing so, Japan will also contribute to building local ecosystems, including human resource development in the region.

(Batteries)

- METI will further expand the manufacturing base for batteries, component materials, and manufacturing equipment in Japan and overseas.
- METI will promote the resilience of global supply chains, such as by departing from dependence on specific countries.
- METI will promote the continuous technological development of next-generation batteries and the initiatives to capture the next-generation battery markets.

(Advanced information and communication infrastructure)

- In order to expand the use of open RAN, METI will continue international collaboration, and R&D support (e.g., PoC at overseas sites). Amid concerns about the growing demand for electric power, METI will support R&D at base stations and other facilities that contribute energy conservation, such as by optimizing computational resources.
- For the continued dissemination and promotion of local 5G, METI will consider the support for the creation of good use cases that contribute energy conservation.
- In order to ensure Japan's autonomous system of submarine cable supply from a perspective of economic security, METI will consider the necessary support in cooperation with relevant ministries and agencies.

[Digital infrastructure platform]

(Ouranos ecosystem)

- METI will promote the nationwide development of digital lifelines (hardware, software, and rules) that conform to common specifications, etc., and fundamentally promote the use of automated driving, drones, and other digital services by the public, based on the Digital Lifeline Development Plan.
- In order to promote the creation of new value through digitalization, METI will promote the creation of specific examples (i.e., use cases) of the Ouranos Ecosystem, and the global collaboration.

(Cyber security)

- Develop a framework to visualize the status of cybersecurity measures taken by companies within the supply chain, while presenting the necessary measures each company should implement based on their importance in the supply chain. In addition, clarify the application of relevant laws, such as the Antimonopoly Act, regarding support and requests by large enterprises for cybersecurity measures implemented by small and medium-sized subcontractors. To enhance the level of cybersecurity measures in the semiconductor-related industry, where domestic investment is rapidly advancing, METI is working on finalizing Operational Technology (OT) security guidelines for semiconductor device manufacturers, examining cybersecurity standards, and considering linking these efforts to the requirements of METI's investment promotion initiatives. In order to encourage cyber security measures at SMEs, METI will review policy actions intended for SMEs and conduct active disseminating activities for SMEs. METI will further strengthen the promotion of nationwide dissemination of, in particular, the "Cybersecurity supporters service" system in cooperation with relevant ministries, agencies, and organizations, and review the accreditation criteria in light of the changes in the risk environment since the establishment of the system.
- METI promotes the use of JC-STAR through the dissemination of information to private-sector companies and general consumers, in addition to the introduction of new procurement requirements for government agencies and local governments, while developing advanced security criteria/labels for specific IoT product categories. Furthermore, METI will continue to promote international cooperation to ensure the interoperability with related systems that is also considered and implemented in Europe, the U.S., and other countries.
- In order to ensure software security, METI will prepare guidelines for developing safe software, create a framework to confirm the efforts taken in line with the guidelines, and contribute to the formulation of international joint guidelines through the Quadrilateral Security Dialogue (hereinafter "QUAD"). Also, METI will compile guidelines on the obligations that should be fulfilled by cyber infrastructure businesses—entities that develop, supply, and operate software as certain functions of social infrastructure—in connection with customers, and improve the framework to confirm efforts taken in line with the guidelines. In either case, in order to enhance the effectiveness of such guidelines, METI will work to reflect those obligations in the guidelines as the requirements in government procurement.
- In order to strengthen the responses to the targeted attacks—Advanced Persistent Threat (APT) attacks that have rapidly become sophisticated and expanded target areas—and contribute to the realization of economic security, METI will significantly strengthen the IPA's intelligence functions related to economic security and enhance the framework of cooperation with relevant ministries and agencies.
- Will promote specific efforts such as the active utilization of startup products by government agencies and related agencies, the creation of matching platforms, the establishment of the system of quality evaluation of security service suppliers, and the promotion of technological

development and R&D, in accordance with the Strategy for Vitalization of the Cybersecurity Industry that was compiled as a policy package to foster/promote domestic cybersecurity products/services.

- As for “Core Human Resources Development Program” which foster the core personnel engaged in cybersecurity measures in critical infrastructure businesses, and the Security Camp which is a training program intended to discover/foster university and high school students with advanced cybersecurity technology/knowledge, METI will make efforts to enhance these programs to expand the number of high-level security personnel to be fostered.
- As for “Registered Information Security Specialist (RISS)” which is a national qualification for cybersecurity, METI will develop an “active list” to promote the matching between such specialists and local SMEs facing the challenge of human resources shortage, and their allocation to support organizations or other similar entities, while considering the revision of the qualification renewal system.

(AI governance)

- Will continue work on the updating, dissemination, and promotion of the AI Guidelines for Business formulated in 2024.
- METI will support the activities of AISI in cooperation with the Cabinet Office and other bodies so that AISI can serve as a central hub both domestically and internationally—particularly in international discussions on AI safety assessment methods—, while also supporting public-private research and development efforts.

(IP system suitable for the AI/DX era)

- In order to enhance the predictability of businesses amid the increase in AI use that has caused the emergence of cases where AI significantly contributes to inventions, METI will consider revising the legal system to clarify how to handle industrial property rights in the case where AI has contributed to inventions.
- METI will consider revising the legal system which contribute to appropriate rights protection against a backdrop of increasing cross-border data flows where patent right infringers may easily circumvent the regulations, just by placing their servers outside the jurisdiction.

[Digital human resources infrastructure]

- Will continue to promote the measures to foster digital skills development in cooperation with related ministries and agencies, with a view to achieving the goal of fostering 2.3 million digital workforce on a government-wide basis.
- Will smoothly promote the full-scale start of the “semester system,” in which the program is operated twice a year, with a view to the fundamental expansion of the scale of fostering the “MITOU project.” Also, METI will continue to roll out such efforts to local regions and other corporations.
- Will promote the establishment of a common platform that enables the accumulation and visualization of data on the skills/upskilling of digital skills and on the skill assessment through examinations, while promoting the public relations strategy and the collaboration with other organizations in anticipation of the commencement of operations of such platform.
- Will consider the implementation of such platform in light of the discussions towards the revision of the Information Technology Engineer Examination (examination categories, questions, etc.) to respond to the DX or Generative AI era.

(Semiconductor human resources)

- Will promote cross-regional horizontal cooperation between region-by-region initiatives by industry-academia-government collaboration, and work to develop and secure human resources through nationwide collaboration. Also, METI will build an ecosystem that allows both industries and academia to continue to have mutual positive impact with a long-term perspective.
- Concretize international cooperation on the promotion of semiconductor human resources development.

(Battery human resources)

- Will proceed with efforts to disseminate, develop, and entrench battery education programs with enhanced content mainly in regions where battery-related investments increase.

[Web3.0]

- Will promote the dissemination/utilization of the guidelines prepared in the FY2023 Demonstration Project for the Construction of Digital Public Goods Utilizing Web 3.0 and Blockchain, work on disseminating demonstration cases developed to create/expand use cases.

(3) Globalization and Realization of Economic Security

① Long-term goals for the foreseeable future

- Formulate rules in a manner that benefits Japan, ensure free trade and economic security, strengthen earning power, build win-win relationships with other countries.
- Set the target for Japan's inward foreign direct investment (FDI) stock at 120 trillion yen by 2030, and aim to reach 150 trillion yen as early as possible in the early 2030s.
- Improve autonomy, ensure superiority and indispensability.

② Progress since the Third Report

[Formulation of a foreign economic policy that balances a free and fair international order with economic security]

- In order to maintain and enhance the order of a rules-based multilateral trading system with the WTO at its core, we made efforts to restore WTO's dispute settlement functions to make final decisions, formulate appropriate trade rules (e.g., e-commerce, investment facilitation) that fit with the times, and reinvigorate deliberations on modern trade issues (e.g., industrial policies, the environment). Specifically in the WTO Joint Statement Initiative on Electronic Commerce, participants had achieved stabilised text on the Agreement on Electronic Commerce in July 2024, after five years of negotiations.
- Strategically promote cooperation on industrial policies with like-minded countries (e.g., the U.S. and Europe) through multilateral frameworks (e.g., G7) and bilateral ones, to ensure that products with non-price factors, such as sustainability, are fairly valued in the marketplace. In the G7 Apulia Summit in June 2024, we agreed to "contribute, as appropriate, to collective work on identification of critical goods, strategic sectors, and supply chains, for future coordination within the G7 on relevant criteria that take into account not only economic factors, but also factors linked to the [Principles on Resilient and Reliable Supply Chains]." Also, promoted discussions on supply chains with Thailand and other countries, as a collaboration with Global South Countries.
- Compiled a policy for partnerships with the countries of the Global South through the meeting to Promote Cooperation with Global South countries in June 2024. Also, the government formulated the Infrastructure System Overseas Promotion Strategy 2030 in December 2024 to present the direction of future overseas promotion in areas beyond the traditional concept of infrastructure in anticipation of 2030.
- As for EPAs, we signed the Protocol Amending the Japan-Indonesia Economic Partnership Agreement, conducted negotiations for an EPA with Bangladesh, started an EPA negotiation with UAE, and resumed an EPA negotiation with GCC. Also, in December 2024, we were able to achieve certain results through the CPTPP general review, in addition to the entry into force of the Protocol on the Accession of the UK to the CPTPP. The Third RCEP Ministerial Meeting was held, which worked to ensure the transparent implementation of the RCEP agreement and prepare for new accession procedures.
- The Japan-Angola Investment Agreement has entered into force, and the Japan-Zambia Investment Agreement was signed, and the Japan-Tadzhikistan Investment Agreement and the Japan-Paraguay Investment Agreement were agreed in principle.
- As for multilateral efforts to enhance supply chain resilience, in accordance with the IPEF Supply Chain Agreement, we agreed to establish action plan teams for semiconductors, critical minerals with a focus on batteries, chemicals, and healthcare and have committed to further discussions, while establishing the Crisis Response Network in anticipation of emergency and conducting tabletop exercises.
- Started anti-dumping investigations against Chinese-made graphite electrodes since April 2024, and, in February 2025, made a preliminary determination based on the following facts: the importation of the dumped product (dumping export), the material injury to the domestic industry caused by such import, and others.

[Export promotion]

- Announced the Action Plan for Digitization of Trade Procedures at the end of June 2024, which was formulated in cooperation with other ministries/agencies. Since then, METI has supported and promoted the introduction of trade platforms by Japanese companies and the collaborations between trade platforms, through subsidized projects, etc., based on the Action Plan. Also, METI conducted a fact-finding survey and other activities on non-digitized trade

documents and procedures in Japan and ASEAN countries. In addition, METI suggested to the United Nations Centre for Trade Facilitation and Electronic Business (hereinafter "UN/CEFACT") that the data items used in trading business by Japanese companies be added to the international standards. Accordingly, the standards are planned to be revised in the first quarter of FY2025.

- Improved the export environment through efforts including underwriting of NEXI's new insurance products, such as the letter of credit confirmation insurance.
- Promoted/enhanced the 10,000 New Exporters Support Program (since FY2022) for inexperienced exporters and other companies, aiming at enhancing the earning power of SMEs, etc. METI supported the demonstration of export support business by the private sector, with the aim of establishing a mechanism for autonomous expansion of overseas business by leading medium enterprises and SMEs. NEXI's insurance for supporting exports of SMEs and organizations related to agriculture, forestry and fisheries was expanded to cover leading medium enterprises. Also, NEXI strengthened its support system by encouraging regional financial institutions to participate in the Overseas Business Support Package—a framework for public institutions to support enterprises that intend to expand their sales overseas.

[Promotion of trade in services, etc.]

- Provided R&D support, etc., for Software as a Medical Device (hereinafter "SaMD"), which are medical devices employing AI/IT technologies, while allocating budgets to the demonstration of the enhanced effectiveness and economic value of medical care using SaMD for the FY2024 supplementary budget.
- In light of the increase in direct sales from overseas to consumers in Japan via online malls in response to the increase in internet transactions, METI has improved the environment so that domestic consumers can safely use products, through the amendment of the Consumer Product Safety Act and others in FY2024.

[Overseas investment and expansion]

- In order to strengthen economic partnerships with the Global South, we have, in cooperation with India, established a framework to extensively develop third-country partnerships in the Middle East, Africa, etc., and promoted the packaged strategic initiatives for priority areas and countries, including infrastructure construction and the reinforcement of the government's financing services (e.g., enhancement of NEXI's function is under consideration).
- As part of enhancing support for new business exploration, METI conducted discussions to renew and enhance international agreements, including those in green, digital, and other fields, in connection with the support for cutting-edge companies, including startups, the creation of matching opportunities with local companies, and the CPTPP general review.
- As part of strengthening financing support, METI promoted the strengthening of both risk management and financial foundations in order to support the challenges of companies expanding business across the globe through the trade insurance system even in the midst of a drastically changing international economic environment. Also, as part of strengthening financial foundations, METI revised the law related to the expansion of NEXI's framework to expand its investment of surplus fund.
- In order to create projects that benefit both Japan and the partner countries, METI increased the support for local business entry and expansion and conducted demonstration projects, collaborations, and other commercialization efforts in view of the local situation.
- To enhance support for Japanese companies expanding into regions where Japanese companies are relatively under-represented, develop human resource to meet new industrial human resource needs, and strengthen local human network building for co-creation business formation, METI has implemented several initiatives. These initiatives include support for Japanese companies' expansion into India, Africa, and other countries; the support for human resource development in green, digital, and other fields; institutional development of local regulations and standards; and network building with overseas human resources, universities, and other organizations.

[Promotion of foreign direct investment in Japan]

- Steadily implemented the Action Plan for Attracting Human and Financial Resources from Overseas.
- METI has comprehensively organized public and private sector issues for the active utilization of highly-skilled foreign professionals. In Consortiums launched in 2022 and 2023 to promote the employment of highly-skilled foreign professionals in regional areas, METI promoted recruitment by strengthening cooperation among universities, companies, economic organizations, and other related parties in the region. It also promoted the internal internationalization of SMEs, and fostered a shared understanding of issues related to the working environment, thereby promoting efforts for regional solutions. Additionally, METI provided accompanying-style support to companies such as resolving issues with the help of JETRO's expert counselors, improving working environments, and assisting various procedures. This support ensured the recruitment and retention of highly-skilled foreign professionals. Furthermore, METI enhanced the portal site to promote the activities of highly-skilled foreign professional, thereby improving the provision of information on working in Japan.
- To promote the acceptance of diverse, highly-skilled foreign professionals while considering their country of origin, METI relaxed the conditions for support and conducted a survey of universities to gather information on graduates from universities and graduate schools in Global South countries, aiming to expand the establishment of endowed courses. Also, METI made efforts to diversify human resources by promoting the acceptance of IT human resources as interns.
- In order to promote collaboration between Japanese and foreign companies, in 2024, METI published the Case Studies relating to Collaborations and Joint Ventures between Japanese and Foreign Companies in Japan —a compilation of successful examples of cross-border collaborations between Japanese and foreign companies—and disseminated it through 11 seminars in total and other occasions, as well as held seminars for Japanese companies at JETRO to support the building of an internal corporate structure for cross-border collaborations.
- In order to enhance information dissemination in English by national and local governments, METI published advertisement articles in major U.S. economic newspapers, as well as conducted public relations activities, such as the promotion of Japan's investment environment at the events in the U.S. and Singapore. Also, METI supported information dissemination by local communities by setting up booths of local governments, etc., at the JETRO's networking event.
- In order to attract foreign companies with specific technologies in important fields to invest in specific areas in Japan, as part of strengthening efforts to attract foreign direct investment (FDI) through cooperation between national and regional stakeholders, METI conducted a comparative survey on the fostering and securing of human resources and the development of infrastructure in industrial hubs between the four areas in Japan (Hokkaido, Gunma, and Hiroshima prefectures, and Kobe City) and competitive industrial hubs in the U.S., Taiwan, and other countries.
- In order to stimulate inward FDI in Japan and accelerate the investment consideration process, METI assigned 22 specialists for attracting inward FDI in Japan in 10 countries around the world to visit promising foreign companies individually, invited foreign corporate executives, etc., from 21 companies in FY2024 (as of the end of January 2025) to encourage their investment decisions, and adopted 15 cases for the support for business feasibility studies on new investments by foreign companies in Japan.
- In order to strengthen the networking between Japanese and foreign startup ecosystems, METI contributed to the creation of 18 cross-border collaborative projects between Japanese and foreign companies through JETRO's business platform "J-Bridge" in FY2024 (as of the end of December), as well as strengthened networking with local ecosystem stakeholders in foreign countries such as through the pitch events held in Tokyo, San Diego, and London during FY2024, the startup support base "Japan Innovation Campus" established in Silicon Valley in November 2023, and the conference "Startup Horizon 2024" held in Osaka planning the expo in November 2024.
- As a part of improving the business environment in Japan, METI held three sessions of the "Meeting with the G7 Members' Chambers of Commerce in Japan" during FY2024 to discuss

the issues related to the business environment in Japan, the measures for dissemination to attract foreign companies to invest in local communities in Japan, and other topics.

[Ensuring technological superiority]

- In order to maintain and develop Japan's industrial and technological basis, METI has established a framework for threat/risk analysis, provided investment support to acquire technological advantages, strengthened the measures for technology management such as a new framework for trade control, and strategically cooperated with industries and major countries.
- From a security perspective in light of the Interim Report of the Subcommittee on Security Export Control Policy under the Trade Committee of the Industrial Structure Council, METI launched a new system to require prior reporting and to take thorough countermeasures to prevent technology leakage based on public-private dialogues (public-private dialogue scheme for strengthening technology management) under the Foreign Exchange and Foreign Trade Act when transferring specific technologies overseas. Also, as part of the revision of the Cabinet and Ministerial Orders of the Foreign Exchange and Foreign Trade Act based on the Interim Report above, METI revised the Conventional Weapons Catch-all Control that requires the permission of the Minister of METI to export, specific general-purpose goods and technologies (machine tools, drones, semiconductors, etc.) if they are likely to be used for developing conventional weapons, as well as made additions to the list of restricted items related to the critical and emerging technologies in light of international circumstances while streamlining and prioritizing the institutions and operations according to the levels of security concerns.
- Updated the Collection of Private Sector Best Practices, a collection of best practices by companies such as measures to prevent technology leakage, and announced the Guidance on Measures to Prevent Technology Leakage, a compilation of measures against technology leakage through individuals.
- For R&D projects that use a large amount of government funding, METI has strengthened the requirements imposed by the measures to prevent technology leakage.
- Established and held the Designated Fund Council under the Economic Security Promotion Act and continued to implement the “Key and Advanced Technology R&D through Cross Community Collaboration Program (K Program)” to promote R&D of advanced critical technologies.
- The FY2024 supplementary budget allocated approximately 1,522.8 billion yen for the support for AI computational resources and advanced semiconductors, approximately 100.9 billion yen for the acceleration of environmental improvements and development to industrialize quantum computers, and approximately 38.3 billion yen for the support for the investment in facilities for manufacturing regenerative, cellular, and genetic medicines (hereinafter “CDMO Support”), which in part depends on actions for bearing deficits in the Treasury.

[Enhancing resilience of supply chains]

- The FY2024 supplementary budget newly allocated approximately 197.8 billion yen for storage batteries, combustible natural gases, permanent magnets, and advanced electronic components. Furthermore, for copper and rare metals, the budget allocated approximately 159.7 billion yen to realize the diversification of supply chains and their stable supply, including early securing of new supply sources (including borrowings with government guarantee).

[Dialogue with industry and international cooperation]

- METI has continued to exchange views with industry on threat and risk analysis, enhancement of supply chain resilience for critical products, etc.
- METI has activated dialogue on economic security with like-minded countries (by using international platforms such as G7).
- To strengthen industrial and technological basis through public-private collaboration, expert meetings were held in October 2024, and in April and May 2025, to prepare for the revision of the “Action Plan for Strengthening Industrial and Technological Foundations for Economic Security,” and the revised version was subsequently published.

[Enhancing economic intelligence (threat and risk analysis)]

- In order to continuously analyze threats and risks to Japan's industrial and technological basis and their impact, METI has conducted a scenario analysis (i.e., analysis of the impact, etc., in the event of the occurrence of specific threats and risks), supply chain analysis (i.e., identification of goods and technologies that could become choke points in the supply chain with significant impact in the event of supply disruptions), and technology analysis (i.e., identification of Japan's technological advantages).
- Held seminars for Japanese businesses with invitation of overseas experts with advanced knowledge of scenario analysis and tabletop exercises (TTX) related to economic security.
- In order to share information on threats and risks faced by Japan between public and private sectors and contribute to the implementation of appropriate measures, METI took measures such as the support for private companies to introduce information security facilities (FY2024 supplementary budget: Approx. 1.6 billion yen) for the smooth operation of the Act on the Protection and Utilization of Critical Economic Security Information (took effect as of May 16, 2025).

③ Measures required in the future

[Flexible economic diplomacy in response to the rise of protectionism]

- Amid the significant changes in the international situation such as the growing geopolitical risks due to the China-U.S. standoff and Russia's aggression against Ukraine, the emergence of protectionism and authoritarian states, and other factors in the world, we will persistently promote dialogue at bilateral and multinational levels to secure free trade and economic security and build win-win relationships with other countries.
- In order to allow Japanese companies to enjoy advantages in capturing markets and competing in the increasingly important Global South and other areas, we will promote the EPA negotiations with emerging and other countries and the investment treaty negotiations with African, South American, Central Asian countries, etc., and steadily implement treaties that have already entered into force, with the recognition of the importance of EPAs that strengthen supply chains through enhanced trade and investment relations and serve as a countermeasure against protectionism. As for CPTPP in particular, we will make efforts to upgrade the agreement through the general review so that it can correspond to enhanced resilience of supply chains, mineral export controls, market distorting practices, etc., as well as to maintain the gold standard and lead the formulation of global trade rules while aiming to expand high-level rules through the discussions on new accessions. Also, recognizing the importance of steady implementation of agreements already in force, we will ensure the transparent implementation of EPAs already in force (e.g., RCEP and CPTPP), rather than being satisfied with the rule formulation.
- Will work on maintaining/strengthening a rules-based multilateral trade regime, aiming to stabilize the international economic order. We will work to strengthen cooperation with like-minded countries such as G7 and OECD, as well as to restore and enhance the WTO’s dispute settlement, negotiating, and deliberating functions. Also, we will share with wide range of countries the awareness of the fundamental problem of responses to the non-market policies and practices, while making efforts to advance concrete discussions.
- In light of the shift away from values that prioritize economic efficiency above all else, and in response to modern imperatives such as economic security and addressing social challenges (e.g., widening income disparities caused by the hollowing-out of manufacturing), Japan will work with like-minded countries to explore the future shape of a new international economic order, with the aim of rebuilding a rules-based global economic system.
- Aim at ensuring the level playing field (hereinafter “LPF”) between countries through OECD Export Credit Arrangement negotiations. Also, we will work to prevent Japan’s claims from being unduly restricted in debt recovery negotiations at the Paris Club, bilateral relations, etc.

[Formulation of a foreign economic policy that balances a free and fair international order with economic security]

- Will work on enhancing resilience of supply chains in cooperation with like-minded countries, aiming to cope with problems such as overcapacity, or overdependence on specific supply sources. We will further promote the introduction of non-price factors to demand-side policy tools and strategically promote industrial policy-related cooperation (e.g., harmonization of

non-price factors in policy tools) with like-minded countries through multilateral/bilateral frameworks such as G7, to ensure that products with non-price factors (e.g., stable supply, cyber security) are fairly valued in the marketplace. We will also aim for cooperation with the Global South through international frameworks such as AZEC and various policies for the Global South.

- To ensure that Japanese companies can appropriately advance efforts to respect human rights in their supply chains while maintaining and strengthening international competitiveness, efforts are being made to promote the dissemination and implementation of relevant guidelines, support initiatives by companies—including SMEs and overseas business partners—develop mechanisms for objectively evaluating corporate efforts, and engage in dialogue with countries that are moving toward mandatory human rights due diligence.
- Will promote cooperation under multilateral and bilateral agreements and arrangements to strengthen linkages with like-minded countries toward enhancing supply chain resilience.
- To address industrial requests and protect Japan's industrial bases from unfair trade practices, including those involving China-made graphite electrodes, will continue efforts to reinforce investigation systems to enable companies to properly utilize trade remedy measures.

[Export promotion]

- In anticipation of trade expansion, will continue to encourage Japanese companies to adopt trade platforms and establish linkages among them through subsidized projects and other programs, under the action plan for digitalization of cross-border trade procedures, and advance the necessary efforts to digitalize trade documents and procedures that have not yet been digitalized, including revising relevant legislation to enable the digitalization of bills of lading. Will also formulate guidelines designed to help Japanese companies implement international standards to promote the linkage of their trade data under those standards. Meanwhile, will collaborate with the Economic Research Institute for ASEAN and East Asia (ERIA) to propose policies aimed at digitalizing single-step trade procedures and achieve data linkages between Japan and ASEAN countries.
- Will promote the construction of export support systems that leverage the strengths of mid-sized companies and SMEs and complement their weakness through cooperation among enterprises (such as local trade companies) that support the expansion of exports from those companies.
- To help Japanese companies address the underdeveloped regulations, systems and standards that act as barriers to doing business in Global South countries and other regions, METI will provide training and related programs to influential individuals in governments and industrial communities. This aims to facilitate system revisions and the establishment of rules that support Japanese companies' business operations, thereby creating an environment favorable to Japan's exports.

[Trade in services promotion, etc.]

- Regarding medical devices, products that primarily benefit from digital technologies have been gradually introduced into the market by both major companies and startups. However, to promote social implementation and develop those products as a globally competitive sector, it is essential to strengthen support for demonstrations aimed at social implementation, as well as for research and development.
- To strengthen the international competitiveness of the contents industry, which is expected to grow in the future, efforts will be made based on the Entertainment and Creative Industries Strategy. These include establishing overseas hubs to showcase Japanese content in response to the shortage of in-person events abroad, strengthening measures against the recent sharp increase in piracy, enhancing human resources, technology, and industrial infrastructure, promoting international collaboration—including intergovernmental cooperation—such as attracting overseas film productions and co-productions, and building support systems through overseas offices.

[Overseas investment and expansion]

- To address the excessive reliance on unreasonably cheap products that are widely prevalent in the global market and to support Japanese companies in expanding their markets by

introducing high-quality products and systems to Global South countries, METI will offer training programs on the importance of fair market evaluation of non-price factors to ASEAN officials and others through the Japan-U.S. cooperation, thereby assisting Japanese companies in their overseas investments and expansion.

- Will develop region-specific and country-specific strategies for the Global South market, identify countries, sectors, and others where Japanese companies' can find "winning paths," cooperate strategically and collectively with like-minded countries, as necessary, based on predetermined priorities, and provide those countries with support for projects related to the formulation of master plans for business expansion into the Global South countries, demonstration projects, and the planning of infrastructure and others, thereby contributing to economic growth and the resolution of social issues in both Japan and its counterparts through the deployment of projects that leverage Japanese technologies.
- Simultaneously with strengthening economic cooperation with like-minded countries, will support the overseas expansion of Japanese companies, including startups, to help them take on challenges in those countries that serve as global testbeds for cutting-edge services and high-tech sectors.
- To continue supporting companies' global challenges in a sustainable manner over time, especially as need for trade insurance increases due to rising geopolitical risks, the government will ensure that NEXI enhances its risk management and financial foundation to maintain proper corporate management.
- Will continue to actively support efforts that contribute to strengthening cooperation with AZEC and the Global South countries through trade insurance. Regarding the Tokyo International Conference on African Development (TICAD), will promote cooperation between NEXI and regional development banks and export credit agencies, such as African the Development Bank, African Export-Import Bank, African Trade Insurance Agency, and support companies in their active expansion into Africa.

[Foreign direct investment in Japan]

- Will carry out positive and strategic attraction activities, including the identification of promising investment projects, to encourage foreign direct investments in strategies sectors with expected medium- and long-term growth, such as GX, DX, and bio sectors.
- To promote the development of ecosystems that enable international collaboration and cooperation to be autonomously created through the efforts of local companies, such as mutual introduction and support, will support company matching between Japan and other countries through J-Bridge and other initiatives, as well as matching of players that can serve as regional ecosystem hubs both in Japan and abroad.
- Will encourage Japanese companies to consider utilizing overseas capitals as one of their operational and strategic options to enhance corporate value.
- To promote foreign direct investment in regions across Japan, will provide accompanied support to attract local investment, including assisting localities in refining their strategies for attracting inward foreign direct investment, based on advanced benchmarking of industrial hubs both within Japan and internationally.
- In the consortiums aimed at promoting the employment of highly-skilled foreign professionals in regional areas, efforts will be made to promote the employment of international students in the region by strengthening collaboration among local stakeholders including universities, municipalities, and economic organizations. Additionally, to support companies in hiring and retaining highly skilled foreign professionals, JETRO's specialized consultants will provide hands-on assistance including problem-solving, improving working environments, and supporting administrative procedures. Furthermore, to secure outstanding young talent from overseas, surveys and additional interviews will be conducted to identify support needs for the recruitment and retention of highly skilled foreign professionals, as well as gather findings related to current status of residence systems. Based on the results of these surveys and analyses, necessary measures—including revisions to the status of residence system and related institutional arrangements—will be discussed with relevant ministries and agencies during FY 2025, with the aim of reaching a conclusion.

[Ensuring technological superiority]
- Will steadily operate the government-private sector dialogue scheme aimed at reinforcing technology management, and continuously review the covered technologies.
- Will review and enhance the guidance on measures to prevent technology leakage response to industry's needs.
- To promote measures to prevent technology leakage by companies themselves, will cooperate with the Regional Bureaus of Economy, Trade and Industry and relevant incorporated administrative agencies to strengthen outreach to industrial communities, particularly local mid-sized companies and SMEs.
- To strengthen the technological base of the space industry, which underpins Japan's economic security, will make efforts to build autonomous supply chains that enable, the mass production of satellites and more frequent rocket launches, and other support for technological development, with a view toward standardizing development processes and contributing to international rulemaking.
- In strategic fields such as space infrastructure, submarine cables, and unmanned aerial vehicles—which will impact both future autonomy and criticality—efforts will be strengthened, as necessary, to encompass the entire value chain, from research and development to domestic and international business deployment.
- To enhance the industrial competitiveness of the defense industry, will collaborate with relevant ministries and agencies, including the Ministry of Defense and the Acquisition, Technology & Logistics Agency, to advance discussions on industrial strategies, and continue to support research and technology development by startups and other entities with dual-use technologies for both civilian and defense applications.

[Supply chain resiliency]
- Will continue to enhance the security of indispensable resources and restore the pluralism and autonomy of supplies through efforts related to specific critical commodities, based on the Economic Security Promotion Act and other relevant measures. Especially for critical minerals, will maintain a sufficient stockpile to prepare for supply disruptions, and organize independent upstream development projects to secure necessary supplies.
- For oil and natural gas, will establish an LNG reserve mechanism to promote the development and diversification of supply sources, taking into account geographic proximity and relationships with resource-rich countries, develop a capital-raising environment, and otherwise facilitate the systematic procurement of strategic reserves. In addition, with the aim of securing regional fuel supply systems, will take initiatives to enhance disaster response capabilities, and to maintain and strengthen the network of service stations.

[Dialogue with industry and international cooperation]
- Will continue the public-private sector dialogue to share information with relevant companies, utilizing the security clearance system as necessary.
- Will continue to conduct active dialogue on economic security with partner and like-minded countries by utilizing international platforms such as G7.
- Will build and deploy a "Run Faster Partnership Framework" that enables Japan to work with like-minded countries, primarily in Indo-Pacific region, to integrate promotion measures and protection measures, with the aim of protecting and fostering priority areas such as AI, quantum computing, advanced semiconductors, and defense industry.

[Enhancing Economic Intelligence (threat and risk analysis)]
- In order to continue to analyze threats and risks to Japan's industrial and technological basis and their impact, will conduct scenario analysis (analysis of the impact, etc. in the event of the occurrence of specific threats and risks), supply chain analysis (identification of goods and technologies that could become choke points in the supply chain with significant impact in the event of supply disruptions), and technology analysis (identification of Japan's technological advantages).
- Will prepare and publish manuals that private companies and other entities can refer to when implementing scenario analyses and tabletop exercises (TTX) related to economic security, which will help disseminate and promote the use of scenario analysis and TTX within the private sector.

- To strengthen Japan’s overall economic intelligence through strategic cooperation between the government and the private sector cooperation, will promote discussions with think tanks and other organizations regarding threat and risk analyses related to economic security.
- In coordination with relevant ministries and agencies, including NSS and the Cabinet Office (responsible for economic security), the government aims to establish the "Economic Security Center" (tentative name) as a platform to enhance its economic intelligence capabilities and improve policy implementation through public-private collaboration. The center will provide information and insights necessary for government-led research and analysis, focusing on corporate data and open-source information, while also systematizing and structuring the outcomes. It will serve as a core organization for public-private cooperation.

[Enhancing economic intelligence (international situation analysis)]

- To appropriately identify the rapidly changing international situation, and to successfully enter overseas markets and strengthen economic security, will collaborate with Japanese companies to enhance intelligence functions related to international affairs toward the formulation of adequate economic and industrial policies, while also refining the research and lobbying capabilities of JETRO and other overseas offices.

(4) Realization of a new healthy society

① Long-term goals for the foreseeable future

- Achieve healthy life expectancy of 75 years or more by 2040.
- Realize 77 trillion yen in services not covered by Japanese public health insurance in 2050.
- Realize acquisition of 21 trillion yen out of the global medical devices market and 25-30 trillion yen of the global pharmaceutical market.

② Progress since the Third Report

[Promotion of PHR, promotion of healthcare startups, etc.]

- Given that public information provided via Minaportal will be expanded as part of the efforts for maintenance of business environment aimed at creating private-sector services utilizing healthcare data, the government worked on revisions to the “Basic Guidelines for the Handling of Information on Medical Examinations by PHR Service Providers,” among others, those to the ranges of covered information and persons and the latest information security and other measures, and cooperated with the private-sector organizations, academia, and others to conduct discussions to ensure service quality and standardize data.
- The government conducted demonstration projects to create new use cases where the public can feel the value of using PHR and promote public awareness of those PHR use cases using opportunities such as Expo 2025 Osaka, Kansai, Japan.
- The government continued to provide support related to the Healthcare Innovation Hub (“InnoHub”) aiming for social implementation of advanced services provided by the healthcare startups, selected Healthcare Startup Social Implementation Promotion Hub supporting evidence building and providing demonstration fields for social implementation (Sendai City, Aichi Prefecture, and Kyushu Region), and promoted the development of domestic ecosystem. The government also provided support programs linked with overseas accelerators through JETRO to deepen linkages with overseas ecosystem.
- As an initiative to promote investment in health by companies and society, a mechanism (promotion of information disclosure)has been established in which KENKO Investment for health is evaluated by various stakeholders in the capital and labor markets (such as institutional investors and job seekers).And a platform has been established to allow companies practicing for KENKO Investment for health to select support services such as KENKO Investment for health consulting, mental health services, personal health records (PHR), and women's health, etc. Furthermore, the government examined how to spread the concept of KENKO Investment for Health and its verification system after the publication of the International Standards (ISO25554) which incorporated the essence of Japan’s KENKO Investment for Health.
- Additionally, from the viewpoint of standing by each and every employee and enhancing the quality of KENKO Investment for Health, the government put a focus on women-specific health issues and estimated the amount of economic loss (3.4 trillion yen a year). The government also published case studies to encourage employers to take initiatives, and launched a project to verify the effects of corporate initiatives on women-specific health.

[Promotion of non-insured long-term care services, promotion of balancing work and nursing care, etc.]

- To promote the participation of private businesses in elderly care and related services, an analytical tool was developed to visualize local resource information and advance the assessment of resource availability. In addition, collaboration between local governments and companies that hold data on the elderly was encouraged. Furthermore, “the Study Group on the Strategy to Promote the Elderly Care and Caregiving-Related Services Industry” was held, where the necessity of “industry-welfare service sector co-creation”—a concept in which businesses and welfare professionals collaborate and co-create—was presented, along with specific strategies for industrial development.
- With the aim of securing the reliability of the non-insured long-term care services, the government assisted the foundation of a business association. In February 2025, the Care-related Service Business Association was founded. In March 2024, the government formulated the “Guidelines for Executives on Support of Balancing Work and Caregiving” to promote the balance between work and caregiving, and proceeded with dissemination of information for companies including executives. Especially for SMEs, certain regional financial

institutions, municipalities, business associations, and other entities serving as regional hubs implemented demonstration projects to provide several SMEs with management support for balancing work and caregiving.
- The government included a budget to enhance the quality of nursing care in the FY2024 supplementary budget by supporting technology improvement and effectiveness verification, etc., and clarifying the effectiveness of investment in well-established long-term care DX package models.

[Development and overseas expansion of advanced medical devices/pharmaceutical products]
- Through the “Project of Developing Biopharmaceutical Manufacturing Sites to Strengthen Vaccine Production (dual-use subsidy),” the government has begun manufacturing of vaccines at eight bases, formulation and filling of them at four sites, and manufacturing of therapeutic drugs at four sites, and is working to establish a system that will enable the production of various types of vaccines in Japan by the end of 2027.
- The government started to support establishment of contract development/manufacturing bases in the fields of regenerative medicine, cellular medicine, and gene therapy.
- Through the “Strengthening Program for Pharmaceutical Startup Ecosystem,” the government strengthened R&D and VC hands-on support for pharmaceutical startups from non-clinical to clinical trial stages. 30 certified VCs, and 30 pharmaceutical startups were already adopted.
- A framework to reinforce linkages with projects of other ministries and agencies, aimed at providing government-wide support for the growth of pharmaceutical and medical device startups was established in the Healthcare Policy Phase III (decided at the Cabinet meeting on February 18, 2025). More specifically, the government established a new “Innovation Ecosystem Project” within the Japan Agency for Medical Research and Development (AMED), and introduced a mechanism for promoting practical application, including coordination with other projects, as well as for ensuring coordination between and among support and other projects for basic to applied researches, non-clinical and clinical researches, and clinical and other trials (pairing and matching).
- To promote collective R&D investment in new areas of competitiveness with unmet (or potential) needs and to establish international competitiveness, the government provided R&D support to startups, including clinical trials, with a view to overseas expansion, facilitated network building, and offered accompanied or other support, and requested funding in the initial budget for FY2025 to strengthen support for overseas expansion, including into the United States.
- A budget to enhance medical effectiveness through SaMD and demonstrate economic value was included in the FY2024 supplementary budget.
- To expand Mexx Initiative, Medical Excellence Thailand was established and the ME Thailand Forums were held in September 2024 and in March 2025. To encourage expansion into the African region, the delegation of Japanese medical and healthcare-related companies visited Ghana and discussed with local governments and medical professionals. In addition, government officials and medical professionals from Egypt, Ghana and Kenya invited to participate program for visiting Japanese medical companies to create new business opportunities.
- To promote medical tourism to Japan, the government worked on improving the hub preparedness of sending institutions that partnered with overseas medical institutions, and provided support for network building to companies targeting the Vietnamese market. The government is also in the process of formulating strategies to appropriately promote medical tourism to Japan, including how it will contribute to the public insurance system.

③ Measures Required in the Future
[Promotion of PHR, promotion of healthcare startups, etc.]
- In addition to preventive and health promotional activities, will encourage development and social implementation of services that will contribute to providing higher-quality nursing care prevention services tailored to individual needs and achieving efficient interprofessional collaboration, with an eye on utilizing PHR-based AI or other advanced technologies in the medical and nursing care sectors.
- Through EXPO 2025, Osaka, Kansai, will promote the services utilizing PHR via the data integration platform “PHR CYCLE”, which connects data-providing PHR providers with service

providers that develop related services.

- To promote the use of secure and safe PHR services in collaboration with private-sector organizations, academia, and other stakeholders, will ensure service quality by reflecting revisions to the “Basic Guidelines for the Handling of Information on Medical Examinations by PHR Service Providers,” incorporating academic guidelines into private-sector guidelines in cooperation with academia, and compiling case studies related to academic guidelines. To implement standardized data, will continue to enhance the necessary business environment by conducting detailed reviews in the context of international standards, such as “Fast Healthcare Interoperability Resource (FHIR) and Open mHealth, and by considering use cases from a broader perspective.
- Will implement further improvement of the environment for KENKO Investment for Health as a foundation to support the Japanese economy and society. More specifically, will provide support for initiatives that help employers and companies implement measures related to women’s health and mental health, with the aim of promoting the penetration and entrenchment of KENKO Investment for Health in society by improving its quality and encouraging its widespread uptake, particularly among SMEs.
- Will continue to provide side support in anticipation of a full-scale operation of the Healthcare Startup Social Implementation Promotion Hub and offer accompanied support and activate healthcare communities through InnoHub.
- Will continue support programs with overseas accelerators even after FY2025. In June 2025, the Global Healthcare Challenge, a global event including symposiums and business competitions, will be held to support Japanese healthcare startups in expanding overseas and establishing connections with overseas ecosystems.

[Promotion of non-insured long-term care services, promotion of balancing work and caregiving, etc.]

- To promote the development of elderly care and caregiving related services, efforts will be made to fundamentally shift the mindset and incentives of local governments regarding collaboration with private enterprises, through hands-on support and other initiatives. At the same time, the government will promote the creation, evaluation, and dissemination of new regional development models based on collaboration and co-creation between local governments and private enterprises. In addition, policies will be considered to encourage social engagement among seniors and expand their roles as contributors in local communities.
- To encourage the use of non-insured long-term care services, will continue to support private-sector entities in establishing a certification system, and provide opportunities for matching between private enterprises and service providers.
- To promote a balance between work and caregiving, will disseminate and raise awareness of the “Guidelines for Executives on Support of Balancing Work and Caregiving,” which were formulated in March 2024, among executives. The government will also consider introducing potential incentives. In addition, efforts will continue to visualize the effectiveness of support measures within companies and to develop models that support balancing work and caregiving initiatives in SMEs.
- Access to information about caregiving is limited until individuals are directly confronted with the need for it. As a result, it is difficult for both companies and individuals to foster societal-wide literacy or a sense of ownership regarding caregiving. Will create societal-wide motivation for discussion about caregiving, ensuring that the topics of “caregiving” is actively initiated and discussed actively by a diverse range of stakeholders.
- Will continue support for development of long-term care technology based on its priority fields and promote acquisition of certification to capture overseas markets.
- Will aim to enhance the quality of nursing care by supporting, among others, technological improvements and verification of their effectiveness, and clarifying the effectiveness of investment in well-established long-term care DX package models.

[Development and overseas expansion of advanced medical devices/pharmaceutical products]

- Regarding the bio-industry, will continue development and expansion of contract development and manufacturing bases in the fields of biopharmaceuticals, regenerative medicine, cell therapy, and gene therapy.

- Will continue to reinforce cooperation with other ministries and agencies aimed at providing the government-wide support for the growth of pharmaceutical and medical device startups, based on the “Innovation Ecosystem Project” and “pairing/matching” programs.
- Will establish an appropriate environment in which pharmaceutical startup are able to raise funds smoothly until their late development stage.
- Will support intensive R&D investment in new competitive areas that capture international competitiveness of Japanese companies, with a focus on therapeutic devices, evidence building for clinical trials, etc. necessary for deployment to the U.S. to establish international competitiveness, and network building necessary for deployment. Will also work on enhancing acceleration functions aimed at strengthening exit strategies for startups.
- Will continue support for research and development and demonstration to build evidence on clinical usefulness and economic efficiency for social implementation of SaMD such as AI diagnostics.
- To further strengthen the Mexx initiative, will hold forums and set up concrete projects in existing countries where it is already underway (Vietnam and Thailand), and accelerate efforts to investigate needs and launch projects in new candidate countries.
- To support the participation of Japanese medical and healthcare-related companies in the African region , will aim to establish a new framework to accumulate networks of local key persons in the medium- and long-term.
- With emerging country markets in mind, will move ahead with strategic considerations to further advance overseas expansion of Japanese medical device industry, taking into account competitions with European and the U.S. globally leading companies and emerging companies from China and India.
- With a view to promoting medical tourism to Japan, will cooperate with related ministries and agencies to select highly motivated medical institutions, and provide them with support from marketing and acceptance system sides. More specifically, will establish a framework of cooperation between Japanese and overseas medical institutions, and concentrate functions to disseminate information for overseas stakeholders.

(5) Inclusive growth in the region that contributes to coping with a declining birthrate

① Long-term goals for the foreseeable future

- Through the creation of quality jobs and a well-being living environment (increase in disposable income and time) through the growth of local businesses, etc., the desired fertility rate of 1.8 will be restored, and an economic environment will be realized in which the desired level of demographic stability can be achieved further.

② Progress since the Third Report

[Creation of quality jobs (Industrial policies that lead to "increased disposable income" through increased incomes for young people and women)]

(Growth of core businesses in the region)

- The region-specific roundtable conference for mid-sized companies was inaugurated, with the aim of nurturing core regional companies (mid-sized companies and SMEs that have a large impact on the regional economy, are expected to have growth potential, and are central players in the regional economic value chain) that can realize quality employment through wage increases and work style reforms, in cooperation with local governments, and putting them on a further growth trajectory.
- Further intensified enforcement of the former version of the Act against Delay in Payment of Subcontract Proceeds, etc. to Subcontractors in cooperation with the Japan Fair Trade Commission and price pass-through of labor and other costs in public sector demand based on the “basic policy on governmental and other public contracts.”
- In the sixth meeting of the Council on Promoting Partnership Building for Cultivating the Future, held on February 21, 2025, revisions were made to the publication guidelines for the Declaration of Partnership Building (strengthening of accountability for declaring companies and checks by competent ministries and agencies).
- To encourage wage increases in SMEs and small businesses as an integral part of new business participation and efforts to improve productivity, as well as their related measures, subsidies for new business participation, productivity revolution promotion project, and other measures were included in the supplementary budget for FY2024.
- Took measures to accelerate growth for SMEs that take on challenge toward a high goal of earning 10 billion yen in sales.
- Implemented support for successors, PMI support, and improvement of the M&A market environment to promote transformation using intra-family succession and third-party succession, including M&A, as opportunities.
- Given the increasing need for working one step ahead with enterprises without deferring support for responding to increasingly diversified management issues, in March 2025, a “policy package to encourage financial institutions to provide corporate borrowers with support measures in terms of forward-looking management improvement and business turnaround” was published to the relevant ministries and agencies from the perspective of requesting government-affiliated and private-sector financial institutions to further extend tailored business support to borrowers.
- Established regional networks to support female entrepreneurs across Japan, and provided support programs to develop and foster female entrepreneurs who can serve as role models.
- Encouraged leading medium enterprises and SMEs, particularly Companies Driving Regional Growth that play core roles in the regional economy, to utilize various support measures, such as regional networking events and expert dispatching programs, to stimulate their growth, including through overseas exports, and also sought to further extend the impact of these measures to the regional economy through intraregional and other forms of transactions.
- Strengthened support to further increase the number of companies that actively contribute to regional wage increases, work style reforms, and related initiatives. These initiatives included: establishing a platform to assist mid-sized companies and SMEs that drive the regional economy in developing new businesses; creating systems composed of regional support organizations, and local branches and bureaus of government agencies; fundamentally improving labor productivity through labor-saving measures and other methods; and supporting the promotion of large-scale capital investments aimed at business expansion.
- Vigorously worked to create “quality jobs” in mid-sized companies and SMEs by raising wages, strengthening investment in human resources development, reinforcing management power through deployment of new businesses, etc., and reforming work styles to enable the

flexible work styles demanded by the younger generation, and strengthened measures to support growth of Companies Driving Regional Growth by holding networking and other events in each region.

- Utilizing the Act for Promotion of Future Regional Investment, took actions for new add-on models in the regional future investment promotion tax system to promote the efforts of local governments that are willing to strategically take industrial policies that take advantage of their respective regional characteristics, such as industrial clusters and industrial infrastructure, in order to maximize results, taking into account environmental changes such as GX, while resources, such as human resources, are limited.
- Promoted horizontal development utilizing advanced cases of “Regional HR Department,” a region-wide efforts to recruit, foster and retain human resources, and supported the efforts of Companies Driving Regional Growth and other mid-sized companies and SMEs to promote regional work style reforms in the FY2024 initial budget. Adopted 46 initiatives from all over Japan.
- To flexibly and additionally support development of related infrastructures, including industrial water, in connection with development, etc. of industrial hubs of the national project in the semiconductor and other strategic areas, the Cabinet Office took budgetary measures of the “subsidies for promoting the development of infrastructures to support the transformation of regional industrial structures” in the FY2024 supplementary budget.
- To address the shortage of knowhow among municipalities regarding the development of industrial sites and related issues, the Japan Industrial Location Center begun providing accompanied support for project management related to industrial complex development and other initiatives. The purpose of this support is to help secure industrial sites, which are in short supply across Japan. The Ministry of Economy, Trade and Industry was concert with the Ministry of the Environment as the competent authority under the Soil Contamination Countermeasures Act regarding its considerations, from the perspective of promoting effective land use, and gave considerations aimed at rationalizing the relevant systems, among other issues.
- To address aging facilities and systems necessary for the provision of inexpensive and stable industrial water and steadily reinforce them, compiled concrete measures to improve management of industrial water providers through an examination of appropriate facility scale based on future water demand and effective planning.
- The entertainment industry brings significant dual benefits to regional economies through: (1) job creation by expanding production hubs in local areas, (2) revenue from inbound foreign visitors, and (3) revitalization of local communities through the continuous hosting of events such as music festivals. In light of these advantages, the support system for overseas expansion has been strengthened to provide close assistance.
  - Assigned content specialists to JETRO and strengthened its base functions.
  - Through the JLOX subsidies, provided support for translation and publicity for overseas expansion, support for planning, development and production, and support for attorneys fees and other expenses related to conclusion of contracts with overseas platformers.

  In addition to support for overseas expansion, provided accompanied support for commercialization to creators handling advanced digital technologies, demonstrated art-related collaborations between companies and local communities, and compiled their effects and processes.
- To establish an open development environment that enables various cutting-edge software solutions, including AI, to be incorporated into robots, and to enable robots to show higher-level decisions and operations, the budget for developing mechanisms of accumulating, using and circulating data and AI-based foundation models using such data was included in the FY2024 supplementary budget (as part of the Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems).

(Establish a vision for the economy and industry of the entire region and an ecosystem in which funds and human resources circulate)

- To form a soft infrastructure and a network that supports organizations across regions to supplement resources such as specialized professionals and large-scale funds to address management issues (e.g., M&A, DX, intellectual property, capital policy, etc.) that become more sophisticated as enterprises expand in size, and to create an environment where they

can seamlessly grow from SMEs to medium-sized firms and then to large firms. In order to create an environment in which SMEs can aim for seamless growth from SMEs to leading medium enterprises and then to large enterprises. In order to create this environment, the future ideal of the ecosystem surrounding leading medium enterprises, the barriers to achieving this ideal, and the items to be addressed by the public and private sectors were identified and discussed. In February 2025, “the Growth Vision of Leading Medium Enterprises” was formulated.

- Conducted surveys and demonstrations related to initiatives to increase productivity by achieving high added value through design, art investment, inter-disciplinary collaboration, etc. that brings out the individuality of the region.
- Supported the efforts of overseas expansion of sports and entertainment contents by Japanese sports leagues and teams.

[Creation of quality jobs (reforms of work styles and regulations that lead to “more disposable time” for young people and women)]

- To enable community-rooted SMEs to accept diverse values and manage comfortable workplaces that meet the needs of women and young workers, supported efforts of companies by promoting the use of diversity management-related leaflets for SMEs and various support tools, such as “Diversity Management Diagnosis Tool,” and by conducting investigations into, and disseminating, practical cases of companies.
- Introduction of WLB scoring during grant review...In principle, implemented point-approval measures for companies that support childcare and promote women's empowerment, while taking into account the purpose of the subsidy.
- In the “Nadeshiko Brands” program, which selects companies that excel in promoting women’s empowerment, encouraged corporate efforts by selecting companies that actively support work-life balance as “Next Nadeshiko: Companies Supporting Dual Careers and Co-parenting” and publishing their efforts as case studies (March 2025).
- Supported women-specific health issues and the balance between life events and work by providing subsidies for advanced femtech products and services demonstration projects, and by encouraging companies and municipalities to utilize them.

[Creation of a prosperous living environment (Efforts to improve the environment surrounding young people and women’s marriage, child rearing, and the lives)]

- To address various issues corresponding to individual life stages, enhance quality of life, eliminate labor shortages, and prevent job separation, the government is encouraging the use of housekeeping services that help secure disposable time, as well as life design services that facilitate independent and autonomous self-decision.
- In order to ensure diverse learning opportunities in various regions, the government is creating models that local communities support the education of the next generation in collaboration with individuals and companies, utilizing the private educational services, and donations and support from companies, etc.
- Conducted local demonstrations of projects to solve local issues centered on local-zebra companies in twenty regions throughout Japan, organized business models, and established evaluation methods for social impact, etc.

③ Measures required in the future

[Creation of quality jobs (Industrial policies that lead to "increased disposable income" through increased incomes for young people and women)]

(Growth of core businesses in the region)

- Will nurture core regional companies (SMEs that have a large impact on the regional economy, are expected to have growth potential, and are central players in the regional economic value chain) that can realize quality employment through wage increases and work style reforms, in cooperation with local governments, and put them on a further growth trajectory.
- Will encourage industry associations to eliminate business practices that inhibit price pass-through, and making efforts to intensify price pass-through in public sector demand, etc.
- Will work to further expand and improve the effectiveness of the Partnership Building Declaration.

- To fundamentally enhance the productivity of SMEs and promote their labor-saving measures, rather than merely replacing the workforce, amid a worsening labor shortage, will promote the formulation of industry-specific labor-saving plans by industry, effective enforcement of various subsidies, and provision of accompanied support for productivity improvement through professional advisors, and work on providing SMEs with support to help them enhance their added value, enter new businesses, and foster innovation. Will promote wage increases as an integral part of those measures.
- To strengthen the “earning power” of SMEs to ensure that they can sustainably achieve wage increases, will continue and strengthen growth support for SMEs that take on challenge toward a high goal of earning 10 billion yen in sales, and reinforce linkages with other policies for SMEs, including spreading this momentum for growth through this support throughout Japan.
- Continue support for successors, PMI support, and improvement of the M&A market environment to promote transformation using intra-family succession and third-party succession, including M&A, as opportunities.
- Will accelerate revitalization through steadily promotion of “Revitalization and Re-challenge Support Facilitation Package.”
- Will establish regional networks to support female entrepreneurs across Japan and provide support programs to develop and foster female entrepreneurs who can serve as role models.
- To encourage SMEs and other entities to engage in IP-based management and connect it to the enhancement of the earning power, will strengthen region-specific support systems and improve the environment, including revising the relevant systems.
  - Will accelerate the formation of region-specific IP ecosystem to facilitate management improvement based on intellectual properties. Will achieve both qualitative and quantitative enhancement of specialists while promoting the development of best practices.
  - Will consider reviewing support programs to address transnational applications and the growing risks of costly IP litigation, and promote export of highly added-value commodities to overseas markets.
  - Will amend the relevant systems in accordance with changes in the innovation creation environment faced by SMEs and other entities due to advances in AI and DX, as well as the need to ensure more appropriate transactions.
- Will increase the impact on the regional economy by providing targeted support to companies that play a central role in the regional economy through intra-regional procurement and extra-regional sale or distribution.
- Will strengthen support to create more leading medium enterprises and SMEs, which drive the regional economy, by raising productivity through new business development, labor-saving and other initiatives, raising wages to levels comparable to those in the Tokyo area, and vigorously reforming work styles, etc.
- Will ensure that the relevant ministries and agencies work closely with local support organizations to provide targeted support to companies that generate strong impact on the regional economy and create high-quality employment. Will encourage companies to enhance their brand power through the use of a logo mark of Companies Driving Regional Growth or other marking.
- Utilizing the Act for Promotion of Future Regional Investment, will promote the efforts of local governments that are willing to strategically take industrial policies that take advantage of their respective regional characteristics, such as industrial clusters and industrial infrastructure, in order to maximize results, taking into account environmental changes such as GX, while resources, such as human resources, are limited.
- In order to strengthen and connect essential supporting functions of the support organizations based on their respective roles in raising the bottom of the regional economy, will ensure that all-around support centers, which are tasked with complementing and reinforcing the regional support system while also addressing urgent and pressing policy issues such as natural disasters and the shifting of costs to downstream, appropriately share their roles with local commercial and industrial associations and chambers of commerce; leverage their strengths as nationwide organizations to share knowledge among their offices; share support skills and knowhow with local support organizations and support staff members; strengthen public relations and training programs; utilize AI and other technologies to enhance the quality of

support and increase operational efficiency; improve the management system by setting appropriate assessment indices that reflect the roles of each center (e.g., providing active support to SMEs aiming to resolve issues independently); and otherwise reinforce their systems to establish cooperation with local support organizations. Will enhance the quality of support through the improvement of skills of management instructors and increase operational efficiency to address labor shortage by ensuring that commercial and industrial associations and chambers of commerce establish a wide-area support system and otherwise encourage their members to use generative AI and other digital tools.

- Will provide support with an emphasis on projects that promote the “Regional HR Department” model to integrate region-wide efforts to recruit, foster and retain human resources; encourage inter-regional or wide-area collaboration through accompanied or horizontal support; cultivate key personnel for local companies; and align with relevant legal frameworks.
- Toward the elimination of certain issues, such as smooth land acquisition and land use adjustment procedures, and risk-averse tendencies toward industrial land and infrastructure investment by local governments, will proceed with the examinations into measures for improvement of industrial sites by municipalities and private-sector developers, including reconsidering the existing systems. METI will be concert with the Ministry of the Environment as the competent authority under the Soil Contamination Countermeasures Act regarding its considerations, from the perspective of promoting effective land use, and will aim at rationalizing the relevant systems, among other issues.
- Will expand projects for providing municipalities and other entities with accompanied support for preparation of industrial complexes in alignment with their more fine-tuned needs.
- Using the information (including non-public information) on industrial sites possessed by municipalities that have been collected through appropriate site investigations under the Factory Location Act, will establish a matching mechanism between companies searching industrial sites and municipalities, after obtaining consents of municipalities for the use of information other than for the intended purposes.
- To encourage steady responses aimed for addressing and reinforcing aging industrial water facilities, will establish a mechanism that promotes further management improvement by industrial water providers, including defining requirements for formulating effective plans in subsidized projects and taking concrete steps to promote the use of private-sector entities and digitalization.
- To foster the growth of high value-added industries, it is essential to link soft assets—not labor—to economic value. The content and creative industries are already expanding into global markets. This trend is driven by the accumulation of culture and diversity, which gives Japan inherent strength and potential, as well as by the global spread of smartphones and streaming services, which has transformed the world into a reachable consumer market. In this context, Japan must position the content and creative industries as core industries for earning foreign currency and enhancing its international presence. To this end, the government has set a goal of increasing overseas sales from 5 trillion yen to 20 trillion yen by 2033. Achieving 20 trillion yen will require an annual growth rate of approximately 13%, while the global content market is expected to grow at a rate of 5% per year. Therefore, strong initiatives are needed to compete internationally, maintain Japan’s market share, and expand it. Over the next eight years (2026–2033), Japan will implement an intensive support period to expand Japan-originated content globally. To realize this, the government will formulate and implement the “Strategies for Entertainment and Creative Industries,” which will incorporate, among other initiatives, the promotion of strategic overseas expansion through local offices abroad; support for producing internationally competitive content; enhancement of event-linked dissemination of Japan-originated content; promotion of entertainment startup formation; strengthening of international enforcement systems against the distribution of pirated content; and the creation of foundations that incentivize co-creation between artists and companies/organizations. This strategy identifies “eight gaps” to be filled in order to promote ten key areas—game, animation, comic, music, movie/video, art, design, fashion, and others—and outlines “100 actions” to address these gaps, with finalization scheduled around June. Through the execution of these actions, the strategy aims to increase the added value of other industries and enhance the earning power of tourism and inbound demand.
- Will establish an open development environment that enables various cutting-edge software solutions, including AI, to be incorporated into robots, and promote the development of

mechanisms for accumulating, using and circulating data, and of AI-based foundation models using such data to enable robots to show higher-level decisions and operations.
- Will establish a “Regional Collaboration Network for Robotics Introduction” (tentative) with local governments, reginal support organizations and others to promote robotics introduction by local SMEs and other entities.

(Establish a vision for the economy and industry of the entire region and an ecosystem in which funds and human resources circulate)
- Based on “the Growth Vision of Leading Medium Enterprises,” which was formulated in February 2025, will promote support for capital expenditure that will contribute to wage increases of growth-oriented companies, and securing of human resources necessary for achieving growth; establish a framework to enable an integrated promotion of governance enhancement and support essential for sustainable growth; formulate and implement concrete measures and other methods for promotion of exports and R&D initiatives; and establish a seamless policy system that enables companies with high growth goals to grow from a SME to a leading medium enterprises and beyond.
- Toward the realization of the “Regional Revitalization Design” that aims to create regional innovations, will improve the environment to foster startups as regional innovation players through promotion of capital procurement for startups by municipalities; support improvements of innovation hubs by local universities and national research and development agencies; construct local models utilizing contents, and local stories and products; and establish regional centers designed to foster top-level IT professionals.
- Will implement improvement, etc. of foundations to increase productivity by achieving high added value through design, art investment, inter-disciplinary collaboration, etc. that brings out the individuality of the region.
- Will contribute to the promotion of regional tourism industry by securing foreign demand and further promoting inbound demand through the overseas expansion of sports entertainment contents.
- To present nationwide reference visual images of reconstructions efforts in Fukushima, enhanced by “Regional Revitalization 2.0,” will revise the blueprint of the “Fukushima Innovation Coast Framework” around this summer.

[Creation of quality jobs (reforms of work styles and regulations that lead to “more disposable time” for young people and women)]
- Will support SMEs rooted in the community so that they can embrace diverse values and realize corporate management in which it is easy for everyone including women and young people to work.
- Will increase the number of companies that address the health issues of working women through the dissemination of the results of demonstration projects that utilize femtech.

[Creation of a prosperous living environment (Efforts to improve the environment surrounding marriage, child rearing, and the lives of young people and women)]

- As the provision of services that support regional living, such as retail and nursing care, becomes increasingly difficult, will consider supporting new mutual-aid service providers, primarily composed of cooperatives and resident-owned companies, that will aim to enhance productivity through labor-saving measures, digitalization, and cooperative efforts to maintain and develop service provision (the “Local Cooperative Platforms”).
- As demonstrated in the pilot projects for housekeeping services and life design services, these services can be expected to contribute to individual career development and quality of life enhancement. They can also support companies in empowering a diverse workforce and addressing labor shortages. We will carry out publicity activities to build a momentum for promoting the widespread adoption of these services through portal sites and other media.
- Will create a scheme to promote effective collaboration between industry and educational institutions at the primary and secondary education levels. For example, will consider scaling up good practices that have emerged in specific areas and promoting their broader implementation by building a platform.
- Under the “Basic Plan for the Promotion of Small Businesses (Phase III)”, will further enhance the earning power of small businesses to enable their independent management through the following efforts: the expansion of support for enhancement of management power by commercial and industrial associations and chambers of commerce; the strengthening of support systems by the commercial and industrial associations and chambers of commerce; the reinforcement of support for small businesses in cooperation with municipalities; and the strengthening of systems for disaster preparedness.
- By enhancing the understanding of social impact generated by local-zebra companies and systematizing the method for utilizing these social impact assessments, will develop an environment conductive to establishing a region-specific mutual-aid framework led by local-zebra companies, while strengthening collaboration with long-established companies, mid-sized and large companies, financial institutions, and other stakeholders both within and outside the region.

(6) Realization of a resilient society against disasters

① Long-term goals for the foreseeable future

- Achieve the acquisition of the global market including the adaptation market in developing countries (about 70 trillion yen in 2050).

② Progress since the Third Report

[Promote investment in corporate disaster prevention and resilience]

- Efforts were made to further promote smart security. As part of the smart security demonstration support project, supported the demonstrations of technologies that promote the adoption of smart security technologies, such as remote monitoring and control of electricity, gas, industrial complexes, and other industrial infrastructures where security is essential, as well as AI-driven automation of facility inspection operations.

[Introduction of advanced disaster prevention and mitigation solutions in municipalities]

- For the purpose of studying measures for the creation of domestic markets, continued hearings into the municipalities as the major consumers, as well as into the startups that provide advanced solutions for the prevention of disasters. Thoroughly examined the issues encountered by municipalities in preventing and responding to disasters, as well as those faced by startups in relation to service procurements, and organized the relevant policy directions.
- Initiated accompanied support for startups to help improve the “identification of damages,” which were pointed out as particularly problematic issues in previous municipal surveys. In the FY2024 SBIR Promotion Program, a program aimed at promoting research and development activities by R&D-oriented startups that contribute to resolving diverse social issues and facilitating the smooth social implementation of their results, the three startups were selected to proceed with R&D toward practical application. Also started inviting public proposals for “technologies to improve the hygienic environment of evacuation shelters” as part of the FY2025 program. The project is scheduled to begin in this autumn.

[Acquisition of overseas markets]

- Conducted surveys on various topics, including the market size, disaster prevention administration systems, regulations, and ecosystems established in countries across the Asia and Pacific region, and organized regions, products, and business models where Japanese companies may potentially participate.
- Took initiatives to promote the overseas deployment of disaster prevention and adaptation technologies. From the perspective of contributing to the resolution of social issues related to disaster prevention and adaptation, particularly in developing countries, through the support for the overseas deployment of Japanese companies’ products, technologies, and services, conducted international publicity activities for adaptation technologies at COP 29; held business matching meetings between companies in the Asia & Pacific region and Japanese companies under the “SUBARU Initiative”; carried out feasibility studies (FS) on the overseas expansion of Japanese companies; and conducted surveys on potential international rule-making aimed at promoting system improvements, demonstration support, and capital mobilization for adaptation-related initiatives.
- To promote international standardization and ecosystems construction, conducted surveys and formulated strategies for international standardization aimed at activating international risk finance to support the industrialization and overseas expansion of resilience initiatives. Held discussions with relevant Japanese stakeholders and experts to build an ecosystem and create a forum of dialogue with stakeholders within Japan and abroad.

③ Measures required in the future

[Promote investment in corporate disaster prevention and resilience]

- Will effort to further promote smart security. Will sort out possible problems when introducing smart security, examine effective ways to support technical demonstration to promote further introduction, and work on providing continuous awareness-raising or information programs for business operators.

[Introduction of advanced disaster prevention and mitigation solutions in municipalities]

- Will undertake investigations and examinations in technical fields that support the resolution of disaster prevention and mitigation issues faced by municipalities. Will continue researching local government's disaster prevention needs and companies (startups) that can provide technologies that meet these needs, and examine possible R&D support.
- Will consider measures to create domestic markets. Will aim to link the accompanied support for startups (providing specialized services including damage information identification and hygienic environment improvement) adopted in FY2024-2025 SBIR Program to the implementation of those technologies by municipalities. Will continue examining possible ways for public-private partnerships and institutional arrangements in cooperation with related ministries/agencies to facilitate service implementation by startups with limited resources.
- Will build a virtuous cycle mechanism involving data collection necessary for development, development of models, and implementation and utilization of robots, and will promote AI development in the robotics field, aiming to promote utilization of robots to solve social issues, such as application to disaster response robots. In addition, will promote establishment of a development platform that enables a variety of players, including startups, to develop robots flexibly and efficiently.

[Acquisition of overseas markets]

- Will promote overseas expansion of disaster prevention and adaptation technologies. From the perspective of contributing to the resolution of social issues related to disaster prevention and adaptation, particularly in developing countries, through the support for the overseas deployment of Japanese companies' products, technologies, and services, will enhance international publicity and dissemination activities for adapted technologies at international conferences; hold business matching meetings between companies in the Asia & Pacific region and Japanese companies under the "SUBARU Initiative"; carry out feasibility studies on the overseas expansion of Japanese companies; and consider collecting information and formulating strategies on the risk finance markets aimed at promoting system improvements, supporting demonstrations, and mobilizing capital for adaptation-related initiatives.
- With a view to promoting international standardization, will develop disaster prevention-related ISO guideline standards, launch them to relevant organizations, and aim to take a lead in creating international rules.

(7) Realization of a biomanufacturing revolution

① Long-term goals for the foreseeable future

- Achieve a total market expansion of 92 trillion yen in 2030.
- Achieve an annual domestic biotechnology-related investment of 3 trillion yen by 2030.

② Progress since the Third Report

[Acceleration of the development of microorganism/cell design platform technology and production technology]

- Discussions have been started based on the results of the adoption of the Green Innovation Fund Project and the Biomanufacturing Revolution Promotion Project, with a view to formulating measures aimed at creation and expansion of bio-derived products market. More specifically, for the Green Innovation Fund Project, taskforce discussing cross-cutting issues to consider exploring market creation has been established.
- Accumulation of data and collaboration among companies based on the research results from the Green Innovation Fund Project and the Revolution in Biomanufacturing Promotion Project has been promoted. Efforts to establish a platform has begun to promote data standardization and facilitate information sharing among companies as a common platform.
- Following the G7 (Sapporo Ministerial Conference on Climate, Energy and Environment) held in April 2023, where a common understanding was formed that biomanufacturing is the key to tackling climate change and resource shortages, consideration on how to promote international collaboration, including bilateral cooperation and the formation of multilateral rules on biotechnology, had been conducted.

[Efforts to improve the market environment]

(Acceleration of technology development)

- Since biogenetic resources are the foundation of microorganism and cell design platform technologies, the infrastructure for biogenetic resources and data platforms that accumulate biogenetic resources and related information (e.g., biological characteristics information, omics information) has been developed.

(Efforts to create and expand markets for bio-derived products)

- In order to enhance market predictability for companies working on bio-conversion of raw materials and processes, building of a mechanism to transfer the environmental value of bio-derived products into economic value has been promoted, utilizing measures based on the “Growth-oriented Carbon Pricing Concept.”
- For the commercialization of bio-based materials and products, a mechanism has been considered to quantitatively evaluate the environmental value of biomass and biotechnology utilization, such as the use of carbon footprint (CFP) and the establishment of life cycle assessment (LCA) methods, as well as a certification and crediting mechanism and a labeling method for bio-based products that reduce environmental impact.
- Toward the standardization of technologies, international standardization of bio-based products was promoted by conducting surveys on international standardization, actively participating in international standardization activities, and otherwise encouraging domestic players to engage in international standardization.
- Diversification of raw materials and sustainability has been pursued by expanding industrial use of domestic biomass and promoting utilization of unutilized resources such as CO2 and waste.
- Measures to stimulate demand have been considered with reference to the Green Purchasing Law, etc., so that markets for bio-based products can be created and expanded as soon as possible.
- In the chemical industry, the conversion of raw materials to bio-based raw materials produced from plants and other materials with low life-cycle emissions have been considered, through the use of GX Economic Transition Bonds.
- In the paper pulp industry, the conversion of raw materials to bio-based raw materials (raw materials produced from plants and other materials with low life-cycle emissions) from naphtha derived from fossil fuels have been promoted, through the use of GX Economic Transition Bonds.

[Establishment of domestic industrial base through the development of business environment, etc.]

- A bio foundry base has been continued to develop through the “Development of Production Technology for Bio-based Products to Accelerate the Realization of Carbon Recycling,” which has been implemented since FY2020, and regional bases with fundamental technologies, and developed by leveraging the strengths of each region in Japan.
- The needs for knowledge and human resources across the biomanufacturing value chain have been identified, and initiatives have been promoted to develop and secure the necessary human resources for industry, in light of the increasing demand for a variety of expertise in synthetic biology and fermentation production, AI and other digital technologies, engineering, and business management. In addition, a program for developing human resources through the use of bio-foundry centers has been implemented, leveraging initiatives such as the “Development of Production Technology for Bio-based Products to Accelerate the Realization of Carbon Recycling,” etc., which has been implemented since FY2020.
- In order to create an environment conducive to the growth of startups, support measures tailored to the challenges and needs of the industrial structure and players in domestic biomanufacturing were implemented, in coordination with the government’s overall startup support initiatives.
- To enhance the competitiveness of domestic players in laboratory equipment, measuring instruments, sensors, and reagents, for which demand is expected to grow with the expansion of the biomanufacturing sector, opportunities and mechanisms for collaboration in basic research were provided, in cooperation with relevant ministries. Support was also provided to promote collaboration with end-users and the shared use of analytical instruments in shared laboratories and academic joint-use facilities.
- The utilization and sharing of data were promoted to strengthen the competitiveness of domestic players in biomanufacturing.
- Cross-sector and industry-academia-government collaboration and dialogue among stakeholders in the biomanufacturing field- were facilitated.

③ Measures required in the future

[Accelerate the development of microorganism/cell design platform technology and production technology]

- Under the Green Innovation Fund Project, market creation will continue to be explored through a taskforce that discuss cross-cutting issues. Based on the outcomes of each project, successful cases and best practices will be shared, and relevant information will be provided to support other companies and research institutes. In addition, under the Biomanufacturing Revolution Promotion Project, the establishment of a working group will be considered to identify areas of collaboration and to accelerate concrete discussions, taking into the results of the third round of public calls.
- The accumulation of data and collaboration among companies will continued to be promoted, based on the research outcomes from the Green Innovation Fund Project and the Biomanufacturing Revolution Promotion Project. The platform developed to facilitate information sharing among companies will be utilized as a common infrastructure to accelerate the commercialization of research results. In competitive areas, strategies will be formulated to enhance competitiveness through mutual cooperation among companies, while they continue to develop their own technologies and products. Furthermore, in cooperation with relevant industry associations and regulatory authorities, transparent standards will be established to ensure safety.
- The biogenetic resource data platform at NITE (National Institute of Technology and Evaluation) will be expanded as a foundational support platform for biomanufacturing.
- International cooperation will continue to be promoted, including bilateral initiatives related to biotechnology and multilateral rule-making efforts.

[Efforts to improve the market environment]
(Acceleration of technology development)

- Since biogenetic resources are the foundation of microorganism and cell design platform technologies, the development of infrastructure for biogenetic resource and data platforms - accumulating biogenetic resources along with related information (e.g., biological characteristics and omics information)-will continue to be pursued. In addition to newly collecting microorganisms and related data that contribute to bio foundries, efforts will be made to integrate and promote utilization of information and interlinking of data on biogenetic resources held by companies, public institutions, universities, and other organizations, thereby facilitating the development of an integrated bio-digital environment and accelerating the social implementation of biomanufacturing.

(Efforts to create and expand markets for bio-derived products)

- In order to enhance market predictability for companies working on bio-conversion of raw materials and processes, a mechanism will continue to be built to transfer the environmental value of bio-derived products into economic value, along with utilization of measures under the “Growth-oriented Carbon Pricing Concept.”
- For the commercialization of bio-based materials and products, a mechanism will continue to be considered to quantitatively evaluate the environmental value of biomass and biotechnology utilization, such as the use of CFP and the establishment of LCA methods, as well as a certification and crediting mechanism and a labeling method for bio-based products that reduce environmental impact.
- Rule-making initiatives will be promoted in the biomanufacturing field by leveraging various opportunities where industry, academia and government come together. More specifically, measures will be considered efficiently and effectively by utilizing opportunities where industry, academia and government players ambitiously address common social issues, such as GX and circular economy, collaborate to develop rules.
- International standardization of bio-based products and technologies will continue to be strategically promoted by conducting surveys on international standardization, actively participating in international standardization activities, and encouraging domestic players to engage in international standardization.
- In forming a new bioeconomy market, it is essential to develop the market environment by focusing on the global market, where demand is expected to grow, rather than merely monitoring the Japanese market, where demand is anticipated to decline due to a shrinking population. More specifically, effort for rulemaking beneficial to deployment of bio-derived products based on corporate needs will be promoted through bilateral or multilateral dialogues.
- Diversification of raw materials and sustainability will continue to be pursued by expanding industrial use of domestic biomass and promoting utilization of unutilized resources such as CO2 and waste.
- Measures to stimulate demand with reference to the Green Purchasing Law, etc. will continue to be considered, so that markets for bio-based products can be created and expanded as soon as possible.
- In the chemical industry, the conversion of raw materials to bio-based raw materials produced from plants and other materials with low life-cycle emissions will continue to be considered, through the use of GX Economic Transition Bonds.
- In the pulp and paper industry, the shift to a biorefinery industry that utilizes wood pulp, which has the potential to become an alternative material to fossil fuel-based products will continue to be promoted, through the use of GX Economic Transition Bonds.

[Establishment of domestic industrial base through the development of business environment, etc.]

- A bio foundry base will continue to be developed through the “Development of Production Technology for Bio-based Products to Accelerate the Realization of Carbon Recycling,” which has been implemented since FY2020, and development of regional bases on the basis of fundamental technologies developed by leveraging the strengths of each region in Japan will be advanced.
- The needs for knowledge and human resources necessity for the biomanufacturing value chain will be identified, taking into account the increasing demand for a variety of expertise in

synthetic biology and fermentation production, AI and other digital fields, engineering, and management to lead businesses to success. By promoting efforts to develop and secure the human resources required by industry, and by continuing to implement a program to develop manufacturing human resources using bio foundry centers, utilizing the “Development of Production Technology for Bio-based Products to Accelerate the Realization of Carbon Recycling,” etc., which has been implemented since FY2020, the development of human resources capable of bridging cutting-edge research and industry will be promoted.

- To create an environment conducive to the growth of startups, support for startups in coordination with the government’s overall startup support initiatives will be continuously provided, addressing the challenges and needs of the industrial structure and players in domestic biomanufacturing.
- To enhance the competitiveness of domestic players in laboratory equipment, measuring instruments, sensors, and reagents, for which demand is expected to grow in line with the expansion of the biomanufacturing field, opportunities and mechanisms for collaboration in basic research in Japan will continuously be provided, in cooperation with related ministries. Support will continue to be provided by promoting collaboration with end-users and by encouraging the joint use of analytical instruments in shared laboratories and academic joint-use facilities.
- Data utilization and collaboration will continue to be promoted to enhance the competitiveness of domestic players in biomanufacturing.
- Industry-academia-government and cross-sector collaboration and consultation among stakeholders in the biomanufacturing area will continue to be facilitated.

(8) Establishment of a growth-oriented, resource-autonomous circular economy

① Long-term goals for the foreseeable future

- The Circular Economy market will be 80 trillion yen in 2030 and 120 trillion yen in 2050.

② Progress since the Third Report

[Reviewing systematic frameworks toward the acceleration of collaboration between arterial and venous industries]

- As part of considering expanding and reinforcing the 3Rs-related legal system, the “Act Partially Amending the Act on the Promotion of Smooth Shifting to Decarbonized Growth-Oriented Economic Structure and the Act on the Promotion of Effective Utilization of Resources,” which includes measures to impose new obligations to formulate recycled materials use plans and report implementation status periodically, and to create a top runner certification scheme to promote environmentally friendly designs, was enacted based on discussions made at the Resource Recycling and Economy Subcommittee.

[Industry-government-academia circular economy partnerships]

- In September 2023, the industry-government-academia partnership known as “Circular Partners” was launched to achieve the circular economy through industry-government-academia collaboration. Under the Circular Partners, a working group to study vision and roadmap, a working group to establish a circular economy information sharing platform, and a working group to establish a regional circulation model were established, and each conducted in-depth discussions.
  - The working group to study vision and roadmap is examining circular economy visions and roadmaps across Japan, including product-specific/material-specific visions and roadmaps, with a focus on the years 2030 and 2050.
  - The working group to establish a circular economy information sharing platform is conducting examinations to create a platform that will enable companies to share information on materials and other resources, with the goal of promoting their collaboration on transactions and resource circulations.
  - The working group to establish a regional circulation model is studying regional circulation models, which aim at building systems tailored to local characteristics, and effectively utilizing regional resources.

[Construction of an information sharing platform, etc. to ensure traceability using digital technology]

- To facilitate resource circulation transactions among companies, we are considering building a Chemical and Circular Management Platform as part of the initiatives related to the Ouranos Ecosystem, with the goal of establishing an information circulation platform, which will be used by companies to share material and other information. We are utilizing the Circular Partners' “Working Group for the Construction of a Circular Economy Information Sharing Platform”, consolidating a wide range of domestic and international knowledge and experience related to the construction of a circular economy information sharing platform, proceeding with discussions to expand use cases, and organizing a comprehensive overview of the various efforts related to the circular economy information sharing platform.

[Support for R&D and capital investment to realize CE]

- Toward the achievement of a goal of a “combined public-private sector investment of more than approximately 2 trillion yen” over the next ten years (2023 Area-specific Investment Strategies), which has been set to expand and promote collaboration of arterial and venous industries (realization of environmentally friendly designs, advancement of sorting and recycling technologies, etc.) and expansion of their scale, we have started comprehensive support ranging from technology development to demonstration and implementation in FY2024, utilizing the Japan Climate Transition Bond.

③ Measures required in the future

[Implementing new systematic frameworks toward the acceleration of collaboration between arterial and venous industries]

- Will impose legal obligations to formulate recycled materials use plans and report implementation status periodically through the revision of the Act on the Promotion of Effective Utilization of Resources, and encourage corporate proactive efforts based on their PDCA cycle, aiming at promoting creation of demand for recyclable resources. Furthermore, will legally recognize as a top runner a particularly outstanding environmentally friendly designs that contributes to resource and component-level reuse or product longevity, aiming to visualize/value recycling-friendly products and accelerate innovative manufacturing practices.
- In addition to supporting the introduction of facilities, will proceed with examining the actions necessary for institutional responses, with the goal of establishing a stable system for supply and demand of recycled materials.

[Industry-government-academia circular economy partnerships]

- Will utilize “Circular Partners” to formulate a vision/roadmap for the entire Circular Partners and incorporate them into concrete actions, advance the building of an information sharing platform including examination of new use cases, and push ahead with demonstration/implementation efforts toward establishment of a regional circulation model

[Constructing an information sharing platform, etc. to ensure traceability using digital technology]

- By the end of 2025, will establish certain components of a world-class platform commonly available across industries by accumulating use cases for platforms that share circular economy information, while leveraging mechanisms developed under the Ouranos Ecosystem and prior use cases, and incorporating industrial needs identified by the “Working Group for the Construction of a Circular Economy Information Sharing Platform.”

[Support for R&D and capital investment to realize CE]

- Will continue providing comprehensive support ranging from R&D to demonstration and implementation, utilizing the Japan Climate Transition Bond, to promote collaboration between arterial and venous industries (e.g., effective environmentally friendly designs for recycling, advancement of sorting and recycling technologies, etc.) and scale expansion to increase recycled materials supply.

<Updating Socioeconomic Operating-System (OS)>

- To **successfully solve social issues** in the areas enumerated in the mission-oriented industrial policy, it is also **essential to develop a cross-cutting foundation that complements mission-oriented industrial policies for each theme.** Efforts will be made to update socioeconomic operating systems (OS) in these areas.
- **Updating socioeconomic operating systems** will **contribute to increased domestic investment, innovations, and income**, even if they extend beyond the direct scope of individual missions. We will work on measures in these areas from these perspectives.

(9) Human Resources

① Long-term goals for the foreseeable future

- Implement measures to address labor shortages.
- Achieve sustained wage increases that exceed price increases.
- Aim to strengthen investment in human capital, and the competitiveness of human resources.

② Progress since the Third Report

[Thoroughly addressing labor shortages]

(Support for active performance of time-constrained workers)

- Supported women-specific health issues and the balance between life events and work by providing subsidies for advanced femtech products and services demonstration projects, and by encouraging companies and municipalities to adopt them.
- Promoting the use of housekeeping services that achieve diverse working styles for employees, address labor shortages, and increase retention rates, as well as the use of life design services that support employees' continuous career development, improve labor productivity, and prevent turnover.

(Disseminating human resources utilization guidelines for SMEs, etc.)

- Promoted dissemination the Guidelines on Human Resources Utilization by collecting examples of the utilization of the Guidelines and conducting seminars and workshops using such examples.

(Promoting labor-saving investments)

- In addition to the existing “catalog order type” SME’s capital investment for labor shortage subsidy, in which SMEs select and introduce general-purpose products from a catalog, a new “general type” scheme was newly created to support labor-saving investments such as introduction of tailor-made equipment/systems.

[Strengthening Efforts for Wage Increases]

(Promoting SMEs’ price pass-through measures and ensuring more appropriate transactions)

- Further intensified enforcement of the former version of the Act against Delay in Payment of Subcontract Proceeds, etc. to Subcontractors in cooperation with the Japan Fair Trade Commission and price pass-through of labor and other costs in public sector demand based on the “basic policy on governmental and other public contracts.”

(Support for enhancement of productivity by SMEs)

- With a view to securing cash sources for wage increases, added some points in subsidy screening process to applicant companies that make ambitious efforts to raise wages above the minimum wage hike range while working to improve productivity Additionally, took special measures to raise the subsidy rates in the IT introduction subsidies and other the monozukuri subsidies to support companies working on increasing the minimum wage.

(PR/publicity efforts on wage hike promotion taxation)

- Conducted publicity efforts using pamphlets, social media, and other means to promote the use of the tax system for raising wages.

[Facilitation of labor migration through activation of internal and external labor markets]

(Encouraging career development through reskilling)

- Continuing to provide integrated support for incumbents, from career counseling to reskilling and job change assistance, and continuously promote reskilling and labor mobility facilitation in an integrated manner.

(Encouraging the widespread implementation of job-based personnel management)

- In August 2024, the “Job-based Personnel Management Guidelines” were formulated in the joint names of the Cabinet Secretariat, the Ministry of Economy, Trade and Industry, and the Ministry of Health, Labour and Welfare, after discussions at the Integrated Three-Pronged Labor Market Reform Subcommittee held under the Council of New Form of Capitalism

Realization. The Guidelines includes the practical cases of 20 companies that adopted the job-based personnel management.

(Successful performance of highly-skilled foreign professionals)
- Promoted the acceptance of highly-skilled foreign professionals from the perspective of expanding business opportunities, revitalizing organizations through the diversification of human resources, and realizing innovation promotion. (details are described in “Global and Economic Security.”)

[Reskilling and human resource development by the public and private sectors]
(Estimating employment structure and enhancing education of human resources for industries)
- Estimated the employment structure in 2040 based on numerical projections in a “future outlook around 2040,” for the purpose of clarifying demand for human resources and promoting human resources development in the strategic areas based on such demand.

(Promoting to foster digital professionals)
- Started discussions aiming to realize an ecosystem for the development of digital skills by establishing a common platform that enables the management of information on the digital skills, upskilling, and skill assessment through examinations.

(Encouraging career development through reskilling)
- Provide integrated support for incumbents, from career counseling to reskilling and job change assistance, and continuously promote reskilling and labor mobility facilitation in an integrated manner.

(Fostering highly skilled professionals, including doctoral personnel)
- Established the “Guidebook for promoting the active participation of human resources with doctoral degrees in private companies” in cooperation with the Ministry of Education, Culture, Sports, Science and Technology. Also, provided grants for expenses related to joint research projects conducted by young corporate researchers pursuing doctoral degrees and universities, etc.
- In order to realize diverse learning in various regions, keep working with companies and individuals to create models that local communities support the education of the next generation, while also utilizing the vitality of private educational services and donations and support from companies, etc.

③ Measures required in the future
[Thoroughly addressing labor shortages]
(Promoting labor-saving investments)
- Will work with the Cabinet Secretariat to develop “labor-saving investment promotion plan” for the retail trade, living-related and personal services, transportation and storage, and manufacturing industries, aiming to promote the introduction of AI and robotics, as well as labor-saving investments, including DX, in industries that support local communities but face serious labor shortages

(Support for performance of diverse human resources to enhance corporate value)
- Toward fostering an environment and organizational culture where individuals with different backgrounds can perform well and leverage their abilities to drive innovation and enhance corporate value, will promote corporate efforts in diversity management by utilizing reports and other materials that highlight management approaches, corporate actions, and case studies adopted by companies.

(Support for active performance of time-constrained workers)
- Will increase the number of companies that address the health issues of working women through the dissemination of the results of demonstration projects that utilize femtech.
- Will carry out publicity activities to create momentum, while utilizing results obtained from the housekeeping service and life design service demonstration projects.

(Disseminating human resources utilization guidelines for SMEs, etc.)
- Will Promote dissemination of the Guidelines on Human Resources Utilization by collecting examples of the utilization of the Guidelines and conducting seminars and workshops using such examples.

(Further disseminating human capital management and deepening relevant efforts)
- Will aim to further spread-out human capital management (including diversity management), which have been practiced mainly by larger companies, by spreading them to small and midsize firms throughout Japan. In addition, will take measures to back up each company's business practices, aiming to further deepen human capital management efforts.

[Strengthening Efforts for Wage Increases]
(Promoting SMEs' price pass-through measures and ensuring more appropriate transactions)
- Will encourage industry associations to eliminate business practices that inhibit price pass-through, and making efforts to intensify price pass-through in public sector demand, etc.

(PR/publicity efforts on wage hike promotion taxation)
- Will conduct publicity efforts using pamphlets, social media, and other means to promote the use of the tax system for raising wages.

[Facilitation of labor migration through activation of internal and external labor markets]
(Successful performance of highly-skilled foreign professionals)
- Will cooperate with JETRO and other relevant organizations to support the utilization of highly-skilled foreign professionals by Japanese firms in Japan and abroad, while compiling opinions on initiatives that contribute to secure such talents and on the status of residence scheme. Regarding the necessary measures for efforts to secure highly-skilled foreign professionals, the government will examine and reach a conclusion with the related ministries and agencies by the end of FY2025 (Details are described in "Globalization and Economy Security.")

(Further disseminating human capital management and deepening relevant efforts)
- Will further examine possible enhancement of human capital investments disclosure scheme through formulation of human resource strategies in line with corporate management strategies, etc.

[Reskilling and human resource development by the public and private sectors]
(Estimating employment structure and enhancing education of human resources for industries)
- Will work with related ministries/agencies to provide regional human resources development discussion forum with the results of the quantification of the quantity and quality of human resources needed by industries in the future. Based on such results, industry and academia will work together to promote development and successful career of PhD holder human resources and other professionals in growth sectors, while pushing ahead with enhancing diverse learning opportunities from the elementary and secondary education stages, which will serve as the basis for such efforts.
- Will work with the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to examine feasibility of developing an industrial human resources education plan that includes flexible reorganization of faculties/departments at educational institutions and enhancement of financing from companies, by recognizing the demand side from the industrial sectors on one hand and education side at local universities, technical colleges, etc. on the other hand in an integrated manner.

(Fostering PhD professionals and promoting their active engagement)

- Will outreach and disseminate the “Guidebook for Promoting the Active Participation of Human Resources with Doctoral Degrees in Private Companies,” and advance the fostering of PhD professionals through open innovation by encouraging researchers working at companies to earn a doctoral degree through joint research with universities and other institutes.

(Promoting collaboration with primary and secondary education)

- Will create a scheme to promote effective collaboration between industry and educational institutions at the primary and secondary education levels. For example, will consider scaling up good practices that have emerged in specific areas and promoting their broader implementation by building a platform.

(Promoting to foster digital professionals)

- Will proceed with building a shared platform that enables the accumulation and visualization of data on the digital skills/upskilling of digital human resources and the skill assessment through examinations, and advance publicity strategies and cooperation with other organizations in anticipation of operational launch.

(Further disseminating human capital management and deepening relevant efforts)

- Will aim to further spread-out human capital management (including diversity management), which have been practiced mainly by larger companies, by spreading them to small and midsize firms throughout Japan. In addition, will take measures to back up each company’s business practices, aiming to further deepen human capital management efforts.

(10) Innovation / Startup

① Long-term goals for the foreseeable future

- In the amount invested in startups, 10x investment in the next 5 years (by 2027).
- Total R&D investment by the public and private sectors to total approximately 120 trillion yen from FY2021 to FY2025

② Progress since the Third Report

[Providing comprehensive support to important technological areas for Japan]

(Identifying strategic technological areas, and end-to-end support)

- Strengthened technological intelligence functions by utilizing networks of NEDO's Technology and Innovation Strategy Center (TSC), the National Institute of Advanced Industrial Science and Technology (AIST), the Japan Patent Office, and other institutions.
- Discussed initiatives aimed at exploring and collectively developing “frontier areas”—advanced technology sectors that represent the next means of livelihood for Japan—at the meeting of the Innovation Subcommittee, Innovation and Environment Subcommittee, Industrial Structure Council.
- Advanced the following initiatives, with a view to creating a quantum computing industry, also by leveraging the supplementary budget (30 billion yen for FY2023 and 51.8 billion yen for FY2024; a total of 100.9 billion yen, including the budget amount authorized for assumption of national treasury obligations).
  - Equipped the AIST G-QuAT with a quantum-classical hybrid computing environment (including quantum computers and computers with large-scale GPUs), and a testbed for material evaluation. Efforts are also underway to further enhance its functions and establish it as a world-leading global hub for quantum computing development.
  - With a view to industrializing quantum computers, launched support projects for the private-sector quantum computing initiatives, research and development of components, materials, and middleware, and human resource cultivation.
  - Supported the development of applications and the creation of use cases aimed at promoting the commercialization of quantum and classical computing technologies in the user market.
- Continue providing the ongoing R&D support through a prize-based program. Additionally, examined the application of new policy tools, including government’s ownership of assets.

(Prioritizing and strengthening R&D investment incentives)

- Examined the R&D taxation system with a view to revising it to support for more active R&D investments.
- Considered establishing a budget line to expand the startup support portfolio within national projects, as well as to foster a conductive environment.
- Reviewed the R&D project assessment system implemented by the Ministry of Economy, Trade and Industry for optimization and clarification purposes, based on the issues identified during assessments conducted after the previous review (2022).

(Upgrading human resource development and acquiring global talent)

- Established guidelines and case studies with a view to promoting “cross-boundary learning” for human resource development of large companies and startups.
- Enhanced projects to foster diverse human resources, such as entrepreneurs, young researchers, and those who challenge overseas markets, through collaboration among industry, academia, and government.
- Provided matching support and research subsidies to young researchers at universities or other institutions to facilitate the implementation of research seeds through joint research with companies.
- In order to nurture human resources that drives innovation in the future, companies, local governments, schools, and other institutions are collaborating to demonstrate measures to secure resources to provide advanced learning for children and to build ecosystem to support learning.

(Consistent support from startup to commercialization)

- Fostering deep-tech startups that give Japan a competitive edge

- Securing and fostering management talents
  - ✓ Provided support to VCs and other organizations providing matching support between management talent and university-launched startups and offered expert-accompanied support to deep-tech startups.
- R&D funding
  - ✓ Granted subsidies to deep-tech startups through NEDO (support targets also expanded to include business development), R&D subsidies to pharmaceutical startups through AMED, and support for private-sector companies and other entities for technological development, demonstration, commercialization, and related activities through the Space Strategy Fund.
  - ✓ Also granted subsidies for joint research expenses with companies to young researchers at universities and other institutions seeking to implement research seeds.
- Inflow of human resources to startups
  - ✓ Started the execution of the stock option pools under the amended Act on Strengthening Industrial Competitiveness (came into force as of September 2024).
  - ✓ Formulated and published the “Incentive Reward Guidance for Startup Growth—How to Utilize Stock Options to Attract Human Resources.”

- Established a system to support each startup in identifying relevant laws and ordinances related to the applicable regulations, and leveraging various support schemes, with the aim of removing regulatory hurdles faced when launching new business.
- To promote the adoption of the carving out process, engaged in publishing and disseminating guidance for entrepreneur-led carving out practices; providing R&D support for individuals involved in the carving-out process and for companies after the carve-out; and introducing programs for new business creation based on the carving out process.

(Promoting government-led standardization activities and strategic standardization as an integral part of industrial policies)

- For the efforts to promote the social implementation of R&D development projects, launched a new standardization follow-up project under the Biomanufacturing Reform Promotion Fund in FY2024. For the Green Innovation Fund, at least 30% of second and subsequent follow-up projects made progress in establishing standardization systems or strategies.
- To support companies, universities, and other institutions in promoting open and close strategies for joint research and development programs, certified nine projects under the OCEAN (Open & Close strategy with Exploiting Academic kNowledge) project newly established under the amended Act on Strengthening Industrial Competitiveness.

[Achievement of a virtuous cycle of high-level research and education of universities, etc. and strategic investments]

(Efforts at AIST as a pioneer of industry-academia-government cooperation)

- With the aim of encouraging the utilization of AIST facilities, established guidelines to promote the matching of startups and other entities with the need for using these facilities.

[Formation of the Largest Startup Ecosystem in Asia]
(Strengthening consolidation with global ecosystems)

- Global expansion support
  - Fostering “born global” entrepreneurs and supporting their overseas deployment
    - ✓ Supported, in cooperation with local mentors, matching with investors and business companies, recruitment of human resources, and establishment of offices at the “Global Acceleration Hub,” a startup consultation service with 30 offices across the world, and “Japan Innovation Campus,” an office for support of startups established in Silicon Valley. The “Japan Innovation Campus” accepted approximately 100 companies as its members, provided them with office spaces, and held regular networking events with investors and business companies.
    - ✓ Dispatched 673 individuals to major cities in the United States, Europe, and Asia between 2023 and 2024 under “J-StarX,” a program aimed at fostering entrepreneurs through overseas placements. Also sent representatives from a total of 60 large companies actively engaged in startups and open innovation initiatives to “VIVATECH 2024,” an open innovation festival held in Paris, France, where Japan was named “Country of the Year” for the first time. Supported Japanese individuals and companies in building networks with local business businesses and investors through these events.
    - ✓ Additionally, adopted subsidies for the Global South Future-Oriented Co-Creation Project expenses to support their business deployment in the Global South countries.
    - ✓ NEDO provided support for the overseas technology demonstration and international joint research by deep-tech startups.
  - Attracting foreign human and financial resources
    - ✓ Extended the maximum period of stay for foreign entrepreneurs to two years under the Project for Encouraging Foreign Entrepreneurs to Start Business (Startup Visa), with the aim of strengthening Japan’s industrial competitiveness, establishing an ecosystem that will serve as hub for Asia and the world, and encouraging foreign entrepreneurs to start business.
    - ✓ Made investment in Japanese startups by overseas VCs through investment by LP between Japan Investment Cooperation (JIC) and the Organization for Small & Medium Enterprises and Regional Innovation, JAPAN (SME Support Japan). JIC collaborated with overseas VCs as LP investors to host events aimed at supporting domestic startups and developing startup ecosystems.
    - ✓ Held “Startup Horizon 2024,” an international event held in Osaka in November 2024, ahead of the Expo, inviting overseas VCs, with the aim of showcasing the appeal of Japan’s ecosystems to foreign investors.
    - ✓ With a view to updating practices in investment agreements, revised the “Main Points to Consider for Sound Venture Investment Agreements in Japan,” following the comparative analysis of investment agreement practices in Japan, the United States, and other countries by the Study Group on Development of Startup Ecosystem, including startup frameworks and systems.

(Strengthening domestic financing functions and supporting growth through demand creation)

- Enhancing financing and other environment for startups
  - Expansion of growth financing at the unlisted stage
    - ✓ “Venture Capitals: Recommendations and Hopes,” a guideline aimed at enhancing venture capital governance, was developed and published by the Expert Panel on Venture Capital Funds, co-hosted by the Financial Services Agency and the Ministry of Economy, Trade and Industry.
    - ✓ Direct investments in startups were made, including LP investment in VCs by JIC and SME Support Japan, as well as secondary investment by JIC-VGI.
    - ✓ To promote cash inflows to VCs by encouraging fair value valuation (fair market valuation), the Accounting Standards Board of Japan reviewed the accounting treatment of equity interests held by listed companies, etc. (fair value valuation of unlisted shares, etc.) and published their findings in the Practical Guidelines on Accounting for Financial Instruments (Draft).

- ✓ SME Support Japan guaranteed certain obligations, from the perspective of promoting the use of venture debt. In addition, the Japanese Bankers Association formulated "Handbook for Startup Financing Practice," which was published to its member banks.
- ✓ Expanded the angel tax system to encourage inflows of capital from individuals (extension of reinvestment period).
- ✓ Sought to promote investment in, and mergers and acquisitions of, startups through the utilization of the open innovation promotion taxation.

➢ Promoting growth after listing
- ✓ Proceeded with the examination to promote mergers and acquisitions by reviewing optimal financial reporting practice for goodwill.
- ✓ Discussed revisions to the Continued Listing Criteria of the Growth Market at the Council of Experts Concerning the Follow-up of Market Restructuring (with its secretariat in the Tokyo Stock Exchange), in which the Financial Services Agency and the Ministry of Economy, Trade and Industry participate as observers.

➢ Expanding public procurement
- ✓ With the aim of expanding sales channels for startups in public procurement, promoted SBIR (research and development support toward public procurement), relaxed the eligibility for startups receiving public-private funding to participate in biddings, and reorganized the no-bid contract scheme to increase procurement from startups.

[Establishing appropriate investment environment by addressing globalization, digitalization and corporate governance]
(Promoting IP policies addressing changes of the times, such as globalization, digitalization, and AI)
- Conducted research on license fee rates, IP funds, etc. for technology mobility among companies and research institutions driving innovation.

③ Measures required in the future
The Innovation Subcommittee, Innovation and Environment Subcommittee, Industrial Structure Council will continue discussions on innovation policies in the age in which "science and business are coming closer together," including topics such as collective, end-to-end support for technological fields critical to the state (human resource development and attraction, research and development, capital expenditure, startups, rulemaking, etc.), collective support for globally competitive and "growing universities," industry-academia-government collaboration, the formation of Asia's largest startup ecosystem, the development of an innovation-focused investment environment, until April 16, 2025 and present a draft interim summary. Major points of issue are as described below.

[Providing seamless and intensive support to important technological areas for Japan]
(Identifying strategic technological areas, and end-to-end support)
- Will work with the Council for Science, Technology and Innovation (CSTI) and the Cabinet Secretariat's National Security Secretariat (NSS) to examine possible strategic technology areas and seamless support programs for such areas.

(Prioritizing and strengthening R&D investment incentives)
- In terms of R&D tax system, examine the feasibility of strengthening incentives to expand corporate R&D investment in strategically important technologies, strengthen collaboration between companies and key R&D centers such as universities, promote utilization of doctoral-level personnel at corporations, promote R&D not only in the manufacturing sector but also in the non-manufacturing sector, and expand R&D investment that will contribute to growth of SMEs.
- In terms of R&D tax system, etc., will examine enhancement of incentives to ensure an internationally highly-competitive innovation location environment.
- Will improve various implementation systems to reduce the burdens associated with implementing R&D projects, and examine measures that promote commercialization and ensure the flexible use facilities after the end of R&D projects, thereby enabling business operators to demote themselves to R&D activities.

(Developing R&D foundations centered on top-tier scientists and testbeds)

- Will examine the budget system to maximize the potential of top-tier scientists and the measures to nurture young professionals, aiming to foster the next generation of top-tier scientists in advanced science and technology fields, and promote the development of innovation hubs that bring together diverse expertise from industry, academia, and government, including these researchers.

(Upgrading human resource development and acquiring global talent)

- Will further encourage human resource development through industry-academia-government collaboration, human resource development/recruitment tailored to the characteristics of technology fields such as quantum technologies, and utilization of doctoral-level human resources. Will organize institutional issues to attract innovation professionals to Japan, examine the necessary actions to achieve this goal, and expand internship opportunities for Indian graduate students and other international students studying in Japan, and hold job fairs in Asian countries.
- Will ensure that the existing guidelines and case studies aimed at promoting “cross-border learning” are widely disseminated.
- Will create a framework to promote effective collaboration between industry and educational institutions at the primary and secondary education levels; for example, will consider scaling up good practices that have emerged in specific areas and promoting their broader implementation by building a platform.

(Consistent support from startup to commercialization)

- Will promote NEDO’s end-to-end support to deep-tech startups from startup to commercialization. Will promote the creation of new businesses based on research outcomes from universities, research institutions, etc., in particular, by creating significant growth examples through capital investment support based on the amended Industrial Competitiveness Enhancement Act, fostering entrepreneurship among researchers, and providing matchmaking services with corporate management personnel, etc.
- With the aim of creating regional innovations, will improve the environment to foster startups as regional innovation players through promotion of capital procurement for startups by municipalities; support improvements of innovation hubs by local universities and national research and development agencies; construct local models utilizing contents, and local stories and products; and establish regional centers designed to foster top-level IT professionals.

(Promoting government-led standardization activities and strategic standardization as an integral part of industrial policies)

- The state will lead strategic standardization activities as an integral part of its industrial policies in certain fields of high uncertainty, in order to respond to the accelerating pace of rulemaking amid increasingly fierce and complex global competition for market dominance.
- Will establish an appropriate scheme to seamlessly advance from standardization strategy formulation to specification development/utilization.
- Will work to gather expertise by securing and developing professionals in standardization strategy, with the aim of formulating a roadmap for standardization strategy across the entire field.
- With the aim of successfully developing standards based on the roadmap for standardization strategy, will make efforts to accelerate the development and proposal of international standards by a group of top-runner companies, strengthen international cooperation, recruit and nurture professionals involved in standards development and related negotiations, ensure continuous negotiations through a well-prepared framework, and establish a mechanism for the active use of the developed standards.
- Will ensure that domestic certification organizations can respond to foreign regulations by cooperating with their foreign counterparts and make efforts to strengthen domestic certification organizations through human resource development, fundamental measures to improve the efficiency of certification operations, and the enhancement of certification infrastructure aligned with industrial policies, in preparation for GX-ETS Phase 2.
- Will organize knowhow and expertise and consider further initiatives based on the demonstrations of advanced cases studies where open & close strategies have been

formulated, with the aim of promoting the social implementation of joint R&D outcomes by companies, universities, and other institutions, entities.

[Achievement of a virtuous cycle of high-level research and education of universities, etc. and strategic investments]
(Providing intensive support for “growing universities” through global competition, and improving the systems)

- Will examine the ideal institutional framework necessary for “growing universities” to aim to achieve further growth by securing and utilizing diverse financial sources, including by revising the guidelines for strengthening joint research through industry-academia-government joint research cooperation.
- With the aim of creating innovation by leveraging the research capabilities and human resource supplies of universities in local communities, will advance the developments of incubation facilities and other joint research facilities with companies and other institutions at local universities.

(Growth by taking in industrial needs within Japan and abroad)

- Will set up a forum for industry-academia dialogue to generate new forms of cooperation and strengthen incentive measures for companies to deepen cooperation with universities and other institutions from a medium- and long-term perspective, with a view to enhancing industry-academia-government partnerships. Will consider providing support initiatives to research professionals, including encouraging universities to strengthen their functions to attract collaboration with foreign companies and establishing graduate schools utilizing funds from industry.

(Efforts of AIST as a pioneer)

- AIST aims to serve as a “core of Japan’s innovation ecosystem” by continuously generating innovations that contribute to solving social problems and strengthening Japan’s industrial competitiveness.
- AIST will leverage AIST Solutions (AISol) to promote social implementation of R&D outcomes through, among other efforts, AIST’s collaboration with companies and other institutions, as well as the use of its intellectual property.
- AIST will expand its initiatives related to Bridge Innovation Laboratories, wherein R&D activities are promoted with regional universities and other institutions based on the needs and characteristics of regional companies, thereby accelerating regional innovations driven by AIST,
- With the aim of making the best use of facilities and other equipment developed by AIST, the institute will establish a sharing scheme by leveraging AISol, an organization to support the utilization of AIST’s research results. At the same time, AIST will consider future measures to link this scheme with sharing efforts by other players, including universities, and expand it as an R&D infrastructure.

[Formation of the Largest Startup Ecosystem in Asia]
(Strengthening consolidation with global ecosystems)

- Strengthening consolidation with global ecosystems, and end-to-end support from startup to commercialization
  - Will launch JETRO’s overseas consultation services for startups (Global Acceleration Hub) and the overseas dispatch and development program for entrepreneurs and others (J-StarX) to support startups in expanding their business overseas and providing research, demonstration and other services in the Global South countries and elsewhere and establish a new J-StarX program for young investors to foster capitalists with a global perspective.
  - Will examine the necessary measures for an ideal taxation system for special tax measures for foreign partners (foreign investors) (special measures for taxation on permanent establishments), particularly when encouraging foreign limited partners to invest in Japanese general partners, taking into account policy needs and issues. Also, will consider measures to attract foreign investment, such as establishing a dedicated team to support foreign investors, including foreign venture capitalists who are interested in Japan, from evaluating investments in Japanese startups to exploring opportunities and executing investments.

- Will make efforts to attract foreign investors and others to Japan by utilizing the startup visa system amended in January 2025 (in which the maximum period of stay was extended to two years).

(Strengthening domestic financing functions and supporting growth through demand creation)

- Diversifying startups' growth channels through M&A, and investor exits
  - Will examine the necessary measures to diversify startups' growth channels through M&A, and investor exits, taking into account issues including policy needs and convenience, particularly related to the taxation to encourage open innovations, and the ideal form of taxation to encourage open innovations and development of a startup ecosystem involving large companies and others. Examine the promotion of M&A by considering the state of financial reporting on goodwill.
  - Currently, SME Support Japan's obligation guarantee system applies only to unlisted startups, from the perspective of supporting seamless growth "before" and "after" listing. Will consider expanding the system to also cover listed startups.
- Promoting public and private sector procurement to create demand
  - Will promote the use of measures to promote public procurement, such as schemes that allow eligible startups to participate in bidding and enter into no-bid contracts, as well as public procurement facilitated by the new reginal economy and living environment creation grant and advance the consideration of further measures including SBIR in collaboration with relevant ministries and agencies.
  - Will support the development of startups through collaboration with large companies and other stakeholders, among other means, by formulating and disseminating procurement and purchasing guidelines, as well as model agreements aimed at fostering co-creation between startups, and large companies and other stakeholders; encouraging procurement by large companies and other stakeholders from startups based on these guidelines; supporting startups that help address management challenges faced by large companies and other stakeholders; and further leveraging the "power to scale" of large companies.

[Establishing appropriate investment environment by addressing globalization, digitalization and corporate governance]

(Strengthening the connection between the innovation environment and the global world)

- Will strengthen connections with startup ecosystems in Silicon Valley and other cities (reprinted), promote dialogue with South Korea, Singapore, and other countries, and continue and strengthen support for international joint research projects, with the aim of more deeply connecting Japan's R&D and innovation environment with the ecosystems of partner countries, including the United States, Europe, South Korea, and Singapore.

(Promoting IP policies addressing changes of the times, such as globalization, digitalization, and AI)

- Patent rights and other intellectual property are often treated as tools for protecting the outcomes of inventions. However, there is a growing need to leverage them as tools for enhancing management sophistication, driving growth investment, and achieving innovation, as exemplified by the recent open &close strategies. However, not only startups and SMEs but also large companies often struggle to manage such intellectual property appropriately. Given such a situation, we will work with relevant ministries, agencies, and municipalities to enhance accompanied support, human resource development support, and other forms of support, taking into account the issues in different business phases, and establish a seamless support system that reflects regional characteristics and appropriately review the intellectual property rights system to reflect the DX era, with the aim of promoting the effective use of intellectual property.

(Promoting dialogue with capital market, corporate governance, and innovation investment)

- Regarding growth investment, it has been observed that differences in perception between companies and the capital market have hindered sufficient dialogue between them; and that a formalistic focus on improving indicators such as ROE has led to unintended negative consequences. In light of these findings, we will strive to improve the environment so that companies can confidently take on risk both in Japan and abroad and take steps toward R&D and growth investments, including in human resources. We will promote such environmental

improvement and provide targeted support to help companies build relationships with investors to co-create value and make bold growth investments by formulating medium- and long-term growth strategies.

(11) Value Creation Management

① Long-term goals for the foreseeable future

- Ratio of Japanese representative companies (assuming TOPIX 500 companies) with a P/B ratio of 1x or more in 2030 from about 60% to about 80% (on par with STOXX 600 in Europe).

② Progress since the Third Report

[Establishing appropriate schemes that will support growth-oriented corporate business judgments (corporate management reform)]

- Held a meeting of the Round Table Conference on Improving of Sustainable Corporate Value and discussed issues and factors after reviewing the efforts and performance of companies to improve their corporate value over the 10 years since the Ito Report was published in 2014. In June 2024, published "Chair's Interim Report," which reorganized the number of challenges presented previously to the following five and identified the issues: [i] gaps in recognition of corporate value between companies and investors; [ii] importance of management with a long-term perspective; [iii] need for strengthening of management team systems; [iv] strengthening Board effectiveness; and [v] revitalizing capital markets.
- Held a round table meeting on ideal approaches to company disclosure. The current status of disclosure of Japanese companies was assessed by comparing it with that of foreign companies, and ideal approaches to disclosure for Japanese companies were discussed. An interim report was published in June 2024, presenting the challenges that Japanese companies face on disclosure, including the duplication of information between disclosure documents, as well as the future direction.
- Held a meeting of the Study Group on Corporate Governance toward the Enhancement of Earning Power and discussed, among other issues, approaches that Japanese companies should take in enhancing their "earning power," as well as future direction of amending to the Companies Act. In January 2025, published the "Report on Amendment of the Companies Act," in which suggestions about amending the Companies Act that will contribute to expanding corporate options to encourage corporate managements' bold risk-taking or growth investment and promoting meaningful engagement between companies and their shareholders (by making dialogue more substantial and efficient) were put forward.
- Aiming to introduce measures, including establishing procedures that allow business operators to make adjustment to rights related to their financial obligations through a majority vote by creditors and approval from the competent court to facilitate early business revitalization of business operators that are likely to face economic difficulties, the "Bill on Procedures for the Adjustment to Debts by Business Operators to Financial Institutions to Facilitate Smooth Business Revitalization" (the Early Business Revitalization Bill) was approved at the Cabinet meeting in March 2025, and subsequently was submitted to the 217th Ordinary Session of the Diet.
- Recognizing the importance of roles fulfilled by medium-sized companies in the transition to a growth-oriented economy driven by wage increases and investment, the "Medium-sized Company Growth Vision," which summarizes the roles and challenges of medium-sized companies and the issues that need to be addressed by the public and private sectors, was formulated in February 2025.
- Held the SX (Sustainability Transformation) Symposium 2024 in May 2024, including SX Brands 2024 certification ceremony. Under the framework of Japan-U.S. Commerce and Industry Partnership (JUCIP), a round table conference was held, with the participation of U.S. and Japanese investors and companies. The conference aimed to promote increased investment in Japanese companies by both domestic and foreign investors. The second "SX Brand 2025" was selected in May 2025.
- Based on the discussions of the "Study Group on Corporate Governance toward the Enhancement of Earning Power," guidelines have been formulated to support corporate governance initiatives that contribute to enhancing the "earning power" of Japanese companies, including the "Five Principles of the Board of Directors for Enhancing Earning Power" to ensure that the Board of Directors and management, including the CEO, fulfill their functions in accordance with their roles.
- Developed a draft reference model as a single model to practice in the finance sector in terms of CX (corporate transformation), which redefines and reorganizes the roles of the 3 core

functions (finance (CFO), HR (CHRO), and digital (CIO/CDO) for allocating management resources.

[Improving capital and financial markets supporting growth investment (capital market reforms)]
(Working in collaboration with TSE initiatives)

- In the Council of Experts Concerning the Follow-up of Market Restructuring (with its secretariat in the Tokyo Stock Exchange), we continued to promote management with an awareness of the cost of capital and stock price, for example, by monitoring the status of formulation and disclosure regarding analysis of the current status and improvement plans for return on capital such as ROE and market valuation such as P/B ratio by Prime and Standard-listed companies.

(Working in collaboration with relevant ministries and agencies' initiatives)

- After discussions at the Working Group on the Asset Owner Principles under the "Sub-Committee on Promoting Japan as a Leading Asset Management Center of the Council of New Form of Capitalism Realization," the "Asset Owner Principles" were formulated as the common principles for asset owners' investment, governance, and risk management, from the perspective of ensuring that asset owners achieve their respective investment purposes and goals and fulfill their responsibility for bringing appropriate investment returns to beneficiaries and others.
- In the Expert Panel on the Stewardship Code (with its secretariat in the Financial Services Agency), discussions were conducted on encouraging collaborative engagement that contributes to dialogue with constructive objectives and possibly revising the Stewardship Code to make beneficial owners more transparent, from the perspective of making the stewardship activities more substantial.

③ Measures Required in the Future

In October 2024, the "Subcommittee on Value Creation Management" was established under the Committee on New Direction of Economic and Industrial Policies, Industrial Structure Council, with the aim of building a social system that supports companies in executing their growth strategies both in Japan and abroad, and of examining policy frameworks to attract growth investment to Japan, ultimately contributing to the sustainable growth of Japanese companies and the mid- and long-term enhancement of their corporate value. An interim report was compiled in spring of 2025. Measures required in the future, including the issues under discussion at the subcommittee, are as described below.

[Establishing appropriate schemes that will support growth-oriented corporate business judgments (corporate management reform)]

- Will continue examining ideal approaches to improve the environment for spin-offs to focus on core businesses (the partial spin-off taxation system aimed at the promotion of startup incubation by large companies was established in FY2023, which will expire at the end of FY2027).
- Will continue to consider how business environment can be designed to support business combinations and collaborations among companies, which are essential for optimizing business portfolios.
- Based on the "Report on Amendment of the Companies Act" published in January 2025, will collaborate with relevant ministries and agencies to examine the following matters, toward the amendment to the Companies Act that contribute to expanding corporate options to encourage corporate management' bold risk-taking or growth investment and promoting meaningful engagement between companies and their shareholders (by making dialogue more substantial and efficient).
  - Allowing companies to issue shares without contribution to their employees and other stakeholders to promote investment in human capital.
  - Expansion of companies that can be targeted for mergers and acquisitions using shares as consideration to increase growth investment options
  - Allowing executive directors and executive officers to enter into agreement limiting liability
  - Helping companies to acquire information on beneficial shareholders
  - Rationalization of shareholder's right to propose

- Will continue examining feasibility of establishing a framework to promote enhancement of governance of SMEs (such as developing rules to build family governance) and provide support in an integrated manner.
- Through screening of the SX Brands, will aim for a revival of Japanese stock and a sustainable increase in corporate value by promoting a change in the mindset of corporate management and management reform, reassessment of Japanese companies by investors in Japan and overseas, and the formation of new expectations in the market.
- CX is considered to strengthen management foundations and organizational capabilities for effective utilization of management resources in a globally integrated and fully optimized manner and, thereby, to encourage companies to optimize their business portfolios and to execute growth investments, both for the sustainable enhancement of their corporate value. Given this, will continue formulating and disseminating reference models.
- Will select companies that have successfully achieved fundamental reforms and are working to strengthen new grow and competitiveness through the use of digital technologies as DX Stocks, and communicate them. By doing so, will make efforts to create companies that will increase their corporate value through DX initiatives, and look into possible policy actions to make investors, etc. understand corporate DX efforts.
- Toward fostering an environment and organizational culture where individuals with different backgrounds can perform well and leverage their abilities to drive innovation and enhance corporate value, will promote corporate efforts in diversity management by utilizing reports and other materials that highlight management approaches, corporate actions, and case studies adopted by companies.
- Will further examine possible enhancement of human capital investments disclosure scheme through formulation of human resource strategies in line with corporate management strategies, etc.
- Will make available results of 2040 employment structure estimate based on the quantitation of a “future outlook around 2040” to forums that discuss ideal approaches to fostering regional human resources. Based on such results, industry and academia will work together to promote development and successful career of PhD holder human resources and other professionals in growth sectors, while pushing ahead with enhancing diverse learning opportunities from the base education stages, which will serve as the basis for such efforts.
- Will work with the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to examine feasibility of developing an industrial human resources education plan that includes flexible reorganization of faculties/departments at educational institutions and enhancement of financing from companies, by recognizing the demand side from the industrial sectors on one hand and education side at local universities, technical colleges, etc. on the other hand in an integrated manner.
- Will outreach and disseminate “Guidebook for promoting the active participation of human resources with doctoral degrees in private companies,” and advance the fostering of PhD professionals through open innovation by encouraging researchers working at companies to earn a doctoral degree utilizing joint research with universities and other institutes.
- Will aim to further spread-out human capital management (including diversity management), which have been practiced mainly by larger companies, by spreading them to small and midsize firms throughout Japan. In addition, will take measures to back up each company’s business practices, aiming to further deepen human capital management efforts.

[Improving capital and financial markets that will support growth investment (capital market reforms)]

(Equity)

- As the growth of startups is anticipated, and transactions such as M&A, business succession, and going private are expected to become increasingly active, it is important to develop a fundraising environment that sustains and bridges the unlisted market and listed markets. To this end, with a view of developing an environment where various forms of risk capitals are appropriately supplied, with the aim of:
  - broaden the base of participants, including engagement funds, private equity (PE), venture capital (VC), and other players through support for launching emerging funds;
  - procuring investment in private-sector funds, such as PE, and expanding the tier of players capable of handling larger-scale transactions

we will consider leveraging the investment functions of public entities, such as government-private-sector funds, while ensuring that their efforts complement private-sector businesses.

- To achieve a seamless transition between unlisted and listed markets, we will consider developing an environment that allows companies to flexibly choose either status based on their corporate needs, and enabling them to procure growth capital at any stage.
- Leveraging foreign capital can enhance corporate value through promoting global expansion, fostering innovation, or other means, as it entails incorporation of foreign money, technologies, business models, networks, and other resources. However, such use of foreign capital by Japanese companies remains limited. To this situation, a “Guidebook for Leveraging Foreign Capital to Enhance Corporate Value (tentative)” has been created and disseminated, thereby enabling Japanese companies to consider leveraging foreign capital as one of the options for their management strategies.

(Debt)

- In the growth areas characterized by high uncertainty and significant business risks, such as GX and DX, global competition for leadership through investment is intensifying, and the scale of investment, including M&A, is expanding. In such a situation, it is important for companies to diversify their methods of funding growth capital. To this end, we will consider, among other measures:
  - diversifying funding methods by promoting business loans that do not rely on collateral or guarantee
  - exploring ideal forms of cooperation among mega banks, regional banks, and other government-affiliated financial institutions supporting growth investment of companies
  - implementing measures to expand the range of diverse non-bank debt providers.
- Will consider offering equal-footing conditions for bond/note issuances and financing (enhancing bondholders/noteholders protection through effective covenants), or activating bond/note market, to make bond/note issuance and ownership more attractive to companies and investors, respectively.

[Improving the environment to attract growth investment in Japan]

- It is essential to create added value through domestic investment and improved site selectins, and to support companies that strive to enhance productivity through investment in human capital. Will reexamine R&D and capital investment support programs to make them growth investment-type projects by taking policy actions including corporation tax incentives.

(12) Public administration: EBPM and data-driven administration

① Long-term goals for the foreseeable future

- Replacement of industry (challenge to new policies or abolition of existing policies), and upgrading of policies (including qualitative changes in policies and ensuring continuity in accordance with medium- and long-term objectives).

② Progress since the Third Report

[Implementing EBPM for specific projects/policies]

- Evaluated policy effects within METI's policy framework (seven policies), and in particular, took initiatives for GX policies and semiconductor policies within the framework of the Cabinet Office's Council on Economic and Fiscal Policy. With respect to the effectiveness of project-based policies, promoted the proper setting and evaluation of outcomes and other factors through the administrative project review sheets, and conducted focused evidence-based policy making (EBPM) for large-scale projects.
  - The GX and semiconductor policies were discussed by the Committee for Promoting the Integrated Economic and Fiscal Reforms under the Council on Economic and Fiscal Policy as "important policies which will have a significant impact on the economy and public finances" in the "Basic Policy on Economic and Fiscal Management and Reform 2024" (June 21, 2024 Cabinet Decision). These discussions were compiled in the "EBPM Action Plan 2024" and "Progress Management, Inspection and Evaluation table," which were reported and finalized at the meeting of the Council on Economic and Fiscal Policy held on December 26, 2024.
  - For each project, prepared administrative project review sheets and requested budget allocations based on the 9-category performance indicator setting guidelines created for FY2024 for ministry internal use to improve the quality of logic models, etc. of each project.
  - In addition to the above, we reviewed and formalized the process for implementing focused EBPM, particularly for large-scale projects, including preparing effect verification scenarios and identifying necessary data. Under that framework, proceeded with the formulation and publication of effect verification scenarios for the eleven projects listed below (previously selected seven projects, plus four newly added projects), as well as the monitoring of progress, leveraging insights from RIETI and other institutions.
    - Specified Semiconductor Fund
    - Green Innovation Fund
    - Project to Accelerate Biomanufacturing Revolution
    - Space Strategy Fund
    - Global South Future-Oriented Co-Creation Project
    - Subsidies for large-scale growth investments, such as labor-saving investments, etc., to raise wages of SMEs
    - Project to support labor-saving investments by SMEs
    - Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems (project for accelerating development toward the industrialization of Quantum Computers) [New]
    - Project to promote the productivity reforms of SMEs (growth acceleration subsidy for SMEs) [New]
    - Charging and filling infrastructure projects to promote the widespread use of clean energy vehicles [New]
    - Project to diversify and stabilize mineral supply chain [New]
  - To ensure focused and effective implementation of EBPM in large-scale projects, compiled various insights, knowhow, and verification methods accumulated to date as a guidebook for internal use within the Ministry.

[Maintenance of data]

- Simplified and accelerated procedures to use questionnaire information in official statistics.
- Examined ideal approaches to utilize the data held by each bureau and division within the Ministry for policymaking, monitoring, and effect verification, and advanced discussions and initiatives for the trial use and improvement of various dashboards.
- Developed the environment that would enable the publication of indicators for monitoring the

effectiveness and progress of policies in a form that is easy for the public to understand using BI (Business Intelligence) tools.
- Examined ideal approaches to utilize the data held by each bureau and division within the Ministry for policymaking, monitoring, and effect verification, and advanced discussions and initiatives aimed at the trial use and improvement of various dashboards. These efforts contributed to expanding the human resources base related to EBPM, particularly in connection with the effective use of data for EBPM and economic and industrial policymaking.

[Digitalization in operations and administrative procedures]
- Promoted the online processing of administrative procedures within the Ministry of Economy, Trade and Industry, including actions required by the end of 2025 under the Regulatory Reform Implementation Plan (June 2021). Also conducted comprehensive investigations into the digitalization status of all administrative procedures under the legislation governed by the Ministry of Economy, Trade and Industry to identify the current situation.
- Introduced generative AI utilization environment in June 2024 on the ministry-wide basis and pushing ahead with expanding some use cases in the Ministry, aiming at encouraging operational efficiency or advanced policymaking. Verified audio file transcription and OCR functions to support the broader adoption of effective tool functions for operational efficiency and other purposes, yielding meaningful results.

[Improve staff literacy]
- A training program was conducted for some staff members to improve their literacy on EBPM and data utilization.
- Implemented several small-scale hands-on training programs for employees seeking to use BI tools for data visualization, and also provided several training sessions to enhance the literacy required for using generative AI adopted across the Ministry.

③ Measures required in the future
[Implementing EBPM for individual projects/policies]
- Will make efforts to collect data and identify the effects of GX policies and semiconductor policies based on the “EBPM Action Plan 2024” and “Progress Management, Inspection and Evaluation table” as decided by the Council on Economic and Fiscal Policy, and utilize these data in policy planning, etc. Will monitor and verify the effects of specific semiconductor funds under this framework, rather than conducting EBPM at the project level as in the past.
- Will continue to prepare administrative project review sheets and request budget allocations based on the 9-category performance indicator setting guidelines created for FY2024 for ministry internal use to improve the quality of logic models, etc. of each project.
- Will further add eligible large-scale projects as necessary; appropriately creating logic models, monitoring projects and verifying outcomes at the appropriate timing based on RIETI insights and in line with the new EBPM implementation process, and conducting intensive EBPM to contribute to improved projects.
- For the above, will fully utilize the EBPM guidebook for policymaking and policy effect verification of large-scale budget projects, aiming to push ahead with effective and efficient EBPM.

[Maintenance of data]
- In anticipation of digitalization of operations and administrative procedures, will continue to utilize more advanced data in fulfilling duties, and to establish appropriate environment helpful for data-based policymaking in terms of data held by departments/divisions in the Ministry.
- Will continue studying the environment that will enable the publication of indicators for monitoring the effectiveness and progress of policies in a form that is easy for the public to understand using BI (Business Intelligence) tools and other means.
- Will identify the data necessary for verification prior to the start of open call and reflecting them in the application forms, etc., to push ahead with effective policy making, monitoring, and effectiveness verification.

[Digitalization in operations and administrative procedures]

- Will steadily promote the online processing of administrative procedures within the Ministry, which is scheduled by the end of 2025, and develop and push ahead with a plan to make the Ministry's other administrative procedures online as soon as possible.
- Will strive to get across actual cases of improved operational efficiencies due to generative AI introduced on the Ministry-wide basis; suggest desirable operational practices that use generative AI; and push ahead with effective generative AI utilization by putting higher priority on implementing highly-cost effective operational efficiency capabilities, taking into consideration the latest technological trend.
- Will develop an appropriate environment such as business application creation tools and rules for their use, and establish related training projects or accompanying support programs, taking the opportunity of transition to the "GSS" operational environment provided by the Digital Agency, thereby supporting further digitalization of operational processes within the Ministry to make them more efficient.

[Improve staff literacy]

- Will examine improvement in training programs for staff to improve their literacy in EBPM and data utilization, so that they will be able to acquire the knowledge and skills needed to generate useful evidence at each stage of the policy process.
- Will examine and systematically organize the DX literacy required for employees of the Ministry of Economy, Trade and Industry, as well as the ideal learning approaches for developing human resources, with the aim of further promoting the use of digital technologies.
- Will examine and implement effective training and other programs to enhance the DX literacy of employees, based on the organized ideal approaches to human resource development, and also taking into account differences in job positions, required expertise, and other relevant factors.