Future Society 2050

Mitsubishi Research Institute, Inc.

Introduction

Mitsubishi Research Institute images the desirable world in 2050 as an "affluent and sustainable" world. To achieve this world, it is imperative to reach multilateral consensus among countries that share common interests. These common interests include fundamental values, such as respect for basic human rights, the rule of law, respect for privacy, and the importance of sustainability, as well as morals and social norms based on these values. They must be recognized not just by leading nations like the United States and China but also by emerging countries.

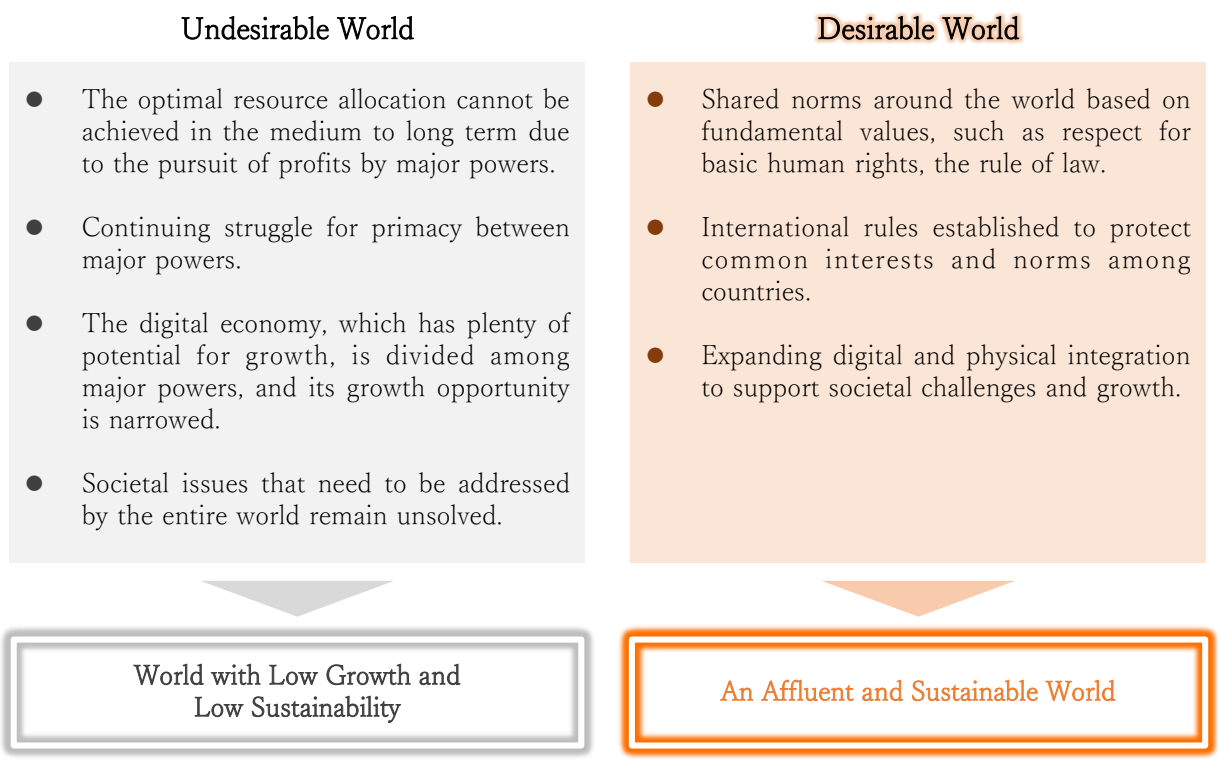
On the other hand, if we look at the global economy through 2050, we expect further polarization. In addition to the United States and China, economies such as India will emerge that will intensify conflicts over hegemony. If an affluent and sustainable world is not realized, polarization will intensify and a free and open international economic system based on international rules will no longer be sustainable. This will make it difficult to form the multilateral consensus necessary to resolve global societal issues, such as climate change.

How must we go about addressing the global trends of importance in pursuing an affluent and sustainable world? Digital technology is expected to bring various changes to international relations, the public sector, the business sector, and individuals. Six major trends that will affect the world through 2050 are identified as follows:

Six Major Trends toward 2050

1. The Emergence of the Digital and Platform Economy
2. International Order without Hegemony
3. A Circular Society with Less Carbon Emissions
4. Changing Role of Government
5. Society Containing Diverse Communities
6. Changing Life through New Technologies

Figure 1 | The Desirable and Undesirable World



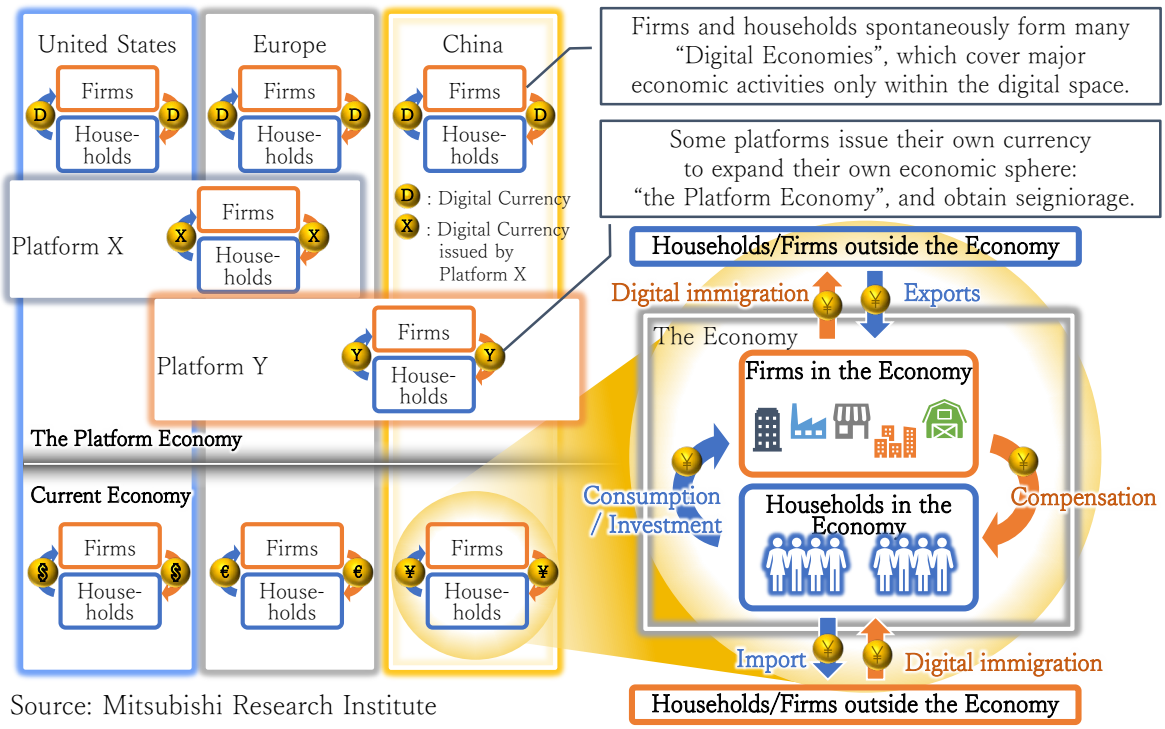
Source: Mitsubishi Research Institute

Trend 1 The Emergence of the Digital and Platform Economy

Growing Economic Zone in Digital and Platform Economy

Digital technology has greatly contributed to accelerating the flow of resources, including people, goods, and money, within economic regions such as Japan and the United States. We expect this trend to further accelerate through 2050 and that a new type of economic zone will emerge in the digital space (Figure 2). By 2050, digital currencies, regardless of who mints them, will allow major economic activities such as consumption, investment, production, and distribution to be completed within the digital space. The emergence of the digital and platform economy affects not only the economic activities of individuals and businesses but also the role of government.

Figure 2 | The emergence of the digital and platform economy changes the global money flow



Source: Mitsubishi Research Institute

The Digital and Platform Economy/Communities Improves Social Welfare

The emergence of the digital and platform economy makes it easier for individuals to simultaneously participate in multiple economic zones and communities. If economic zones and communities can be selected at will, further value creation will become possible through a network effect among those with similar values. Physical distance and language will no longer be barriers.

The expansion of the digital and platform economy will greatly impact firms that conduct businesses in non-digital world. For these companies, their value proposition is strongly related to constraints of the physical space. Firms that exhibit enhanced value-added are those whose value is derived precisely because they are in fact in the physical world. Examples include those with appealing physical features, such as goods that are attractive to an individual's senses, or those linked to actual communication in the physical world. However, firms with less product differentiation may face commoditization due to a decrease in the overall amount of consumption of physical goods under the sharing economy.

These developments will also have a significant impact on how people work. While AI and other technologies will continue to replace existing jobs, we can expect new areas to emerge where human capabilities may be better utilized. If we see an expansion in the areas where humans, rather than AI, can provide services, then we can expect people to continue adding value in the physical world.

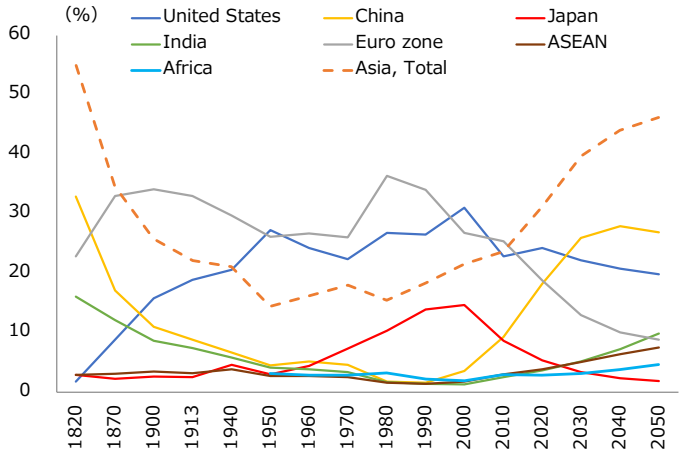
Trend 2 International Order without Hegemony

A world without hegemony will be realized in international relations. By 2030, China's economy is likely to be as large as that of the United States.

By 2050, both the U.S. and Chinese economies will see a reduction in their share of global GDP to the order of 20% each, while the rise and expansion of the Indian economy will be pronounced.

While the economy of the United States, China, and India will account for half of the world's GDP, no single country will enjoy hegemony in the global economy (Figure 3).

Figure 3 | Shares of global GDP of major emerging and developed countries



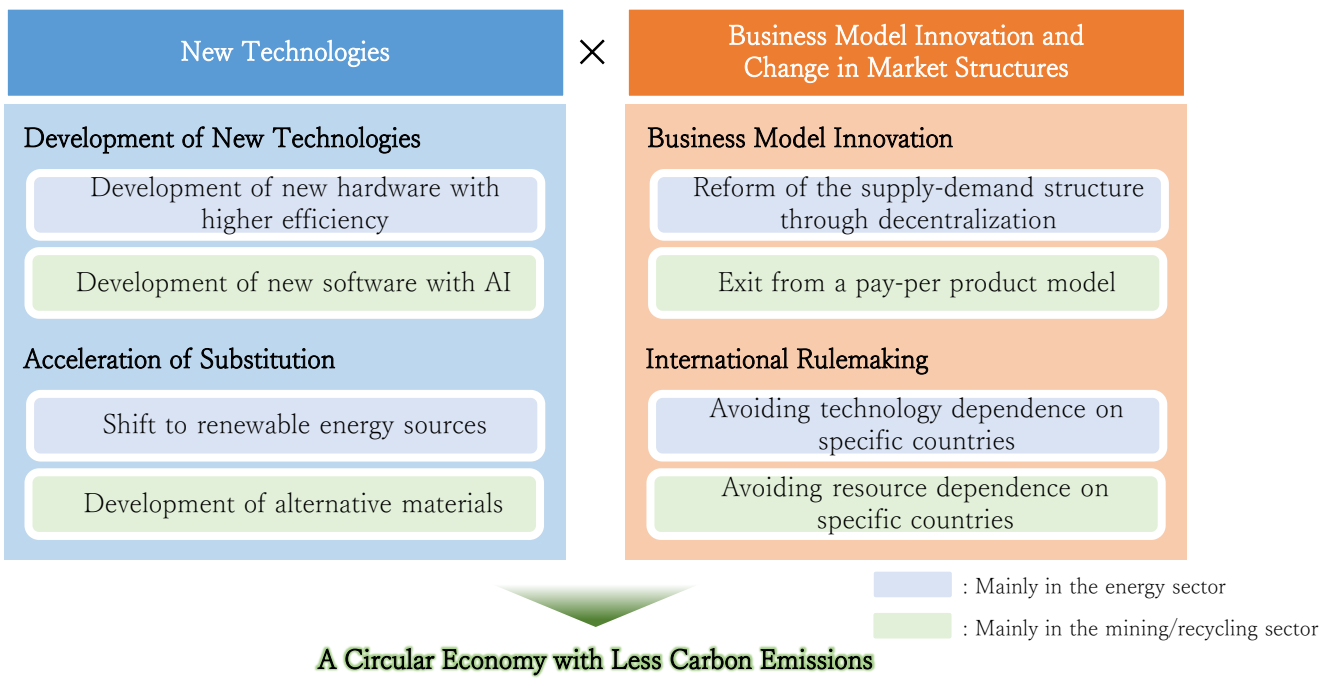
Note: Africa (North Africa and Sub-Saharan Africa combined) is the sum of 53 countries' GDP for which data from the United Nations and the World Bank is available.
Source: World Bank "World Development Indicator", Mitsubishi Research Institute

Trend 3 A Circular Economy with Less Carbon Emissions

Achieving a Circular Economy through Technology and Business Innovation

The further expansion of digital technology will support the achievement of a circular economy. New technologies, business model innovation, and change in market structures will facilitate, for example, small distributed energy supply systems in local communities. As a result, in the energy sector a supply and demand structure centered on renewable energy sources will be formulated with a higher share of solar and wind power. In the area of resources, the shift to recycling and alternative materials will be accelerated.

Figure 4 | Realizing circular economy through new technologies and business innovation



Source: Mitsubishi Research Institute

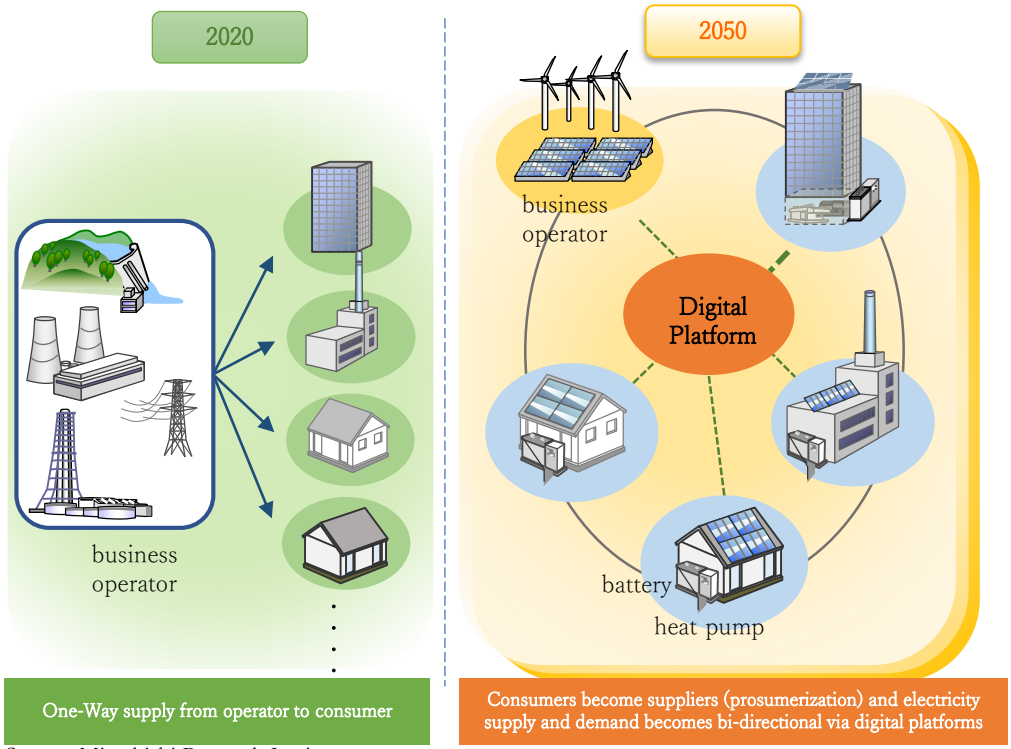
Focus on Sustainability as Energy Sector Shifts from Quantity to Quality

With the rise of unconventional resources such as shale gas, the possible depletion of fossil fuels has become a relatively small issue amid the challenges of energy sustainability. Instead, the focus has shifted to improving the quality of energy, through efforts such as decarbonization as a means to cope with climate change.

The spread of renewable energy complicates the supply and demand structure of energy. On the supply side, the infrastructure is shifting from conventional large-scale centralized systems to individual distributed systems. On the consumer side, an increasing number of so-called prosumers are becoming producers of energy as well.

As the introduction of renewable energy is expected to increase in the future, efficiency of the energy supply system may be jeopardized unless rules for and standardization of these new technologies are established simultaneously. It is imperative for this reason to create a platform to optimize energy use throughout distributed systems and to optimize energy transactions between various entities, including consumers.

Figure 5 | Electricity supply and demand structure with many prosumers



Source: Mitsubishi Research Institute

Shift in Mineral Resources from Mining to Recycling and Substitution

The rise of new technologies such as electric vehicles and improved storage batteries will have an impact on the energy market and beyond. With the spread of various digital technologies, we can expect an increase in the demand for rare metals necessary for the IT industry.

For certain rare metals, supplies are heavily concentrated in countries with unstable political systems. In order to mitigate price fluctuation and geopolitical risk in the face of growing demand, countries with high mineral demand must divert from relying solely on the importation of natural resources.

As for specific measures, it is important to improve the recycling rate by utilizing digital technology and by departing from a traditional pay-per-product model. Developing alternative materials is also critical. In countries with limited mineral resources, such as Japan, it is essential to establish a low-cost recycling system in order to achieve sustainable growth.

Trend 4 Changing Role of Government

The rise of the digital and platform economy will affect the role of government. While existing administrative services are required to be as efficient as possible, the role of government will expand, especially in the development of and compliance with international rules, the improvement of new digital and platform business environments, and the provision of safety-nets that prevent economic disparities.

Developing International Norms and Rules to Promote Digital Activities

In order to maximize the benefits of the digital economy, it is important that (1) major players such as GAFA respect the public interest and (2) countries and regions work together to develop norms of conduct and rules that promote economic activities in the digital space. In addition to the existing multilateral framework, multi-stakeholder framework for the digital economy will be necessary for the participation of both countries and platform users.

As digital technology advances and pervades society, the issue of technology versus ethics will once again come to the forefront. As the pace of technological development accelerates, it will become increasingly important for the international community to consider the establishment of norms and rules restricting malicious technological development.

Role of Government in Education Changes by Stage of Human Life-cycle

In 2050, government will take a dynamic approach to education fulfilling different and changing roles at each stage over the course of its citizens' lives with the usage of digital technology. Preschool education is particularly affected by economic disparities. As economic disparities are expected to widen with the expansion of the digital economy, the participation of government in preschool education for low-income households will be of utmost importance. In primary and secondary education, governments will need to ensure the quality of online education and transform schools from a place for acquiring knowledge to a place for learning non-cognitive skills such as cooperation and self-control. In higher education, the government will also play a role in ensuring the quality of educational services offered by a wide range of providers, including private businesses.

Safety-nets Continue to Play an Important Role

In 2050, individuals who can make active use of digital technology will earn high incomes, while those left behind will have to endure low incomes. Therefore, providing safety-nets will continue to be an important role for the government. It is also important to maintain the social security system, including medical and nursing care services, to ensure people's health and wellbeing. In light of these needs, the government must determine how to implement a mechanism to prevent people from being left behind, as well as to provide support in areas that cannot be served by the private sector alone.

Changes in the Scope and Effectiveness of Monetary and Fiscal Policies

As the rise of the digital and platform economy is expected to further expand global economic activities, it may also change the scope and effectiveness of monetary and fiscal policy. This is especially the case for monetary policy, and central banks will face diminished influence as digital currencies issued by various players start to circulate. Collaboration with platforms will be essential for governments.

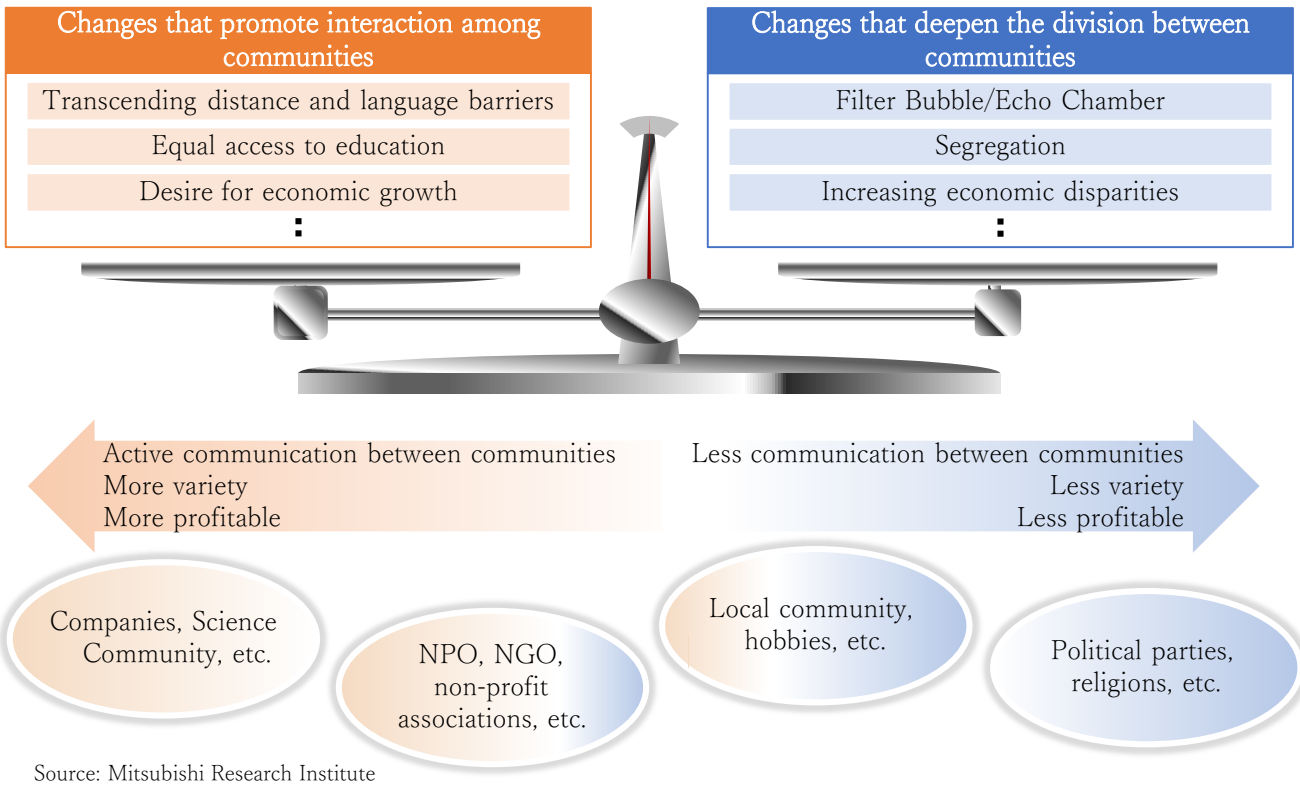
Improving the Efficiency and Sophistication of Administrative Services

Administrative services and functions must become more efficient and sophisticated through the incorporation of digital technology. At the same time, it is also expected that crime in the digital space will increase as the digital economy expands. Governments will play a greater role in ensuring the safety and security of digital spaces.

Trend 5 Society Containing Diverse Communities

Transcending distances and language barriers through digital technology has the effect of promoting interaction between communities. On the other hand, when argument and debate takes place within the digital space, there is a tendency toward deepening the division between communities. This risk is especially noticeable in the spheres of politics and religion (Figure 6). Whether interactions among communities are promoted or not depends on the characteristics and objectives of each community.

Figure 6 | Digital technology works in both ways to promote and divide communities



Source: Mitsubishi Research Institute

Education to Enhance Mutual Understanding Between Diverse Communities

Trust in others nurtured through education is expected to promote interaction between communities. According to a survey by the University of Chicago, an increase in the number of years of education increases trust in others. As digital life expands, online education platforms such as EdTech and MOOCS will create learning opportunities for people who currently have limited access to secondary and higher education. Promotion of education through these digital technologies will play a major role in enhancing understanding and co-existence among a variety of communities.

Digital Space Where People with Similar Values Find It Easy to Come Together

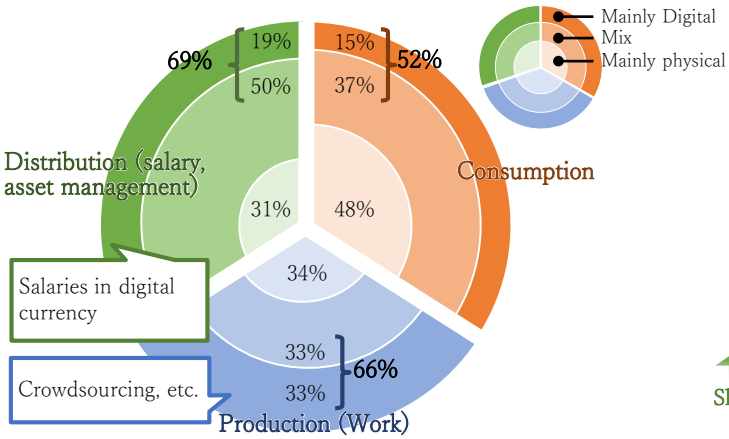
The digital space has simultaneously deepened the gap and division between communities. The filtering of information by optimization algorithms implemented in search engines and SNS is a good example. Such services tend to display information from only those users who are close to one another or who hold similar opinions (filter bubble). As a result, a digital quasi-community is formed where people with similar opinions and ideas meet. Limiting communication to a community of like-minded people not only strengthens opinions but also exacerbates bias (echo chamber).

Trend 6 Changing Life through New Technologies

Digital Technology that Dramatically Changes Our Lives

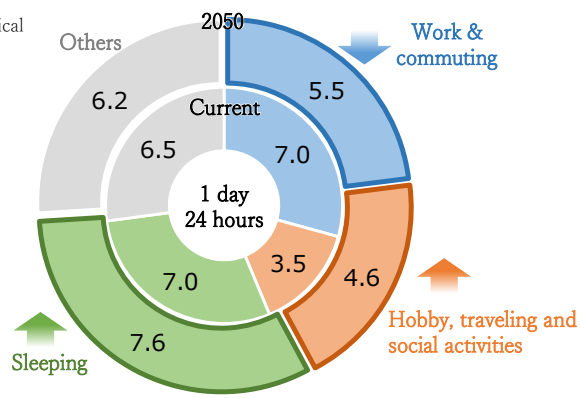
Digital technology will change our lives dramatically. Various innovations will lead to the digitization of economic activity. According to an internet survey regarding the future society in 2050 conducted by the Mitsubishi Research Institute, consumers are expected to use digital spaces for 50-70% of their daily economic activities (Figure 7). Digital technology is also expected to increase leisure time through the automation of housework and the reduction of commuting times. How one chooses to spend new leisure time, such as hobby, travelling and social activities, will become an important question in pursuing a fulfilling live (Figure 8).

Figure 7 | 50 to 70% of economic activity moves into the digital sphere



Note:We conducted an internet survey to determine the use of physical and digital space across household consumption, work, and salary.
Source: Mitsubishi Research Institute

Figure 8 | Increasing time for hobbies, travel and social participation



Note:We conducted an in internet survey to determine how respondents would spend their time in a fully digital economy.
Source: Mitsubishi Research Institute

Innovations in Life Sciences Will Extend Healthy Life Expectancy

Further innovations in the life sciences will extend healthy life expectancy. In the years leading up to 2050, we can expect the following four major trends to accompany the introduction of technologies for advanced medical care, early diagnosis and treatment, health promotion, and nursing care support: (1) Shift from simple life expectancy to improved health-related quality of life (HR-QOL), (2) Shift from treatment to prevention, (3) Shift from decentralization to cooperation, and (4) Outcome-based management and evaluation. If digital and life science technologies are integrated and properly implemented in society, QOL will dramatically improve by 2050.

Toward the Realization of an Affluent and Sustainable World

Realization of Truly Multilateral Frameworks

In short, the key to realizing an affluent and sustainable world will be following the rule of law in international relations. However, if we revisit history we can observe the many twists and turns taken before nations were governed by this principle. It is difficult to imagine the uphill battle it will take to realize international order based on negotiation and agreement.

If several major parties hosting digital platforms respect public interest in the future, it will be beneficial for them to participate in discussions traditionally held by governments alone. These discussions should cover international norms and compliance frameworks to utilize human-centered technology, including ethics and privacy. In particular, major private players in the digital society will play a significant role in developing the norms of these compliance frameworks.

Redefining the Role of Government

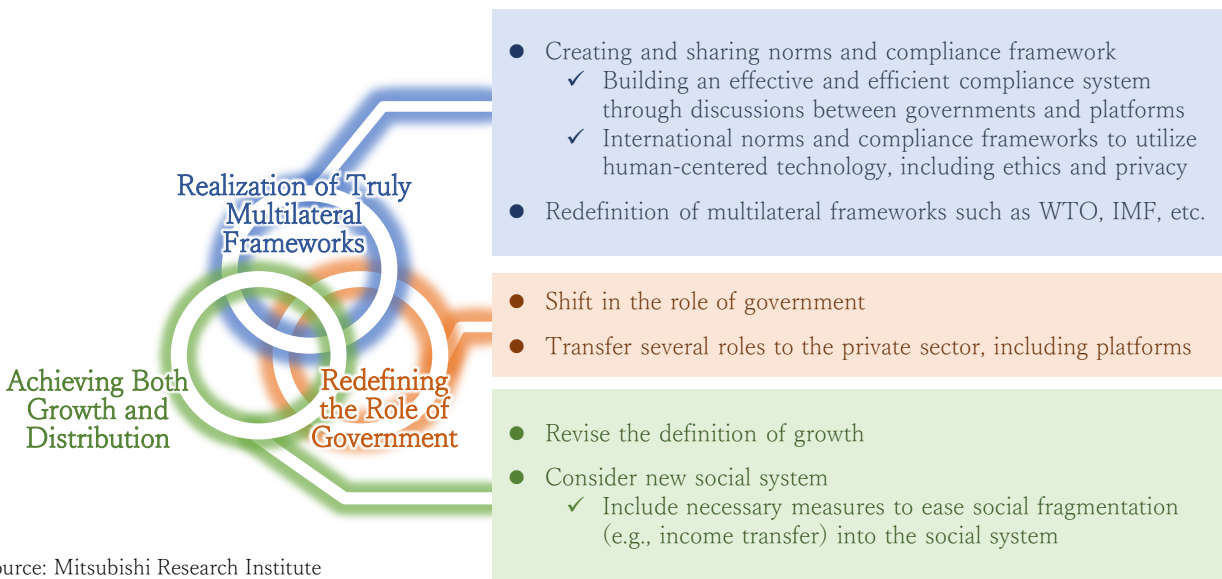
Many industrial nations are facing rapidly aging societies and a dramatic tightening of fiscal conditions. Governments are also dealing with limited room for effective fiscal policy, while the economic conditions for businesses and citizens are dramatically changing. Under these circumstances, governments must prioritize their role in achieving the common good and ensuring citizens' welfare. The emergence of major players in the digital society respecting the public interests may enable government to transfer some of its roles to the private sector, including platforms.

Achieving Both Growth and Distribution

In order for each country to achieve sustainable growth, it is necessary to revise the definition of growth to include non-GDP components. While the size of the economy, including GDP, will continue to be an important indicator of national growth, the need for non-GDP metrics will increase.

Furthermore, it is also important to implement measures to alleviate societal fragmentation. In general, capitalism inevitably produces inequality. In the process of studying and implementing measures to ease fragmentation, it may be necessary to consider a new social system that takes into account the limits of capitalism.

Figure 9 | Realizing an affluent and sustainable world through three measures



Source: Mitsubishi Research Institute

Facing Global Transformation and Domestic Challenges

Global trends have a major impact on the Japanese economy and society. Japan also needs to cope with serious domestic challenges, such as a declining birthrate and an aging population, and the consequent growing social security burden. If Japan fails to take advantage of new technologies, it will face a decrease in competitiveness, as well as a loss of markets abroad and jobs at home.

To achieve greater vitality for the Japanese economy, society, and individuals, it is necessary to take on global transformations as an opportunity rather than being passive. Such a shift will enable Japan to resolve its societal issues and achieve affluence, ultimately improving the vitality of its economy, society, and individuals. It is essential to utilize human-centric technologies, capitalize on Japan's strengths, and take on forward-looking challenges by the public sector, the business sector, and individuals.

The Desirable Society "An Affluent and Sustainable Society"

What is a desirable state of society for Japan? MRI argues in this report that it is "an affluent and sustainable society". In other words, a society that, while sustainable, enables every citizen to achieve his or her desired life.

MRI considers the sustainability of society as the foremost goal to be achieved, with the term "sustainability" carrying a multifaceted meaning. The meaning of sustainability is diverse: (i) economic sustainability (e.g., avoiding expansion of government debt), (ii) social sustainability (e.g., easing economic disparities), and (iii) environmental and resource sustainability (e.g., a circular economy with less carbon emissions). The affluence of society is an advanced goal. Here "affluence" refers not only to economic affluence but also to overall well-being, including relationships, work satisfaction, and health.

Actions to Achieve an Affluent and Sustainable Society

In order to achieve an affluent and sustainable society, it is necessary for various stakeholders to take actions that leverage their respective positions. The three driving forces for such action are: (1) the application of human-centered technology, (2) the maximization of Japan's strengths, and (3) the undertaking of forward-looking challenges.

(1) The Application of Human-Centric Technology

As new technologies emerge in the years leading up to 2050, Japan will need to incorporate these technologies into society. The misuse of artificial intelligence and robotics could infringe on basic human rights, manipulate decision-making mechanisms, and lead to a decline in overall human ability and motivation. Wrongful use of life science technology could bring about its monopolization by a handful of wealthy individuals resulting in economic disparities in health outcomes. On the other hand, if these technologies can be focused on enhancing quality of life for all, they will contribute to the realization of a human-centered affluent society. In the face of a decreasing population, the use of human-centric technology in Japan is indispensable for the realization of a high degree of life satisfaction.

(2) Maximizing Japan's Strengths

Japan's strengths will continue to be rooted in its history, culture, and climate. The expansion of digital economies will result in an increase through 2050 of digital immigration, or "telemigrants". Although economic activity will become increasingly borderless, those living within Japan itself will inherit and benefit from its innate strengths.

(3) Taking on Forward-Looking Challenges

An affluent and sustainable society will not be achieved only by (1) and (2) above. It is essential for the public sector, the business sector, and individuals to continue to take on challenges and make positive changes in the pursuit of sustainability and affluence.

The realization of an affluent and sustainable society in Japan is possible if these three actions are taken in the following five fields: "Japan in the World", "Industrial, Corporate, and International Competitiveness", "Local Communities and Societies", "Life, Household, and Work", and "Government, Public Finance, and Social Security". Specific actions required in each of these five fields are described below.

1 Role of Japan in the World - Contribution to the World through Japan's Strengths

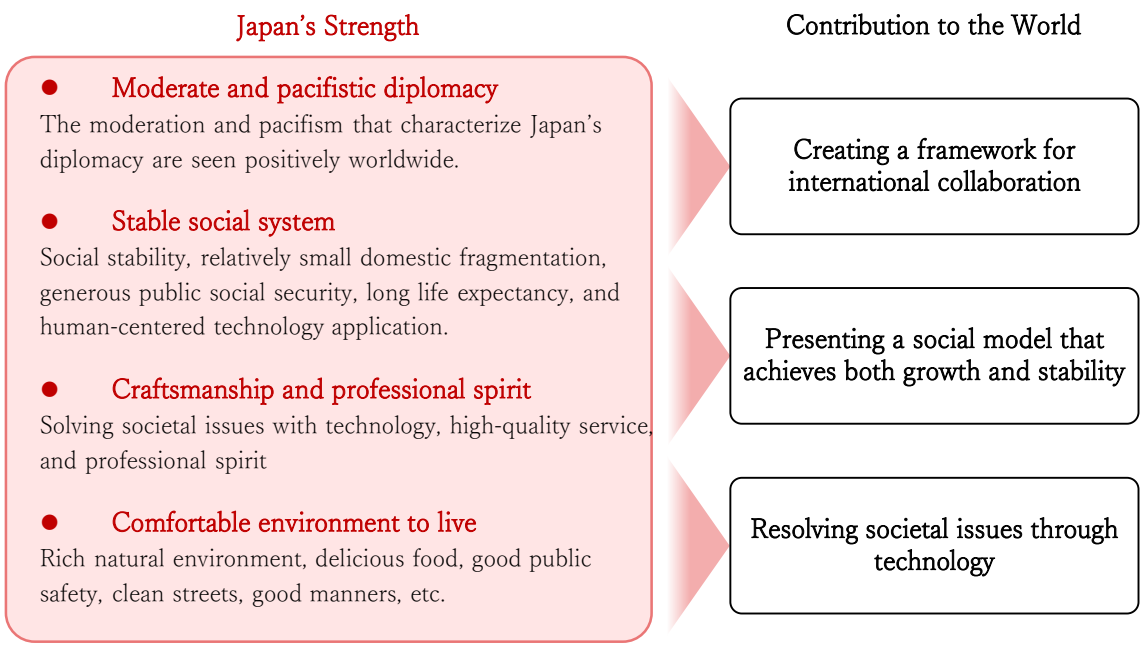
Soft Power: the source of Japan's global leadership

Japan's soft power plays a key role in ensuring the country's contribution to international society. Since the end of World War II, Japan has advocated for multilateralism and played an important role in international cooperation efforts including humanitarian aid, economic development, and public health. The moderation and pacifism that characterize Japan's diplomacy are seen positively worldwide.

The increasing fragmentation of the world and the expansion of the digital economy will require the formation of a new international order with leaders who can discern shared interests while accommodating countries' specific concerns. Japan, which has nurtured its soft power through its contributions to the international community since the end of World War II, can play an important role in building a multilateral framework by enlisting the support of other countries. In addition, Japan can contribute to realize a sustainable world through its strengths, such as social models that achieve both growth and stability, and technologies that resolve societal issues.

MRI proposes the following three ways for Japan to contribute to the world through its soft power: (1) creating a framework for international collaboration, (2) presenting a social model that achieves both growth and stability, and (3) resolving societal issues through technology.

Figure 10 | Japan's strengths and contribution to the world



Source: Mitsubishi Research Institute

2 Industry, Corporate, and International Competitiveness - Creating Value through Digital and Physical Integration

Increasingly Competitive Business Environment

The competitive business environment will change entirely by 2050 as the digital economy expands. First, there will be an expansion of businesses' reach due to the elimination of physical constraints such as distance. Second, market entry and exit costs will decrease. Third, there will be an expansion of digital transactions that transcend national borders.

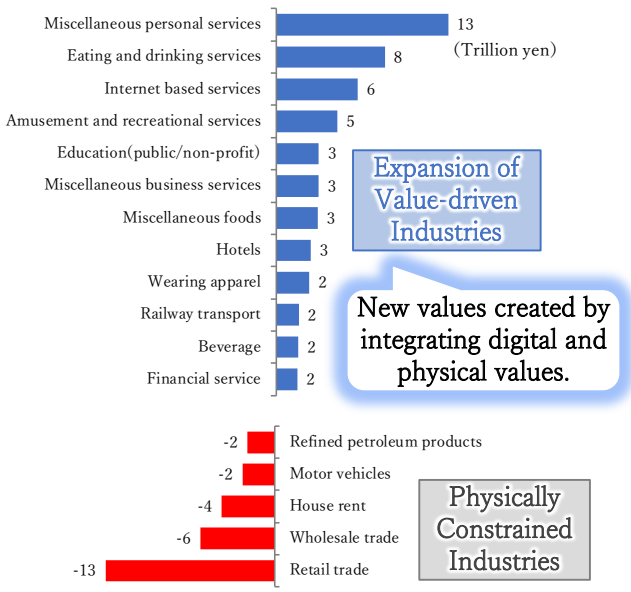
Expansion of Value-Driven Consumption and Decline of Manufacturing

Japan has a high potential for innovation to resolve societal issues such as environmental conservation and disaster prevention. Japan can enhance its craftsmanship through the integration of digital technologies.

In addition, household expenditures will decrease due to the decline in living costs thanks to the expansion of digital technology. As the cost of living decreases, consumption will shift to a value-driven model in which consumers will increase purchases of luxury items and self-improvement services with the aim of enriching their lives. The total share of such value-driven consumption will increase from 35% currently to 50% by 2050.

Industries that cater to value-driven consumption will see an increase in their overall added value. In particular, calculating the impact of value-driven consumption by industry shows that the following industries are likely to see notable increases in added value: food services, internet and amusement services (industries which have seen an increase in shared mobility), and "other personal services" (Figure 11). On the other hand, the consumer goods industries including "retail and wholesale" will see a decrease in added value due to the increasing volume of direct transactions between consumers and producers. Revenues from housing rentals will also see a decrease in added value as the sector will be affected by the demographic shift to regional cities, in large part due to consumers' greater freedom in choosing where to live.

Figure 11 | Economic ripple effects of digitization by industry



Note:Value added as of 2017 compared with estimated value as of 2050 based on the future input-output table prepared by Mitsubishi Research Institute based on the Cabinet Office "SNA input-output table".
Source: Mitsubishi Research Institute

Resolving Societal Issues with Digital Technology

The integration of digital technology within the physical world will continue through 2050 and will become increasingly important in resolving societal issues. Japan and other countries are expected to face a variety of societal issues, many of which can be resolved through digital technology (Figure 12).

Japan also possesses a high capacity to resolve global societal issues through innovation, such as environmental conservation and disaster prevention. This can be achieved by leveraging Japan's craftsmanship in the production of physical goods and integrating digital technology. The realization of a world in which the physical and digital are truly unified will arise as various societal issues are resolved through innovation and technology.

Figure 12 | Example of digital technology application to societal issues

Wellness	● Improvement in predictive detection and measures to prevent lifestyle-related diseases from becoming severe through wearable devices. ● Self-Support by power-assisted suits. etc.
Water and Food	● Improving productivity through full automation in agriculture. ● Reducing food loss through (i) high efficiency of food production, supply, and consumption and (ii) the reduction and reuse of food waste.
Energy and Environment	● Shift to interactive, complex, and more dispersed transmission and distribution networks. ● Unused and new resources utilization technologies.
Mobility	● Efficient operation of public transportation through urban traffic systems and MaaS (Mobility as a Service). ● Transportation system for safe mobility through technologies.
Disaster Prevention and Infrastructure	● Strengthening disaster preparedness through risk prediction. ● Efficient maintenance and management of infrastructure using monitoring technology.
Education and Human Resource	● Providing individually optimized education for all children with EdTech. ● Career development support service that recommends users with suitable jobs, career paths based on individual's background.

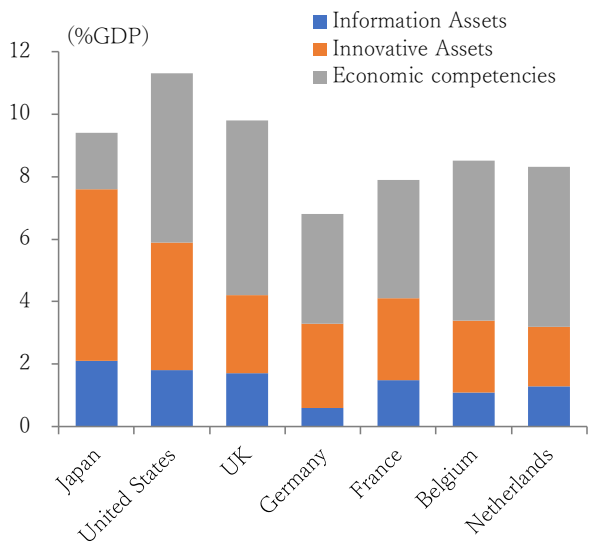
Source: Compiled from Mitsubishi Research Institute "Resolving Societal Issues Through Innovation -Listings of societal issues"

Strengthening Corporate Competitiveness through Intangible Investments

The expansion of digital technology will also change manufacturing requirements. In particular, companies will need intangible assets such as intellectual and human capital to fully benefit from digital technologies. When evaluating its investments in intangible assets, Japan demonstrates a weakness in information assets and economic competencies such as efficient organizational structures and human capital investment.

In promoting recurrent education, one of core form of human capital investment, it is necessary to provide employees with opportunities that are related to their individual aspirations or the company's business. Also, creating a platform for sharing a wide variety of managerial information between organizations would greatly assist in discovering hidden risks, detecting actionable items, and speeding up the decision-making process. However, the platform cannot contain confidential and proprietary enterprise information. With the spread of digital technology and the development of platforms, open architecture principles and transparency can be harnessed to transform the economy and corporate activities.

Figure 13 | International comparison of intangible investments breakdown



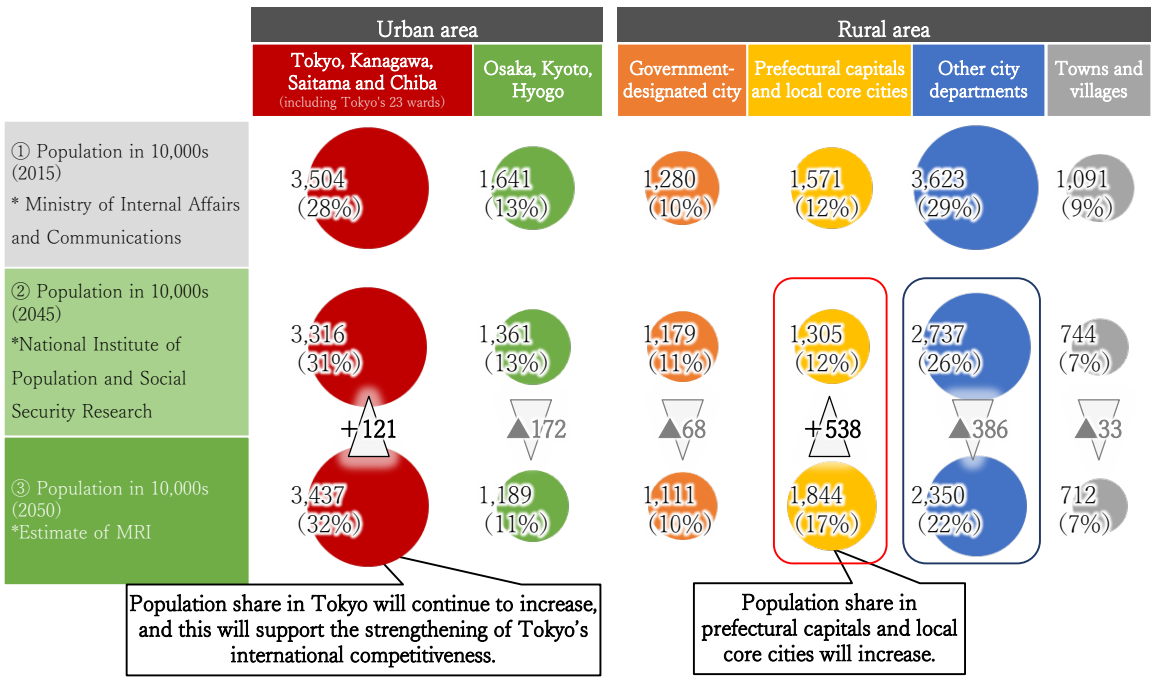
Note:Figures for Japan and other countries are estimates as of 2012 and 2010, respectively.
Source: Compiled by Mitsubishi Research Institute, based on various data from OECD, RIETI, etc.

3 Local Communities and Societies - Management for Sustainable Local Communities

Population Concentration in Tokyo and Local Core Cities

In a society where digital technology is deeply embedded, people will become free to choose where they live as distance to work and shopping becomes increasingly irrelevant. This will make it possible to achieve a better balance between work and living environments, resulting in a higher concentration of the population in local core cities. According to estimates based on a survey we conducted, the population share of prefectural capitals and other local core cities is expected to increase from the current 12% to 17% by 2050 (Figure 14).

Figure 14 | The population in Tokyo and local core cities is expected to increase



Note: For cities that fall into the two geographical divisions, the division on the left takes precedence (e.g., cities that are located both in government-designated cities and prefectural capitals are counted as government-designated cities.).
Source: Prepared from internet survey (N = 5,000, implemented July 2019), Mitsubishi Research Institute, Ltd.

Strengthening Local and Regional Management to Achieve Sustainability

In order to take advantage of this tail wind and enhance the sustainability of local communities, it is important to administer larger regions centered around local core cities. Through functional differentiation and cooperation that takes into account the characteristics of municipalities in regional areas, administrative services can be made more efficient and sophisticated.

Furthermore, the strengths of individual municipalities can complement each other to enhance the attractiveness of local communities.

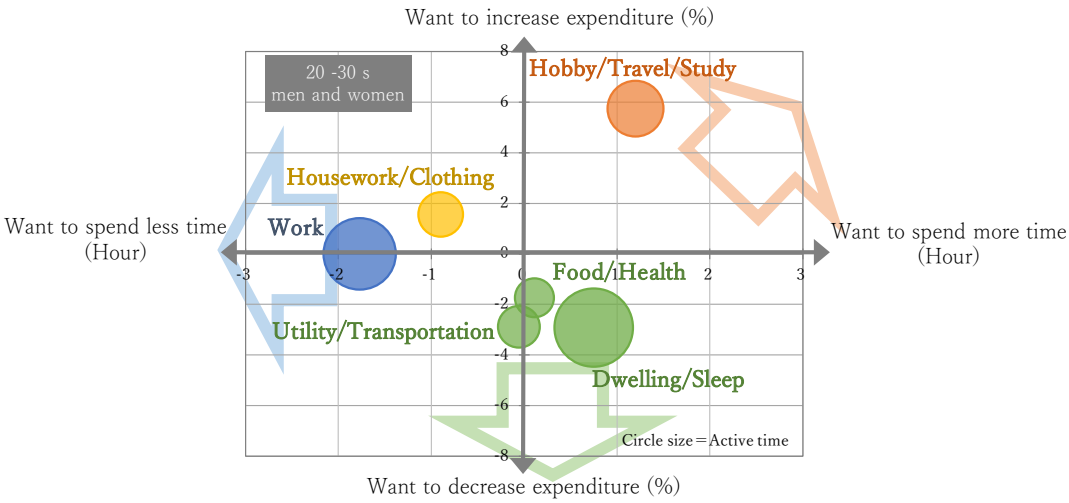
Also, the areas under the control of local governments should not be limited to those directly surrounding local core cities but should also include wider regions. This wider scope will make it possible to plant the seeds of long-term growth, such as human resource empowerment and research and development, on a regional basis. Digital technology will also help achieve effective regional management on a broader scale.

4 Life, Household and Work - Diverse Values and the "True to Oneself" Concept

Value-driven and Diverse Lifestyle, "True to Oneself"

By expanding human-centric technology, work and household chores will be greatly streamlined, resulting in an increased amount of leisure time. Our survey on the "Future Society in 2050" shows that many people, especially the young, would choose to spend this extra time and money on travel and hobbies (Figure 15). Survey participants responded that they intend to enjoy travel and hobbies that can only be experienced in the physical world, and they see these activities as means of securing time for themselves and a way to connect with friends and family. This lifestyle constitutes one form of value-driven consumption in 2050.

Figure 15 | Want to spend more time and money on hobbies and travel



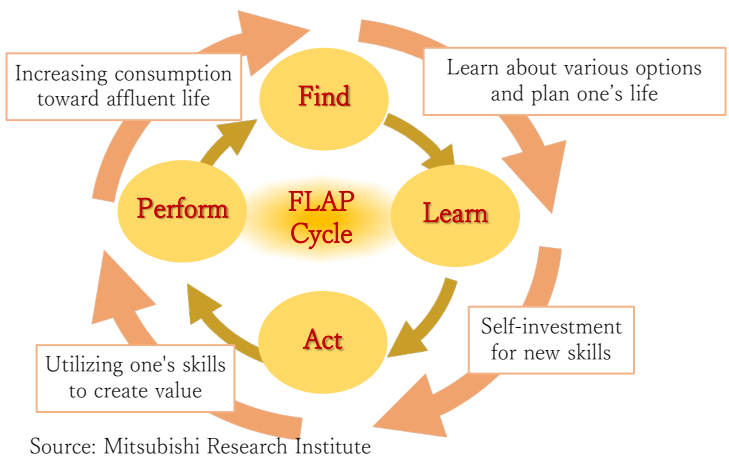
Note:Only employed people are counted for work, and only women are counted for housework and clothing.
Source: Prepared from an internet survey (N = 2,000, implemented in May 2019), Mitsubishi Research Institute, Ltd.

Positive Challenges and Creative Thinking Make Affluent Life "True to Oneself"

On the other hand, not everyone can achieve an affluent life based on diverse values by simply increasing available free time. With the advancement of AI, robotics, and the borderless labor market, human tasks will shift to more creative areas. As such, we will face an unforgiving environment where the correlation between individual ability and income will become even stronger. In order to ease the excessive economic disparities caused by the spread of digital technology, it is essential to practice the "FLAP Cycle", which encourages continuous skill improvement adapted to the needs of society (Figure 16).

The key to the cycle is the ability to plan one's life "true to oneself" through creative thinking. To ensure that everyone can develop these cognitive skills, school education and social participation will become increasingly important. In addition, it will be important to create a social structure that does not intensify and entrench economic disparities due to educational and health disparities. This new social structure is a prerequisite to the realization of a society where the affluence of society as a whole is guaranteed through individual awareness and action.

Figure 16 | FLAP cycle to encourage a positive challenge



Source: Mitsubishi Research Institute

[1] FLAP cycle, coined by MRI, refers to a cycle in which an individual learns about his/her aptitude and professional requirements (Find), learns the necessary knowledge to improve his/her skills (Learn), takes action in the direction he/she wants to take (Act), and takes an active part in a new stage (Perform).

5 Government, Public Finance, and Social Security

-Fiscal and Social Security System to Support the 100-Year Life Era

Unsustainable Public Finance

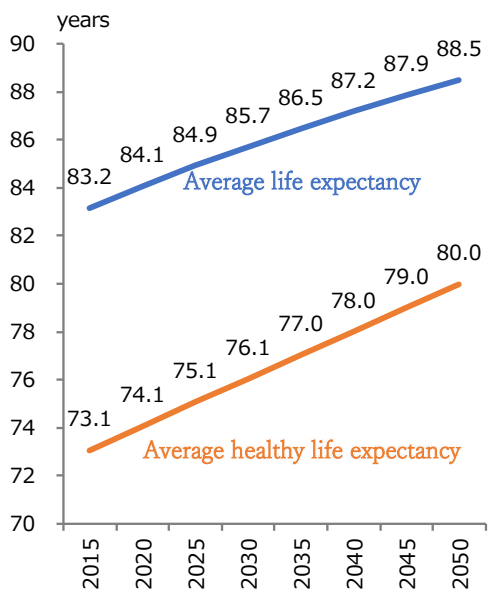
Extending healthy life expectancy through the development of life science technologies and increasing efforts to prevent diseases will improve Health-Related QOL. The introduction of new technologies could increase healthy life expectancy in Japan by about 7 years by 2050 (Figure 17). However, from a fiscal perspective, longer healthy life expectancy itself will increase social security spending and jeopardize fiscal sustainability. If the primary budget's current situation continues in which annual deficit amounts to just under 3% of GDP, central and local government debt is estimated to grow from 192% of GDP in 2018 to around 270% in 2050.

Sustainable Social Security System through New Technologies, Local Communities, and Institutional Reform

Three pillars of social reform must be pursued: (1) Introduction of new technologies that extend healthy life expectancy; (2) Expansion of the social contributions of senior citizens in local communities, mainly through the promotion of job opportunities; and (3) Institutional reform of social security to ensure its sustainability (Figure 18). In addition to such reforms, it is also necessary to reduce overall administrative costs through digitization. If these measures are implemented effectively, the primary budget deficit is expected to start shrinking through the mid-2030s and will reach about 11.3 trillion yen (1.4% of GDP) in 2050. The outstanding debt of the central and local governments would then amount to 230% of GDP barring a sharp rise in interest rates.

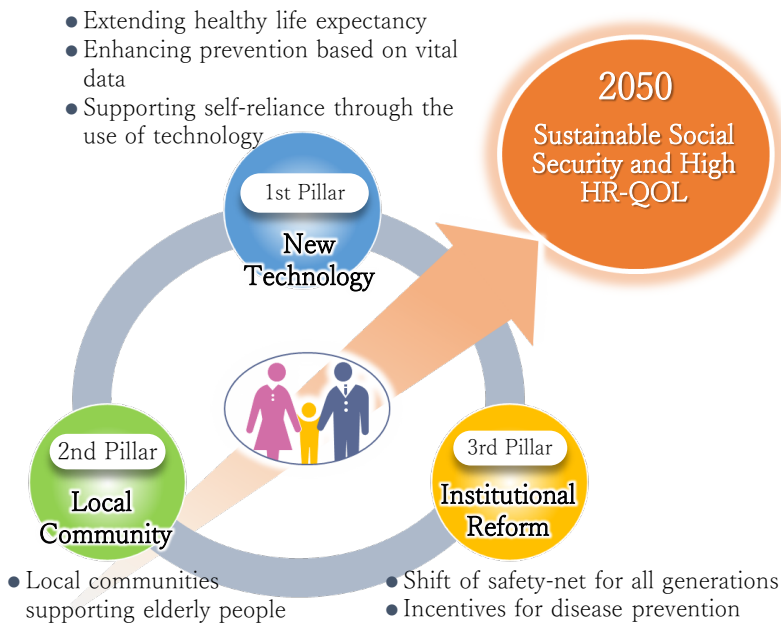
Nevertheless, even if reforms materialize, the primary balance of the central and local governments will remain in the red, and the government will not be able to achieve its goal of having a primary balance surplus to stably reduce the debt to GDP ratio. These goals will require reforms on the revenue side as well. In order to achieve both the extension of healthy life expectancy and the sustainability of public finances the following three actions must be taken. First, we must develop an environment where the elderly can play an active role in society. Second, we must drastically review the social security system. Third, we must streamline the administrative costs of the social security system and other social programs. If the reforms make room for future investments, we will be able to enjoy a high quality of life in the 100-year life era. In addition, we will improve our chances of achieving a sustainable Japanese economy and society.

Figure 17 | Estimated healthy life expectancy



Source: Prepared by Mitsubishi Research Institute based on data from the Ministry of Health, Labour and Welfare "Demographic Survey" "Patient Survey", Niigata University of Health and Welfare "Quality of Life Database", etc.

Figure 18 | Social Security Sustainability with Quality Life



Source: Mitsubishi Research Institute

Future Society 2050

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