

# TECTONIC SHIFT TOWARD EXPANSION OF DIGITAL BUSINESSES

The Fujitsu Group is building a new business model with digital businesses at its core. Our goal is to realize innovation with customers by becoming deeply involved in their business processes as a partner. In these collaborations, we will provide customers with “Connected Services,” which combine cloud computing, IoT, AI, and other digital technologies as well as an array of technologies and expertise we have accumulated as an ICT company. To achieve the above goal, the Group is creating frameworks aligned with the aims of the new business model. As part of this undertaking, we have established a new organization that is spearheading efforts to further digital businesses, and we are fostering personnel who specialize in the advancement of co-creation with customers.

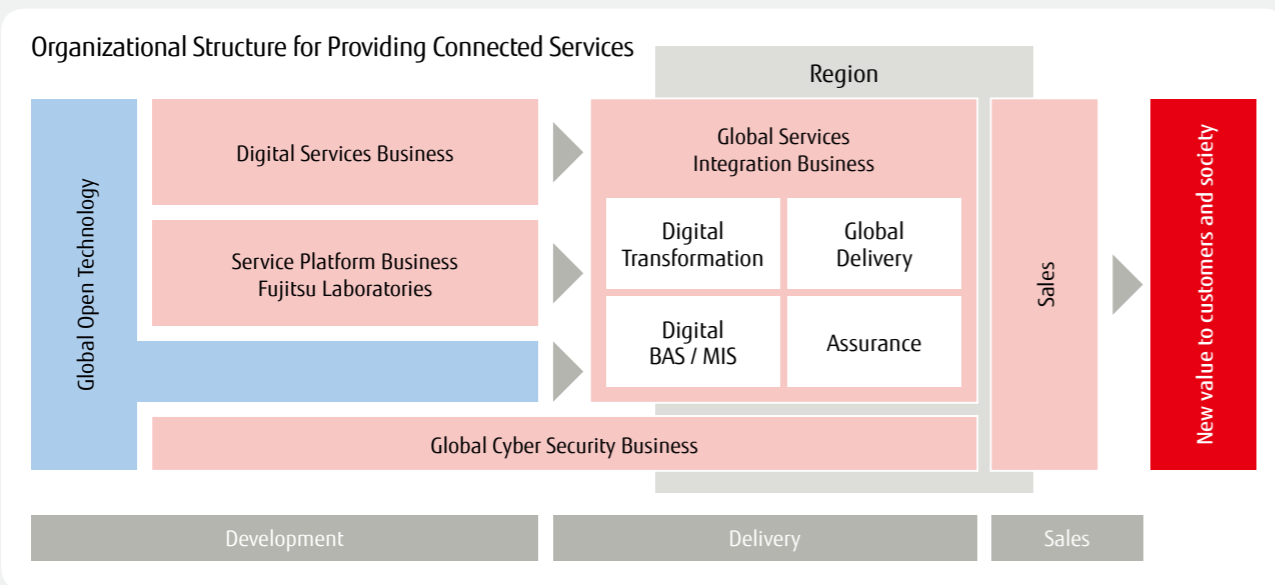
## Strengthening Organizations That Promote Digital Businesses

System integration (SI) services have been the Fujitsu Group’s earnings mainstay since the 1990s. In providing these services, we work with customers’ information system divisions to automate operations and increase their efficiency and productivity by developing and operating core systems. By necessity, our organization has become optimized for the construction of large-scale core systems and the provision of other SI services.

To sustain growth, however, by the second half of the 2020s at the latest we must establish a new business model that leverages digital businesses—rather than our existing SI services—as a growth driver. Therefore, we need to optimize our organization and personnel so that they are ideally suited to providing Connected Services, which entail partnering with customer companies’ corporate planning or operating divisions and exploiting digital technologies to co-create value. With this in mind, we have been restructuring our operations to change organizations and mindsets and to expand digital businesses.

### Reorganization Aimed at Expansion of Digital Businesses

September 2015~	Began increasing the scale and functions of offshore and near-shore Global Delivery Centers
April 2016	Established the Digital Services Business to consolidate resources for the development of cloud, IoT, AI, and other digital technologies
November	Merged three systems engineering subsidiaries with the Fujitsu Group’s headquarters, thereby bringing together 14,000 systems engineers
January 2017	Established the Digital Transformation Business Group, which specializes in helping customers digitize, within Global Services Integration, which is responsible for service delivery
April	Established the Global Cyber Security Business, which oversees the cyber security field for the entire Fujitsu Group



## Global Services Integration Business

### Digital Transformation Business Group

The Fujitsu Group will grow digital businesses into an earnings mainstay. We will achieve this by combining leading-edge technologies with our in-depth knowledge of customers’ operations. Moreover, we will foster “digital innovators” who explore future businesses with customers and spearhead innovations.

**Kazuo Miyata**

Corporate Executive Officer  
 EVP, Head of Digital Transformation Business Group



### Leveraging Integration Capabilities to Co-Create New Value

In rapid succession, the world is seeing the emergence of disruptive business innovations that are centered on digital technologies and which are breaking down industry barriers. Realizing such innovations requires the co-creation of new value that connects customers’ operations with the latest technologies. Thus, we are moving into a fundamentally different era from that of the SI business, which provides ICT solutions to known issues and is centered on core systems.

At present, I feel that we need to be able to realize customers’ management reforms by leveraging digital technologies. One significant advantage the Fujitsu Group enjoys is its ability to connect core systems, or Systems of Record (SoR), with new systems that utilize IoT devices—Systems of Engagement (SoE). This advantage stems from expertise that we have accumulated as a leading provider of ICT services in Japan.

We have launched the Digital Transformation Business Group to form a team dedicated to developing solutions and platforms that are based on the capabilities of our digital businesses. We aim to transform customers’ businesses by advancing proof-of-concept trials that we have been conducting over the past few years.

The key to transforming customers’ businesses lies in the development of “digital innovators” with mindsets, skills, and know-how suited to digital businesses. Our goal is to become an overall coordinator and producer of co-creation initiatives that we tackle with customers and which cover interrelated activities stretching from gathering information, identifying issues, and formulating ideas in situations without requirement parameters through to the implementation, verification, and monetization of services. To this end, from among in-house engineers we have selected 210 prospective “digital innovators” in fiscal 2017. In three years’ time, we hope to have fostered 1,200 of these specialists.

Rather than pursuing short-term sales, the Digital Transformation Business Group’s mission is to adopt a long-term viewpoint, rigorously support customers’ operations, and become indispensable to them. Therefore, we have introduced different benchmarks than those we use for the SI business. For example, we use repeat rates instead of sales as a key performance indicator. Also, we intend to develop personnel and establish a track record by changing training frameworks, compensation systems, workstyles, and other systems to better suit digital businesses. I believe that establishing a strong track record is very important to the success of new digital businesses because it proves that digital technologies can support customer companies’ innovation.

Our SI business has the No. 1 share of Japan’s market. With support from the computer hardware business, which was the Group’s earnings mainstay at the time, 104 systems engineers initiated the SI business in the 1970s. The business has grown to encompass 30,000 systems engineers at Fujitsu and Group companies. The SI business can probably continue as the Fujitsu Group’s earnings mainstay until the second half of the 2020s. Mindful of this, the Digital Transformation Business Group will lead efforts to establish digital businesses as another earnings mainstay by then.

## Global Delivery Group

Global Delivery Centers (GDCs) will help accelerate the development of the Fujitsu Group's businesses worldwide by providing cost-effective, quality services and by functioning as global solutions hubs linking the Group's overseas bases.

### Hidenori Furuta

Corporate Executive Officer  
 EVP, Head of Global Delivery Group



## Transforming the Service Delivery Model through Greater Use of GDCs

GDCs are IT service delivery bases that operate offshore and which are tasked with providing personnel, tools, and services to customers worldwide. In 2014, we established Global Delivery (now the Global Delivery Group) and consolidated service delivery functions under it. At the same time, we consolidated these functions, which had been dispersed worldwide, in countries and regions where we could secure highly cost-effective, talented personnel. Currently, GDCs in eight countries provide quality services that are cost competitive and standardized. Further, by sharing best practices globally, these bases support the Fujitsu Group's global business expansion.

GDCs have expanded steadily due to increased use of the bases in each region or country, including in Japan. At the time of their establishment, GDCs had 5,000 personnel and currently have more than 10,000. We have been steadily expanding the scale of our GDC operations by establishing new locations and developing existing ones.

Going forward, GDCs will help accelerate the development of businesses worldwide by accumulating more expertise and sharing it among bases and by functioning as global solutions hubs to an even greater extent. Also, we aim to build an IT service delivery model that enables us to compete globally in the digital businesses era. To this end, GDCs will step up their use of IoT, AI, cloud, and other digital IT.

At present, as one strategic goal of GDCs, there is the active engagement of staff from our operations in Japan, which is to be encouraged, but the primary point is to leverage differences in personnel expenses to heighten cost competitiveness. The process of making greater use of offshore GDCs promises to visualize, standardize, and increase the efficiency of work that has become dependent on sites in Japan. Also, using offshore GDCs will introduce to Japan international best practices that they have accumulated. In addition, we will train Japanese personnel who can work globally by having them work with the international personnel based at GDCs.

For GDCs, meanwhile, working with operations in Japan will enhance the performance of GDCs as global solutions hubs that help strengthen business application delivery in each region. This enhancement will result from GDCs' adoption of approaches to project management and systems for quality management and improvement in Japan and from the accumulation of insights into the types of industries and operations prevalent in the country. We plan to increase personnel at GDCs that engage with Japan-based customers to roughly 4,000.

Combining the strengths of operations in Japan with the know-how and international best practices that they have accumulated through global operations, GDCs will be fully equipped for the digital era and poised to evolve into a unique asset and advantage of the Fujitsu Group that international competitors cannot match. Increased utilization of GDCs will not only transform the global IT service delivery model but also the entire Fujitsu Group.



President Tatsuya Tanaka and EVP Hidenori Furuta visiting our GDC in Poland

## Solution & Service Business Assurance Unit

To ensure the speed and flexibility required in the digital age, we are working to spur innovation while minimizing unprofitable projects. In doing so, we will contribute to further improvements in profitability going forward.

### Tomoko Tsukahara

SVP, Head of Solution & Service Business Assurance Unit



## Minimizing the Impact of Unprofitable Projects on Our Business Performance

While Fujitsu is focusing its efforts on digital businesses, the system integration business continues to represent the core of the Company's profits. It is therefore extremely important for Fujitsu to secure profitability in the system integration business in order to carry out continuous investment, including the development of human resources, aimed at establishing a new business model. To this end, the Company must give the utmost priority to minimizing unprofitable projects. The Solution & Service Business Assurance Unit is a specialized body that makes proposals for reviewing contracts and management methods for projects that are deemed to be high risk with the aim of preventing projects from becoming unprofitable from a Companywide perspective. In this way, the unit helps the Company improve its profitability.

The Solution & Service Business Assurance Unit was established over 10 years ago. The unit was established as a result of a large number of projects becoming unprofitable and putting significant downward pressure on Fujitsu's overall profits. Under the direction of the Company's top management, rules related to the project management process were established and a framework was created to prevent projects from becoming unprofitable. Currently, the Solution & Service Business Assurance Unit examines the approximately 300 system integration projects Fujitsu undertakes each year, evaluating them from a third-party perspective to determine whether or not their quality and project management processes conform to the Company's rules. However, as not all projects are subject to examination, the Solution & Service Business Assurance Unit is working to gradually expand the scope of its operations. Also, in November 2016 the Fujitsu Group conducted absorption-type mergers of its three major systems engineering subsidiaries. At the same time of this integration, the Group revamped the structure of its Global Services Integration Business. Accordingly, the Solution & Service Business Assurance Unit is now moving forward with the creation of a new, post-integration structure for examining projects.

When carrying out its examinations, the Solution & Service Business Assurance Unit creates a "score" for the initial risks of

each project. The unit then uses this score to promote activities aimed at identifying high-risk projects that have the potential to become unprofitable. Leveraging the know-how it has accumulated since its establishment, the unit is enhancing the precision of its examinations, thereby making it possible to identify high-risk projects from their initial stages. Although the Solution & Service Business Assurance Unit does not have the authority to terminate a project, it shares information on high-risk projects with the Company's management at review meetings for large-scale system integration projects, which are held each month. In these ways, the unit helps the Company determine steps for improving profitability from the initial stages of a project.

Up until June 2017, I was involved in system integration projects within the field of finance, and therefore have an understanding of the concerns and issues pertaining to the provision of ICT services. Based on my experience and understanding, I not only intend to examine projects from a third-party perspective, but I would also like to respond to requests for establishing improvement measures aimed at correcting and resolving issues in the event they are identified.

The expansion of digital businesses present new challenges for the unit. Until now, we in the Solution & Service Business Assurance Unit have looked to the waterfall model as the precedent for software development, but it is now time to transform our approach in accordance with the Company's digital businesses. Speed and flexibility are a must for digital businesses, and it is important that the unit does not obstruct these characteristics in any way. In the agile model for software development, which we aim to adopt going forward, it is crucial to break the progress of a project into short, clearly defined increments. Additionally, it is necessary to identify risks related to new technologies and formulate appropriate measures to control them. Through in-house collaboration, starting with the Digital Front BG, the Solution & Service Business Assurance Unit will continue to enhance its ability to support Fujitsu's digital businesses and contribute to improvements in profitability.

## Global Cyber Security Business

Serving as the control tower for Fujitsu's cyber security, we will continue to protect the appropriate flow of data, which supports the core of Fujitsu's Connected Services, and to promote the creation of value within cyberspace.



**Naoyoshi Takatsuna**  
 SEVP, CISO  
 Head of Global Cyber Security Business

### Aiming to Resolve the Security-Related Concerns of Our Customers

Cyber attacks are becoming more sophisticated and intense by the day, and the threat of these attacks presents a significant issue not only for Fujitsu but also for our customers and society as a whole. We at Fujitsu recognize that cyber security forms the core of our Connected Services and we have therefore positioned cyber security as a key area within our Management Direction.

In April 2017, we established the Global Cyber Security Business, which serves as a control tower that oversees the Fujitsu Group's overall cyber security business. Under a globally unified business strategy, the division is moving forward with the integration and continuous strengthening of Fujitsu's security services.

We aim to relieve our customers of their security-related concerns, thereby realizing a society in which both Fujitsu and its customers can concentrate on their respective core businesses—in other words, innovative activities that lead to the resolution of social issues and that create value—without having to worry about the negative aspects of cyberspace.

To this end, we are stepping up to establish services that allow customers in Japan and overseas to entrust Fujitsu with all security-related aspects of their businesses. Specifically, we are providing a lineup of services on a global basis that help ensure system

security throughout the stages of system design, construction, and management.

Fujitsu's strength lies in its ability to leverage the experience it has gained constructing numerous systems throughout its long-standing relationships with its customers, which allows us to propose and realize comprehensive security for customer systems and the users of those systems. To further enhance this strength, the Global Cyber Security Business is establishing and strengthening a structure for collaboration with the Global Services Integration Business, thereby working to enhance the added value of Fujitsu's system proposals from the perspective of security. Additionally, we will leverage the strong employee base of the Fujitsu Group, consisting of 155,000 employees, to globally strengthen and apply R&D technologies within in-house practices. We will also work to cultivate and leverage "Security Meisters," who possess sophisticated security-related knowledge. In these ways, we will provide our customers and society at large with an even stronger foundation for security, thereby pursuing efforts to make the Fujitsu Group an indispensable presence in the world.



## Fujitsu Laboratories

We promote digital co-creation through cutting-edge technologies, and continue to generate innovation for the happiness of people all over the world.



**Shigeru Sasaki**  
 CEO  
 Fujitsu Laboratories Ltd.

### Transforming the World with Cutting-Edge Digital Technologies

We at Fujitsu Laboratories are taking on the challenge to develop cutting-edge technologies, and based on our insights of the future and the world, will work to solve issues faced by society.

We have introduced the "Hyperconnected Cloud"—a future digital business platform for digital co-creation—as our technological vision. With this vision in mind, we focus on eight emerging technologies at Fujitsu Laboratories for leading the IT industry, and are pursuing strategic R&D activities.

Among these technologies, we are particularly focusing on "Computing Revolution." There are a large number of issues that cannot be resolved by using current computing technologies, such as complicated decision making performed by humans and finding the optimal data combination from a large amount of data. These issues also include improving radiotherapy for cancer and ensuring the security of international financial transactions.

Fujitsu Laboratories has developed the "Digital Annealer," which uses conventional digital circuits to perform computations by using quantum-inspired technology and can derive a highly accurate optimal solution from an abundance of data combinations at a practical calculation speed. The "Digital Annealer," we believe, can resolve a wide range of real-world issues and improve people's lives around the world.

The next technology we are focusing on is "Explainable AI." Artificial intelligence has been employed in a variety of businesses and is becoming a part of people's daily lives, and the full-scale introduction of AI is likely to occur in the near future.

However, the deep learning method—a machine learning method used in AI—is limited by the fact that it does not enable AI to explain the reasoning behind the decisions it makes.

To address this issue, Fujitsu Laboratories integrated "Deep Tensor," which performs deep learning on graph data, with "Knowledge Graph," which represents big data collected from around the world in a graph expression, and successfully demonstrated explainable AI that can clarify the reasoning behind decisions. By applying this brand-new technology within Human Centric AI Zinrai, Fujitsu Laboratories is contributing to the various businesses of Fujitsu.

In addition, various other innovative technologies of Fujitsu Laboratories, such as "Connected Digital Place," which connects data from a variety of industries, and "Nine-Sensecomputing," which is a computing technology for understanding human feelings, have seen widespread use and are being applied within digital services.

To solve the broad range of social issues in the world, it is necessary for us to achieve digital co-creation on a global scale. In this way, Fujitsu Laboratories is currently promoting open innovation within its 124 projects in Japan and its 34 global projects in 11 countries outside Japan. By creating synergies through the combination of exceptional expertise and ideas from around the world and the technologies and experience we possess, we will drive forward "Human Centric Innovation" for the happiness of people all over the world.

1	Computing revolution Digital Annealer	2	Explainable AI Deep Tensor + Knowledge Graph
3	Data-driven platforms connecting various industries Connected Digital Place	4	Dramatic increase in the number of connected things Zero Limitation Networking
5	System transformation for the connected world Microservice Transformation	6	Data reliability assurance Borderless IoT Security
7	Understanding human feelings, emotions, and illusions for human-machine collaboration Nine-Sensecomputing	8	Fusion of physical and chemical Materials Informatics

Fujitsu Laboratories' Eight Emerging Technologies for Leading the World



## Innovation Case Study

# To Realize a Society That Is Fully Prepared for Major Disasters

Through co-creation that leverages digital technologies, the Fujitsu Group seeks to bring form to the future and to realize a sustainable society. This section introduces examples of the new value the Group is creating through collaboration with external organizations with the aim of achieving goals shared by society as a whole.

### Background

In recent years, major natural disasters have been occurring more frequently in countries around the world due to global climate change. As a result, these disasters have become a major obstacle to sustainable development as well as economic and social growth. Particularly, social and economic damage has continued to intensify as natural disasters become more severe. To mitigate the risks related to disasters, it is necessary to consider a multi-layered approach based on global collaboration between industry, government, and academia.

At the Third UN World Conference on Disaster Risk Reduction, held in March 2015, the Sendai Framework for Disaster Risk Reduction\* was adopted in which UN Member States each agreed to work to achieve seven targets by 2030, including the reduction of the number of disaster-related deaths, the number of disaster victims, direct economic losses, and damage to vital infrastructure.

### The Seven Global Targets

- 1 Substantially reduce global disaster mortality
- 2 Substantially reduce the number of affected people globally
- 3 Reduce direct disaster economic loss in relation to global gross domestic product (GDP)
- 4 Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities
- 5 Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
- 6 Substantially enhance international cooperation to developing countries through adequate and sustainable support for implementation of this Framework
- 7 Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments

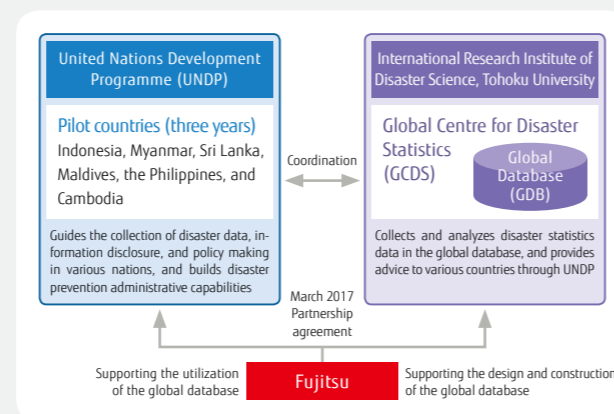
In order to monitor the state of progress in achieving these goals and evaluate their state of completion, it is necessary for each Member State to prepare certain basic statistical data on damage from disasters. However, there is a lack of globally shared statistical data, making it difficult to utilize data to formulate plans and countermeasures. Accordingly, the United Nations Development Programme (UNDP) and Tohoku University's

International Research Institute of Disaster Science (IRIDeS) established the Global Centre for Disaster Statistics (GCDS) in April 2015 to provide such data. In March 2017, Fujitsu agreed to form a partnership with these organizations to provide technological support for building and operating a new global database (GDB) at the GCDS.

\* An outcome document adopted at the Third UN World Conference on Disaster Risk Reduction, held in March 2015 in Sendai, Japan, which sets four priority action items and seven targets to be achieved by 2030

### Partnership Details

Under the GDB project, the UNDP guides the collection of disaster data, information disclosure, and policy making in developing nations. The IRIDeS stores the statistical disaster data collected by Member States at the GCDS, performs data analysis, and provides disaster management advice to each State through the UNDP. In this partnership, Fujitsu will provide its Fujitsu Cloud Service K5 to the global database the GCDS is



Conference with pilot countries regarding the GCDS (Bangkok)

building, thereby establishing a platform for the accumulation of statistical disaster data. Moreover, Fujitsu will oversee the management of the GDB and offer donations to support improvements to disaster management administrative capabilities in developing nations.

### Current Status and Future Outlook

In fiscal 2017, as progress was made in the development of the GDB, a conference was held by the UNDP, the IRIDeS, and six pilot countries. At this conference for the GDB project, relevant parties from each country shared the issues pertaining to disaster statistics and the related measures, while debating the overall vision of the GDB project.

In addition to creating a disaster damage statistics database for six developing nations in Asia by 2019, the GDB project will be expanded to 20 nations in the Asia-Pacific region from 2020 and beyond, contributing to a reduction in damage from major natural disasters around the world.

Aside from this project, Fujitsu is collaborating with various organizations in the field of disaster management, making such

efforts as providing simulations of tsunami-related damage via supercomputers and offering systems for sharing disaster-related information using smartphones. In these ways, Fujitsu is helping to reduce the risks arising from disasters.

Fujitsu is working with its global partners in a variety of fields to pursue innovation aimed at resolving worldwide social issues, including natural disaster mitigation. Through such co-creation measures, Fujitsu is contributing to the realization of a sustainable world for the future.



Measuring river levels using smartphones and AR technology in Manado, a city in North Sulawesi Province, Indonesia

## Forming Partnerships for Innovation

### WBCSD

The World Business Council for Sustainable Development (WBCSD), a body headed by the CEOs of around 200 global corporations, aims to build sustainable communities through business activities. Fujitsu has become a member of this initiative and is active as a corporate board member of the WBCSD's Social Impact Cluster and the Sustainable Cities Leadership Project. Through the Social Impact Cluster, Fujitsu is advancing initiatives relating to business and human rights while the Sustainable Cities Leadership Project provides the impetus behind the Sustainable Mobility Project, a sub-project targeting concepts and designs for sustainable urban transport systems. Through these initiatives, Fujitsu is working to resolve a range of issues in communities worldwide.



Peter Bakker, President and CEO of the WBCSD, and Masami Yamamoto, Fujitsu Chairman, during Mr. Bakker's visit to Fujitsu in June 2017

### French Government

To accelerate innovation in France, Fujitsu is promoting an alliance with the French Government and Business France, the national agency supporting the international development of the French economy. Through this alliance, in March 2017, Fujitsu, together with numerous leading technology companies, research institutions, and other organizations in France, launched an initiative focused on innovation. Fujitsu is making efforts to establish a Center of Excellence (CoE) that will focus on the field of AI. The Company is also promoting joint research on AI with the French research institute Inria. Additionally, Fujitsu is bolstering its collaboration with start-up companies and working to cultivate human resources with digital expertise. In promoting these projects with France, Fujitsu intends to invest over €50 million (approx. ¥6 billion). The results achieved through these projects, such as new technologies and exceptional human resources, will be leveraged across France and in other countries and utilized to strengthen Fujitsu's digital innovation going forward.