Declaration to Be the World's Most Advanced IT Nation
Basic Plan for the Advancement of Public and Private Sector Data Utilization

May 30, 2017

This Plan is to be reported to the Diet in accordance with the provisions of Article 8 (6) of the Basic Act on the Advancement of Public and Private Sector Data Utilization (Act No. 103 of 2016).

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(*People: includes juridical persons and other such organizations that act as members of society)

I-1 Japan's IT strategy to date

・Approximately twenty years ago at the turn of the century, the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters) (hereinafter referred to as the "IT Headquarters") was established in Japan in 2001 in accordance with the notion that the *IT revolution* could potentially bring about a huge transformation comparable to the Industrial Revolution. By formulating an *e-Japan Strategy* (as finalized by the IT Headquarters on January 22, 2001) with a focus on developing an ultra-high-speed network infrastructure, developing rules for electronic commerce and electronic government, and cultivating human resources, initiatives to enable all citizens to proactively utilize IT and enjoy the benefits of IT to the utmost extent have commenced.

At the time, this strategy prioritized the development of a network infrastructure and set forth a goal of realizing a usable environment for achieving ultra-high-speed access within five years. This initial goal was attained approximately three years earlier than expected. Since then, priority has been shifting to the utilization and application of IT and policies aimed at shaping Japan into the world's most advanced IT nation have been promoted while repeated reviews of *e-Japan Strategy II* (as finalized by the IT Headquarters on July 2, 2003) have been conducted. In recent years, certain results have been produced, such as in terms of information system reforms and operational reviews with a view to achieving an electronic government (business process reengineering or "BPR"; hereinafter referred to as "BPR").

I-2 A new phase in Japan's IT strategy (advent of the era of the mass circulation of data)

・Sixteen years have already passed since the first e-Japan Strategy. During these years, technological progress in the area of IT has been ceaseless. The Industrial Revolution to which the IT revolution has often been compared gave rise to changes over the course of about seven decades beginning in the latter half of the eighteenth century. If we consider the fact that the length of this period is equivalent to the length of the post-war period (and the fact that it will soon be a century and a half since the first year of the Meiji period), then it should be noted that the pace of technological progress during the IT revolution has gone beyond what we could have imagined.

It has been merely about twenty-four years (less than 9,000 days) since Internet-based commerce in Japan began in 1993. Particularly in the decade since smartphones first appeared (3,650 days), technological progress in the area of IT has been having an impact that could not have been imagined when the e-Japan Strategy was initially formulated, as can be seen in the ways in which the activities of companies and citizens have been transformed in all sorts of different contexts, including communications, work, travel, entertainment, and health and nursing care.

- The key to these changes has been the wide variety and large volume of data circulated over the Internet. The ability to distribute a wide variety and large volume of data over the Internet is attributed largely to the ongoing evolution of Internet infrastructure and the creation of an environment for utilizing and applying IT in line with the generation of a multiplier effect by technological progress in terms of the usage environment over the last ten years.

  First, network infrastructure is such that fiber-optic lines with maximum speeds of 1 to 10 Gbps on a wired basis and LTE-Advanced (4G) infrastructure with maximum speeds in excess of 500 Mbps on a wireless basis can be utilized as access lines to allow users to send and receive high-resolution videos and more at an individual level. With respect to wireless options, we are aiming to achieve 5G in 2020, which is notable for its exceptional speed (10 Gbps) and ability to connect multiple users at once (1 million units/km^2).

  For the usage environment, the use of data and data linkages within organizations are proceeding as led by business enterprises in line with technological progress as it affects network infrastructure. (In some industries, data standardization is also occurring.) With the emergence of cloud services, the volume of circulated data is increasing both here at home and overseas.

  At an individual level, smartphones with processing power and memory on par with desktop computers emerged around 2008. These devices were initially used for simple electronic emailing, searching through search sites, and blogs. Over time, their ability to transmit personal information (including pictures and videos) through social networking services (SNS) and video-posting sites improved. The recent spread of wearable terminals is dramatically expanding the amount of data being circulated at an individual level.

  Thanks to the miniaturization, reduction in weight, and reduction in cost of sensor technologies in terminals and other such devices, the explosive spread of the Internet of Things (hereinafter referred to as “IoT”) has also begun.
  Against this backdrop, the national and local governments have been engaging in various initiatives, such as by introducing the Social Security and Tax Number System, promoting the provision of online access for procedures, driving forward information system reforms and BPR and open data initiative, developing (and standardizing) an integrated national

farmland ledger system and different types of databases, and forming Application Programming Interface (API) linkages.

- As these sorts of environmental changes are happening, the amount of data being circulated via the Internet has been dramatically increasing in recent years (with the arrival of the era in which large volumes of data are circulated). Interest in artificial intelligence (hereinafter referred to as “AI”), which processes a large volume of varied online data, especially images and videos, has re-emerged. Development work on robots and miniature, unmanned vehicles (drones) equipped to utilize and apply AI and online data is intensifying, with the result that data can now be utilized and applied within a scope that exceeds the ability of human beings to process, such that robots are described as ‘having eyes’.

- In the future, the development of such network-linked AI, robots, and drones will likely transform our lives across many different areas at a pace outstripping the speed of progress in terms of IT technologies made to date. These areas include medical diagnostics, drug development, aid for nursing care, disaster management and crime prevention, automatic driving, logistical streamlining (including unmanned shipping), productivity improvements on farms, in plants, and at construction sites and the full automation of such sites, the revival of craftsmanship by way of digitalization, marketing, asset management, stock operations, insurance, household electronics, housing, assistance with domestic chores, interior design, music generation and other artistic activities, toys, and sports (refereeing and scoring).

  As far as the use and application of data are concerned, we have not progressed to the point that AI is being utilized not only for company activities but also at an individual level (it is expected that a day will come when AI will be readily used at an individual level in the use and application of data). However, levels of awareness and expectation on the part of the people concerning the utilization and application of data are rising as can be seen in the development of apps based on the use of open data by the national and local governments in order to promote crime prevention and disaster management and solve other local issues.

I-3 A society in which people, goods, and capital are activated based on data

- How should we respond to such circumstances? In both domestic and overseas societies, people and goods will be interlinked anywhere at anytime through networks and a large volume of highly varied data will be circulated over the Internet.

  Presently, an Internet search will not necessarily provide you with access to all data found on earth. However, if we conjure up an age in which almost everyone and all goods will be connected to one another in the future, we can expect that humanity will eventually share almost all knowledge and wisdom in existence in the world.

While it has been a while since the term *globalization* first emerged on the scene, data are not subject to national borders. Data will spread across the entire globe in an instant along with the effects of their use and application. Moreover, data do not consist of information that is regularly updated monthly or daily as was the practice in the past. Instead, data are circulated and accumulated in real time to enable their chronological use and application in a way that is connected to past data.

In the future, it is expected that the linking of data, knowledge, and wisdom on a cross-field basis beyond any single field rather than simply between individuals or within a single enterprise or industry will give rise to huge changes.

- Along with the development of networked AI and robots, the use and application of data will come to be taken for granted in human society irrespective of whether we are aware of the fact that this is happening. It can be assumed that the interdependency of people and goods through the use and application of data will be unavoidable. By sharing the knowledge and wisdom of humanity through the use and application of data, individuals, families, communities, business enterprises, governments (both national and local), and the world will be able to enhance values at different levels and we will go from "a state of coexistence among resources consisting of people, goods, money, and data" to a state of harnessing people, goods, and money atop a framework of data". Social and economic structures themselves will likely undergo significant changes, including with respect to the nature of the controls to which they will be subject.

Of course, we cannot predict everything about society with complete accuracy. It cannot be denied that the use and application of data will give rise to something greater than the effects that we presently assume will come to pass (productivity improvements and the generation of innovation). As we have seen in changes that have occurred to players involved to date in the development of technologies and the provision of services, the environment in which IT operates could very well continue to transform in ways we cannot imagine.

All sorts of occurrences are possible in the world today. In particular, it is important that we ensure that we are capable of flexibly accommodating environmental changes by constantly upgrading and assuming an agile stance[1] based on an understanding that the environment in which IT operates can undergo occurrences and changes that cannot be imagined at the moment.

[1] One approach to developing software whereby the developer divides a large application subject to development into numerous small functions, develops a single function for each short development phase in a process known as iterative development, and carries out software leasing. This approach entails the repeated application of the PDCA (plan, do, check, and action) in each short development phase. It is notable for making it possible to rapidly adapt the application to changes occurring on a daily basis.

In promoting the use and application of data, it goes without saying that measures should be concurrently carried out in connection with the protection of personal information and privacy, cyber-security measures, intellectual property rights, data quality and efforts to ensure the reliability and security of data, the state of logic in the era of AI and robots, and more.

I-4 Building a model of “a society with public and private sector data utilization”; a society in which people are enriched by data

- In order to focus on the upcoming era in which the use and application of data will come to be taken for granted and ensure that Japan ranks among the world’s leaders in this area, we will be required to develop an environment in which data can be smoothly utilized and applied by individuals, families, communities, business enterprises, and governments (national and local) anywhere and at anytime and ensure that we do not fall behind other countries in this respect.

  Japan is becoming a super-aging society with a low birthrate at a pace exceeding that of any other country on earth. While it is an urgent matter that we deal with these demographic changes, the development of, for example, networked AI and robots premised on the use and application of data will not only assist with human activities and provide support to the working-age population but also allow knowledge and wisdom possessed by elderly persons who are rapidly growing in number as a result of an increase in healthy life expectancy to be shared and reproduced and opportunities for the elderly to once again become active members of a productive society to be provided.

  In addition to further deepening links between people and people, between people and goods, and between goods and other goods and promoting the sharing, use, and application of data circulated over the Internet, we will need to focus on and meet favorable opportunities to build a model of a new society for Japan ahead of other advanced countries in the world amid assumptions that humans will someday co-exist with AI and robots.
  This signifies the arrival of an age in which “all citizens can actively utilize IT and receive the benefits of IT to the utmost extent” in accordance with the goals of our original IT strategy (e-Japan Strategy) through the promotion of the use and application of data.

- Although the utilization of data lead to the sharing of knowledge and wisdom, it is essential that awareness that various types of value are generated only through data interconnections be shared in both the public (national and local governments) and private (citizens and business enterprises) sectors. To this end, we will need to implement comprehensive measures to raise awareness of our future data-utilizing society, open up public-sector and private sector data as much as possible on a mutual basis (open data), establish a framework for coordinating data on a cross-field basis, ensure the quality, reliability, and safety of data,

and cultivate human resources and engage in research and development work for the utilization and application of data.

In December 2016, the national government promulgated and put into force the Basic Act on the Advancement of Public and Private Sector Data Utilization (Act No. 103 of 2016; hereinafter referred to as the “Basic Act”) in order to comprehensively and effectively develop an environment for the utilization and application of public-sector and private sector data.

- For its part, the government – led by the Deputy Chief Cabinet Secretary for Information Technology Policy (hereinafter referred to as “government CIO”), a post established in May 2013 – will continue to precisely ascertain the needs of citizens and business enterprises, and eliminate the vertical hierarchy of government ministries and agencies and replace it with a cross-functional lateral structure in order to rally the entire government to action based on the results achieved and expertise developed to date (re-thinking and top management, a check of each individual fact, the sharing and horizontal deployment of expertise itself).

  In light of this and from the perspective of building a model of a “a society with public and private sector data utilization” (society in which people are enriched by data) – a society in which all citizens can, as the ultimate goal, receive benefits without giving thought as to whether they are utilizing IT or utilizing data and feel truly enriched as a result - ahead of the rest of the world, we decided to formulate a Declaration to Be the World’s Most Advanced IT Nation and Basic Plan for the Advancement of Public and Private Sector Data Utilization then move to steadily implement required measures as we head into a new phase of our national IT strategy.

  In looking forward to the future, we aim to achieve a society with public and private sector data utilization in order to be globally recognized with a higher degree of respect than ever before by deploying this model from our shores to those of other countries, including other developed countries that are likewise set to become super-aging societies with low birthrates.

II For building a model of a society with public and private sector data utilization

II-1 Trends in IT

II-1-(1) Trends in technologies and services

- Advancements in IT are exceptionally fast-paced. This is made clear by comparing technologies and services[2] from ten or twenty year ago to technologies and services today.

- In particular, the spread of smartphones, advancements in the IoT[3], and the ability of wired and wireless networks to accommodate the need for greater speeds and larger capacities have made it possible for an individual or business enterprise to send and receive, via the Internet, not just textual information but also picture and video data, location data, sensor data, and other forms of data that can be circulated and accumulated in real-time rather than data constituting periodic information that is issued monthly or daily.

  Consequently, the ability of individuals to transmit information is improved and interconnections via the Internet are deepened for society as a whole as seen in such examples as SNS, wearable terminals, connected cars, household electronics, and other links between people and people, people and goods, and goods and goods. Accordingly, the volume of circulated data is rising dramatically and new technologies and services[4] utilizing such links and highly varied data are emerging one after the other.

  With the dramatic increase in the volume of circulated data, the AI boom has re-emerged. In particular, technology to analyze pictures and videos using deep-learning technologies that are a mainstream feature of AI these days is rapidly evolving. The development of robots and drones premised on the use of AI and data and the distribution of new content in such areas as VR and AR are also intensifying. We can expect that the development of new technologies and services[5] based on the use and application of technology, such as AI, robots, and drones, will continue to move ahead.

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[2] At an individual level, we note that short messages and other text-based data services for mobile phones were in the mainstream twenty years ago (1997). Ten years ago (2007), however, Apple's iPhone and other smart phones made it possible to transmit large volumes of highly varied data, including video and picture data. In addition, the transmission of information via SNS became popular. Presently (2017), services that utilize AI to analyze location data on and the purchase histories of individuals and that can make recommendations tailored to each individual and other new services that are otherwise based on the use of data are emerging.

[3] As of the end of 2015, the adoption rate for mobile phones was 95.8 percent while the adoption rate for smartphones was 72.0 percent (survey of usage trends concerning communications as conducted by the MIC on July 22, 2016). IoT-compatible devices numbered 15.4 billion as of 2015 and is expected to increase in number to 30.4 billion by 2020. (Information Communications White Paper of FY2016 (MIC, July 29, 2016))

[4] Examples include services for the sharing economy, insurance to promote safe driving through the use of telematics, remote monitoring services for children and pets, and unmanned factories.

[5] Research and development work in such areas as AI-based automatic driving technologies and projects to help create intellectual property and future farming operations is proceeding. The evolution of small unmanned

- For individuals, the increase in the amount of personal data placed on the Internet is causing awareness of the handling of personal information and privacy matters to rise. For business enterprises, there is a growing need to deal with reputation risks. The concurrent implementation of measures in connection with the use of a large volume of varied data, AI, robots, drones, and other such technologies – such as in terms of the protection of personal information and privacy, cyber-security measures, intellectual property rights, efforts to ensure the quality, reliability, and safety of data, and ethical concerns in the age of AI and robots – is increasingly becoming a requirement[6].

II-1-(2) Rising expectations for data utilization

- Expectations concerning the use and application of data are rising in line with this dramatic increase in the circulation of data and the accompanying emergence of new technologies and services. Generally speaking, the use and application of data are associated with the following two outcomes:

  1. Facilitates the visualization of data and the elimination of waste through comparative analysis

  By visualizing events based on numbers and imagery, you may be able to conduct a comparative analysis with similar cases, identify new issues, and ascertain further potential gains in efficiency and potential improvements in productivity.

  2. Gives rise to innovation by combining data across different fields

  By combining data across different fields in a way that has never been done before, service reforms and links to other business sectors can occur to potentially give rise to further increases in added value and the creation of new services and innovation.

- In the future, connections between people and people, people and goods, and goods and goods on the Internet will deepen further. Expectations concerning the use and application of data as fostered by deepening such connections will likely continue to rise.

  As outlined in I-4 , the sharing of human knowledge and wisdom through the use and application of data is expected to give rise to an era in which individuals, families, communities, business enterprises, governments (national and local), and the world will be capable of enhancing values at different levels and an era in which we will see a shift from “a state of coexistence among resources consisting of people, goods, money, and data” to a state of harnessing people, goods, and money atop a framework of data”[7]. Social and economic

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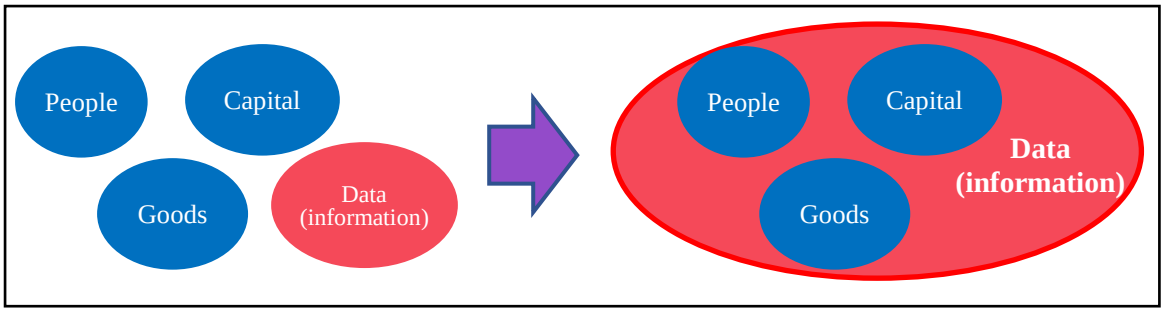
aircraft (such as drones), in conjunction with the utilization of AI, has allowed their use in various areas, such as logistics, farming, and disaster prevention.

[6] With fake news becoming a societal problem, the accuracy of information is drawing more societal attention than ever before.

[7] The emergence of so-called FinTech services resulting from an amalgamation of finance with IT technologies and the reformation of financial services is one example of this shift.

structures themselves will likely undergo significant changes, including with respect to the nature of the controls to which they will be subject.

<People, goods, capital, data (information)>



II-2 Present circumstances of Japan

II-2-(1) Issues specific to rapid demographic changes

- Even among the major advanced nations of the world, Japan ranks highly in terms of its rate of aging and the pace at which this rate is increasing[8]. Coupled with a shrinking population of the working-age population[9], the demographics of this country are rapidly changing. More and more people are able to work with vigor even after they turn sixty-five years of age. Due to these changes, various social issues need to be addressed.

- Specifically, the government is currently implementing a number of measures to deal with various issues, such as a decline in the expected growth rate, the continuity of ways of working that are associated with low productivity, improvements to the environment in which children are being raised, the creation of innovation, the spreading of the effects of Abenomics to every nook and cranny of Japan's different regions, the integrated realization of economic revitalization and the restoration of fiscal health, and the realization of a society that is safe and secure.

II-2-(2) Citizens' needs (reinforcing initiatives from the perspective of citizens)

- In dealing with the issues enumerated above, measures will need to be taken with awareness that the utilization and application of data will help forge an environment to enable the needs

[8] In comparing Japan's aging rate to the aging rates of other G7 countries, we see that Japan ranked low in terms of its aging rate until the 1980s (approximately 10 percent) and ranked in the middle of the pack in the 1990s (approximately 13 percent). By 2005, however, the country came to rank highest among these countries (20.2 percent). The number of working-age persons required to support a single elderly person was 2.3 in 2015 (aging rate of 26.7 percent) and is expected to be 1.3 in 2060 (aging rate of 39.9 percent). (*White Paper on our Aging Society*, FY2016; Cabinet Office)

[9] The working-age population (15 to 64 years of age) peaked at 87.16 million people in 1995 before declining. In 2013, it stood at 79.01 million people to mark the first time in thirty-two years since 1981 that it fell short of 80.00 million people. (*White Paper on our Aging Society*, FY2016; Cabinet Office)

of citizens to be carefully addressed at various levels in accordance with trends concerning IT-related technology and services and in particular with the deepening of online links.

While this entails a careful addressing of the needs of citizens to a greater extent than before, it is important that we precisely ascertain what citizens require in their lives for this purpose.

Given this perspective, we will need to incorporate into various measures an approach whereby lifestyles are proposed to a greater extent via the use and application of data through the provision of safe, secure, and comfortable services to carefully accommodate the diversifying needs and perspectives of individuals, examples of which are presented below:

1. Expectations of safe and secure lives, such as the handling of risks that become actualized with the occurrence of a large disaster like the Great East Japan Earthquake or Kumamoto Earthquake;
2. Changes in measures of human richness (values) caused by the tendency to put more weight on spiritual richness, a more flexible lifestyle, and self-realization rather than only on physical affluence (for example, improvements in the convenience and comfort of everyday lives (QoL : Quality of life));
3. A shift from ownership to sharing as typified by the so-called sharing economy as a means of achieving richness along with a deepening of online ties (framework of online mutual assessments for various services).

II-3 Building a model of a society with public and private sector data utilization

II-3-(1) New lifestyles through data utilization in light of the present circumstances of Japan

- Given this state of awareness, the government will take comprehensive measures to propose new lifestyles to carefully address the needs of citizens and business enterprises through safe and secure services by categorizing issues caused by rapid demographic changes into the following three issues, proactively promoting the use and application of data through AI, robots, and other leading-edge technologies, and re-evaluating the use and application of data as an opportunity to germinate new technologies and services in Japan.

In order to demonstrate the effects of these measures to the maximum extent possible at this time, we will need to accurately ascertain factual relevance in the processes of selecting, focusing on, and implementing measures and share and horizontally deploy on a timely and appropriate basis expertise obtained through the PDCA cycle and in the course of implementing measures.

1. Economic revitalization and the restoration of financial health

- Promoting administrative and fiscal reforms inclusive of the reformation of the social security system;

- Improving productivity (such as by improving labor productivity per worker and improving the labor productivity of small- to medium-sized enterprises), creating innovations and fortifying human resources (such as by promoting growth strategies and shifting to connected industries[10]), and reforming the way in which people work (such as by supporting young people, women, and the disabled, providing support for the raising of children, and promoting the participation of elderly people who possess extensive knowledge and wisdom).

2. Regional revitalization

- Effectively utilizing regional resources and ensuring that the craftsmanship cultivated by local small- to medium-sized enterprises and progressive, innovative farmers is accumulated and passed down from generation to generation.

3. Ensuring the safety and security of the lives of people

- Implementing disaster management and disaster reduction measures based on lessons learned in the Great East Japan Earthquake and Kumamoto Earthquake.

II-3-(2) Building up an environment for public and private sector data utilization

- Due to the deepening of links between people and goods, it is believed that the use and application of data will lead to a sharing of knowledge and wisdom and promote new realizations and the development of new technologies and services. However, it will be necessary to ensure that awareness of the fact that interconnection among different types of data helps to generate value is shared by both the public sector (national and local governments) and private sector (citizens and business enterprises).

- In order to have data owned by the public sector (national and local governments) and private sector (citizens and business enterprises) through advancements in AI, robots, and other technologies (hereinafter referred to as “public and private sector data”[11]) shared mutually to facilitate their use and application with a view to proposing new lifestyles that carefully meet the needs of citizens and business enterprises, the national and local governments will need to collaborate to develop the required environment. Given this standpoint, the following basic measures shall be implemented in accordance with the Basic Act:[12]

  - Promoting open data practices by the national and local governments

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[10] “Connected industries” refers to an industrial structure designed to generate new added value and resolve social issues by connecting various types of data, technologies, people, and organizations together. It is the form aspired to by Japanese industry based on technological innovations in line with the forth industrial revolution as announced by Prime Minister Abe during his visit to Germany in March 2017.

[11] “Public and private sector data” as mentioned in the Basic Act means electronic data that are managed, used, or provided by the national government, a local government, an independent administrative institution, or another enterprise in the course of executing its clerical or business functions (excluding any data that could have a detrimental effect on national security, disrupt public order, or have a negative impact on the protection of public safety) (paragraph (1) of Article 2 of the Basic Act).

[12] Basic measures as outlined in Chapter 3 of the Basic Act (from Articles 10 through 19).

In order to facilitate the public and private sector data utilization by various actors, open data in the possession of the national and local governments will be promoted. In order to ensure that no harm is caused to the interests of business enterprises or national safety, consideration will be given to competitive domains and to cooperative domains that help the public interest grow and initiatives by business enterprises concerning open data in cooperative areas will be encouraged.

- Moving away from a paper-centered culture

The public sector (national and local governments) is promoting the principle of moving away from a conventional paper-based culture and providing online access for administrative procedures with a view to public and private sector data utilization and, in connection with this principle, the conducting of information system reforms and operational reviews (BPR). Measures to provide online access for users will also be promoted to thoroughly conform to the principle of providing online access for administrative procedures.

- Developing rules pertaining to the handling of public and private sector data

It is hoped that rules for the handling of circulated data, whether public or private data, are developed for the utilization and application of public and private sector data. To this end, we will promote the development of rules for the utilization and application of public and private sector data by a broad range of players under the involvement of individuals, the review of systems relating to smooth data circulation (content distribution, intellectual property scheme, and more), and the development of laws on electronic letters of proxy.

- Promoting standardization for public and private sector data linkages

We will develop a cross-field service platform based on data standardization (vocabulary, codes, characters, and more), API linkages, authentication functions, and more to constitute a foundation for the circulation of public and private sector data.

- Implementing measures to counter the digital divide, engaging in research and development, cultivating human resources, and raising public awareness

In order to promote the use and application of data, we will promote a closing of gaps in terms of usage opportunities (by implementing measures to counter the digital divide and ensuring fairness and equality in the use and application of data), engage in research and development, cultivate human resources, and raise public awareness.

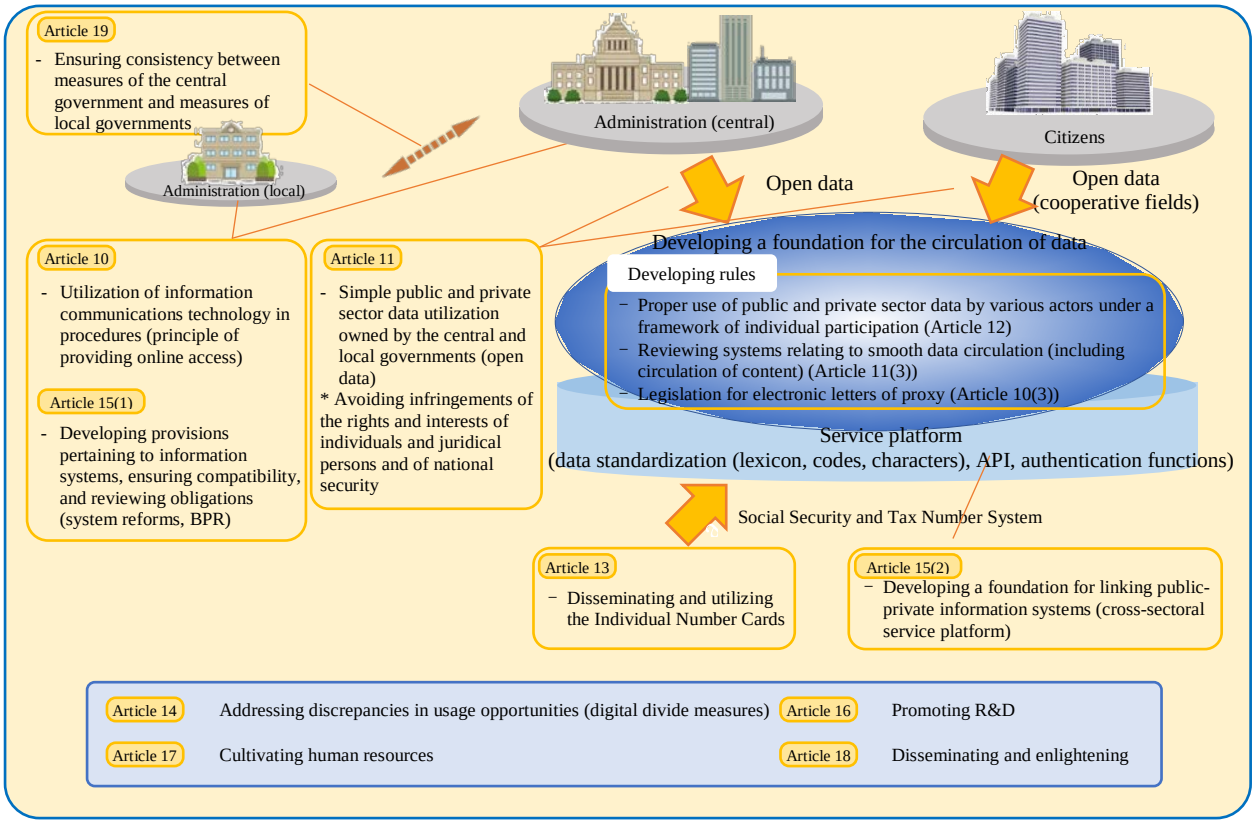
- Ensuring the consistency of measures implemented by the national and local governments

In implementing the above measures at the level of the national and local governments, the national government will, in accordance with an understanding that public and private sector data will be circulated irrespective of administrative division and used and applied

in a cross-sectional manner, oversee everything and proceed in an integrated manner to ensure the consistency of measures between the national government and local governments and between local governments rather than implement measures individually.

- In promoting the development of an environment for the use and application of public and private sector data in particular, we will promote the spread and deployment of the Individual Number program as an infrastructural element for online authentication as a means of enhancing the reliability and safety of data.

＜Developing an environment for public and private sector data utilization＞



II-3-(3) Building a society that Japan aims at

- By establishing these measures, we aim to ultimately become the first in the world to develop a model of a society with public and private sector data utilization – a society in which people are enriched by data – in other words, a society in which all citizens can receive the benefits of IT and data and perceive true prosperity accordingly without having to be aware of the utilization of IT and the utilization of data.

- By developing the world's first model of such a society with public and private sector data utilization, this model can be deployed in countries that are expected to become super-aging societies with low birthrates (such as countries in Asia).

III Structure for implementation

III-1 PDCA cycle for the Basic Plan for the Advancement of Public and Private Sector Data Utilization

The government aims to agilely and appropriately promote and spiral-up the PDCA cycle by comprehensively and specifically engaging in matters and making cross-functional adjustments in order to enable government ministries and agencies to mesh together and work effectively towards their goals with a view to developing a model of a society with public and private sector data utilization. In order to reinforce the development of an environment for the public and private sector data utilization in particular, comprehensive, cross-sectoral initiatives will be promoted by the Strategic Conference for the Advancement of Public and Private Sector Data Utilization, which was established under the purview of the IT Headquarters and which is chaired by the Prime Minister[13].

[Follow-up by the government CIO]

- Once each quarter, the government CIO shall follow up on measures in priority fields as designated in Part 2 below that should be implemented on a priority basis from the standpoint of promoting the public and private sector data utilization and check and evaluate the state of progress and outcomes. At that time, each individual fact should be thoroughly ascertained and evaluated after issues have been visualized and the relationships between cause and effect have been sorted out. Policy effects, goals, KPI[14], and more will be constantly reviewed based on the results of this evaluation process[15].
- Measures other than measures that should be implemented on a priority basis shall likewise be subject to follow-up actions once a year.

[Framework pertaining to priority investments]

- Existing measures that should be implemented on a priority basis shall be reviewed based on evaluations conducted by the government CIO and the results thereof shall be reflected in budgets to enable investments in specific measures to be made on a priority basis.

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[13] While different ministries are collaborating with one another and promoting initiatives as part of Open Data Working Group as established under the purview of the IT Headquarters with respect to open data, public-private round-tables will be held in collaboration with the Strategic Conference for the Advancement of Public and Private Sector Data Utilization to ascertain the specific needs of private-sector enterprises and proactively promote open data.

[14] KPI: Key Performance Indicator.

[15] Measures will give rise to benefits according to different time frames. The follow-up period will also vary in length depending on the contents of a given measure.

[Promoting EBPM]

- In order to establish an EBPM cycle[16], (1) initiatives pertaining to the promotion of EBPM shall be controlled in government ministries and agencies by appointing[17] a director-general[18] for promoting EBPM to oversee initiatives pertaining to the promotion of EBPM in each ministry and agency and (2)the promotion of EBPM on a government-wide basis shall be engaged in by setting up an EBPM promotional council comprising directors-general for promoting EBPM under the Strategic Conference for the Advancement of Public and Private Sector Data Utilization. (The council shall operate by having experts conduct checks, provide guidance, and give advice.)

[Fortifying command-post functions]

- Procurements in connection with the development and operations of information systems shall be reviewed and procurement measures to enable posted budgets to be flexibly and appropriately carried out shall be investigated in order to accommodate the pace of advancements in IT technology and facilitate the optimization of costs and the appropriate realization of measures.

[Establishing a consultation office]

- In order to accommodate inquiries from business enterprises concerning public and private sector data, a general consultation office shall be established within the Central Strategy Office of Information and Communications Technology, Cabinet Secretariat (hereinafter referred to as “IT General Strategy Office”) and a consultation office shall be set up in each ministry and agency. In addition to providing necessary information to business enterprises and citizens, each office will endeavor to appropriately collaborate with relevant ministries and agencies with respect to each issue and provide support to local governments to help formulate plans to be spearheaded by local governments while taking issues affecting each local government into account. Accordingly, these offices will promote the proactive public and private sector data utilization.

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[16] See I-1-(5) of Part 2.

[17] A director-general for promoting EBPM shall proactively provide guidance on EBPM initiatives and endeavor to thoroughly promote EBPM in government ministries, such as by seeking to identify facts and issues, obtain, develop, use, and apply statistical data when formulating measures and conducting evaluations, and improving the quality of evaluations through the monitoring of the state of the utilization of statistical data and the provision of guidance and support concerning the utilization of statistical data. He or she will also be responsible for issuing reports to the EBPM Promotion Committee and otherwise providing explanations to outside parties concerning initiatives undertaken by government ministries and agencies.

[18] Provisional name.

III-2 Partnership with other Headquarters

- In promoting government-wide measures concerning IT, promotional efforts will be undertaken through close collaborations involving the following initiatives with various bodies to a greater degree than before – including the Intellectual Property Strategy Headquarters, Cyber Security Strategy Headquarters, Council for the Promotion of Regulatory Reforms, and Council for the Protection of Personal Information – in accordance with the notion that IT lies at the core of societal changes.

- Establishing an intellectual property system to promote the utilization of data (initiatives of the Intellectual Property Strategy Headquarters)

  Based on the Intellectual Property Promotion Plan 2017 (finalized at a meeting of the Intellectual Property Strategy Headquarters on May 16, 2017), various initiatives shall be pursued, such as by urging contracts relating to the utilization of data to be concluded, formulating contractual guidelines from the standpoint of ensuring that the contents of contracts are correct, investigating statutory measures relating to the prohibition against the acquisition of data by fraudulent means and the fortification of protections concerning technical restrictions to allow the owners and users of valuable data to securely provide data and ensure a fair, viable competitive order, and disseminating examples pertaining to patent examinations for data structures.

- Ensuring cyber-security (initiatives of the Cyber Security Strategy Headquarters)

  In order to contribute to the safe public and private sector data utilization, efforts shall be made to reinforce cyber-security measures among both public-sector and private-sector owners of public and private sector data. At that time, various initiatives based on the Uniform Standards for Information Security Measures Applicable to Government Bodies, the Fourth Generation Action Plan Pertaining to Information Security Measures for Important Infrastructural Elements, and other materials shall be carried out according to the cyber-security strategy (as finalized by Cabinet on September 4, 2015) and initiatives based on the results of an investigation into Cyber Security for 2020 and Beyond (Review of our Ongoing Cyber-Security Strategy) as conducted by the Cyber Security Strategy Headquarters shall be undertaken.

- Promoting IT-related regulatory reforms and reducing the costs of administrative procedures (initiatives of the Council for the Promotion of Regulatory Reforms)

  The Council for the Promotion of Regulatory Reforms summarized the First Report Concerning the Promotion of Regulatory Reforms, which included reforms to adopt IT and one-stop options for taxation- and social insurance-related paperwork, the public and private sector data utilization, and remote diagnoses and remote education in the age of IT on May

23, 2017. The Cabinet Office will proactively promote measures as set forth in a plan for the implementation of regulatory reforms and follow up on the state of the implementation of these measures. In order to promote integrated initiatives for regulatory reforms, the simplification of administrative procedures, and the adoption of IT from the perspective of business enterprises, the costs of administrative procedures incurred by business enterprises will be reduced by 20% by March 2020 in line with an Administrative Procedures Sub-Committee Meeting Report (towards reducing the costs of administrative procedures) (as finalized by the Administrative Procedures Sub-Committee of the Council for the Promotion of Regulatory Reforms on March 29, 2017).

- Ensuring the appropriate handling of personal information (initiatives of the Council for the Protection of Personal Information)

  In promoting the public and private sector data utilization that includes personal information or anonymized information (hereinafter referred to as “personal information”), attention should be paid to ensure that personal information is handled properly according to the provisions of the Act for the Protection of Computer Processed Personal Data held by Administrative Organs while the Council for the Protection of Personal Information coordinates with measures pertaining to the protection and the correct and effective utilization of personal information in line with provisions as set forth in Article 3 (Basic principles) of the Basic Act (“The advancement of Public and Private Sector Data Utilization must be done for the purpose of ensuring the smooth circulation of information while protecting the rights and interests of individuals and corporations, in combination with measures under the [omitted] Act on the Protection of Personal Information (Act No. 57 of 2003) [omitted].”).

IV Cooperation with local governments

- In using and applying public and private sector data, a certain level of consistency will need to be ensured among implemented measures between the central and local governments and among different local governments and the smooth public and private sector data utilization are essential.

  The Basic Act mandates the formulation of basic plans for measures concerning the promotion of the public and private sector data utilization by prefectures (“prefectural public and private sector data utilization promotion plans”) and stipulates that municipalities should endeavor (mandated effort) to formulate basic plans for measures concerning the promotion of the public and private sector data utilization (“municipal plan for the advancement of public and private sector data utilization”).

- To this end, the central government shall, by around the fall of FY 2017, produce a template for local government plans after specifically selecting local government initiatives to be

promoted in order to facilitate the formulation of public and private sector data utilization promotion plans by local governments[19].

- Out of consideration for the burden pertaining to the formulation of plans and the implementation of measures imposed on local governments, the central government shall provide necessary support, including support in terms of disseminating and publicizing the Basic Plan for the Advancement of Public and Private Sector Data Utilization as formulated by the central government, providing information issued by the central government as requested by local governments, and implementing statutory measures.

- By having plans formulated as early as possible by prefectures and municipalities and endeavoring to establish links between these plans and relevant measures, ties to and collaborative links with local governments will be strongly promoted in order to pursue the public and private sector data utilization by the country as a whole on an integrated basis.

V Cooperation with the private sector

- In the coming age in which people and goods will be linked to one another online, public-sector entities consisting of the central and local governments as well as business enterprises and other private-sector actors will no longer amass data that they themselves own. Rather, it is important to be aware that the sharing of various types of knowledge and wisdom induces the development of new technologies and services.

- From this perspective, the Basic Act stipulates that business enterprises shall endeavor to proactively promote the public and private sector data utilization, including by way of opening up data, and that measures required to promote online processing in connection with contract applications and other procedures shall be undertaken.

- At the same time, data possessed by a business enterprise comprise data collected in the course of expanding the enterprise's own business and include data relating to the rights and interests of individuals and juridical persons and data that are important in terms of competition with others in the course of engaging in business activities (data corresponding to the competitive domain). On the other hand, data for which new added value is generated through the sharing of data (data corresponding to the cooperative domain) are also included in business activities that can be seen in such examples as support to disaster victims through the sharing of public and private sector data whenever a disaster occurs and the sharing of certain types of probe information when automatic driving technologies are being developed.

- Thus, with respect to data possessed by business enterprises, it might, for example, be desirable to see industry groups endeavor to have data corresponding to the cooperative

[19] In March 2017, the city of Yokohama in Kanagawa Prefecture enacted a bylaw pertaining to the formulation of a plan to promote the public and private sector data utilization in the city.

domain shared as much as possible. With respect to the government, consideration should be given to both the competitive domain and the cooperative domain to ensure that there are no impediments to the rights and interests of individuals and juridical persons and the safety of the country. In order to enable public and private sector data to be interlinked, the public and private sector data utilization will need to be promoted, such as by raising awareness among business enterprises and developing a platform inclusive of standardization and API linkages, whereupon it will be necessary to proactively promote links and the conducting of cooperative actions with business enterprises and develop an environment for this purpose.

part 2:Basic Plan for the Advancement of Public and Private Sector Data Utilization

I Measures based on the Basic Plan for the Advancement of Public and Private Sector Data Utilization

In order to establish a model for a society with public and private sector data utilization, a Basic Plan for the Advancement of Public and Private Sector Data Utilization as specified in Article 8 of the Basic Act (hereinafter referred to as “Basic Plan”) shall be formulated.

The Basic Plan is a blueprint to get the central and local governments to engage in the development of a foundation for the utilization of data as a new form of societal infrastructure while looking at the big picture.

Based on this blueprint, the central government will look at the big picture as it relates to specific measures and comprehensively promote the public and private sector data utilization while precisely ascertaining conditions surrounding the development of IT-related Japanese technologies in the world today in order to help international organizations, business enterprises, and groups collectively aspire to lead the world in terms of various IT-related rankings.

The Basic Plan shall set forth the following matters (Article 8 of the Basic Act):

1. Basic policy concerning measures relating to the promotion of the public and private sector data utilization;
2. Matters concerning the public and private sector data utilization by central administrative bodies;
3. Matters concerning the promotion of the public and private sector data utilization by local governments and business enterprises;
4. Measures that should be implemented on a priority basis by the government in connection with the public and private sector data utilization;
5. In addition to the above, other matters required to comprehensively and effectively promote measures concerning the promotion of the public and private sector data utilization.

I-1 Principle on measures to promote public and private sector data utilization

I-1-(1) Formulating and steadily implementing the basic plan

- Upon sorting out the initiatives and issues that have been dealt with to date, the Basic Plan outlines the future orientation with respect to specific measures concerning the public and private sector data utilization by the central and local governments and business enterprises. Specific measures will be undertaken in accordance with the following points:

- Policy goals that determine how the contents of measures can lead to improvements in benefits accruing to citizens and business enterprises (users) and public value shall be rendered appropriate and clear;
- Measures shall be based on specific factual relevancy with a focus on recognized issues and their solutions;
- Efforts shall be made to appropriately and effectively divide roles and establish collaborative ties with relevant government ministries and agencies, local governments, and business enterprises without overlapping other measures;
- The setting of schedules for measures and benchmarks (KPI) shall be quantitatively indicated as much as possible with emphasis placed on the perspectives of citizens and business enterprises, as the users thereof.

・There are various approaches to implementing specific measures as indicated in the Basic Plan that depend on the measure in question. While it is thus difficult to uniformly set deadlines for the attainment of specific measures, it is essential that the central and local governments work together to at least indicate to and share with citizens and business enterprises the benefits to be obtained by realizing each specific measure in order to implement specific measures as provided for in the Basic Plan.

・In addition, as it is also important to set milestones with a view to attaining these benefits, it will also be necessary to set forth goals in terms of the extent to which benefits can be attained in three years when the 2020 Tokyo Olympics/Paralympics are set to be held, with the understanding that 2020 shall be regarded as but one of multiple points in time when the attainment of goals shall be assessed.

・At that time, we aim to pursue the PDCA cycle (including the PDCA cycle for each of the P, D, C, and A processes that comprise the overall PDCA cycle) and achieve a spiral-up effect with a view to attaining these goals while adjusting the contents of specific measures making up the Basic Plan from time to time through the following review-related initiatives as spearheaded by the government CIO. At that time, each individual fact should be thoroughly ascertained, issues shall be visualized, the relationships between cause and effect shall be sorted out, and the extent to which goals have been attained shall be evaluated.

1. With respect to specific measures as provided for in the Basic Plan, we will regularly follow up on progress and results and conduct reviews based on the results of this evaluation process[20].
2. While we pursue specific measures as provided for in the Basic Plan, we will conduct reviews for the purposes of revising and adding issues that should be further addressed as well as new issues, benefits, and KPIs that had not been envisaged under the Basic

[20]Measures that should be implemented on a priority basis in priority fields shall be subject to reviews each quarter while all other measures shall be reviewed once a year.

Plan as originally drafted in accordance with future developments in technology, new service trends, and the needs of citizens and business enterprises.

I-1-(2) Designating priority fields (focusing on cross-sectoral data linkages)

- It is assumed that eventually everyone will be able to utilize public and private sector data on a cross-sectoral basis in the upcoming era in which large volumes of data will be circulated. By deepening online links between people and people, people and goods, and goods and goods, it will be necessary to develop a future-oriented platform. On the other hand, since there are discrepancies in terms of the state of progress on data standardization and data linkages, it is important now that we focus on cross-sectoral data linkages, pursue the accumulation of data owned by the central and local governments and business enterprises, and promote data standardization and data linkages on a field-by-field basis.

- In order to demonstrate the effects of measures indicated in the Basic Plan to the maximum extent possible, it will be necessary to appropriately and on a timely basis select and focus on certain measures, accurately ascertain factual relevancy as concerns different measures, share expertise obtained in the course of carrying out such measures, and expanding the deployment of such measures rather than attempt to do too much at once.

- In this connection, by endeavoring to promote the public and private sector data utilization to resolve the following as matters that should be addressed by Japan on a concentrated basis, eight fields in which solutions are expected (electronic administration; health, medical, and nursing care; tourism; finance; agriculture, forestry, and fisheries; manufacturing; infrastructure, disaster management, and disaster reduction; and mobility) shall be designated as priority fields: 1) economic revitalization and the restoration of financial health, 2) regional revitalization, 3) ensuring the safety and security of the lives of citizens.

  1) Fields that contribute to resolving issues in terms of economic revitalization and the restoration of financial health
     a) With respect to the promotion of administrative and fiscal reforms inclusive of the reformation of the social security system: the *field of electronic administration*, in which the adoption of IT and operational reforms (BPR) are expected to improve convenience for citizens, promote business activities, and reduce administrative costs; and the *field of health, medical, and nursing care*, in which the utilization and adoption of AI, the IoT, and other technologies as well as public and private sector data are expected to reduce social security expenses through effective treatments and the prevention of the progression of diseases;
     b) With respect to improvements in productivity, the generation of innovations, the fortification of human resources, and the realization of reforms to ways in which people work: the *field of manufacturing*, in which industrial reforms (transforming

into connected industries) through the utilization and adoption of AI, the IoT, and other technologies as well as public and private sector data are expected to improve labor productivity and reform ways in which people work through, for example, efficient inventory adjustments at small and medium-sized enterprises; and the *field of finance*, in which financial technology is expected to give rise to new services and innovations. (Other fields include tourism, agriculture, forestry, and fisheries, infrastructure, and mobility[21].)

2) Fields that contribute to resolving issues in terms of regional revitalization

- The *field of tourism*, in which the utilization of AI, the IoT, and other technologies as well as public and private sector data is expected to create jobs for local elderly persons in response to newly cultivated tourism demand; and the *fields of manufacturing and agriculture, forestry, and fisheries*, in which the accumulation and passing down from one generation to another of craftsmanship and skills possessed by small to medium-sized enterprises and practical farmers are expected to improve productivity and create jobs. (Other fields include mobility[22].)

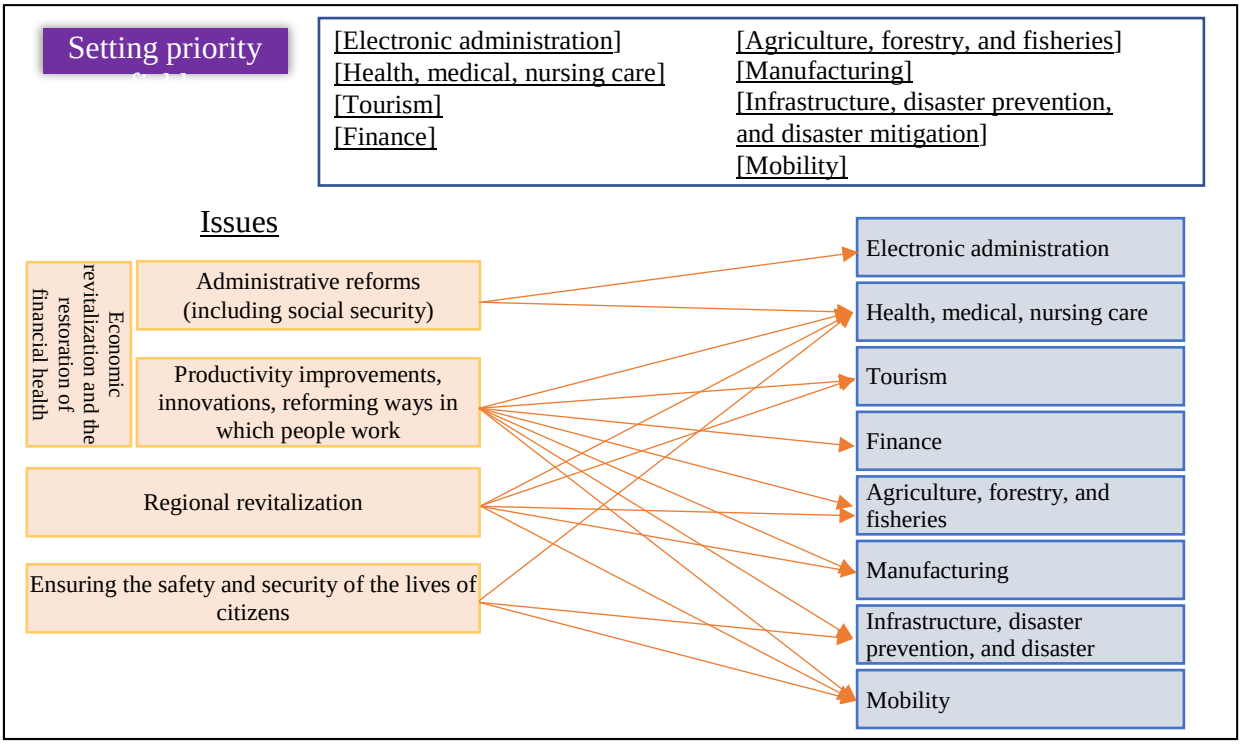
3) Fields that contribute to resolving issues in terms of ensuring the safety and security of the lives of citizens

- The *field of health, medical, and nursing care*, in which the utilization of AI, the IoT, and other technologies as well as public and private sector data is expected to provide advice to realize or promote healthcare management according to the lifestyle and physical condition of each individual, remote medicine to be practiced, and evidence-based effective treatment and nursing care to be practiced; and the *field of infrastructure, disaster management, and disaster reduction*, in which the prevention and prediction of disaster risks at normal times and the implementation of smooth support measures when a disaster occurs or for recovery can be expected based on the multiplexing of wired and wireless networks and the use of L alerts (disaster information-sharing system).

[21] The use of AI, the IoT, and other technologies as well as public and private sector data is expected to, for example, create and launch businesses at tourism sites as triggered by tourism in the area of tourism, improve yields and the quality of harvests in the area of agriculture, forestry, and fisheries, streamline construction site processes in the area of infrastructure, and ease congestion on roads and public-transit lines and streamline logistics in the area of mobility.

[22] The utilization of AI, the IoT, and other technologies as well as public and private sector data is expected to, for example, resolve various issues, such as through the provision of mobility support for local elderly residents based on automated driving technologies in the area of mobility functions.

＜Relationship between issues and priority fields＞



・For each of the above priority fields, measures to be implemented on a priority basis shall be selected from the standpoint of promoting the utilization of data in order to help international organizations, business enterprises, and groups collectively aspire to lead the world in terms of various IT-related rankings. Furthermore, existing measures that should be implemented on a priority basis shall be reviewed based on evaluations conducted by the government CIO and review results shall be incorporated into budgets to enable investments to be made on a priority basis.

I-1-(3) Ensuring consistency between measures of the central government and measures of local governments

・In order to demonstrate the effects of the public and private sector data utilization to the maximum extent possible, it is important that the central and local governments develop an environment in which public and private sector data can be utilized and applied by and between local governments on a cross-sectoral basis and enable measures to be deployed on an integrated basis across the entire country.

For this purpose, the central and local governments do not pursue system reforms individually. Rather, the central government should set forth a policy governing reviews of information system reforms and operations on the part of the central and local governments (BPR) and the development of a cross-sectoral platform through the standardization of data (vocabulary, codes, text, and more), API, and authentication functions. The central and local governments shall collectively pursue this policy in accordance with this policy.

I-1-(4) Expanding the deployment of successful outcomes

- The steady outcomes achieved to date at a central and regional level and the outcomes obtained through the implementation of specific measures as provided for in the Basic Plan shall be deployed across Japan with an expansion of deployment from “the state to the regions” and from “the regions to the whole country” constituting the basic policy. Initiatives concerning the public and private sector data utilization shall be reinforced with a view to resolving various issues, including “100 million people playing an active role in society”, “reforming the way we work”, “regional revitalization”, “promoting the participation in society of women”, and “toughening the nation”.

I-1-(5) Promoting EBPM through public and private sector data utilization

- In order to deploy a government whose administration is trusted by citizens, it will be necessary to have policy sections promote the formulation of evidence-based policies by proactively public and private sector data utilization through the establishment of an EBPM cycle[23]. As the first step for these initiatives, the functions required for promoting EBPM shall be developed and EBPM shall be carried out through initiatives in terms of review functions at each stage corresponding to policies, measures, and office operations. Even as methods are being developed, efforts are being made to expand the applicable scope of such methods. EBPM will be steadily promoted according to the Final Summary of Meetings of the Statistical Reform Promotion Council (as finalized at a meeting for the promotion of statistical reform as held on May 19, 2017).

I-2 Specific measures

[Presenting the benefits expected in each priority field] (focusing on cross-sectoral data linkages)

- Rather than having each of the eight priority fields designated in I-1-(2) (electronic administration; health, medical, and nursing care; tourism; finance; agriculture, forestry, and fisheries; manufacturing; infrastructure, disaster management, and disaster reduction; and mobility) exist as independent fields, it is expected that added value will be further increased and that new services and innovations will be generated in these fields by way of establishing extensive interconnections, service reforms, and cross-sectoral linkages.

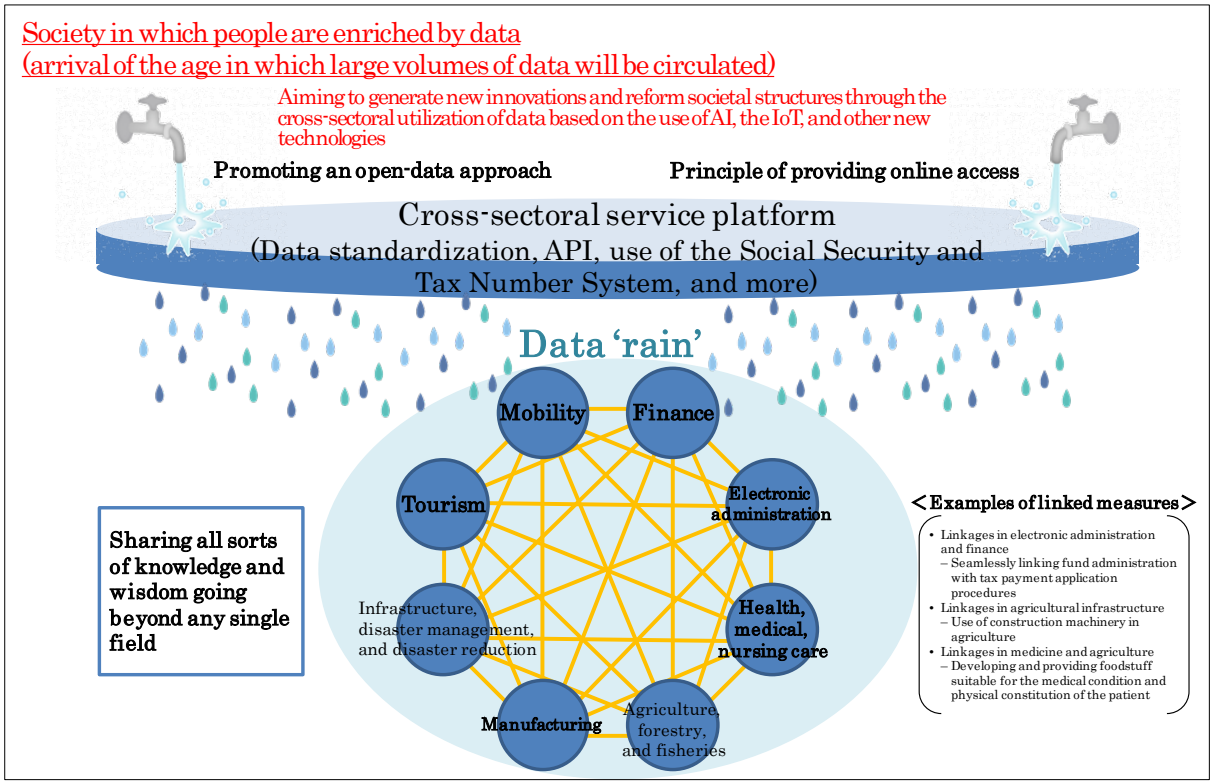
- Given that the public and private sector data utilization across these priority fields will take on greater importance, a cross-sectoral service platform capable of seamlessly tying public

[23] To promote EBPM, it is essential that relevant facts on which policies are premised and policy issues are precisely ascertained and that links logic between the contents of a specific policy and its results and between the effects of a policy and its costs are clearly specified. Constituting this foundation are statistical data and otherwise objective evidence. It will be necessary to develop a cycle (EBPM cycle) that organically couples policy improvements through the ascertainment of policy issues and the predictions, measurements, and evaluations of policy effects with the development and amelioration of statistical data.

and private sector data together by way of data standardization, API linkages, and the use of the Social Security and Tax Number System will constitute the foundation for the imminent arrival of a society in which individuals, families, communities, business enterprises, governments (central and local), and the world will be able to enhance value at various different levels by sharing human knowledge and wisdom through the utilization of data.

One can think of the various types of data amassed on a cross-sectoral service platform as 'raining down' onto different fields to help generate new services and innovations that can be utilized by both the public and private sectors.

＜For the cross-sectoral public and private sector data utilization＞



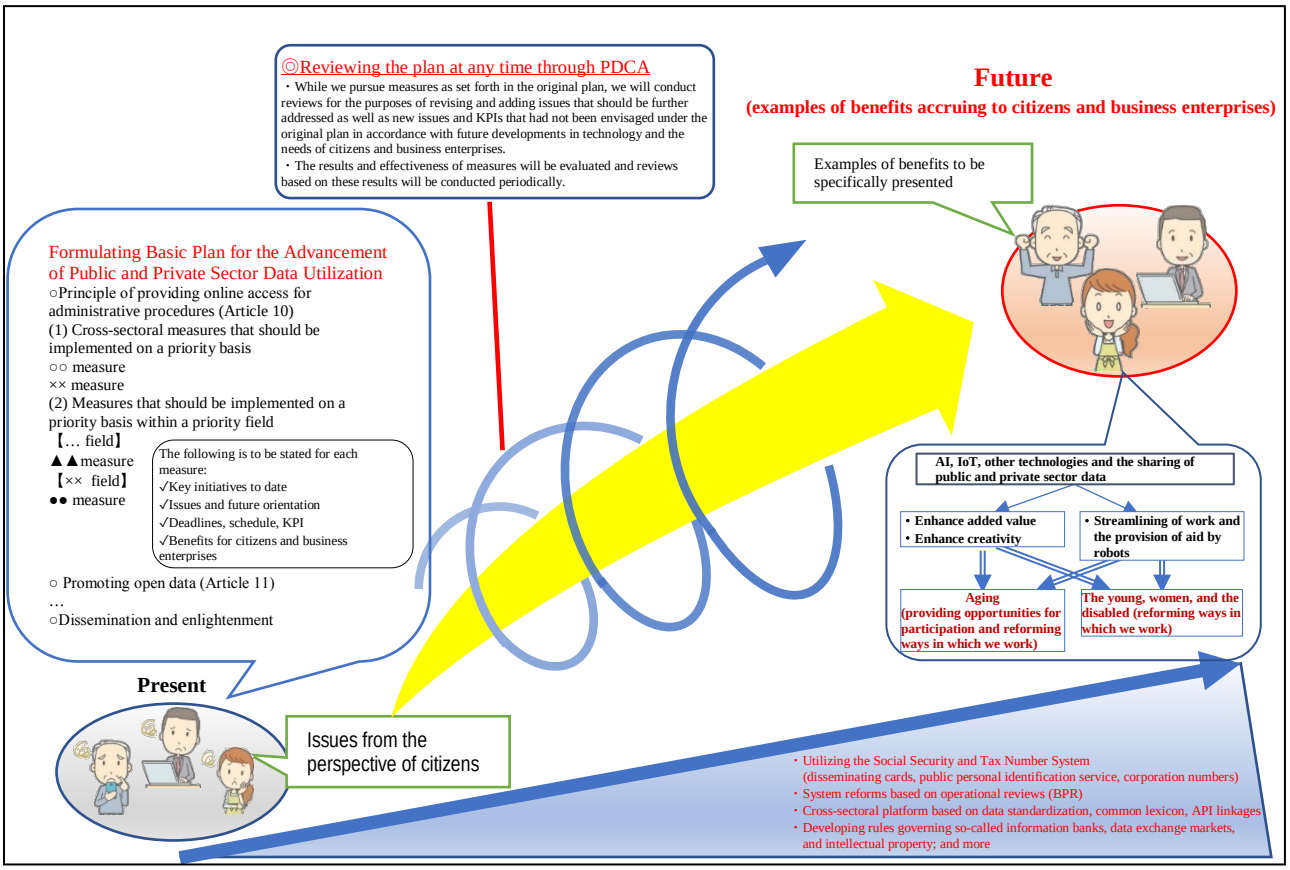
- For the future, we will focus on cross-sectoral linkages. At present, we will proceed with the accumulation of data owned by the central and local governments and business enterprises and promote the standardization of data in each field and the establishment of a platform.

- In formulating the Basic Plan, it is essential that the central and local governments work together to indicate to and share with citizens and business enterprises the benefits to be obtained by steadily implementing specific measures and promoting the public and private sector data utilization in each priority field.

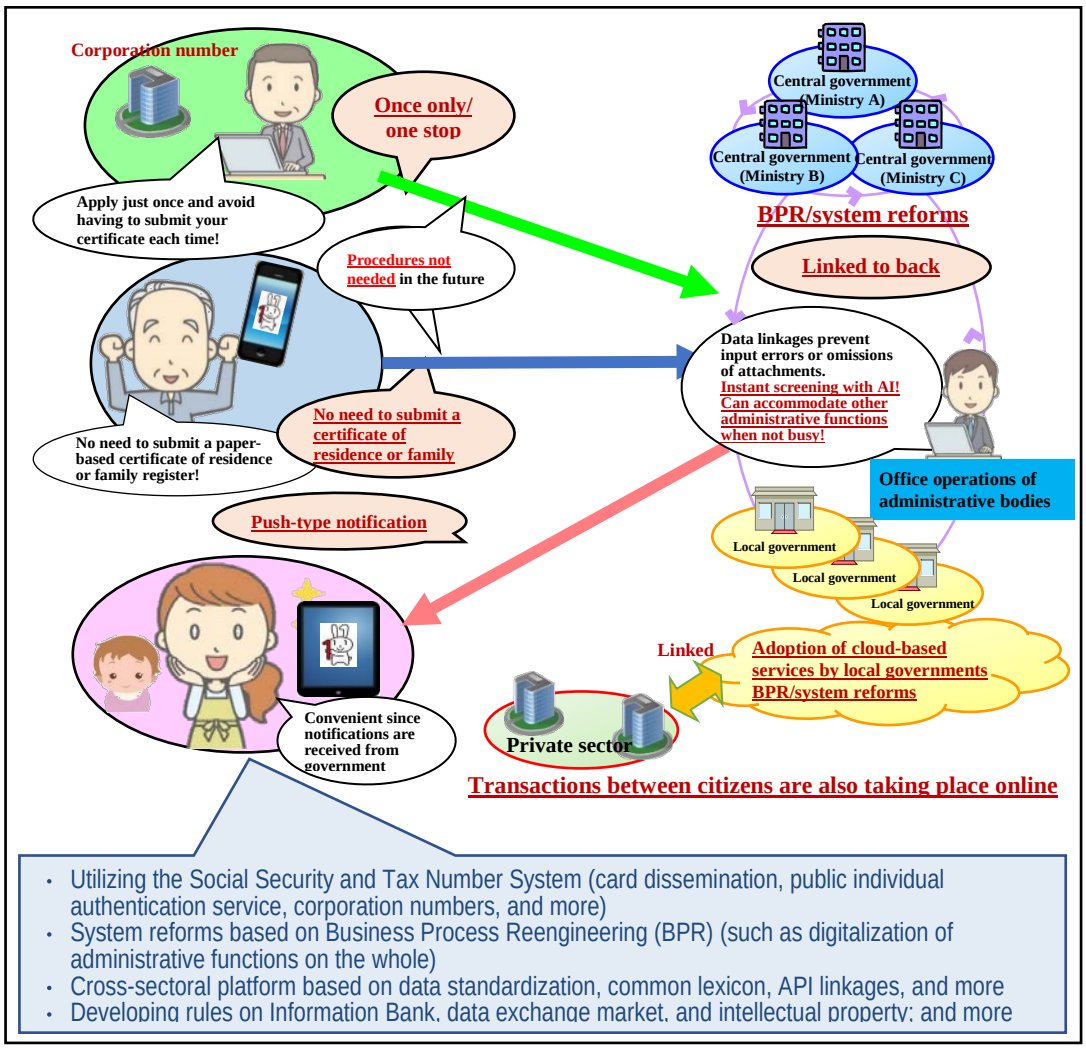
- It is necessary to set goals in terms of the extent to which benefits can be attained in three years when the 2020 Tokyo Olympics/Paralympics are set to be held, with the understanding that 2020 shall be regarded as but one of multiple milestone points in time when the attainment of goals shall be assessed.

・In accordance with the above, illustrations of the benefits that are expected to accrue at this time to citizens and business enterprises and examples of measures that should be implemented on a priority basis in each priority field are outlined below.

＜An illustration of the benefits presently expected to accrue to citizens and business enterprises through the implementation of measures in priority fields is hereby presented>



＜Future in the field of electronic administration (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

- Conducting a survey of administrative procedures (public-private, region-private, private-private)
- System reforms based on the results thereof and based on Business Process Reengineering (BPR) (such as the complete digitalization of administration (including the move to a paperless approach) and the adoption of cloud services for local government), collective development in line with the principle of providing online access
- Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures
- Adopting IT and one-stop options for paperwork relating to social insurance and labor insurance (increasing the rate of electronic usage)
- Promoting reforms of government operations based on the use of block chains
- Back-office linkages for the government as a whole based on the use of information on juridical persons
- Government procurements based on the use of Individual Number Cards and electronic proxy forms
- Providing online access to explanations of important matters pertaining to real estate transactions

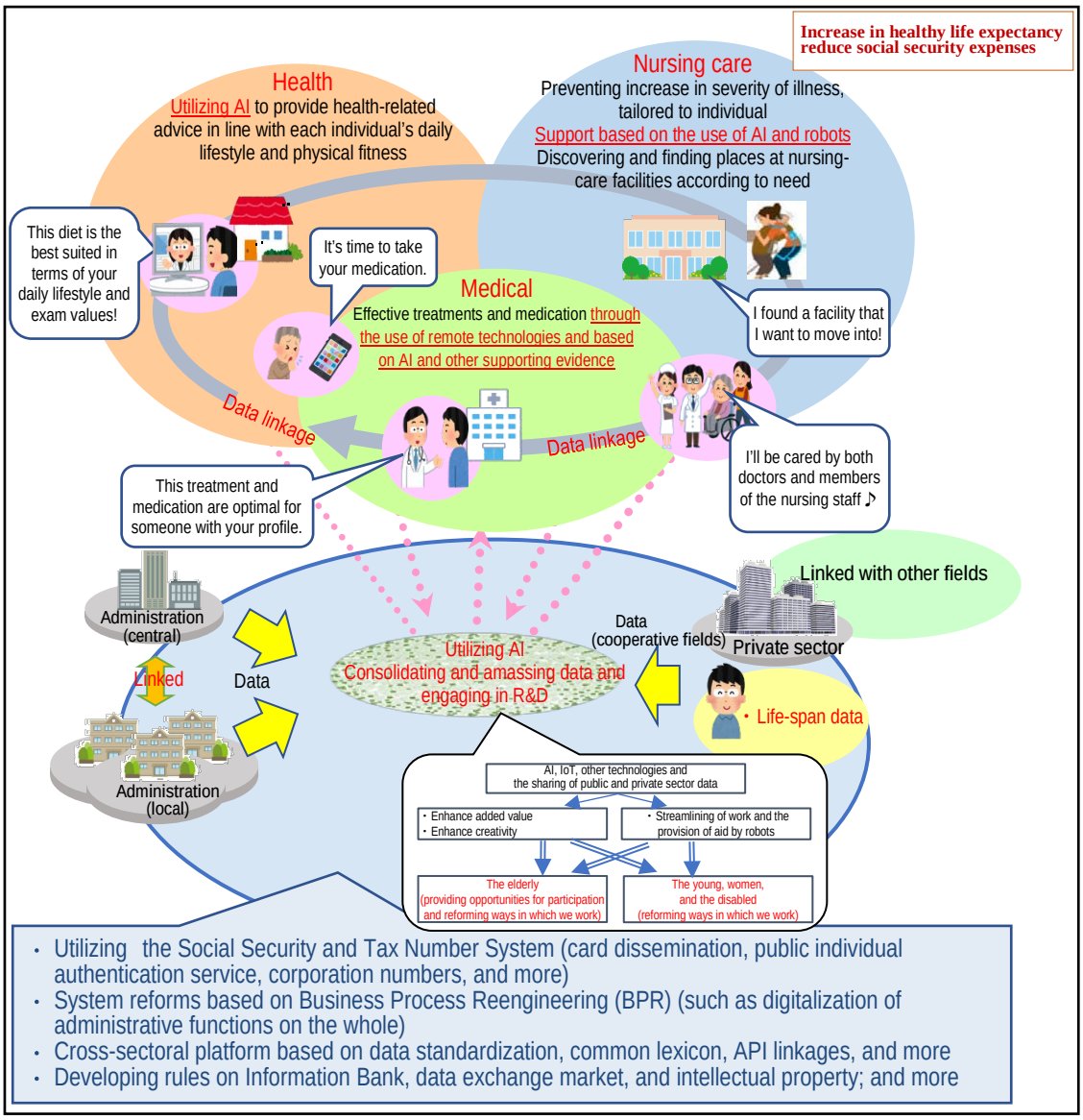
Promoting open data

- Conducting a survey of administrative data owned by the central government
- Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)
- Investigating ways in which registered real-estate information should be publicly disclosed
- Providing map data equipped at registry offices to business enterprises
- Opening up government satellite data and developing an environment for the use of data
- Promoting and upgrading the opening up of statistical data
- Promoting the utilization of information on juridical persons

Disseminating and utilizing Individual Number Cards

- Promoting one-stop services not just for the rearing of children but also for nursing care, succession matters, and other life events
- Allow user-authentication functions to be downloaded onto smartphones
- Promoting the multifunctionality of Individual Number Cards (such as in terms of the use of My Key platform)

＜ Future in the field of health, medical, and nursing care (examples of benefits to accrue to citizens and business enterprises) ＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

- Conducting a survey of administrative procedures (public-private, region-private, private-private)
- System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access
- Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures
- Streamlining and upgrading medical insurance operations (such as screening operations for medical service fees)

Promoting open data

- Conducting a survey of administrative data owned by the central government
- Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)

Developing rules for the utilization of data

- Achieving an environment for the circulation, utilization, and application of data corresponding to healthcare, medical, and nursing care (developing rules for so-called 'information banks')
- Developing a recognition system for the production of anonymized medical information

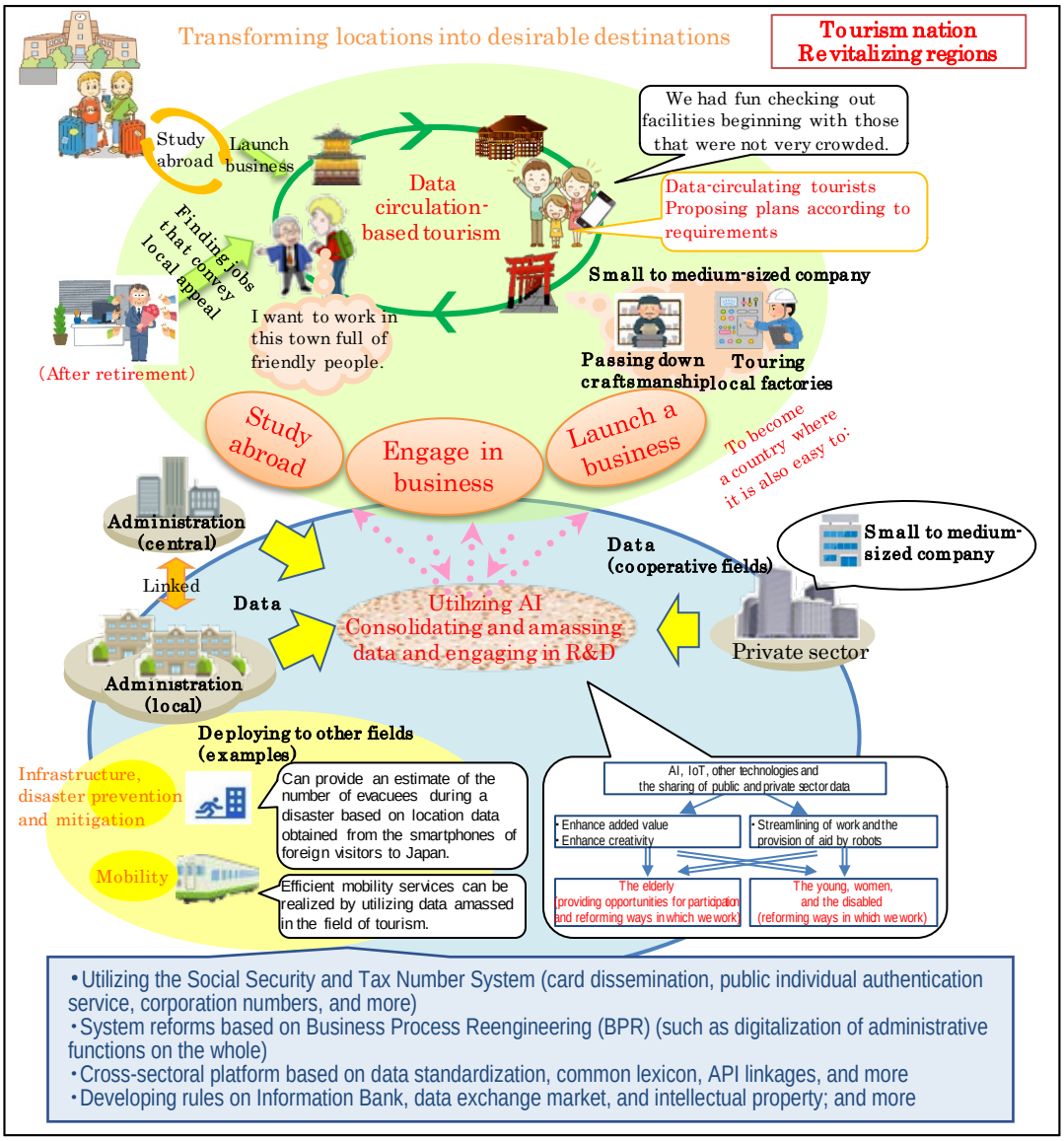
Developing a platform for data linkages

- Establishing a way to verify medical insurance eligibility online and introducing a system of medical IDs
- Measures to ensure the safety of pharmaceuticals through the use of electronic medical records and other types of information

Digital divide measures and research and development

- Promoting ICT-based remote diagnostics
- Developing nursing-care robots to maintain and improve the quality of the lives of users and reduce the burden imposed on caregivers
- Providing medical support and treatments through the amassing and analysis of high-resolution visual data and AI (developing AI and 8K high-resolution technologies)

＜ Future in the field of tourism (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

- Conducting a survey of administrative procedures (public-private, region-private, private-private)
- System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access
- Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures

Promoting open data

- Conducting a survey of administrative data owned by the central government
- Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)
- Promoting an open data approach with respect to dining establishments, tourist attractions, and other types of tourism information useful to foreign tourists to Japan (including by way of the promotion of the public disclosure of information owned by local governments)
- Promoting an open data approach to public transit service information (such as location information) (see below)

Developing rules for the utilization of data

- Investigating with a view to realizing tourism hospitality businesses based on the use of a framework for 'information banks'

Developing a platform for data linkages

- Providing DMO Net, a tool for engaging in management marketing in tourism fields

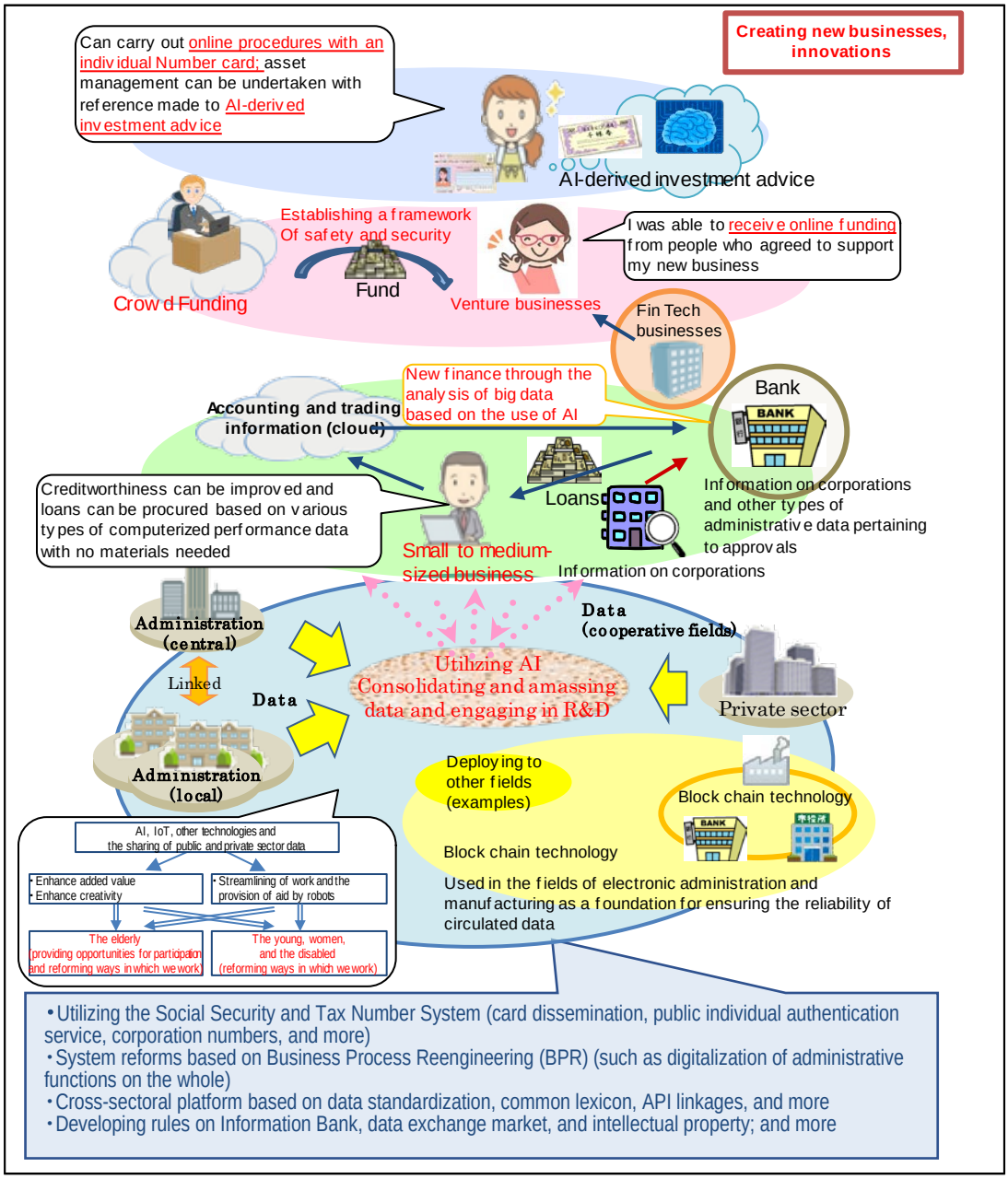
Disseminating and utilizing the Individual Number Cards

- Investigating a framework for preventing ticketless entries and unlawful resales based on the use of the Individual Number Cards

Digital divide measures and research and development

- Equalizing opportunities to use 4K/8K high-resolution video and transmission technologies (Tokyo Olympics and Paralympics)
- R&D on and real-world testing of multilingual audio translation technologies

＜ Future in the field of finance (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

・Conducting a survey of administrative procedures (public-private, region-private, private-private)

・System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access

・Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures

Promoting open data

・Conducting a survey of administrative data owned by the central government

・Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)

Developing rules for the utilization of data

・ Promoting the utilization of data owned by business enterprises in the field of finance

・ Investigating the introduction of electronic receipts (purchase history)

Developing a platform for data linkages

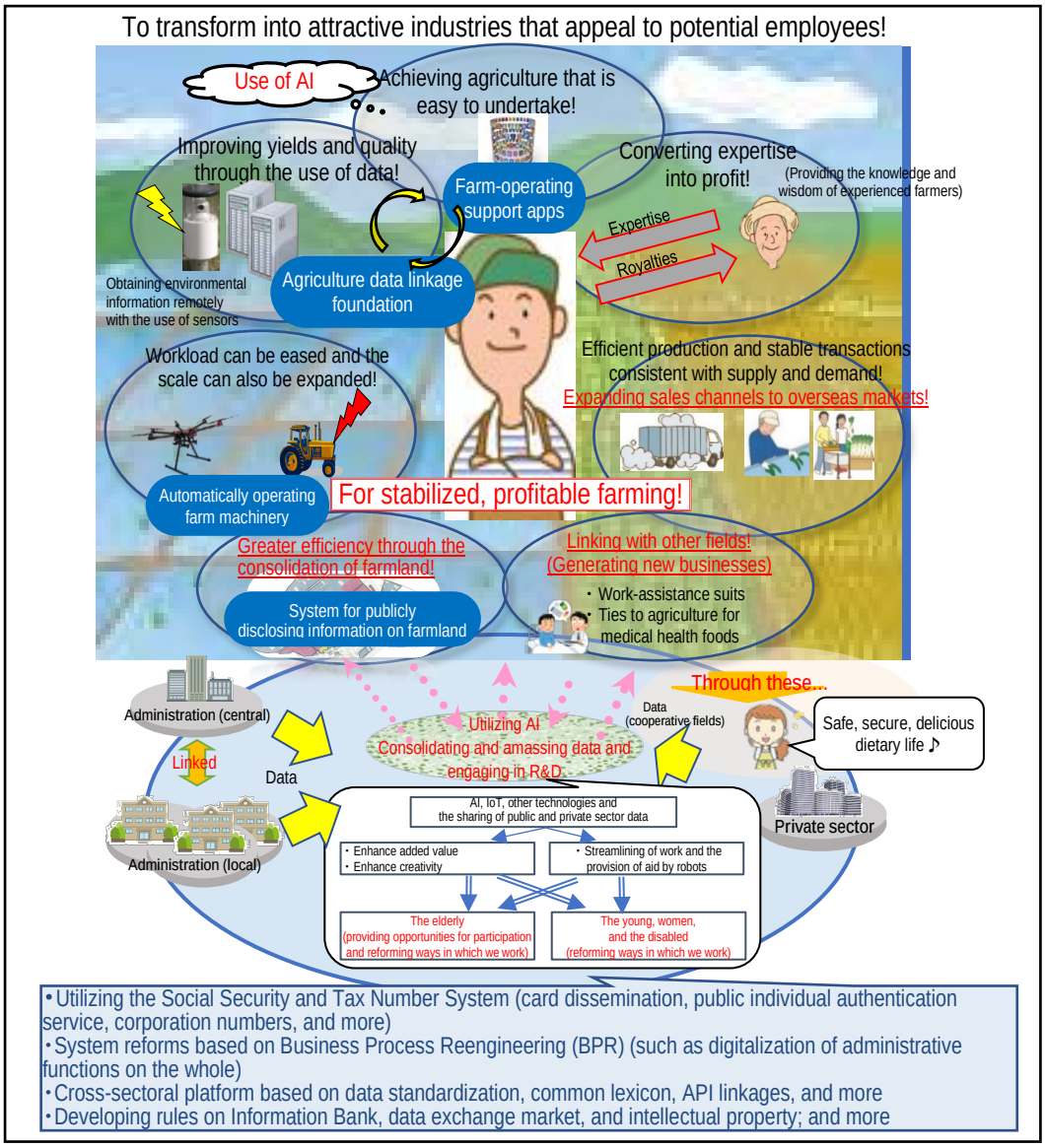
・ Promoting the public disclosure of a banking system's API (external connection point) (introduction of open API)

・ Investigating with a view to upgrading the supply chain through the use of electronic tags

Disseminating and utilizing the Individual Number Cards

・ Promoting the use of Individual Number Cards (public personal identification service) in housing loan contracts

＜ Future in the field of agriculture, forestry, and fisheries (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

・Conducting a survey of administrative procedures (public-private, region-private, private-private)
・System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access
・Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures

Promoting open data

・Conducting a survey of administrative data owned by the central government
・Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)
・Promoting an open data approach with respect to agriculture-related information
・Promoting the utilization of meteorological information (reviewing ministerial ordinances and other required systems, promoting utilization through seminars)

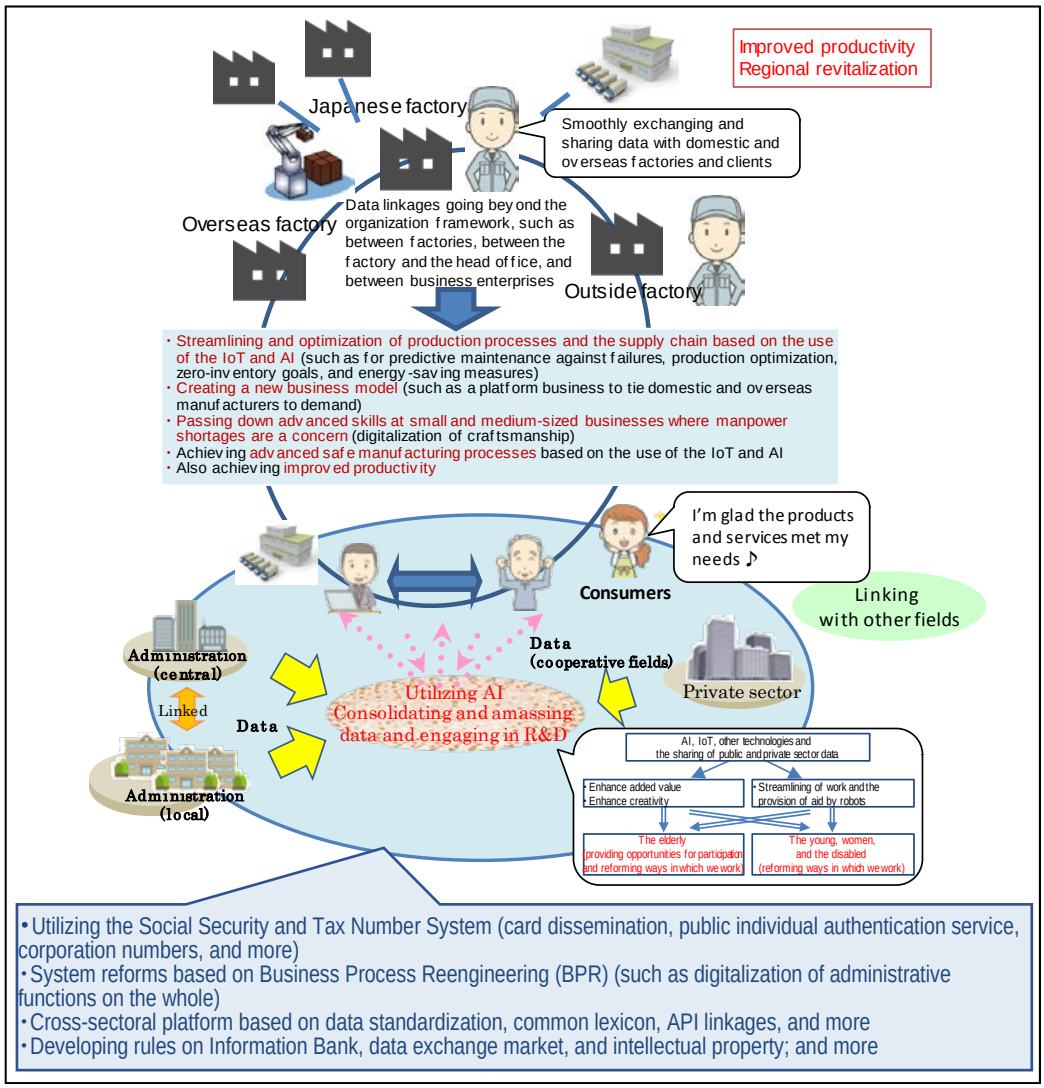
Developing a platform for data linkages

・Establishing an agriculture data linkage foundation (foundation for utilizing publicly and privately owned agricultural information)
・Promoting the standardization of agricultural information (growth surveys)
・Expanding functions of systems for publicly disclosing farmland information
・Developing a registry of forest lands for consolidating forest management

Digital divide measures and research and development

・Achieving labor-saving and automation gains for agricultural work through the use of ICT and robots
・R&D with a view to utilizing AI, the IoT, robots, quasi-zenith satellites, and other leading-edge technologies in agriculture

＜ Future in the field of manufacturing (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

・Conducting a survey of administrative procedures (public-private, region-private, private-private)

・System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access

・Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures

・ Adopting IT and one-stop measures for paperwork relating to social insurance and labor insurance (such as by increasing electronic usage rate)

Promoting open data

・Conducting a survey of administrative data owned by the central government

・Holding public-private round-table conferences (to promote open data in line with private-sector needs)

・Promoting open data for R&D results derived from public research funds

Developing rules for the utilization of data

・Developing rules for the creation of new services for smart homes/houses

・Uncovering and cultivating innovative model businesses through initiatives of the IoT Promotional Consortium and others

・Producing a compilation of case studies to promote the utilization of data

・Promoting the circulation and utilization of data through the clarification of data-usage restrictions

Developing a platform for data linkages

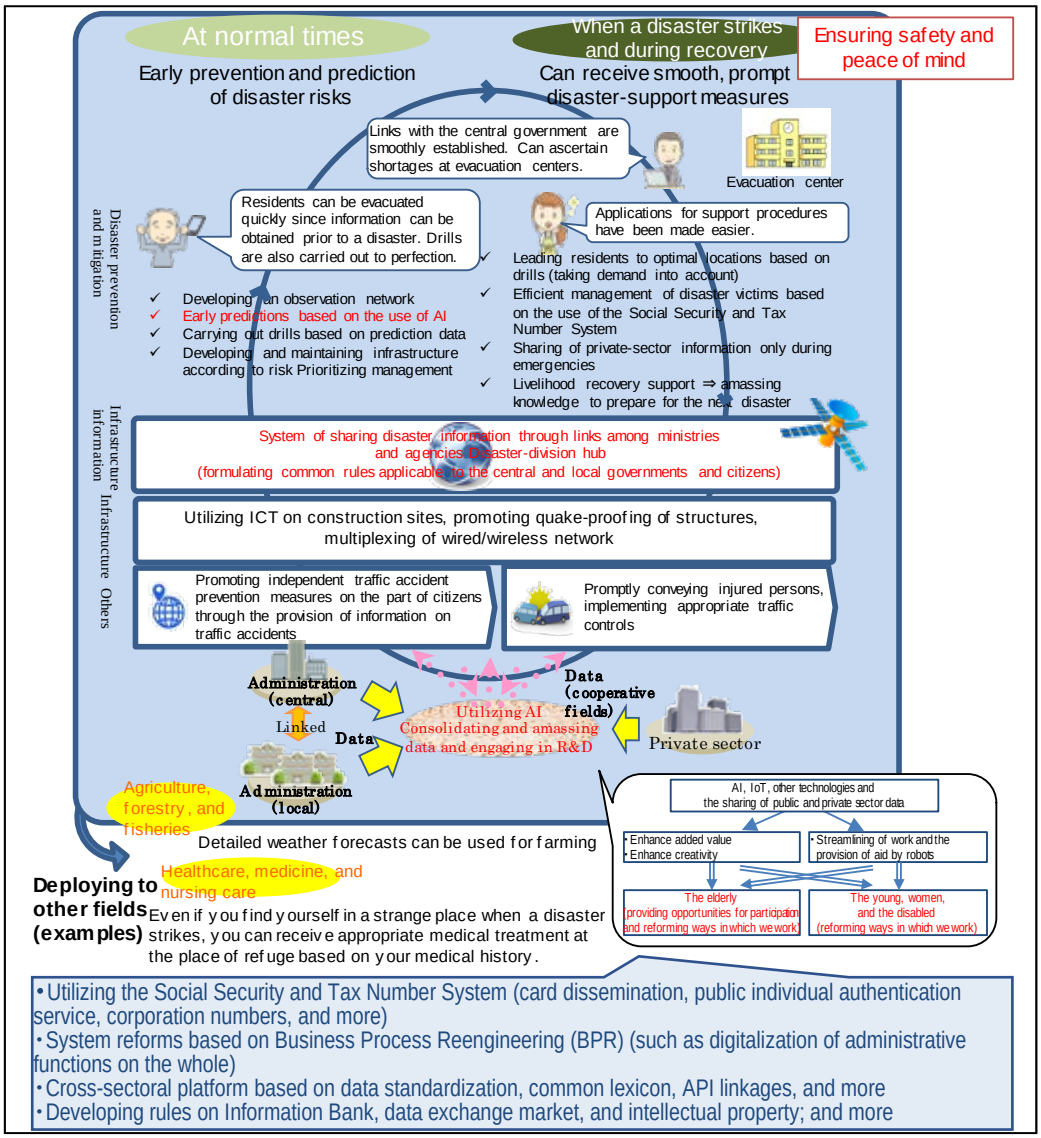
・ Maritime productivity revolution (i-shipping)

・ Promoting the utilization of big data for industrial safety

Digital divide measures and research and development

・ Promoting the productivity of small to medium-sized companies through the utilization of public- and private-sector data (such as through the provision of support by experts on the adoption of IT and robots)

＜ Future in the field of infrastructure, disaster prevention, and disaster mitigation (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

- Conducting a survey of administrative procedures (public-private, region-private, private-private)
- System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access
- Making it no longer necessary to submit copies of a residence certificate, copies of a family register, or certificates of registered matters for administrative procedures
- Adopting IT and one-stop measures for paperwork relating to social insurance and labor insurance (such as by increasing electronic usage rate)

Promoting open data

- Conducting a survey of administrative data owned by the central government
- Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)
- Promoting the utilization of 3D data through the promotion of i-Construction
- Investigating how information pertaining to traffic accidents and crimes should be publicly disclosed

Developing a platform for data linkages

- Promoting the sharing of disaster information by the central and local governments and business enterprises
- Developing a foundation for the circulation of geospatial information (G-spatial information)
- Reinforcing disaster-prevention functions at evacuation centers based on the use of our quasi-zenith satellite system (such as by transmitting a safety-confirmation service based on the use of this system)

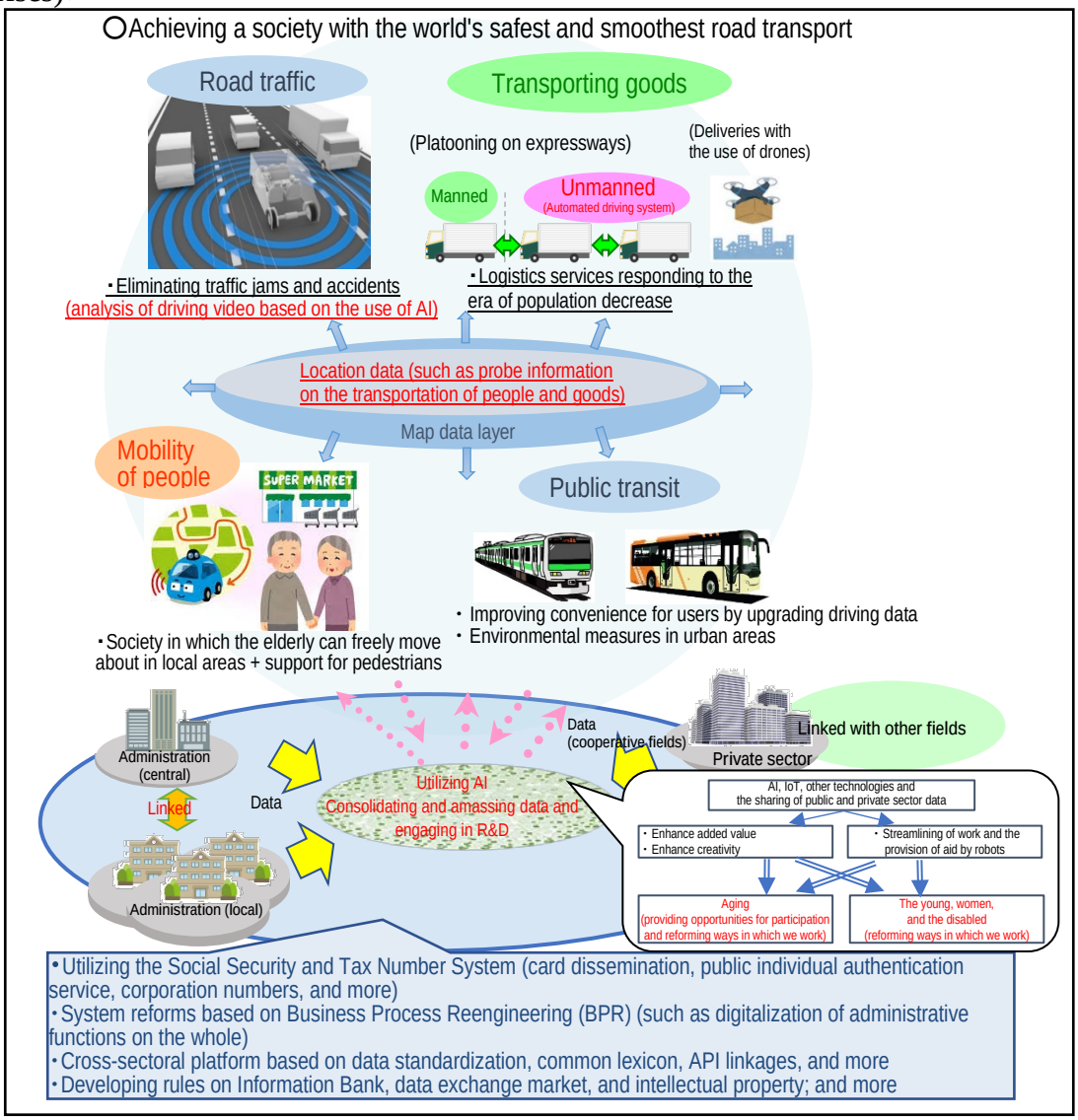
Disseminating and utilizing the Individual Number Cards

- Investigating the utilization of the Social Security and Tax Number System to support disaster measures and livelihood rehabilitation

Digital divide measures and research and development

- Promoting the development of a Wi-Fi environment at disaster-prevention sites
- R&D concerning technologies for predicting downpours and tornadoes

＜Future in the field of mobility (examples of benefits to accrue to citizens and business enterprises)＞



[Key measures that should be implemented on a priority basis]

System reforms based on principle of providing online access and Business Process Reengineering (BPR)

・Conducting a survey of administrative procedures (public-private, region-private, private-private)
・System reforms based on the results thereof and based on Business Process Reengineering (BPR), collective development in line with the principle of providing online access
・Upgrading the consolidation and provision and promoting the dissemination of traffic-control information (such as by unifying formats)

Promoting open data

・Conducting a survey of administrative data owned by the central government
・Holding public-private round-table conferences (to promote an open data approach in line with private-sector needs)
・Promoting initiatives based on the Public-Private ITS Concept and Roadmap (such as by promoting open data measures for data needed for automatic driving)
・Promoting the dissemination of ICT utilizing support for the mobility of pedestrians (such as mobility-support services based on the utilization of data)
・Opening up operational/travel information on public transportation (such as location information)

Developing a platform for data linkages

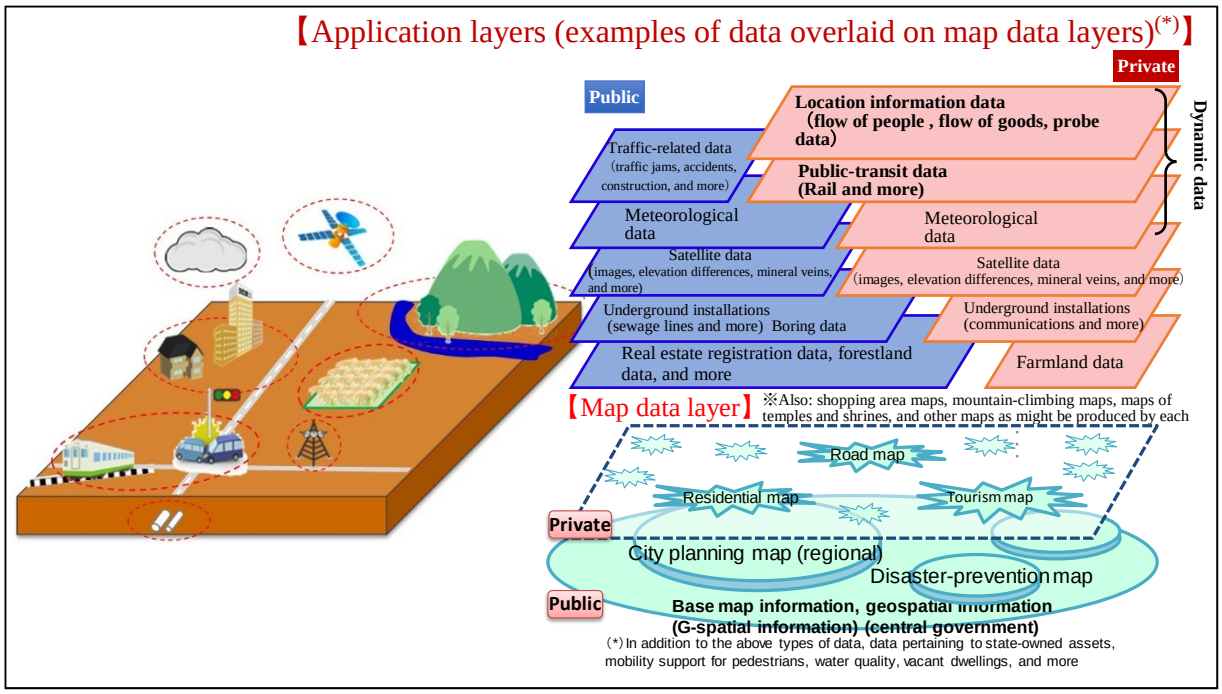
・Promoting the utilization of vehicle-related information (traceability service based on the collection and utilization of vehicle history information)

Digital divide measures and research and development

・Promoting initiatives based on the Public-Private ITS Concept and Roadmap (such as by summarizing policies for the development of a company-wide system)
・Smooth, rapid implementation of demonstration testing projects pertaining to automated driving
・Cultivating software personnel required to develop automated driving
・Promoting the development of technologies for and the industrial utilization of small unmanned aircraft (drones)

Public and private sector data relating to maps are conceivable as important public and private sector data for which the need for utilization is particularly high primarily in the field of mobility. These data can be categorized into two types of data layers: data corresponding to base map data layers (public: base map information, city planning maps, disaster-prevention maps, and others; private: residential maps, road maps, tourism maps, and others) and data corresponding to various types of application layers overlaid on map data layers and have been organized as shown in the following diagram.

＜Public and private sector data relating to maps＞



In promoting the utilization of data, measures shall be implemented concurrently, such as by protecting personal information and privacy; implementing cyber-security measures; investigating matters concerning intellectual property rights; ensuring the quality, reliability, and safety of data; and investigating ethical matters in the age of AI and robots.

Collection of measures

II Collection of measures

Table of content

[Measures that should be implemented on a priority basis for each basic measure]

Measures that should be implemented on a priority basis in order to realize the benefits expected for each priority field as outlined earlier shall be presented beginning in the following section after schedules, KPIs, and other details are sorted out for each basic measure as prescribed in Articles 10 through 19 of the Basic Act.

In implementing measures, many measures exist for which the issues themselves have not been sufficiently ascertained. When these measures are subject to follow-up actions spearheaded by the government CIO, issues, schedules, and KPIs (progress and effectiveness) will be further clarified.

A specific measure, depending on its contents, may be related to multiple basic measures as set forth in Articles 10 through 19 of the Basic Act. We will sort out matters to determine to which basic measures a specific measure relates and comprehensively and effectively implement specific measures accordingly.

Thus, we will also sort out the association between measures to be implemented by local governments according to their plans and specific measures as set forth in the Basic Plan to be formulated by the central government and implement measures in accordance with the understanding that prefectural and municipal governments (including special wards) shall formulate their own local versions of plans according to Article 9 of the Basic Act[24].

[24] Under Article 9 of the Basic Act, prefectures must establish a basic plan for measures for the advancement of public and private sector data utilization in the area of each of the relevant prefectures (hereinafter referred to as a "prefectural plan for the advancement of public and private sector data utilization" in this Article) in line with the Basic Plan as formulated by the central government. Municipalities including special wards are to endeavor to establish a basic plan for measures for the advancement of public and private sector data utilization in the area of each of the relevant municipalities (referred to as a "municipal plan for the advancement of public and private sector data utilization") in line with the Basic Plan as formulated by the central government and in consideration of the relevant prefectural plan for the advancement of public and private sector data utilization.

II-1-(1) Principle of online applications for administrative procedures (tied to Article 10 of the Basic Act)

Key initiatives to date

- In 2002, the Online Administrative Procedures Act (Act no. 151 of 2002), which made it possible to computerize administrative procedures, was enacted. In 2013, an action plan comprising twenty-eight individual reform items (such as the easing of the requirement to retain scanners used with central tax-related documents and the normalization of remote high-school lessons) was formulated to promote numerous system reforms.
- In 2016, actual conditions were comprehensively ascertained, such that it became clear that there were many procedures at a central level that were not subject to statutory regulations and that had not been made accessible on an online basis as well as procedures that, despite being made accessible on an online basis, corresponded to a low rate of online usage. Further clarification of actual conditions concerning procedures associated with local governments in particular is needed.

1) Cross-sectoral measures that should be implemented on a priority basis

- Taking stock of administrative procedures
  - Stock will need to be taken of administrative procedures to ascertain their actual conditions (to sort out statutory provisions on paper-based and face-to-face interactions, check for the duplication of attachments, and undertake other such actions).
  - The results of this process will be summarized by the end of March 2018, on the basis of which ministries and agencies will formulate plans clarifying deadlines for reviews to be conducted in terms of online applications and quantitative targets (such as rates of progress and reduction amounts) to be reached by FY 2020 for each administrative procedure.
  - Reviews of operations in line with the principle of online applications (BPR) and the promotion of system reforms will, for example, render unnecessary the submission of copies of certificates of residence and copies of family registers, minimize the burden on both service users and providers, and allow high-quality administrative services to be provided.

KPI (progress): rate of progress in terms of taking stock of administrative procedures

KPI (outcome): rate of cost reductions and other results per administrative procedure

- Taking stock of administrative procedures between local governments and citizens

  - Stock will need to be taken of administrative procedures implemented by local governments to ascertain their actual conditions (to determine the number of procedures, check for the duplication of attachments, and undertake other such actions).

  - Based on the results of this process, the procedures that local governments will need to address on a priority basis and the measures that are applicable for this purpose shall be summarized by the end of March 2018. The incorporation thereof into plans to promote the public and private sector data utilization as formulated by local governments shall be promoted. KPIs relating to progress will be set in line with the summarization of procedures that local governments will need to address on a priority basis and the measures that are applicable for this purpose.

  - In this way, an environment to enable citizens to complete applications for various types of administrative procedures online without having to go to an office in person and enable information provided by administrative bodies to be received via online push-type notifications will be developed.

- Reviewing the principle of face-to-face, paper-based procedures in transactions between citizens and citizens

  - Stock will need to be taken of face-to-face and paper-based procedures in transactions between private citizens to ascertain their actual conditions (to sort out procedures that can be carried out online under statutory provisions but that remain subject to the conventional practice of undertaking face-to-face and paper-based procedures and procedures that cannot be carried out online under statutory provisions).

  - Based on the results of this process, a program setting forth a review policy and the targets to be attained by 2020 (evaluation indices (KPI) and others) shall be formulated by the end of March 2018.

  - This will allow transaction costs for both service users and providers to be reduced.

  KPI (progress):the number of transactions for which online procedures are not possible under statutes but for which online procedures have been made possible

- Developing laws in line with the principle of online applications

  - Based on the “Taking stock of administrative procedures”, “Taking stock of administrative procedures between local governments and citizens”, and “Reviewing the principle of face-to-face, paper-based procedures in transactions between citizens and citizens” sections, individual laws that need to be reformed will be ascertained during FY 2017.

Beginning with ordinary sessions of the Diet in 2018, all individual laws will be sequentially reformed.

KPI (progress): reforming individual laws

- Rendering unnecessary the submission of copies of certificates of residence and copies of family registers

  - Based on the aforementioned “Taking stock of administrative procedures”, the burden on both service users and providers required to obtain, submit, and process copies of certificates of residence and copies of family registers shall be reduced.

  - By the first half of 2018, policies for rendering unnecessary the submission of copies of certificates of residence and copies of family registers based on the use of the Social Security and Tax Number System (including review deadlines and quantitative targets to be reached by FY 2020 (including values for specific KPIs (progress)) shall be summarized and initiatives based thereon will be implemented. Necessary laws will be developed by FY 2019 to enable the Social Security and Tax Number System to be adopted for the clerical processing of family registers.

  KPI (progress): number of administrative procedures for which the submission of copies of certificates of residence and copies of family registers has been rendered unnecessary

  KPI (outcome): reduction of costs required to obtain copies of certificates of residence and copies of family registers (exceeding 100 billion yen a year)

- Rendering unnecessary the submission of certificates of registered matters for administrative procedures

  - Based on the aforementioned “Taking stock of administrative procedures”, the cost incurred to obtain, submit, and process certificates of registered matters shall be reduced.

  - By the first half of 2018, administrative procedures for which the attachment of certificates of registered matters can be skipped shall be specified, specific procedures and process tables inclusive of review deadlines and quantitative targets to be met by FY 2020 (including progress rates and reduction amounts) shall be formulated, and initiatives based thereon shall be implemented.

  KPI (progress): number of administrative procedures for which submission has been rendered unnecessary

  KPI (outcome): amount by which costs incurred for initiatives have been reduced

- Government-wide back-office linkages based on the utilization of information concerning juridical persons

  - The costs incurred for identical notifications required to be made to multiple administrative bodies (such as taxation offices and legal affairs bureaus) as a result of changes to company information (such as a change to the number of officers) shall be reduced.

  - Based on the aforementioned “Taking stock of administrative procedures”, procedures and systems subject to back-office linkages shall be specified and a policy setting forth quantitative targets to be met by FY 2020 (such as in terms of number of procedures and reduction amounts) shall be formulated by the first half of FY 2018 and initiatives shall be implemented accordingly.

  KPI (progress): number of procedures for which back-office functions have been linked between administrative bodies

  KPI (outcome): amount of cost reduction achieved through back-office linkages

- Government procurement based on the use of Individual Number Cards and electronic proxy forms[25]

  - It is important that we promote the online utilization of the central government’s electronic procurement system and reduce burdens pertaining to procurement imposed on juridical persons.

  - In 2017, a bill concerning the dissemination and promotion of electronic proxy forms will be submitted before an ordinary session of the Diet. Based on the results of this process, an electronic procurement system corresponding to Individual Number Cards and electronic proxy forms will be developed. Utilization will commence in FY 2018.

  KPI (progress): number of cases in which electronic procurement based on the use of Individual Number Cards and electronic proxy forms has been utilized

  KPI (outcome): electronic bidding rate

[25] Further expanding the use of public personal identification and rationalizing methods of personal identification for different procedures undertaken for administrative procedures and private transactions.

2) Measures that should be undertaken on a priority basis in priority fields

＜Field of electronic administration＞

- Adopting IT and one-stop options for social insurance- and labor insurance-related paperwork

  - Enhancing the convenience of online usage in this field will be needed to reduce the burden on business enterprises pertaining to procedures relating to social insurance and labor insurance.

  - In addition to endeavoring to disseminate and promote API-compatible software through dialog with private-sector system developers and omit attachments, we will set standard processing times based on conclusions reached after investigating policies for reducing processing time by visualizing operational processes and optimizing these processes premised on the use of electronic applications. With respect to these initiatives, we will produce and implement a process table for thoroughly achieving computerization by FY 2020 while collaborating with the Regulatory Reform Promotion Council.

  KPI (progress): rate of usage of electronic applications

  KPI (outcome): reduction of costs of administrative procedures

- Computerizing notifications of special collection tax amounts for residential taxes[26]

  - While it became possible to send electronic data signed electronically (original copies) with respect to notifications of special collection tax amounts for residential taxes (for special collection agents) in FY 2016, few municipalities have taken advantage of this change. Notifications of special collection tax amounts (for taxpayers) cannot be electronically issued.

    ＜Notifications of special collection tax amounts (for special collection agents) ＞

  - Advice and other forms of support shall be provided on an ongoing basis to municipalities that have not yet computerized their original copies of notifications. Quantitative targets (in terms of number of municipalities that have undertaken computerization) to be met by FY 2020 shall be formulated sometime during FY 2017.

    ＜Notifications of special collection tax amounts (for taxpayers)＞

  - The possibility of computerizing by the end of March 2018 shall be investigated and measures shall be promptly implemented once a conclusion has been obtained.

[26]Promoting the computerization of original copies of notifications of special collection tax amounts for residential taxes (for special collection agents) and investigating the computerization of these notifications (for taxpayers).

KPI (progress): number of municipalities that have computerized original copies of notifications of special collection tax amounts for residential taxes (for special collection agents)

- Enhancing one-stop services for motor vehicle-ownership-related procedures[27]

  - In accordance with the state of the use of one-stop services (OSS) for motor vehicle-ownership-related procedures, an investigation and initiatives to resolve any factors impeding dissemination will be required if such factors are identified.

  - The specific contents of any series of actions that include appeals made to fields in which the development of an environment is not proceeding and to relevant organizations that have not gained any understanding of OSS, an expansion of eligible vehicle types to encompass light motor vehicles, and an expansion of applicable procedures, such as export procedures, shall be summarized along with the schedule by the first half of FY 2018.

  KPI (progress): number of fields in which OSS has been adopted, number of models of eligible motor vehicles, and number of applicable procedures

  KPI (outcome): OSS utilization rate, number of OSS applications

- Codifying the electronic provision of documents attached to notifications to convene general meetings of shareholders[28]

  - By promoting the provision of documents attached to notifications to convene general meetings of shareholders through an online method, procedures for convening general meetings of shareholders will be rationalized and the quality of communications between publicly-traded companies and shareholders should be improved.

  - A report of the legislative council concerning systems that can electronically provide documents attached to notifications to convene general meetings of shareholders without requiring the consent of each shareholder should ideally be obtained sometime during FY 2018.

  KPI (progress): number of publicly-traded companies that use new systems that can electronically provide documents attached to notifications to convene general meetings of shareholders without requiring the consent of each shareholder

[27]Expanding areas in which one-stop services (OSS) for motor vehicle-ownership-related procedures have been introduced, the models of eligible motor vehicles, and applicable procedures and promoting the dissemination thereof.

[28]Computerization of the electronic exercising of voting rights and the provision of notifications of convocation in connection with general meetings of shareholders.

・ Providing online access to explanations of important matters pertaining to real estate transactions

- By enabling explanations of important matters based not just on face-to-face interactions but also on the use of IT, we can expect the burden in remote cases to be lessened and the time required for face-to-face interactions to be effectively utilized.

- The full-scale provision of online access to explanations of important matters regarding lease transactions commenced in October 2017. A one-year social experiment concerning corporate sales transactions will begin in August 2017 and a conclusion will be reached sometime during FY 2018. In FY 2018, the conducting of a social experiment and the full-scale provision of online access to explanations of important matters regarding lease transactions for sales transactions involving individuals will be investigated based on the state of full-scale operations for leasing transactions and the results of a social experiment on sales transactions between corporations.

KPI (progress): number of cases in which explanations of important matters are provided online in social experiments concerning sales transactions between corporations

KPI (outcome): streamlining of the provision of explanations of important matters pertaining to real estate transactions

・ One-stop services pertaining to child-rearing, nursing care, succession matters, and other life events

＜Child-rearing＞

- Given the existence of many procedures premised on personal visits to agencies (face-to-face interactions) and procedures for which online applications cannot be made (written), there is a need to reduce the burden placed on applicants associated with procedures (in terms of time and costs).

- With respect to one-stop services for child-rearing, service search and browsing functions will be commenced within FY 2017 and it will be possible to make admission applications for day-care centers after October of the same year.

- Accordingly, citizens will be able to complete administrative applications online without having to visit offices in person, and obtain information from administrative bodies via push-type notifications.

KPI (progress): number of handling bodies (such as local governments)

KPI (outcome): investigating based on the status of implementation in FY 2017

＜Nursing care and succession matters＞

- Procedures pertaining to elderly persons are expected to continue increasing in number as society ages. Some procedures for nursing care and succession matters impose a burden on applicants, such as in terms of the various types of application procedures required to be undertaken and the places to which applications need to be submitted. The use of the Social Security and Tax Number System is expected to lessen this burden.

- Issues concerning current conditions will be sorted out (such as in terms of the state of burdens imposed on nursing caregivers and heirs and the contents of application procedures) and policies for resolving such issues will be summarized within FY 2017. Starting in FY 2018, the Individual Number portal will be functionally expanded, and one-stop services will be offered beginning with feasible features, also relevant laws will be revised as needed.

- The simplification of procedures will reduce the burden on nursing caregivers and heirs.

KPI (progress): formulation of a policy for addressing this burden

・ Making industrial safety procedures smart

- Application procedures to be carried out by business enterprises as stipulated in laws and ordinances concerning industrial safety (such as the Electric Utility Act, Gas Utility Act, and Mining Safety Act) number up to approximately 250 thousand cases each year. At present, all of these applications are submitted on a paper basis, which imposes a significant burden on both the public and private sectors.

- In FY 2017, (i) the simplification and standardization of existing procedures based on safety will be undertaken and (ii) requirements for an electronic application system will be defined. In FY 2018, work to make industrial safety procedures smart will commence after detailed system specifications have been defined. It is hoped that an electronic applications service can be launched as early as FY 2019.

KPI (progress): number of procedures for which application procedures have been computerized

KPI (outcome): comprehensive provision of online applications for procedures corresponding to applications that are currently being made on a paper basis

II-1-(2) Promoting open data (tied to Article 11(1) and (2) of the Basic Act) and promoting the smooth circulation of data (tied to Article 11(3) of the Basic Act)

Initiatives to date

- In 2012, the Electronic Administration Open Government Data Strategy (approved by the IT Headquarters on July 4, 2012) was formulated and initiatives were accordingly commenced by the central and local governments and business enterprises. At present, the Realization of a Society in which All Citizens are Dynamically Engaged has been set as a field to be reinforced and is being promoted with the cooperation of not just the central and local governments but also business enterprises.
  (As of May 2017, the number of dataset[29] by the central government is 19,422 and 279 by local governments.)

- In response to changes in the environment in which copyrighted works are utilized in line with advancements in digitalization and networking, investigations are conducted from time to time on systems that have been made compatible with a new era and legal measures are accordingly taken, such as by developing provisions restricting rights concerning online information search services and the analysis of information and making the downloading of illegally-transmitted data unlawful (2009), developing provisions restricting rights concerning utilization for developing and testing technologies (2012), and developing rights of publication corresponding to electronic books (2014).

1) Priority cross-sectoral measures that should be taken on a priority basis

- Formulating public disclosure rules and conducting an inventory of administrative data owned by government ministries and agencies in accordance with such rules[30]

  - We will need to ascertain private-sector needs with respect to open data, potential and otherwise, and promote the disclosure of data in accordance with such needs.

  - We will conduct an inventory of data owned by government ministries and agencies within 2017 in order to ascertain the actual state of data owned by the central government and other entities in accordance with the Basic Principles on Open Data (as finalized by the IT Headquarters and Strategic Conference for the Advancement of Public and Private Sector Data Utilization on May 30, 2017).

  KPI (progress): rate of progress on conducting an inventory of data

[29] A “data set” is a unit of data that have been compiled at the time they are publicly disclosed. A data set comprises one or more files (resources) (such as white papers and reports).
[30] In order to efficiently conducting an inventory of data, this should be carried out with an inventory of administrative procedures relating to online applications.

- Holding public-private round-tables conferences and promoting open data in line with private-sector needs[31]

  - We will hold public-private round-table focusing on priority fields in the second half of FY 2017 based on the results of inventory of administrative data in 2017. This sorts out how data, including data owned by local governments and business enterprises, should be publicly disclosed and utilized (including in terms of quantitative targets and indicators of effectiveness), and promotes an even greater degree of open data.

  - This will create new services based on the use of open data and tackle social issues to accordingly.

  KPI (progress): number of data sets for which the concept of open data has been adopted through public-private round tables

- Promoting Open Data by Design[32]

  - Since administrative procedures and information systems are not premised on open data, the extent to which the concept of open data has been applied to data owned by government ministries and agencies is limited and the utilization of data is insufficient.

  - We will formulate a government-wide implementation plan based on the Digital Government Strategy (as approved by the Strategic Conference for the Advancement of Public and Private Sector Data Utilization, IT Headquarters on May 30, 2017) in 2017 and aim to achieve a 100 percent rate of attainment with respect to implementation plans for government ministries and agencies that incorporate an Open Data by Design approach (inclusive of KPI and acting bodies).

  - The further adoption of the open data concept will promote to create new services and resolve issues.

  KPI (progress): rate at which implementation plans are formulated by government ministries and agencies

  KPI (outcome): volume of open data based on Open Data by Design and the volume of applicable data accessed and downloaded

[31]In addition to holding round tables with a focus on priority areas, the public disclosure and utilization of data owned by private-sector business enterprises (cooperative domains) shall be investigated.

[32]Information systems and operational processes premised on an open data approach will be planned, developed, and operated on an integrated basis for data owned by administrative bodies.

- Promoting the adoption of an open data approach for data owned by local governments

  - There are 279 local governments that have already undertaken initiatives for adopting an open data approach (as of May 2017), which accounts for approximately fifteen percent of all local governments in the country. Additional support based on the needs of local governments will need to be provided.

  - In addition to providing support by dispatching Open Data Evangelists[33], we will present examples of formatting standards for data sets that should be minimally published by local governments in 2017 and incorporate them into templates for a prefectural and municipal plan for the advancement of public and private sector data utilization. At the same time, we will aim to achieve a 100 percent rate of engagement with open data on the part of local governments by FY 2020 through the provision of support for the development of a testing environment for staff members of local governments and the establishment of functions for coordinating and mediating between data-owning local governments and private-sector business enterprises (matching).

  - This will allow new services to be created and issues to be resolved at a local level.

  KPI (progress): number of local governments engaged in an open data approach

- Upgrading the environment for data utilization relating to city plannings

  - There has been no forward progress with respect to the application of an open data approach to basic survey information for city planning as owned by local governments as no method for processing personal information has been properly established.

  - We will establish an investigative committee in FY 2017. Then, we will produce guidelines including creation of a common format for data based on the sorting of issues pertaining to matters relating to the protection of personal information sometime during FY 2018 to promote the adoption of an open data approach for basic survey information for city planning (current state of building utilization, current state of land utilization, and more).

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[33]Experts who are well-versed in open data have been appointed “Open Data Evangelists” (eight persons appointed on March 30). They commenced activities in FY 2016 and will be dispatched to various local governments to help deploy local government guidelines summarizing the results of central government initiatives as a tool (including handbooks) to local areas and provide support for educational efforts and work to launch an open data approach by presenting local governments with an open data software package and Open Data 100 case studies.

KPI (progress): number of local governments that have adopted an open data approach for basic survey information for city planning

- Investigating the manner in which real estate registration information is publicly disclosed

  - Real estate registration information is provided via online channels for a fee.

  - In light of the importance of registration information in the context of real estate data, the advisability of the public disclosure of a limited range of information including availability of free of charge disclosure and the manner in which registration information is otherwise publicly disclosed shall be investigated and a necessary review shall be conducted from the standpoint of increasing convenience for citizens with attention paid to the protection of personal information.

- Providing map data equipped at registry offices to business enterprises

  - The fact that electronic data corresponding to maps equipped at registry offices are not provided to private-sector business enterprises in a processable format is a problem.

  - Beginning in FY 2017, we will sort out various systemic issues and aim to make it possible to provide electronic data on maps equipped at registry offices by FY 2021.

- Opening government satellite data and developing an environment for data utilization

  - Outer space is positioned as a foundation for big data, such that we will make the use of government satellite data open (excluding data pertaining to national security applications) on a generally free basis and develop specific methods of presenting such data from the perspective of users to create new businesses in accordance with international trends by FY 2020.

  KPI (progress): volume of opened up data and the number of times such data are accessed

  KPI (outcome): number of cases in which new services are created

- Developing an environment that enables proper consideration in line with investments in data to be obtained

  - In order to develop an environment that allows data to be provided and used by owners and users of valuable data, a detailed investigation concerning prohibitions on the wrongful acquisition of data and strengthening protections of technological restriction measures such as encryption and other necessary measures shall be conducted with a view to submitting a bill to the ordinary session of the Diet in 2018.

- Developing flexible rights-restricting provisions in the Copyright Act

  - Necessary measures will be taken with a view to quickly submitting a bill in part to promote the creation of AI in accordance with the conclusions stated in the report produced by the Copyright Subcommittee of the Council for Cultural Affairs (April 2017).

  KPI (progress): implementing necessary measures including a review of the copyright system

- Promoting the computerization of education

  - With a view to facilitating the utilization of copyrighted works in education on the utilization of ICT, the investigation will be made and the necessary measures will be taken for the facilitation of the public transmission of copyrighted works in the course of lesson, including with respect to issues concerning the copyright system in “concurrent bidirectional remote classrooms”, the ban against which was lifted in high schools in April 2015.

  KPI (progress): implementing necessary measures, including with respect to a review of the copyright system

- Promoting the utilization of databases in which information on rights has been aggregated

  - In order to facilitate procedures for the processing of rights and promote the utilization of content, the utilization of databases will be promoted in which information on rights over content and other assets has been aggregated for each field through collaborative ties between the public and private sectors.

  KPI (progress): implementing measures pertaining to the promotion of the utilization of databases

- Promoting the circulation and utilization of data through the clarification of data usage rights

  - The conclusion of appropriate agreements between business enterprises and endeavor to stimulate the circulation and utilization of data will be promoted in accordance with the Contractual Guidelines Concerning Data Usage Rights and so forth, which was formulated for the purpose of indicating concepts for equitably treating data usage rights in agreements.

  KPI (outcome): number of companies utilizing the Guidelines and so forth

2) Measures that should be taken on a priority basis in priority fields

＜Digital Government＞

・ Promoting and upgrading an open data approach for statistical data[34]

- There are requirements concerning the provision of statistical data (including raw data) in a format that can be utilized at an advanced level.

- The serial provision of statistical data in an XML format compatible with machine reading based on statistical data publicly disclosed by the Portal Site of Official Statistics of Japan (e-Stat) will commence in FY 2017. In FY 2018, a framework for ascertaining user needs with respect to statistical data will be introduced, restrictions for the users regarding the use of anonymous data will be eased. Institutional and operational aspects concerning the easing of usage conditions with respect to the provision of survey form information will be revised, and the number of on-site facilities to be installed will be increased.

- Accordingly, we will promote the advanced utilization of statistical data, shape policy on the basis of “evidence”, and help create new services.

KPI (progress): volume of data in a format suitable for machine-reading purposes as publicly disclosed through e-Stat and volume of anonymous data and survey form information that have been provided

KPI (outcome): number of cases in which statistical tables issued by e-Stat have been utilized, volume of statistical data obtained through API functions, number of cases in which statistical LOD has been utilized, and number of onsite facilities that have been utilized

・ Promoting the utilization of corporate information

- In order to further pursue data linkages relating to corporate information, data corresponding to the site of corporate information will need to be expanded in a format consistent with needs of utilization.

- A policy for further upgrading posted information corresponding to the site of corporate information in FY 2017, including by way of specifying corporate information subject to a high level of private-sector demand (such as information on the grant of approvals, authorizations and information on the receipt of indirect subsidies in trust) through dialog with industrial circles (including future outcomes and targets for reaching such outcomes) shall be sorted out. We target one million pieces of data registered by 2018. Moreover, we

[34]Developing an environment to enable statistical data to be utilized and applied at an advanced level (such as in terms of API functions and statistical GIS).

will utilize corporate numbers and promote the linking of government systems relating to corporate information with API.

- Through these initiatives, we will promote the utilization of corporate information in business, endeavor to digitalize and simplify administrative procedures, promote improvements in company productivity and the creation of new businesses.

KPI (progress): volume of data posted to the site of corporate information

＜Tourism＞

・ Promoting open data for information on dining establishments and tourism resources and other types of tourism information that would be helpful to foreign tourists visiting Japan (including by way of promoting the public disclosure of information owned by local governments)[35]

- While the number of foreign tourists visiting Japan is increasing, the availability of tourism-related information in multiple languages has not been keeping pace.

- In order to promote the creation of information-provision services in multiple languages by business enterprises, we will promote that all local governments will publish tourism-related information open data by 2020.

- This will allow the provision of information to foreign tourists visiting Japan to be upgraded and new tourism services to be created with an eye on the Tokyo Olympics and Paralympics of 2020.

KPI (progress): incorporating lists of tourism-related information to be published into plans to promote the public and private sector data utilization for local governments

KPI (outcome): number of cases in which new tourism services have been created

＜Agriculture, forestry, and fisheries＞

・ Promoting the adoption of an open data approach for agriculture-related information

- Public data on the role of soil, statistics, research results, and market conditions in enhancing the productivity of farmers and improving business conditions shall be sequentially subject to the adoption of an open data approach and provided accordingly through an agricultural data platform (a platform for agricultural data linkages) by the end of March 2019.

[35] An open data approach will be sequentially adopted, beginning with data believed to be informative and for which the level of need is high. The adoption of an open data approach will also be proactively promoted to local governments.

KPI (outcome): number of cases in which a service is provided based on the utilization of an agricultural data platform

・ Providing business enterprises with map data equipped at registry offices (re-posted)

・ Promoting the utilization of meteorological information[36]

- Among business enterprises, initiatives to utilize meteorological data are not progressed, such that there is a need to promote the utilization of meteorological information.

- We will promote the utilization of meteorological information in the field of agriculture and many other industrial sectors through initiatives of the Meteorological Business Promotion Consortium, a collaboration among industries, government, and academia launched in FY 2016, and the public disclosure of basic meteorological observation and prediction data. Necessary ministerial ordinance, etc. will be reviewed during FY 2017. Seminars and public-private dialog will be carried out through the Meteorological Business Promotion Consortium during a period of intensive initiatives slated to extend until 2020.

- Accordingly, the utilization of meteorological data will be promoted.

KPI (progress): number of data provided through the website of the Japan Meteorological Agency

KPI (outcome): number of accessed data provided through the website of the Japan Meteorological Agency

＜Manufacturing＞

・ Promoting open data for research results obtained with public research funds

- We will investigate promotional measures inclusive of issues concerning incentives and cost burdens in order to streamline research activities on science and technology and improve productivity by taking into account the attributes of research fields and the data that should be protected. Accordingly, we will promote the adoption of an open data approach for research results obtained through the use of public research funds (including research data and papers) during a period of intensive initiatives slated to extend until 2020.

[36]Utilization of meteorological information for advanced crop-cultivation management and pest measures based on the use of the Meteorological Business Promotion Consortium (an organization composed of industrial, governmental, and academic members and operating in order to further promote the utilization of meteorological data in many industrial sectors and to generate and invigorate industrial activities in Japan based on the harnessing of the IoT and AI technologies and the advanced utilization of meteorological data).

＜Infrastructure, disaster prevention, and disaster mitigation＞

- Promoting the utilization of 3D data through the promotion of i-Construction[37]

  - We will promote i-Construction, which utilizes ICT in all production processes for construction – from surveys and measurements to design, construction, inspections, and maintenance management and updating, with the aim of raising productivity on construction sites by at least twenty percent by FY 2025.

  - By FY 2019, we will develop standards for the utilization of ICT and 3D data in not just work on bridges, tunnels, and dams but also all processes inclusive of the management of maintenance. In addition, we will establish a platform to promote the adoption of an open data approach.

  KPI (progress): establishing rules and a platform for the utilization of 3D data for public construction projects

- Investigating the manner in which information pertaining to traffic accidents and crimes is publicly disclosed

  - While statistical data corresponding to traffic accidents and crimes are being publicly disclosed, autonomous traffic accident-prevention measures and crime-prevention measures undertaken by relevant organizations and local residents could be promoted by publicly disclosing more precise, detailed data.

  - The advisability of publicly disclosing not just existing statistical data but also detailed data in order to prevent traffic accidents and crime shall be studied with consideration also given to privacy concerns and a conclusion on this matter shall be obtained in FY 2017. The detailed data includes locations where traffic accidents and crimes occur and the conditions of their occurrence that are as precise and detailed as possible in a format that allows for secondary usage in order to prevent traffic accidents and crime.

- Developing a foundation for the circulation of geospatial information (G-spatial information) (see below)

[37]We aim to utilize ICT in all production processes for construction – from surveys and measurements to design, construction, inspections, and maintenance management and updating – to raise the productivity of construction sites.

＜Mobility＞

・Promoting initiatives for the dissemination of pedestrian mobility support based on the utilization of ICT[38]

- By 2020, we will achieve private-sector services capable of providing seamless outdoor and indoor mobile support from key airports to venues used for the 2020 Tokyo Olympics and Paralympics.

KPI (progress): volume of data to which an open data approach has been applied

KPI (outcome): number of sites where the pedestrian mobility support services have been realized

・Applying an open data approach to public transit service information (such as location information)

- Transportation demand exceeding normal levels and foreign tourists visiting Japan will need to be accommodated as we look ahead to the Tokyo Olympics and Paralympics of 2020.

- Issues will be investigated through public-private collaborations in FY 2017 and initiatives will be sequentially commenced in FY 2018. We aim to begin providing public transit service information based on the application of an open data approach by FY 2020.

- Through these initiatives, we will contribute to smooth transportation during the Olympic Games.

KPI (progress): number of business enterprises of public transit operators that have applied an open data approach to service information

・Promoting initiatives based on the Public-Private ITS Initiative/Roadmap (including by way of applying an open data approach to data required for automated driving) (see below)

II-1-(3) Establishing rules for the utilization for personal data (tied to Article 12 of the Basic Act)

Key initiatives to date

・Provisions concerning anonymously processed information were developed through revisions to the Act on the Protection of Personal Information in 2015. At the same time, we are studying

[38]We will support the development of an infrastructure for spatial information, which includes indoor electronic maps and a positioning environment, and promote the dissemination of mobility support services provided by business enterprises.

the concept of so-called “Information Bank” and data exchange-market, which constitute frameworks for the circulation of data through the involvement of individuals, in order to enable individuals to benefit from the utilization of data with a focus on the fields of Tourism, Medical, Healthcare, and Disaster Prevention against a backdrop of advancements made in the fields of AI and the IoT.

1) Cross-sectoral measures that should be taken on a priority basis

- Developing a system for the implementation of so-called “Information Bank” and data-exchange market

  - It is hard to say that wide use of personal data beyond companies and industries has progressed sufficiently. Because people have vague anxiety about privacy protection, the use of data is limited to within companies or within groups.

  - In 2017, we will investigate and issue a report on the necessary support measures and systems while keeping eyes on the state of practical experiments and studies conducted by other countries in accordance with the Interim Report (including Guidance) as issued by Data Circulation Study Group with a view to implementing PDS, Information Bank, and data exchange-markets for promoting the circulation and utilization of data through the involvement of individuals.

  - By implementing this framework, individuals and society can benefit from the utilization of data, the lives of citizens in terms of convenience are improved, and the economy is stimulated.

- Responding to inquiries and transmitting information concerning the handling of personal information and anonymously processed information

  - The purpose of the revised Act on the Protection of Personal Information, which is to better maintain a balance between the protection of personal information and the appropriate utilization of personal information, needs to become understood on a more widespread basis.

  - The Personal Information Protection Commission(PPC) shall continuously develop an appropriate environment for utilizing personal information by beginning to receive inquiries from business operator concerning the handling of personal information and anonymously processed information in the first half of FY 2017 and conducting a study on transmitting information, such as through the public disclosure of collections of case studies based on the results of inquiries, and providing support for autonomous initiatives undertaken by accredited personal information protection organizations and other private-sector bodies in FY 2017.

- By achieving the smooth circulation and utilization of data, we will promote the economic revitalization and improvements to the lives of citizens in terms of convenience, etc.

・ Identifying and cultivating innovative model businesses through initiatives of the IoT Promotion Consortium and IoT Promotion Laboratory

- In order to fortify industrial competitiveness, it will be necessary to promote specific business development through the utilization of real data at manufacturing sites where Japan enjoys a competitive advantage.

- To this end, we will create and support leading-edge projects by identifying problem-solving projects and organizing data-analysis contests based on the use of industrial data.

- By aiming to engage in initiatives through regional IoT promotional laboratories[39] and support 2,000 companies over the next three years in accordance with the Act Concerning the Promotion of Future Local Investment[40], we will endeavor to create and develop new businesses based on the use of the IoT, AI, and big data in local areas.

- Accordingly, we will promote the creation and cultivation of a new IoT business model based on the utilization of data.

KPI (progress): number of companies that have provided support

KPI (outcome): scale of the market for IoT-related businesses

・ Producing a collection of case studies to promote data utilization businesses

- Some businesses that are looking into the use of data are concerned about data transactions given that it is not always clear how they should obtain the consent of individuals in specific cases involving the provision of data or what powers and authority can be exercised among different stakeholders.

- For this reason, initiatives designed to dispel concerns will be fortified beginning in FY 2017, such as by receiving inquiries concerning the circulation, management, and utilization of data from business enterprises on a usage-case basis and fulfilling and promoting the dissemination of collections of case studies in which investigative results have been compiled.

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[39] Initiatives for creating IoT projects in regional areas have been selected as “local IoT promotional laboratories”.
[40] Bill to partially amend the Act on the Formation and Development of Regional Industrial Clusters through the Promotion of the Establishment of New Business Facilities, etc. (approved by the Cabinet on February 28, 2017 (commonly known as the “Bill to Promote Regional Future Investments”)).

- Necessary support shall be provided to enable a private-sector-led cross-sectoral framework promoting the formulation of independent rules among data circulation business enterprises to be constructed as part of the development of an environment for the data-circulation market. Through these initiatives, we will promote the circulation of data among business enterprises and help create data utilization businesses.

KPI (outcome): number of companies engaged in a data utilization business with reference made to collections of case studies

・ Promoting the area-wide deployment of the IoT

- While we are entering a phase in which various IoT solutions can actually be introduced by the progress of technology, there is a possibility that adoption may not make much headway simply on the basis of market mechanisms due to switching costs[41] or insecurities about new technologies. It is important that we promote continuous market growth by proactively adopting solutions that could be socially implemented and creating nascent markets in order to solve social problems, raise productivity, and promote innovation.

- To this end, we will achieve rapid social implementation by evaluating the performance of solutions and the cost effectiveness of adoption based on objective data and evidence and establishing an integrated cycle for supporting the area-wide dissemination of solutions through their introduction to various different systems (such as by incorporating solutions into administrative procedures, establishing linkages with support measures, and codifying solutions based on legal systems). The establishment of this framework will be subject to specific studies beginning this year.

- Accordingly, we will help deploy the IoT on an area-wide basis, solve social problems, and raise productivity.

KPI (progress): making headway with the development of specific systems

KPI (outcome): achieving the area-wide deployment of the IoT by 2020

[41] “Switching cost” is the cost that is incurred as a result of switching from one product to another.

2) Measures that should be taken on a priority basis in priority fields

＜Health, medical, and nursing care＞

・ Realizing an environment for the circulation and utilization of data in the field of health, medical, and nursing care

- Data related to individuals in the field of health, medical, and nursing care are used in a closed manner in medical institutions or business enterprises. Thus, individuals find it difficult to amass, utilize, and provide to others.
- After issues have been sorted out and numerical targets have been set through a testing program by the end of March 2019, necessary system development work will be sequentially undertaken beginning in FY2019 and the commencement of operations will be promoted beginning in FY 2020 in order to realize an environment in which an individual can, on his or her own initiative, circulate and utilize data throughout his or her own lifespan.
- These initiatives will help extend healthy lifespans and contribute to the optimization of social security expenses.

KPI (progress): number of PHR (Personal Health Record) testing model cases, number of PHR implementing bodies

KPI (outcome): improvements in terms of health indices

・ Developing a certification system for the production of anonymized medical information

- With a view to utilizing anonymized medical information and in accordance with the Act Regarding Anonymized Medical Data to Contribute to R&D in the Medical Field (Act no. 28 of 2017 (short form: Next-Generation Medical Base Act)), we will formulate a basic policy and certification standards for appropriate business administration until the Act comes into effect.
- By utilizing anonymously processed medical information, we will promote R&D and the creation of new industries concerning health and medical care.

＜Tourism＞

・ Utilization of Information Bank system in tourism and hospitality businesses

- In the field of tourism, information concerning foreign tourists visiting Japan is not sufficiently shared or utilized among service business enterprises. It is necessary to promote data utilization.

- We will engage in demonstration test with a view to implementing Information Bank system in the field of tourism in collaboration with relevant ministries and agencies. Required rules will be developed and quantitative targets will be set during FY 2018.

- We will accordingly promote the provision of a multitude of advanced hospitality services and contribute to the creation of a tourism nation.

KPI (progress): number of tourists who have registered data; number of business enterprises that are connected to a platform

KPI (outcome): amount of travel consumption by tourists

＜Finance＞

・ Promoting the utilization of data in the field of finance

- It is important to pursue open innovation (innovation achieved through linkages and collaborations with outside parties) in the field of finance amid changes in the environment surrounding financial services.

- Thus, we will promote the utilization of sequential data by urging investigations of policy concerning the utilization of appropriate data while taking the need to secure the trust and safety of depositors into account in accordance with the actual state of the utilization of data in the field of finance between FY 2017 and FY 2018. At the same time, we will also promote the public and private sector data utilization by financial institutions from the standpoint of stimulating the utilization of data.

KPI (progress): types of data that can now be utilized and applied

・ Investigating the circulation of data corresponding to electronic receipts (purchase history)

- While household budgeting apps are gaining in popularity, there is a limit as to the extent to which a consumer can amass and utilize purchase history data on his or her own since there has been little progress in terms of the computerization and standardization of receipts.

- The adoption of electronic receipts will be promoted by formulating a standard format for electronic receipts in 2017 and setting numerical targets to be in effect until FY 2020.

- Accordingly, the construction of a framework will be promoted to enable purchase history data to be safely and securely browsed and provided by consumers.

KPI (progress): number of electronic receipts conforming to a standard format that have been issued

KPI (outcome): number of business enterprises that have adopted an electronic receipt system

＜Agriculture, forestry, and fisheries＞

・Establishing an agricultural data platform (see below)

＜Manufacturing＞

・Developing rules for creating new services for smart homes/houses

- A variety of household devices made by different manufacturers are not interconnected or data-linked.
- We will develop rules concerning the utilization of data by way of connecting and controlling devices beginning in FY 2018 and aim to create 100 new services based on the utilization of these rules by FY 2020 in accordance with the results of model testing to commence in FY 2017.
- We will also provide support for technical measures to cover network control-related risks and testing relating to insurance-based supplementation and implement proposals for international standardization concerning communication functions in accordance with the results thereof.

KPI (progress): number of business enterprise (devices and services) linkages based on developed rules that have been created, number of proposals for international standardization relating to communication functions

KPI (outcome): expanding the service market for household devices

・Promoting the circulation and utilization of data through the clarification of data usage restrictions (re-posted)

・Identifying and cultivating innovative model businesses through initiatives of the IoT Promotion Consortium and IoT Promotion Laboratory (re-posted)

・Producing a collection of case studies to promote data utilization businesses (re-posted)

II-1-(4) Promoting the widespread and effective use of Individual Number Cards (tied to Article 13 of the Basic Act)

Key initiatives to date

・We will implement the contents of initiatives to enhance the convenience of Individual Number Cards and have produced (announced in March 2017) and are pursuing a Roadmap to Promote

the Utilization of Individual Number Cards from the standpoint of clarifying a schedule of investigations and the timing according to which initiatives will be implemented.

1) Cross-sectoral measures that should be taken on a priority basis

- Promoting utilization of the Individual Number Cards as an identification card and otherwise for administrative and private-sector services according to the Roadmap to Promote the Utilization of Individual Number Cards

  - Individual Number Cards have been adopted by around ten percent of the population (as of May 2017 according to a survey conducted by the Ministry of Internal Affairs and Communications), a rate that is inadequate.

  - We will periodically evaluate the state of progress from the standpoint of making sure that the PDCA cycle is properly applied for the Roadmap to Promote the Utilization of Individual Number Cards as formulated in March 2017 and, where necessary, conduct a review. In particular, since the utilization of the Individual Number Cards as a piece of personal identification for central government employees is required on a priority and systemic basis, each ministry and agency shall produce an adoption plan and continue to promote a sequential transition. We will also look into various possibilities, such as measures based on the state of the acquisition of Individual Number Cards by age and sex, personal support systems, and the provision of cooperation for the acquisition of Individual Number Cards to bid-tendering business enterprises. We will also promote the formulation of business models sequentially beginning in 2018, initiatives for the fortification of LGWAN[42] and other infrastructural elements where necessary, and the utilization of Individual Number Cards for various private-sector services.

  KPI (progress): Individual Number Cards adoption rate

  KPI (outcome): KPI to be set based on investigative results

- Having functions downloaded to smartphones to enable the use of the Individual Number Cards for identification purposes

  - In order to promote the utilization of the Individual Number Cards, it will be necessary to establish an environment in which the Individual Number Cards (public personal authentication service) can be utilized and applied directly from one's own smartphone, which is normally carried on one's person.

  - After finalizing the implementation system and other operational aspects based on the results of practical testing conducted in FY 2016 and FY 2017, an investigation of the

[42] LGWAN: Local Government Wide Area Network.

legal system based thereon (to revise public personal authentication methods) will be conducted. We will strive to have functions downloaded to SIM cards in 2019.

- Accordingly, we will promote a higher level of convenience for the Individual Number Cards by adding ways in which the public personal authentication service can be utilized and further diversifying the means by which services tied to people's lives can be accessed.

・ Promoting public and private sector ID linkages to link public personal authentication platforms with private sector authentication platforms

- We will summarize the results of investigations conducted in 2017 with a view to establishing a framework for increasing the reliability of ID by linking private-sector organizations to the public personal authentication service tied to the Individual Number Cards to ascertain and incorporate the current situation affecting members. According to the results thereof, we will implement the particulars of this framework through practical testing and investigate required legal systems to lay the groundwork for social implementation.

KPI (outcome): number of private-sector authentication platforms (services) linked with public personal authentication platforms

・ Rendering unnecessary the submission of copies of certificates of residence and copies of family registers (re-post)

・ Back-office linkages for the government as a whole based on the utilization of information concerning juridical persons (re-post)

2) Measures that should be taken on a priority basis in priority fields

＜Electronic administration＞

・ Continuous utilization of the public personal authentication service overseas

- If you move overseas, you will not be able to use the public personal authentication service tied to your Individual Number Cards under the current public personal authentication scheme. Thus, continuous utilization of these services will need to be studied.

- In order to make it possible for people to continue using the public personal authentication service tied to their Individual Number Cards even after they move overseas, we will conduct an investigation into systemic matters concerning methods by which individuals are identified and into operational matters concerning relevant systems with the aim of commencing services in FY 2019.

- Promoting the multifunctionalization of Individual Number Cards

  - Multifunctionalization to ensure the widespread uptake of Individual Number Cards among citizens is necessary.

  - We will establish a My Key platform[43] in FY 2017, have participating local governments conduct testing of the use of points to boost local economies, and deploy this platform nationwide based on the results of this testing beginning in FY 2018. We will also investigate proposals for utilization with different application procedures based on the use of the Individual Number Cards and set quantitative targets for each utilization measure in an effort to raise levels of convenience for citizens.

  KPI (progress): number of local governments participating in the My Key platform

  KPI (outcome): number of persons who have registered for a My Key ID

- Side-by-side inclusion of maiden names on Individual Number Cards

  - When a working woman wishes to use her maiden name at her workplace and in other different settings outside the home, she will need to have a method to allow her to easily prove what her maiden name is to others.

  - After amending the Enforcement Regulations for the Basic Resident Register Act as they pertain to the side-by-side inclusion of maiden names on Individual Number Cards (Cabinet Order no. 292 of 1967) and updating systems, we will promptly begin this inclusion nationwide from 2018.

  - Accordingly, it will be possible to easily and reliably verify an individual's maiden name whenever she wishes to use her maiden name at work or otherwise in different social settings.

  KPI (progress): enacting a system to allow for the side-by-side inclusion of maiden names nationwide

- Promoting the adoption of a service for issuing certificates through convenience stores

  - We will endeavor to promote the adoption of a service by which certificates, such as copies of certificates of residence, can be issued by local governments through convenience stores to individuals who utilize their Individual Number Cards. We aim to enable 100 million citizens to use this service by the end of March 2020 in order to raise

[43] The My Key platform is a platform of shared information designed to provide a means by which Individual Number Cards and various services pertaining to public facilities and shopping districts can be called forth through the utilization of the My Key feature of the Individual Number Cards (free space on the IC chip and the part corresponding to the public personal identification function).

the level of service convenience for citizens and ease the load on local governments in terms of their interactions with citizens.

KPI (progress): population of municipalities adopting a service for issuing certificates through convenience stores

KPI (outcome): number of copies of certificates issued through a service for issuing certificates through convenience stores

- One-stop services pertaining to child-rearing, nursing care, succession matters, and other life events (re-post)
- Government procurement based on the use of Individual Number Cards and electronic proxy forms (re-post)

＜Health, medical, and nursing care＞

- Establishing a framework for sharing and linking various categories of entities' information relating to the field of health, medical, and nursing care to promote and disseminate the outcome thereof (see below)

＜Tourism＞

- Investigating the framework for ticketless entries to sites and the prevention of fraudulent resales based on the use of the Individual Number Cards

  - A system for properly reselling tickets based on the use of the Individual Number Cards will be tested beginning in FY 2017 with commercialization set to commence in FY 2018 or later. Collaborations with the Tokyo Organising Committee of the Olympic and Paralympic Games will be pursued for the purpose of adopting this framework for the management of spectator admissions and the management of volunteers.

  KPI (progress): achieving a system of reselling tickets

  KPI (outcome): number of persons using this system for reselling tickets

＜Finance＞

- Promoting the utilization of the Individual Number Cards for housing loan agreements (public personal authentication service)

  - It is important to endeavor to promote the utilization of the Individual Number Cards (public personal authentication service) in order to enhance convenience for users and streamline paperwork for banks as they pertain to housing loan agreements.

- For this reason, we will successively promote accommodations with a view to introducing and expanding authentication checks with public personal authentication functions, such as by exhorting banks to sort out issues during FY 2017 and pursuing initiatives for the diversification of means of access in order to develop an environment in which personal identification checking procedures can be undertaken online with ease with public personal authentication functions.

- Accordingly, we aim to streamline paperwork by banks through procedural simplification for users and enhance convenience for users.

KPI (progress): number of banks utilizing the Individual Number Cards

KPI (outcome): to be set separately based on the state of the adoption and expansion of these measures

＜Infrastructure, damage prevention, and damage mitigation＞

・ Investigating the utilization of the Social Security and Tax Number System for disaster measures and the provision of reconstructing livelihoods of affected people

- Presently, the needs of people – such as in terms of the rapid provision and transmission of appropriate disaster information – are not always understood when it comes to disaster measures and support for the reconstructing livelihoods.

- In collaboration with relevant ministries and agencies, as early as possible in FY 2017, the needs of people and local government administrators will be figured out whenever a disaster occur and whenever support for the reconstructing of livelihoods is provided based on examples gleaned from past disasters. In FY 2017, we will compile (including by way of the setting of numerical targets) specific measures to support disaster victims based on the utilization of the Social Security and Tax Number System, such as by utilizing Individual Numbers to produce the ledger of affected people for whom Individual Numbers can be utilized under the current law and carry out paying funds to support the reconstructing of livelihoods. Beginning in FY 2018, we will quickly implement specific measures inclusive of the adoption of a system for managing access to evacuation centers according to this compilation in order to establish a support system for disaster victims based on the use of the Social Security and Tax Number System.

- Accordingly, we will be able to extend rapid, appropriate support to disaster victims and disaster-affected local governments.

II-1-(5) Resolving disparities in terms of opportunities for IT utilization (digital divide measures) (tied to Article 14 of the Basic Act)

Key initiatives to date

- We are currently undertaking initiatives to develop and provide IT devices that are easy to use for the disabled and elderly and related services, disseminating and promoting guidelines pertaining to accessibility, including with respect to administrative websites and SNS, and initiatives to develop and secure area IT infrastructure for remote islands and other loss-incurring regions.

1) Cross-sectoral measures that should be taken on a priority basis

- Promoting the development and securing of ultra-high-speed broadband for remote islands and other loss-incurring regions

  - There remain areas where it is still difficult to provide fixed-line ultra-high-speed broadband service due to geographical conditions or business-profitability issues.

  - We will continue to provide support to allow local governments with jurisdiction over less-favored areas to develop and secure ultra-high-speed broadband infrastructure and aim to reduce the number of local governments lacking fixed-line ultra-high-speed broadband infrastructure from forty-one (as of the end of FY 2016) to twenty-five by the end of March 2021.

  - This will accordingly reduce the disparity among areas in terms of ICT utilization.

  KPI (progress): number of local governments lacking fixed-line ultra-high-speed broadband infrastructure

- Promoting the development of mobile phone areas in less-favored regions

  - There remain regions where it is still difficult to utilize mobile phones due to geographical conditions or business-profitability issues (16,000 people in FY 2015 (excluding residents who are not looking to have mobile phone accessibility set up in their areas)).

  - We will issue cash subsidies to allow local governments and wireless communications providers develop base stations and transmission lines and move forward with the aim of reducing the population of citizens living in non-serviced areas to less than 10,000 people (excluding residents who are not looking to have mobile phone accessibility set up in their areas) by the end of March 2020.

  - This will accordingly address the disparity among areas in terms of mobile phone utilization.

KPI (progress): population of citizens living in non-serviced areas

- Accelerating the elimination of zones lacking mobile phone access in Shinkansen (bullet train) tunnels

  - - As of the end of March 2017, mobile phones became usable in 540 of the 1,105 kilometers of Shinkansen tunnels in operation in Japan.

  - - By issuing cash subsidies for the development of relay stations for mobiles phones by general corporate juridical persons and other such parties, we hope to facilitate the use of mobile phones in all Shinkansen tunnel sections in Japan by 2020.

  - - We can accordingly expect to see improved convenience for users and a securing of means of communications during emergencies.

  KPI (progress): total distance in Shinkansen tunnels where mobile phones can be utilized

- Promoting competition in the market for telecommunications services

  - We will promote fair competition inclusive of mobile virtual network operators (MVNO) and other non-infrastructural business enterprises in the mobile phone market as well as fixed communications market, for which a smooth transition from a fixed telephone network faced with the impending obsolescence of relay exchanges and other such devices by around 2025 to an IP network is required, and endeavor to increase convenience for users through reduced fees and a diversification of services. The Information and Communications Council will summarize the results of a study to be conducted on the approach to implementing this smooth transition from a fixed telephone network to an IP network by around autumn 2017.

  KPI (outcome): measure of market concentration (HHI), ratio of the number of 0AB-J IP telephone usage numbers to the total number of fixed-line telephone subscriptions expressed as a percentage

- Developing an environment for ensuring Internet accessibility

  - There are many people, including the elderly and disabled, who are unable to adequately enjoy the benefits of ICT.

  - In order to enable anyone to easily utilize the websites of administrative organs, we will promote initiatives undertaken by public institutions by surveying and publicly disclosing the state of accessibility with respect to the websites of the central government, local governments, and other public bodies in FY 2017. In order to upgrade communications and broadcasting services offered by business enterprises in a manner that takes the needs of the elderly and disabled into account, we will provide business enterprises with cash

subsidies between FY 2017 and FY 2021 and keep a tab on the state of progress in this area.

- We will eliminate the digital divide and establish an environment that grants everyone barrier-free access to information with which the benefits of ICT can be enjoyed.

KPI (progress): Rate of business continuity two years after the subsidy "for promoting the provision and development of communications and broadcasting functions to the physically disabled" is last granted to private-sector business enterprises

KPI (outcome): rate of conformity to the JIS standards applicable to barrier-free access to information posted to the websites of public bodies

・ Equality of opportunities to utilize 4K/8K and other advanced video and communications technologies

There are a number of issues with respect to 4K/8K broadcasting, including the possibility that radio waves emitted by certain old-style receiving equipment could leak and interfere with signals emitted by other wireless stations in connection with BS・110°CS broadcasting, which is slated to begin in 2018, and the fact that networks will need to undergo a conversion to fiber optics to enable viewers to access content via CATV.

- In order to enable viewers to access 4K/8K broadcasting from various locations nationwide as we prepare to host the Tokyo Olympic/Paralympic Games in 2020, we will produce a schedule of initiatives to disseminate 4K/8K broadcasting, conduct testing to smoothly transmit 4K/8K broadcasting programs based on broadband protocols, utilize high-speed wireless LAN and advanced video technology to improve functions and convenience levels for spectators at stadiums and other venues, and otherwise promote necessary measures through public-private partnerships in 2017.

KPI (progress): percentage of all households nationwide that can take advantage of 4K/8K broadcasting, number of venues where high-speed wireless LAN and advanced video technology are utilized

KPI (outcome): increase in the number of households capable of taking advantage of 4K/8K broadcasting

・ Comprehensive support for IoT implementation in the region

- In the areas undergoing super-aging (birthrate that is decreasing and population that is aging at exceptional rates), the infrastructure used by residents in their daily lives and businesses for production can no longer be maintained as they had been in the past. While resolutions to problems can be expected through the public and private sector data

utilization by way of the implementation of the IoT, constraints in terms of budgets and human resources prevent local initiatives from moving forward.

- In order to implement the IoT in local areas by collaboration with the private sector to the maximum extent possible, we will comprehensively provide support for the planning, provide support in terms of human resources such as dispatching experts, clarify data-utilization rules as they might apply to the use of private-sector platforms, and provide support for implementation projects.

- These initiatives will generate initiatives based on the use of the IoT in various fields closely linked with daily living and help revitalize over 800 areas and organizations in total by FY 2020.

KPI (outcome): number of areas and organizations implementing successful models of the IoT in the region

・Disseminating and promoting programming education for the young (see below)

・Investigating methods of developing an academic environment for programming and other aspects of the IoT on a local scale (see below)

2) Measures that should be taken on a priority basis in priority fields

＜Electronic administration＞

・Side-by-side inclusion of maiden names on Individual Number Cards (re-post)

＜Health, medical, and nursing care＞

・Promoting remote medical care based on the use of ICT

- It is essential that the latest technological progress be incorporated into the medical field to improve the quality of medical care and raise productivity.

- To this end, knowledge concerning efficacy and safety should be amassed based on experimental testing. Matters helping to provide effective, efficient medical care through the appropriate combination of face-to-face medical care and remote medical care shall be assessed through the FY 2018 Revision of medical Fee.

- Accordingly, the quality of medical care and the health of citizens will improve.

KPI (progress): state of the adoption of a remote medical system

KPI (outcome): state of the usage of remote medical care (state of the review of Medical Fee in connection with remote medical care)

＜Tourism＞

・Establishing a framework for authentication linkages to seamlessly enable Wi-Fi connections across boundaries between business enterprises

- The difficulties encountered when attempting to use a public wireless LAN have been indicated as a problem experienced by foreign visitors to Japan.
- We will establish a framework for authentication linkages to seamlessly enable Wi-Fi connections across boundaries between business enterprises at 200,000 or more sites by 2018.
- Accordingly, this will eliminate grounds for dissatisfaction on the part of and improve convenience for foreign visitors to Japan and other tourists.

KPI (progress): establishing a framework for authentication linkages by 2018, number of sites capable of accommodating authentication linkages

・Equality of opportunities to utilize 4K/8K and other advanced video and communications technologies (re-post)

＜Agriculture, forestry, and fisheries＞

・Reducing manual farm labor and achieving automation through the utilization of ICT and robots (see below)

＜Infrastructure, disaster prevention, and disaster mitigation＞

・Promoting the development of a Wi-Fi environment for use at disaster-prevention sites

- In a disaster, fixed telephone and mobile telephone lines can become congested, thereby preventing their use.
- We will promote the development of approximately 30,000 disaster-prevention sites equipped with a Wi-Fi environment in order to ensure means of necessary information transmission in a disaster by FY 2019.
- In a disaster, it will be possible for evacuees and people unable to move from a given location to transmit and secure information as required on a timely basis. Safety and safety confirmation will be better ensured, and evacuees can enjoy greater levels of convenience in their lives.

KPI (progress): number of developed sites (approximately 30,000 sites by FY 2019)

II-1-(6) Reforming information systems and BPR of central and local governments (tied to paragraph (1) of Article 15 of the Basic Act)

Key initiatives to date

- We will promote reforms to government information systems for the purpose of halving the number of central government systems and lowering operating costs by thirty percent. The number of systems will be reduced to 894 by FY 2018 (sixty-two percent less than in FY 2012) while operating costs will be reduced by 110.4 billion yen per year by 2021 (twenty-nine percent less than in FY 2013). We are implementing reforms that will have us review operations (BPR) with a focus on large systems (including the Hello Work system, online social insurance systems, and the system of registered information).

1) Cross-sectoral measures that should be taken on a priority basis

- Digitalizing the entire government at the central and local levels[44]
  - We will need to promote new initiatives to contribute to the circulation of public and private sector data while reforming government information systems and harnessing expertise accumulated to date.
  - For this purpose, a government-wide implementation plan will be formulated by the end of March 2018 and medium- to long-term strategic plans will be formulated by ministries and agencies by the second half of 2018 in accordance with the Policy on Promoting Digital Governance (as finalized by the Strategic Conference for the Advancement of Public and Private Sector Data Utilization (IT Headquarters) on May 30, 2017).
  - Accordingly, we will promote the reinforcement of the digitalization of the entire government and implement administrative services with a focus on improving convenience for citizens and business enterprises to a greater extent than before.

KPI (progress): number of ministries and agencies that have formulated medium- to long-term plans

KPI (outcome): extent to which reform targets concerning measures as stipulated in plans have been met

[44] Achieving digitalization of the entire government (“digital first”, “connected one-stop”, “once-only”) and formulating and promoting a new policy on electronic administration (policy on promoting digital governance).

- Adopting the cloud-by-default principle[45]

  - In developing an information system, it is important to endeavor to increase the return on improvement and service levels and fortify cyber security by way of the utilization of cloud technologies.

  - We will sort out viewpoints and issues concerning the utilization of private-sector cloud technologies and private-sector services by FY 2018. In addition, we will conduct an investigation this FY into a policy on accelerating the adoption of advanced private-sector IT services, including with respect to the establishment of a government certification system for cloud technologies and other private-sector IT services, and steer specific initiatives in an appropriate direction. We will also seek to standardize government information systems that need to be directly owned and managed by the central government and promote a transition to a government-standard platform upon thoroughly validating the return on investment with respect to such systems.

  - Accordingly, we will promote the shifting of administration-owned information systems to the cloud.

  KPI (progress): cloud-utilization count

  KPI (outcome): amount of cost reduction

- *Visualizing*[46] the state of the adoption of cloud technologies and the operating costs of information systems owned by individual organizations and providing support for the accelerated adoption of cloud technologies

  - Initiatives undertaken for the adoption of cloud technologies need to be further promoted since they yield numerous benefits, including cost reductions, improved security levels, and the ensuring of business continuity in the case of a disaster.

  - Beginning in FY 2017, we will endeavor to *visualize* the operating costs of information systems. Local governments will formulate plans relating to the adoption of cloud technologies and the central government will oversee progress in this area and secure experts required for adoption. In order to increase the number of cloud-adopting municipalities, we will extend proactive support by thoroughly sharing outcomes in past cases associated with positive results and publicizing options for assistance offered by the central government.

KPI (outcome): number of cloud-adopting municipalities

[45]Promoting the utilization of cloud technologies and private-sector services based on the attributes of information systems (such as through incorporation into templates used for local plans).
[46]Estimating and publicly disclosing the operating costs of information systems.

- Shared adoption of cloud technologies for systems for the management of school affairs as administered separately by each local government

  - That there has been no progress in terms of the adoption and operations of systems for supporting school affairs by multiple local governments due to differences in the scope of operations subject to these systems and in the formats of relevant documents among different local governments is a problem.

  - We hope to clarify the scope of operations subject to these systems, computerize and standardize documents relating to school affairs, and sort out concepts by which local governments should adopt and operate these systems by FY 2017 and promote initiatives to get local governments to standardize these systems beginning in FY 2018.

  - Accordingly, we will improve the caliber of school education by lessening the burden on school educators in terms of clerical functions and securing more time to allow educators to deal with pupils.

  KPI (progress): number of local governments that have adopted multi-user systems for supporting school affairs

- Standardizing methods of information linkage between cloud technologies used for school affairs and cloud technologies used for classroom and learning applications

  - Systems used for school affairs by educators in school staff rooms and classroom and learning systems as used by pupils are operated separately out of security concerns. Improvements to the operations of these systems are an urgent matter from the standpoint of data utilization.

  - We aim to enable 100 percent of schools to utilize cloud technologies by 2020 by testing information linkages between systems used for school affairs and classroom and learning systems offered by different business enterprises and standardizing secure, efficient, and effective methods of information linkage.

  - We will conduct a survey on the current state of the network environment constituting the basis for the operations of systems to be standardized through this testing and further verify this state in the future and consolidate the results of this process as a set of guidelines.

  KPI (progress): number of schools that can utilize cloud-hosted educational materials

2) Measures that should be taken on a priority basis in priority fields

＜Electronic administration＞

・ Reforming government information systems[47]

- Ministry and agency hearings and reviews with respect to the reformation of government information systems will be conducted by the government CIO and cost-reduction expertise will be subject to aggregation and expanded deployment in an effort to steadily promote initiatives undertaken to date.

- In order to halve the number of systems (relative to FY 2012 when there were 1,450 systems) by FY 2018 and reduce operating costs by thirty percent (relative to FY 2013 when operating costs totaled approximately 400 billion yen) by FY 2021, we will steadily implement initiatives with a view to attaining these targets on an ongoing basis.

- Savings obtained through this process will be utilized for investments in higher value-added fields.

KPI (progress): number of eliminated systems, eliminated operating costs

・ Promoting operational reforms (BPR) after taking service design concepts into account[48]

- As changes in the societal environment and technological advancements occur at a rapid pace, operational reforms (BPR) involving the reconstitution of operations and services affecting not just front-end service functions but also internal aspects of government administration will need to be carried out from the perspective of users in order to maintain and improve administrative services and achieve sustainable economic growth.

- To this end, priority fields for service reforms will be identified and the contents of initiatives and schedules will be specified in 2017 after taking service design concepts into account.

- In carrying out operational reforms for the internal aspects of government administration, we will promote operational digitalization and move to a paper-less approach by

[47] Steadily promoting the reformation of government information systems in terms of a halving of the number of systems and a thirty percent reduction in operating costs.

[48] Initiatives for operational reforms have thus far been promoted in different areas, including with respect to human resources and compensation systems, travel expense systems, public pension plans, national taxation, and employment centers (Hello Work). We will henceforth harness expertise obtained through initiatives carried out to date based on a policy for promoting digital governance and implement operational reforms based on service design concepts.

developing a remote-access environment for teleworking and other purposes and utilizing tablets in meetings. These initiatives will allow us to improve productivity and accommodate a large variety of different workstyles.

- Accordingly, we aim to reduce the burden on both citizens and workers and provide administrative services centered around users.

KPI (progress): number of specific services for which service reforms will be undertaken

KPI (outcome): attaining reform targets for measures corresponding to service reforms

・ Promoting the reformation of government operations based on the use of blockchains

- Blockchain technology is expected to yield various different results but has not gained much traction in terms of its utilization in the field of government administration.

- We will identify usage cases associated with a high degree of compatibility with blockchain technology and commence testing with a focus on the advance adoption of such technology for government information systems in FY 2017. At that time, we will study issues concerning necessary operations and rules, formulate a plan for realizing groundbreaking electronic administration through operational reforms incorporating such a new technology by FY 2018 based on the results of this study, and proceed with the development of a new system.

KPI (progress): conducting testing based on the utilization of blockchain technology in government information systems

KPI (outcome): formulating a plan for realizing groundbreaking electronic administration based on the results of this testing

・ Linkages among administrative bodies with respect to real estate registration information

- The existence of land for which an owner cannot be identified from a real estate register or other ownership registers or for which an owner, despite being identified, cannot be contacted impedes local government operations and private-sector development.

- We will investigate a (central) government system for promoting the establishment of a framework intended for internal sharing by administrative organs. Such a framework will be used to precisely consolidate up-to-date ownership information entered in real estate registers, farmland registers, forestry land registers, fixed asset taxation registers, real estate information databases, and other types of books and registers. A conclusion on this matter will be rendered in FY 2017.

・One-stop services pertaining to child-rearing, nursing care, succession matters, and other life events (re-post)

＜Health, medical, and nursing care＞

・Streamlining and upgrading medical insurance operations (such as examinations for medical fees)

- By reviewing operations through system innovation, we will reduce the operational burden on workers and examiners (such as in terms of examinations and the manual inputting of data) pertaining to the invoicing of medical fees by authorized insurance medical institutions and the making of payments by the examination and payment agencies.

- We will transition to a new system of Health Insurance Claims Review & Reimbursement services pertaining to payments for examinations in FY 2020 based on an investigation into system innovations (such as the simple connection of systems and the adoption of a one-cloud approach) to be implemented beginning in FY 2017. We will utilize the results of efforts to restrain costs in order to help develop and upgrade systems to process National processing system for National Health Insurance policyholders as a means of supporting the operations of a new national health insurance scheme in line with statutory amendments and will steadily accommodate prefectural and municipal governments by FY 2018.

- In order to achieve a sustainable medical insurance system, we will review medical insurance-related operations in response to system innovation and provide high-quality medical care suitable for the current era of data-based health through the optimization of social security-related costs. (Outcome targets are to be set in FY 2017.)

KPI (progress): state of efforts to transition to the new system

・Establishing and promoting the utilization of databases for the registration of medical information concerning patients afflicted with designated intractable diseases, children with specific chronic childhood illnesses, and others

- For intractable diseases and specific chronic childhood illnesses affecting children that are relatively rare and that can only be addressed through research conducted on a nationwide basis, clinical information pertaining to diagnostic standards applicable to patients afflicted with designated intractable diseases and children with specific chronic childhood illnesses will be collected in order to secure a certain number of cases.

- We will establish databases pertaining to designated intractable diseases and specific chronic childhood illnesses in FY 2017 and begin providing data for research by FY 2019 through the registration of data and the dissemination of these systems.

- By securing a certain number of cases, we will make it possible to ascertain clinical information on patients, help promote research and improve the quality of medical care, and enable intractable diseases and specific chronic childhood illnesses to be overcome.

KPI (progress): Number of registrations to the database

KPI (outcome): Number of data provided by the database

＜Mobility＞

・Aggregating, upgrading the provision, and promoting the dissemination of traffic-control information[49]

- Presently, we are promoting the standardization of traffic-control information managed by prefectural police departments.
- With respect to a model system corresponding to a system for managing traffic-control information as established in FY 2016, we will conduct survey-based research relating to the provision of traffic-control information upon evaluating system performance by verifying the accuracy of format-standardizing functions in FY 2017.
- Based on such survey-based research, we will promote the dissemination of a system for managing traffic-control information in order to enable drivers to precisely ascertain traffic-control information and utilize automated-driving features beginning in FY 2018.

KPI (progress): number of prefectures that have adopted this system

KPI (outcome): social implementation of automated driving based on the utilization of traffic-control information

II-1-(7) Developing a platform for data linkages (tied to Article 15(2) of the Basic Act)

Key initiatives to date

・We are promoting initiatives with a view to establishing linkages among different systems (across eleven fields), including an advanced road traffic system pertaining to the field of automated driving and a hospitality system pertaining to the field of tourism, for a platform designed to facilitate the creation of new value in order to render a new socioeconomic paradigm referred to in some circles as Society 5.0.

・We have also commenced operations of Corporation Information for the aggregation of information on corporate activities owned by the government. By standardizing data based on a

[49] We will study and develop a framework for providing information on a centralized basis in order to aggregate information managed by prefectural police departments and provide such information to automobiles.

common lexiconic foundation, an environment facilitating the use of information on corporations in the public and private sectors has been realized.

1) Cross-sectoral measures that should be taken on a priority basis

- Developing a platform to enable cross-sectoral linkages

  - Basic rules on data linkage among the central and local governments and business enterprises will need to be formulated in order to have information efficiently exchanged among systems.

  - Guidelines[50] pertaining to the development of a platform to enable cross-sectoral linkages through data (lexicon, code, text, and more) standardization and API will be prescribed by the summer of FY 2018 based on the results of *Platform for Realizing Society 5.0* and *Promoting Data Utilization-Oriented ICT Smart Cities*. Development will proceed in accordance with these guidelines.

  - Accordingly, we will promote the creation of new services by accelerating data linkages among the central and local governments and business enterprises.

  KPI (progress): extent of progress as it relates to the development of this platform

  KPI (outcome): number of use cases involving API linkages

- Promoting data utilization-oriented ICT smart cities

  - While cities and regions have various problems such as rising or shrinking populations, care for foreign visitors to Japan, the need to maintenance and upgrade of infrastructure and services, and many other issues, solutions are not forthcoming since no framework for linking and utilizing data in different fields, such as disaster prevention, medicine and healthcare, and tourism, has been realized.

  - In order to upgrade urban services and functions through cross-sectoral data utilization and improve levels of convenience and productivity, we have been developing a platform for data linkages and supporting data utilization-oriented urban development beginning in FY 2017.

  - In order to promote IoT utilization at a local level and improve local productivity, we will investigate measures for the provision of multitiered support by relevant ministries and agencies, such as education on the adoption of cloud services and the creation of IoT businesses, and arrive at a conclusion within this FY.

[50] Data standard specifications for system linkages by local governments (standard specifications for local information platforms as produced by the Association for the Promotion of Public Local Information) will also be consulted.

- These initiatives and horizontal expansion of successful models will help to increase the appeal of cities and improve urban productivity.

KPI (progress): number of smart cities established through cross-sectoral data utilization

2) Measures that should be taken on a priority basis in priority fields

＜Health, medical, and nursing care＞

・ Establishing system of online qualification check of medical insurance and adopting a system of medical ID

- A policy for promoting the provision of high-quality medical services against a backdrop of rapid aging and a difficult state of public finances for medical insurance is required.

- We are investigating the use of the framework established by the Social Security and Tax Number System for introducing the online verification of eligibility for medical insurance, the adoption of ID for medical purposes, and other such matters including the utilization of Individual Number Cards as health insurance certificates. Operations will be gradually commenced in FY 2018 with full-scale operations expected by 2020.

- Accordingly, we can expect to see improvements to citizens' health and the quality of the medical care they receive, by enabling patient information to be shared among hospitals and clinics nationwide, and long-term medical information on patients to be collected and analyzed and utilized as big data.

KPI (progress): number of medical institutions where information linkages are possible

KPI (outcome): volume of medical information that is shared among medical institutions

・ Establishing a framework for sharing and linking various categories of entities' information relating to the field of health, medical, and nursing care to promote and disseminate the outcome thereof

- Data existing in medical institutions and nursing-care facilities are often collected for use within individual facilities. Infrastructure to enable medical institutions to share and utilize information on a national scale needs to be developed.

- To this end, we aim to develop infrastructure for data utilization on a national scale and will promote the upgrading of local electronic health records (EHR) through the adoption of cloud technologies and bidirectionality in FY 2017, conduct testing on area-wide linkages (including with respect to security measures) and on measures to obtain the consent of patients through the use of Individual Number Cards, and promote the development of an environment in which medical information can be cross-indexed.

- Through these initiatives, it will be possible to provide appropriate medical and nursing-care services to patients by having effective information shared and cross-regional data utilized by and between local medical institutions and nursing-care facilities. In this and other ways, we aim to engage in health management, diagnostics, and nursing care in a way that is optimal for each individual through the consolidation of data with a focus on each citizen.

KPI (progress): developing infrastructure for data utilization on a national scale

・ Safety measures applicable to pharmaceutical products based on the utilization of electronic medical records and other types of information

- We will analyze any adverse effects from utilizing large-scale medical information for safety measures applicable to pharmaceuticals.
- We will promote the upgrading of safety measures applicable to pharmaceuticals by establishing a medical information database network (MID-NET) for gathering and analyzing electronic patient files and other types of medical information on a large-scale basis, in collaboration with twenty-three partner medical institutions and hospitals nationwide with the Pharmaceuticals and Medical Devices Agency (PMDA)..
- We will coordinate rules and fees for the utilization of MID-NET in FY 2017 and begin full-scale operations of MID-NET for utilization by administrative bodies, pharmaceutical companies, and academic institutions for the purpose of applying safety measures to pharmaceuticals in FY 2018.

KPI (progress): number of cases in which MID-NET can be utilized

KPI (outcome): number of cases in which MID-NET has been utilized

＜Tourism＞

・ Developing and providing DMO Net, a tool for managing and marketing tourism regions

- The integrated marketing and branding of tourist spots are currently being inadequately undertaken and need to be promoted.
- We aim to form 100 world-class destination management organizations (DMO) throughout the country by 2020 by offering information support, support for human resources, and fiscal and financial support, including by way of developing and providing of DMO Net.

KPI (progress): number of world-class DMOs formed

＜Finance＞

・ Promoting the provision of a banking system API (external connections) (adopting open API)

- Many FinTech enterprises provide services through the use of data obtained by accessing banking systems with a method based on *scraping*[51].
- In order to realize data linkages with ensuring security and safety, we will investigate additional issues pertaining to the promotion of an open API and aim to have an open API adopted by at least eighty banks by 2020.
- This will allow financial institutions and FinTech enterprises to achieve open innovation.

KPI (progress): number of open API-adopting banks

・ Investigating in order to upgrade supply chains through the utilization of electronic tags

- As information of individual items is not being obtained and shared, problems in terms of foodstuff losses and returns are affecting entire supply chains.
- The code standardization, labeling methods, and information sharing systems will be coordinated in FY 2017 for the utilization of electronic tags.
- Accordingly supply chains will be upgraded by promoting the introduction of electronic tags.

KPI (progress): number of electronic tags shipped

KPI (outcome): improvements in productivity due to the adoption of electronic tags

・ Promoting the utilization of distribution channel information in financial EDI[52] in order to upgrade financial and economic processes as undertaken by business enterprises

- It is important that business enterprises are able to electronically receive distribution channel information as they seek to streamline and upgrade their financial and payment procedures.
- In accordance with industrial conditions, we will sort out issues with a view to disseminating standardization items for distribution channel information that should be stored as financial EDI information in 2017. With respect to the shift to XML encoded telegrams at financial institutions, we will steadily engage in various initiatives concerning

[51] “Scraping” generally refers to a method of analyzing HTML data on web pages and collecting necessary data through a method involving data extraction or the application of other processes.
[52] EDI: Short for “Electronic Data Interchange”.

the activation of a new XML system in 2018 and the comprehensive transition to XML telegrams by 2020.

KPI (progress): number of financial institutions utilizing a new system compatible with XML telegrams

＜Agriculture, forestry, and fisheries＞

・ Promoting the standardization of agricultural information[53]

- In order to promote experienced farmers to pass along know-how to new entrant farmers, data utilization based on standardization is essential.
- Beginning in FY 2017, we will promote the dissemination and conduct timely reviews of individual guidelines corresponding to six items for which it is believed that standardization as set forth in the standardization roadmap pertaining to a strategy for fostering the generation and circulation of agricultural information should be carried out. In addition, the standardization of production histories, growth and development surveys, and other forms of information standardization will be promoted.
- Accordingly, we will enhance the interoperability and portability of agricultural information, promote creation and distribution of energy in the entire agricultural field, and reinforce the industrial competitiveness of Japanese farming.

KPI (progress): number of publicly-released individual guidelines pertaining to standardization

KPI (outcome): number of provided services that are based on standardization

・ Establishing an agricultural data platform[54]

- In order to improve productivity based on data utilization and have the skills of experienced farmers passed down to a new generation, we will aggregate various types of information possessed by producers, public bodies, and research institutions and establish an agricultural data platform to facilitate data linkages among different systems.
- We will establish a prototype for an agricultural data platform in FY 2017, proceed with the development of a circumstance to enable the utilization of weather data, soil data, and various other types of data, and create new services to help fortify agricultural competitiveness.

[53] Ensuring interoperability and portability for sharing and comparing data between different agricultural IT systems.
[54] A platform for aggregating various types of information possessed by producers, public bodies, and research institutions and enabling their utilization by linking data between different systems.

- Accordingly, we will improve management and productivity through the use of big data, achieve a stable supply of growth and development projections through the use of meteorological and other kinds of data, and expand related industrial sectors in line with improvements in agricultural productivity.

KPI (progress): number of business enterprises utilizing this platform

KPI (outcome): number of cases involving the provision of services based on the utilization of this agricultural data platform

・ Upgrading functions of the agricultural land information system[55]

- Collecting farmland information constituted a significant burden imposed on new entrant farmers, farmers looking to expand, and other persons in charge who are searching for farmland; therefore, various types of information, including the location and surface area of farmland and the willingness of owners to rent out farmland, came to be provided on a centralized basis through a system of publicly disclosing farmland information in April 2015.

- Beginning in FY 2017, we will expand functions to help increase user convenience and aim to have the amount of farmland used by persons in charge in terms of surface area constitute eighty percent of the total amount of farmland in the country by FY 2023.

- We will promote the intensive utilization of farmland to persons in charge and reinforce the industrial competitiveness of Japanese agriculture by utilizing systems for the public disclosure of farmland information.

KPI (progress): access count

KPI (outcome): ratio of the surface area of farmland used by persons in charge to the total amount of farmland in the country expressed as a percentage

・ Developing forest land registers in order to consolidate forest management practices[56]

- The structure of forestry ownership in Japan is such that forests tend to be owned on a small scale. There is concern that the identification of owners will be difficult for more and more forests in the future with each generational shift and as owners increasingly reside outside of the jurisdictions where their forests are situated. In order to efficiently

[55] We will develop a centralized cloud-based system for the entire country by computerizing and mapping farmland information based on data in farmland registries.
[56] We will develop and provide information relating to forest owners and boundaries in order to promote the consolidation of forest management practices.

develop forests, we will need to clarify owners and forest boundaries and provide such information to persons in charge in order to consolidate forest management practices.

- We will collect and develop information concerning forest owners and boundaries as stated in registers of forest land by municipalities based on standard specifications by FY 2018 and commence full-scale operations of a forest land registry system in April 2019.

- The utilization of forest land registers by forestry cooperatives and forestry organizations will efficiently encourage forest owners to engage in forest management practices and promote the consolidation of forest management operations.

KPI (progress): number of municipalities that have developed forest land registers

KPI (outcome): rate of the certification of forestry management plans

＜Manufacturing＞

・ Revolution in maritime productivity (i-Shipping)

- In order to reinforce the international competitiveness of Japanese shipbuilding, we will need to improve productivity through the use of the IoT, AI, and other information technologies.

- In aiming to achieve a thirty percent share of the global market in terms of shipbuilding tonnage in 2025, we will utilize simulations and 3D data in development and manufacturing processes and otherwise support and undertake the development and commercialization of technologies and systems contributing to improvements in productivity across all phases from the designing and manufacturing of ships to their operations.

- We will formulate international standards pertaining to the transmission of data by onboard equipment and promote the establishment and standardization of information infrastructure that is vital to the development of i-Shipping.

KPI (outcome): share of the global market in terms of shipbuilding tonnage

＜Infrastructure, disaster prevention, and disaster mitigation＞

・ Developing infrastructure for the circulation of geospatial information (G-spatial information) [57]

- In order to promote the utilization of geospatial information, we will set up ten fields to provide new data with value to users by FY 2019 and proceed with the aim of having at least fifty organizations participate in a circulation system by FY 2020.
- This will allow a society in which anyone can easily utilize advanced geospatial information at any time to be realized and innovation to be created with the Geospatial Information Center operating as the hub of such activities.

KPI (progress): number of data fields in the circulation system, number of participating organizations

・ Promoting the sharing of disaster information by the central and local governments and business enterprises[58]

- Rapid, effective support can be provided by sharing disaster information individually collected and managed by the central and local governments and business enterprises among the public and private sectors.
- We will sort out current issues and formulate rules for sharing public and private sector disaster information in FY 2017. By developing a system for sharing and linking disaster-prevention information among ministries and agencies by FY 2018, we will establish a framework for enabling required disaster information to be shared by the central and local governments and business enterprises.
- This will allow detailed, rapid disaster responses to be carried out, such as by enabling goods to be transported over the last mile to evacuation centers.

KPI (progress): number of ministry and agency systems to be linked

KPI (outcome): realization of detailed, rapid disaster responses on account of the establishment of a framework to enable required disaster information to be shared among the central and local governments and business enterprises

[57] Forming a circulation system to centrally aggregate and share more geospatial information and generate new data with value by further analyzing and processing such information.

[58] Establishing a framework for sharing and utilizing disaster information possessed by the central and local governments and private-sector entities through the Sharing Information Platform for Disaster Management (SIP4D), which is based on a ministerial and agency-level partnership, and the Disaster-Information Hub.

・ Reinforcing disaster-prevention functions at evacuation centers utilizing a quasi-zenith satellite system[59]

- As there are cases in which means of communications for transmitting safety-confirmation information and other disaster-related information at disaster-affected sites in the initial stages of a disaster cannot be adequately utilized, measures to deal with this inadequacy are required.

- In FY 2018, we will commence operations of a safety-confirmation service based on the utilization of a quasi-zenith satellite system and introduce this service on a trial basis to around five prefectures serving as model areas. We will promote the spread of this service to around twenty prefectures by FY 2021.

- This will allow local government offices for disaster countermeasures and other disaster-prevention organizations to utilize safety-confirmation information and disaster-related information collected at evacuation centers and elsewhere and otherwise precisely ascertain information in responding rapidly to disasters for the benefit of citizens.

KPI (progress/outcome): number of local governments that have adopted a safety-confirmation service

＜Mobility＞

・ Promoting the utilization of automobile-related information (traceability service to collect and utilize historical information on automobiles)

- In FY 2017, we will verify feasibility pertaining to a framework for collecting, managing, and providing inspection and maintenance information, produce guidelines, and commence investigations into the utilization of other automobile-related information owned by public and private sector actors. Beginning in FY 2018, we will strive to realize this service by 2020 after revising the existing system where necessary.

II-1-(8) Research and development around data utilization (tied to Article 16 of the Basic Act)

Key initiatives to date

・ Research and development work on network technologies underpinning data-circulation infrastructure (such as 5G) and groundbreaking basic technologies pertaining to AI are being pursued. It is critical that Japan autonomously retains its technological strengths as they relate to the public and private sector data utilization. To this end, research and development concerning

[59] Establishing a system that allows local government offices for disaster countermeasures and other disaster-prevention organizations to utilize safety-confirmation information pertaining to individuals and disaster-related information collected at evacuation centers and elsewhere using a quasi-zenith satellite system.

AI, the IoT, cloud-related technologies, and other leading-edge technologies should be undertaken on a cross-sectoral basis rather than independently by different relevant ministries and agencies and will need to be systematically carried out by the government in an integrated manner.

1) Cross-sectoral measures that should be taken on a priority basis

・ Promoting research and development concerning next-generation artificial intelligence technologies, 5G, and other technologies in an effort to reinforce basic technologies on data utilization

＜Next-generation artificial intelligence technologies＞

- The social implementation of the Research and Development Targets for Artificial Intelligence and Industrialization Roadmap as formulated by the Strategic Council for Artificial Intelligence Technologies will be promoted as a national strategy by the entire government without being subject to vertical divisions within ministries and agencies.

＜5G＞

- - We will promote research and development carried out to date, reinforce international linkages, and investigate basic strategies for securing frequencies.
- - We will realize 5G in 2020 by promoting comprehensive demonstration testing that takes research and development and societal implementation into account.

KPI (progress): proceeding with 5G research and development and demonstration testing

KPI (outcome): realization of 5G in 2020

2) Measures that should be taken on a priority basis in priority fields

＜Health, medical, and nursing care＞

・ Promoting research into AI-based health guidance support systems

- Data owned by local governments (diagnostic and prescription data, data on case examples, evidence data, and more) are not being adequately utilized. Effective health guidance can be provided by utilizing such data through AI-based analysis.
- From FY 2017 to FY 2019, we will collect diagnostic and prescription data amassed by local governments, analyze issues concerning health guidance based on such data, and develop an AI-based support system for health guidance that will be designed to propose optimal prospective measures. Beginning in 2020, we will expand the number of local governments that will adopt this system.

- Accordingly, medical expenses of local governments will be optimized by maintaining and improving the health of citizens.

KPI (progress): number of local governments that have adopted this system

KPI (outcome): optimization of medical expenses of local governments that have adopted this system

・A project to promote behavioral modifications based on the utilization of healthcare and medical information pertaining to individuals

- Soaring medical costs need to be suppressed and healthy lifespans should be extended by getting each citizen to have a greater level of interest in his or her own health and work to prevent lifestyle-related diseases.

- We will select a project-implementing organization (researcher) and commence project operations in FY 2017. This research project will be carried out over a three-year period until FY 2019. During this time, we will verify any preventive effects in the seriously ill, develop an algorithm to promote behavioral modifications, and clarify benchmarks for effects pertaining to these measures.

- Medical costs will be reduced.

KPI (progress): number of persons who have improved lifestyle-related diseases

KPI (outcome): number of insured persons engaging in the prevention of lifestyle-related diseases through the use of healthcare information

・Promoting clinical research and other research projects on the establishment of an ICT platform and implementation of AI

- In order to utilize the results of the analysis of large-scale data in the field of healthcare and medical (inclusive of nursing care and welfare), we will need to develop a permanent framework by standardizing data and the utilization of AI.

- In FY 2018, we will commence trial operations with respect to highly feasible examples based on a verification of research results by the evaluation committee. In FY 2019, full scale operations will commence with the aim of providing evidence needed to improve the quality of medical care, uniform accessibility, and provide medical support.

KPI (progress): number of research cases in which research results have been validated and graded by the Evaluation Committee, and adopted and extended.

- Developing nursing-care robots to maintain and improve the quality of lives of users and reduce the burden placed on nursing caregivers

  - Regarding the use of robot technology for nursing-care, it is important that we engage in efforts to maintain and improve the quality of life for the users and achieve a lessening of the burden placed on nursing caregivers.

  - We will re-examine priority fields in FY 2017 and reflect the results as being subject to new-development support from FY 2018 onward. Evaluations undertaken for revisions to nursing care compensation fee shall be investigated.

  - The development of robots should be led by site in a way that will ensure the development seeds will be connected with the needs at the nursing site.

  KPI (progress): development count

  KPI (outcome): size of the domestic market for robotic nursing-care equipment and devices

- Collecting and analyzing high-definition video data and providing medical support through AI

  - We will verify the medical utility of medical equipment and devices that utilize high-definition technologies. At the same time, we will investigate and validate specific measures and issues with a view to further utilizing high-definition video data.

  - By conducting clinical trials, we will develop prototypes for an endoscopic system based on the use of 8K or other high-definition technology by FY 2018 and develop prototypes for an endoscopic diagnostic support system by FY 2019.

  - This will allow us to improve the curability and the post-treatment quality of life through safe operations.

  KPI (progress): state of the development of prototypes

  KPI (outcome): state of improvements to the QoL in clinical testing

- Research and development on ICT- and AI-based medical support device based on the utilization of medical data

  - While there have been advancements in terms of the utilization of ICT technologies and AI in the field of medical, the development of medical device that aggregates and analyzes collected medical information to be utilized for treatment purposes is underway.

  - Thus, it is important that we develop diagnostic support equipment and systems while taking security measures for the aforementioned medical information and the need to

ensure quality levels into account and make it possible to utilize such equipment and systems in clinical settings.

- In this connection, we aim to implement at least five different types of innovative medical device and systems by FY 2020.
- The quality of medical care will improve thanks to new medical device and systems that utilize such medical information.

KPI (progress): groundbreaking medical device

KPI (outcome): number of cases resulting in system commercialization

＜Tourism＞

・ Research and development work on and social testing of multilingual audio translation technology

- We aim to improve translation accuracy by incorporating deep learning into multilingual audio translation technology in order to have such technology socially implemented by 100 adopting organizations by FY 2020.

KPI (progress): number of adopting organizations

＜Agriculture, forestry, and fisheries＞

・ Reducing manual farm labor and achieving automation through the utilization of ICT and robots

- There remain many examples of work that imposes a significant labor burden or that otherwise rely on manual labor in the field of agriculture, forestry, and fisheries, so we have some challenges of raising productivity at agricultural sites and reducing the burden associated with farm work.
- By FY 2020, we will reduce water-management labor in fields by fifty percent through the development of optimal water management automation technology and halve labor costs through the development of automatic work technology for multiple types of farm machinery.
- This will lead to an improvement in the international competitiveness of the agricultural sector in Japan and eliminate shortage of core farmers.

KPI (progress): number of commercialized robots contributing to labor-saving efforts

KPI (outcome): work processes streamlined through the adoption of robots

・ Research and development with a view to utilizing AI, the IoT, robots, quasi-zenith satellites, and other leading-edge technologies, in the field of agriculture

- In order to resolve manpower shortages and various other issues at sites for agriculture, forestry, and fisheries and fundamentally improve productivity, there is a need to engage in research and development with a view to utilizing AI, the IoT, robots, and other groundbreaking technologies.

- Automatic driving systems for agricultural machinery supervised by human operators for use in fields will be commercialized by FY 2018. By 2020, unmanned systems subject to remote monitoring will emerge and over twenty different models of new robots capable of yielding labor-saving results in the field of agriculture, forestry, and fisheries and food industry will be introduced to the market.

- Accordingly, we will allow night-time driving operations to be carried out and multiple units to be simultaneously driven and demolish conventional constraints on work in this way. Then, we will make the industrial competitiveness of Japanese agriculture be reinforced and shortage of core farmers be eliminated.

KPI (progress): number of researched and developed robots, realization of unmanned driving systems

KPI (outcome): number of new robots contributing to labor-saving results

＜Infrastructure, disaster prevention, and disaster mitigation＞

・ Research and development concerning technologies for predicting heavy rains and tornadoes

- As a country affected by frequent natural disasters, Japan is faced with a pressing need to implement measures, such as those that enable prompt evacuation instructions to be issued to people according to highly accurate, high-density predictions of disaster events.

- We will engage in research and development activities concerning the multi-parameter phased array weather radar (MP-PAWR), a cutting-edge weather prediction device, and other equipment in order to enable predictions of heavy rains and tornadoes to be made at high levels of frequency and density and to enable predictions of heavy rains and strong-wind zones to be made locally an hour in advance by the end of March 2019.

- These actions will help realize a safe, secure society in which prompt evacuation instructions can be issued to people prior to the outbreak of a disaster.

KPI (progress): local predictions of heavy rains, accuracy of predictions of strong-wind zones

＜Mobility＞

・Promoting initiatives based on the Public-Private ITS Initiative/Roadmap[60]

- Reviews of traffic-related laws to date, which have been premised on “driver-based driving”, will need to be conducted with a view to the social implementation of highly automated driving (SAE level 3 and above).

- The outline of institutional development by the whole government toward realization of highly automated driving systems will be formulated in order to investigate the identification of automated driving vehicles and systems and the roles of safety standards, traffic rules and clarification of responsibilities such as automobile liability insurances and other liability-related matters within FY 2017.

- Ways to utilize data related to automobile-related information held by the public and private sectors for dynamic maps[61] should be discussed including development into open data.

- Accordingly, we will realize the implementation of automated driving systems in society by as early as 2020.

・The smooth, rapid promotion of experimental projects pertaining to automatic driving

- Amid expectations that the productive-age population will shrink, the maintenance of the public transportation network in regional areas and the field of physical distribution, which is suffering from acute manpower shortages, constitute pressing issues.

- Based on the Public-Private ITS Initiative/Roadmap 2017(finalized by the IT Headquarters on May 30, 2017), we aim to commercialize truck platooning on expressways by 2022. In order to realize the truck platooning with the following truck being unmanned on an expressway (Shin-Tōmei) in FY 2020, we will commence the testing of a truck platooning system with the following truck being manned in FY 2017 and the field test of truck platooning system with the following truck being unmanned on public roads next fiscal year. We also aim to realize transport services utilizing unmanned autonomous driving systems in 2020 and will conduct testing on local public roads encompassing roadside stations and other such elements (including by way of remote operations) at ten or more locations nationwide beginning in FY 2017.

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[60] We will continue to promote initiatives and endeavor to attain targets pertaining to advanced automatic driving systems (for personal use, distribution, mobility services, and more).

[61] Highly accurate 3D maps (maps for automated driving) with which dynamic data that vary as a function of time (dynamic information, quasi-dynamic information, and quasi-static information) are associated. The development of highly accurate 3D maps is taking place within the scope of a cooperative domain by infrastructure-development companies thanks to investments made by private-sector companies.

- By carrying out multiple such testing projects over time, the implementation of automated driving systems in society will be realized.

KPI (progress): conducting projects to test truck platooning on expressway and transport services utilizing unmanned autonomous driving systems

KPI (outcome): implementation of automated driving systems in society

・ Promoting the development of technologies for and the industrial utilization of small unmanned aircraft (drones)

- We will need to promote technological development and systemic accommodation for the facilitation of beyond-visual-range flight for which no assistant is employed, third-person high-altitude flight, and other examples of advanced flight in order to enable goods to be delivered to mountainous regions and other local areas where demand exists in 2018 and launch the safe full-scale delivery of goods in population-dense urban areas in the 2020s.

- We will promote the development and international standardization of operation-control systems and collision-avoidance technologies that allow multiple drones to operate at the same time by formulating performance-evaluation standards for drones based on the use of testing fields in the Fukushima-Hamadōri area this fiscal year. We will promote surveys and studies on the use of radio waves for beyond-visual-range flight. Conditions to be met by drones and pilots pertaining to beyond-visual-range flight for which no assistant is employed will be clarified in this fiscal year and examination guidelines for licenses under the Aviation Act will be revised early next fiscal year. We will look into the rationalization of application procedures based on the use of a committee engaged in building a consensus with concerned parties and formulating safety measures.

- Through these initiatives, we will endeavor to promote the industrial use of drones.

II-1-(9) Developing human resources and disseminating and raising public awareness (tied to Articles 17 and 18 of the Basic Act)

Key initiatives to date

・ By getting a significant portion of the population to raise their level of literacy with respect to data utilization and obtain specialized education, economic growth and solutions to societal problems can be expected. Thus, we are implementing initiatives to provide people who can play significant roles in a society in which the IoT, big data, and AI have evolved with education (such as by promoting programming education and adult re-education).

1) Cross-sectoral measures that should be taken on a priority basis

・ Cultivating human resources with specialized knowledge and skills pertaining to data utilization that is essential for the effective utilization of AI and the IoT on a systematic basis under a united government

- The cultivation of personnel with the mindset, skills, and literacy required to undertake the type of work that is needed for the fourth industrial revolution is a pressing matter.
- We will engage in the systematic cultivation of personnel based on existing government initiatives.
- New products and services anchored by such personnel will be supplied to help realize cross-sectoral linkages, improve existing methods in each field, promote the transformation of industrial structures, achieve economic growth, and solve social problems.

KPI (progress): system of the latest standards applicable to IT skills for data-utilizing personnel and education plans within this system

・ Promoting the utilization of highly specialized private-sector human resources and e-learning tools that meet school needs in order to upgrade programming education in primary, junior high, and high schools

- As programming education in primary schools becomes mandatory, a system for supporting guidance provided by educators will be necessary.
- We will commence the establishment of a framework for the utilization of outside personnel and e-learning tools through the Future Learning Consortium by FY 2017 and promote, as a goal, the facilitation of the utilization of outside personnel and e-learning tools to meet school needs by FY 2020.
- By collaborating with the private sector, we can secure outside personnel to support the provision of guidance by educators. By promoting the development of educational materials based on school needs, appropriate education for the next generation of citizens who are expected to take over the reins of society can be provided. Thus, we can expect literacy to be cultivated as a foundation for the public and private sector data utilization.

KPI (progress): number of schools utilizing outside personnel and e-learning tools and other educational materials at schools through a public-private consortium (Future Learning Consortium)

・Systematically educating security and IT personnel to fill shortages in these fields

- Given concerns over shortages of security and IT personnel, their cultivation will be a pressing matter in the years to come.
- We will promote initiatives in accordance with the Cyber Security Personnel Cultivation Program (as finalized by the Cyber Security Strategy Headquarters on April 18, 2017) beginning in FY 2017. The Ministry of Economy, Trade and Industry will commence the Registered Information Security Specialist national credentials system for advanced, practicing personnel with the latest security-related knowledge and skills in order to address this shortage in cyber security experts since October, 2016. The aim is to register at least 30,000 Registered Information Security Specialists by FY 2020.
- We will strive to ensure the success of the 2020 Tokyo Olympics/Paralympics, enhance cyber-security measures for important infrastructural elements, and otherwise promote the public and private sector data utilization through the upgrading of security levels in Japan.
- In accordance with the Comprehensive Policy to Reinforce the Cultivation of Cyber Security Personnel (as finalized by the Cyber Security Strategy Headquarters on March 31, 2016), ministries and agencies will steadily promote the Plan to Secure and Cultivate Security and IT Personnel as formulated in FY 2016 and endeavor to cultivate personnel capable of building bridges between private-sector experts and general administrative departments in the government.

KPI (progress): at least 30,000 Registered Information Security Specialists by FY 2020;
number of persons undergoing training as security and IT personnel in government institutions

・Promoting efforts to re-educate adults (re-educating technical personnel)

- In order to reinforce the competitiveness of business enterprises through the creation of new services and create opportunities for reemployment, the development of an environment for the re-education of technical personnel (recurrent education) will be needed.
- We will establish a system of necessary programs for re-education in FY 2017 and gradually commence these programs as they become possible to launch. Through such initiatives, we hope to help double the size of the ICT workforce to two million persons and enable the creation of ICT personnel at a wide range of enterprises, including ICT companies and other user companies, by 2025.
- By endeavoring to reinforce the competitiveness of enterprises and create re-employment opportunities, we will help the economy grow and resolve various societal issues.

KPI (progress): number of recurrent educators operating through career-upgrading programs, education and training courses, IPA, NICT, and others and number of adult students studying at universities and vocational schools

- Educating personnel who operate and manage IoT networks

  - The processing of traffic that is heavy in terms of the circulation and transformation of data of varying sizes is required for networks during the age of the IoT, such that the cultivation of personnel with flexible network operating skills as they pertain to software control and other aspects of such networks is required since new operations and management based on the use of software will become vital.

  - In 2017, we will clarify the skills that will be needed for operating and managing networks that are based on the use of software and virtualization technologies, commence apprenticeships and training to allow such skills to be learned, establish a consistent system for certifying such skills, and commence apprenticeships and training under such a system. In 2020, the cultivation of personnel will take place on a steady-state basis through our development program.

  - By cultivating personnel who can operate and manage networks utilizing software technologies, we will endeavor to reinforce network infrastructure capable of supporting large volumes of varied data circulation in the age of the IoT and will accelerate the evolution of new services.

  KPI (progress): number of engineers who have completed personnel-cultivation courses and been granted skills certifications

- Disseminating and promoting programming education for young people

  - We will develop and disseminate models for the implementation of programming education based on the use of cloud functions and local personnel in order to elevate levels of logical thinking and creativity in children and cultivate personnel capable of supporting the future socioeconomic fabric of Japan.

  - In FY 2017, we will expand nineteen cases as standard implementation models and consolidate ten or more implementation models for disabled children according to standard implementation models (eleven cases) developed in FY 2016 under the leadership of the private sector (including universities) for extracurricular activities held after school and on holidays. Moreover, we will validate thirty cases for educational materials designed to enable children who show a high level of interest in programming to continue to learn.

- By collaborating with the Future Studies Consortium to share cases in which programming education has been provided, we can help, as an outcome of this validation process, to facilitate the mandating of programming education in school curricula.

KPI (progress): number of cases in which case examples have been adopted

KPI (outcome): number of implemented models established according to type of disability

・ Investigating methods of developing local learning environments for programming and the IoT

- It is important that we establish settings in which children can, for example, learn together with adults, the elderly, homemakers, and other local residents outside of school through school-based programming education.

- We will compile an interim report on the development of an environment in which children can progressively and continuously grow locally by the end of March 2019. By the end of March 2020, we will formulate guidelines (inclusive of plans for creating examples of utilization based on these guidelines).

KPI (progress): formulating guidelines for the development of an environment to enable children who show a high level of interest in IT to progressively and continuously learn locally through school-based programming education

KPI (outcome): number of usage examples

・ Promoting the widespread adoption of sharing-economy services[62]

- We will focus on realizing case examples of local governments utilizing the sharing economy through 100 organizations by FY 2020 by developing a framework for dispatching "Sharing Economy Evangelists" to local governments and matching local governments with private sector business enterprises and validating such linkages. We aim to create at least thirty such organizations in FY 2017.

- We will resolve and ameliorate local issues by revitalizing local areas through the effective utilization of existing local resources, providing services that complement administrative and public services, and expanding the framework for local cooperation.

KPI (progress): number of local governments that utilize the sharing economy

KPI (outcome): number of local issues that have been resolved or ameliorated

[62] Case examples of local governments that endeavor to resolve local issues through the utilization of sharing-economy services shall be deployed nationwide as spearheaded by the Sharing Economy Promotion Office, which was set up in January of this year.

・ Promoting the widespread adoption of teleworking

- Teleworking is a powerful tool for reforming the way in which we work. In what ways can we more specifically and effectively cause this tool to be adopted on a more widespread basis? In promoting the widespread adoption of teleworking, we aim to attain KPI targets by 2020 by raising awareness of guidelines and awards and developing satellite offices in collaboration with ministries and agencies.

- For national civil servants, we will, by FY 2020, 1) engage in systematic development to enable the full-scale utilization of teleworking options whenever required workers are needed and 2) introduce remote-accessing functions at all ministries.

- By helping to reform the way in which we work, teleworking will yield efficient outcomes for three different stakeholders – workers, business enterprises, and their clients – by improving the work-life balance, productivity, and customer satisfaction.

KPI (progress): tripling the number of companies that have adopted teleworking options over FY 2012[63] and doubling the rate of employment-type teleworking based on a teleworking system over FY 2016[64] by 2020

KPI (outcome): promoting effective teleworking for workers

・ Promoting a program of *INNO*vation (focusing on unusual powers)

- In order to promote the sustainable growth of the economy, it is vital that we accelerate the creation of innovation and identify technical issues that have emerged to enable new value to be generated.

- We will promote a program of *INNO*vation (focusing on unusual powers) to engage in challenges that are identified through the public solicitation of technical issues that could potentially constitute seeds for disruptive innovation.

- We will rate highly *failures* that clarify the path ahead towards our goal, encourage the ambitious undertaking of technical challenges, and promote the deployment of a technical society made possible by matching innovations with enterprises.

KPI (progress): multiplier corresponding to applications made in response to public solicitation

KPI (outcome): ratio of issues for which social deployment and implementation are goals to applications as a percentage

[63] Teleworking was adopted by 11.5 percent of all companies in FY 2012 (according to a survey of communications usage trends).
[64] Employment-type teleworking in FY 2016 accounted for 7.7 percent of all types of teleworking (according to a survey of actual conditions among the teleworking population).

2) Measures that should be taken on a priority basis in priority fields

＜Electronic administration＞

・ Promoting the widespread adoption of teleworking (re-post)

＜Manufacturing＞

・ Improving the productivity of small- to medium-sized companies through the public and private sector data utilization

- It is also important to raise productivity and increase enterprise value through the public and private sector data utilization at small- to medium-sized enterprises.
- We will promote the creation of new services and added value based on the utilization of data on small- to medium-sized manufacturing operations by providing expert support relating to the adoption of IT and robots to at least 10,000 enterprises by the end of March 2018.

KPI (progress): performance in terms of expert support relating to the adoption of IT and robots

＜Mobility＞

・ Educating software personnel required for the development of automatic driving

- In order to secure software personnel required for the development of automated driving, we will develop skills required for development and establish a system for cultivating experts on simulation and personnel capable of developing groundbreaking onboard software sometime this fiscal year.

・ Promoting the widespread adoption of telework (re-post)

II-1-(10) Ensuring consistency between measures of the central government and measures of local governments (tied to Article 19 of the Basic Act)

Key initiatives to date

・ Since FY 2015, we have been helping to ensure consistency between measures of the central government and measures of local governments by having the government CIO and other such officials pay visits[65] to the heads of local governments; deploying the outcomes of central government moves to adopt IT, operational reviews (BPR), and open data initiatives in local regions; and sharing favorable case studies (such as those involving cloud functions operated by a local government) associated with a local region with the entire country.

[65] Thirty-four governments have been visited as of May 2017.

Cross-sectoral measures that should be taken on a priority basis

・ Producing templates for regional plans and supporting the formulation of plans[66]

- We will produce templates for plans and hold briefing sessions for local governments hopefully by around the fall of FY 2017.We aim to have plans formulated by all prefectures that are subject to a mandate to formulate by the end of March 2021.

KPI (progress): number of regional plans that have been formulated

・ Developing an environment for data utilization in local areas

- Efforts to protect personal information and the proactive promotion of the appropriate and effective utilization of data owned by local governments will be required.
- To this end, we will provide technical advice to support the smooth adoption of a framework of anonymized information relating to personal information owned by local governments. In FY 2017, we will investigate a framework and means for enabling the production of anonymized information to be outsourced on a collaborative basis and obtain a conclusion.
- In this way, the utilization of personal information will yield a dynamic economy and society and enrich the lives of citizens.

II-1-(11) International deployment to make an international contribution and enhance global competitiveness

Cross-sectoral measures that should be taken on a priority basis

・ We will promote cooperation with other countries with a view to establishing and maintaining an environment where smooth international data flows, through such fora as the U.S.-Japan Policy Cooperation Dialogue on the Internet Economy, dialogues on the data economy between Japan and the EU and G7 summit.

・ We will promote studies conducted through international discussions at G7 and OECD meetings and in other such settings on the international sharing of assessments of any impact or risk that AI networking represents to society and the economy and on the nature of governance for resolving relevant social, economic, ethical, and legal issues.

・ We will promote strategic initiatives with a view to establish a framework for the smooth and mutual transfer of personal data between Japan and the EU in order to establish and maintain an environment where the smooth cross-border transfer of personal data between Japan and the EU.

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[66] The central government will provide support in connection with the formulation of regional plans, such as by adopting an online, open data approach to administrative procedures, introducing cloud functions for local governments, and otherwise stating measures relating to local governments.

- We will promote APEC Cross-Border Privacy Rules (CBPR) System, a system for certifying enterprises, in order to continue facilitating cross-border transfer of personal data.
- Utilizing the Fund Corporation for the Overseas Development of Japan's ICT and Postal Services (Japan ICT Fund) (JICT), we will promote the overseas deployment of telecommunications infrastructure for the public and private sector data utilization by supporting communication projects undertaken by Japanese business enterprises overseas.

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