MESSAGE

Combining OT, IT, and Products to Help Realize Society 5.0

Hitachi Digital Solutions for a Human-centric Smart Society

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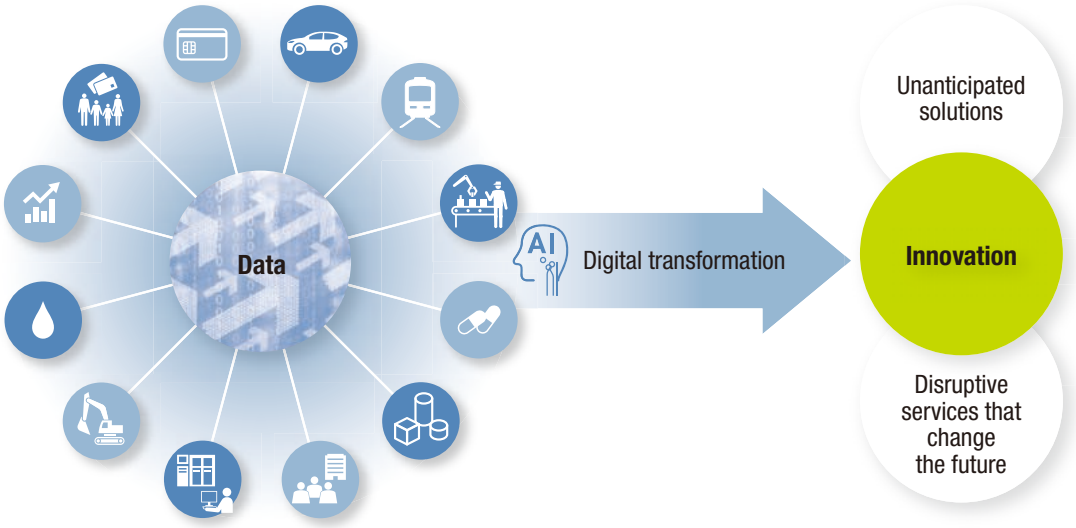
As rapidly advancing digital technology enables the creation of new value through the sophisticated use of data, work is accelerating on realizing Society 5.0, a human-centric "super smart society." Hitachi, which is helping to realize Society 5.0 through its Social Innovation Business that utilizes digital technology, sees the finance, social, and healthcare sectors as jointly forming one of its four core businesses. Closely entwined with daily life, these are sectors in which digitalization-driven innovation is seen as having the potential to deliver considerable value. How then can Hitachi take advantage of its strengths and come up with digital solutions? We put this question to Keiichi Shiotsuka, the executive in charge of the business.

Society-wide Digital Transformation

Industry is experiencing a wave of digitalization. Technologies such as the Internet of Things (IoT), big data, artificial intelligence (AI), and robotics have made remarkable progress in recent years, and the application of these is bringing about the Fourth Industrial Revolution, which includes dramatic improvements in productivity as well as the creation of new business and service models.

This is a trend evident both in Japan and overseas, with high hopes being placed on digital innovation in the manufacturing sector in particular. While their economies continue to track steadily, behind this trend lies a concern common to all developed nations that, over the long term, their capacity for growth is diminishing. To avoid stagnation and continue to grow, we need to bring

Digital Transformation Leading to More Rapid Innovation



AI: artificial intelligence

about a digital transformation that extends across all areas of society, expanding the digital revolution beyond manufacturing to encompass such social infrastructure as finance, public services, energy, and railways, as well as services ranging from commerce to healthcare. The Society 5.0[*1] initiative of the Japanese government has just this objective.

Applications such as using the IoT for optimization or AI to support efficiency gains hold the key to overcoming the especially large challenges posed by a falling population. The creation of a human-centric smart society in which people can live and work in safety and comfort regardless of where they are, one in which everyone can play a part regardless of age or gender, needs to be underpinned not only by the laws of the land but also by technology.

Nevertheless, the ongoing progress of this digital transformation will bring greater shade as well as light. We need to face up to the risks that accompany convenience, such as the cyber-attacks that already pose a threat to society, and adopt security measures to defend against them.

*1 A vision of a new society that encompasses the efforts to bring about that society. Its goal is to realize a prosperous, human-centric society that combines economic development with the resolution of social issues by leveraging revolutionary technologies (such as AI, the IoT, and robots) and various types of societal data.

Shift to Service Businesses Based on Lumada Platform

The progress of digitalization is also being accompanied by a shift from products to services as the source of business profitability, bringing with it a major revolution in particular sectors such as finance and retail. Changes in the structure of markets are accelerating due to the entry of participants who transcend traditional boundaries between industries, leading to a development that is also bringing shifts in who is driving those industries.

While Hitachi has operated a product-focused business for more than a century, we are now reorienting our activities toward the service sector, with digital technology playing a core role. This shift was prompted by a recognition of the changes in society and in the business environment in which our customers operate. The 2010 decision to focus on our Social Innovation Business was made with the aim of helping establish customer businesses and Society 5.0 while also restructuring our own business to keep pace with the progress of digitalization.

Hitachi has an information technology (IT) business that goes back more than 50 years as well as operational technology (OT) built up over a

Joined Hitachi, Ltd. in 1977. Appointed Deputy General Manager of the Financial Information Systems Division, Information & Telecommunication Systems Group in 2005; Executive Officer and General Manager of the Financial Information Systems Division, Information & Telecommunication Systems Company in 2010; and Chief Operating Officer of the System Solutions Business, Information & Telecommunication Systems Company, Information & Telecommunication Systems Group in 2012; Senior Vice President, Executive Officer and Chief Executive Officer of the Systems & Services Business and General Manager of Systems Solutions Division Group, Information & Telecommunication Systems Company, Information & Telecommunication Systems Group in 2015; and to his current position in 2017. He is also Assistant to the President (Finance Institutions, Government, Public Corporations & Social Infrastructure Systems, Healthcare, Defense Systems, Services & Platforms), Head of the Systems & Services Business, General Manager of the Systems & Services Business Division, and Head of the Social Innovation Business.

century and a product range that mainly involves social infrastructure. Combined, these make possible system-wide optimization in which results from the collection and analysis in cyberspace of data generated by products in physical space serves as feedback to the OT used in these products. This generates value in the form of improved efficiency and productivity for business as well as enhanced comfort and convenience for consumers.

Hitachi's Social Innovation Business looks at the value created by this combination of OT, IT, and products from a service perspective and engages in the collaborative creation of value with customers. Given the increasing pace of social change and technical progress, rather than delivering systems that are the products of long development schedules, what is needed is to hone solutions in partnership with customers while working rapidly through a cycle of identifying challenges and proposing and testing hypotheses. While a portfolio of strong technologies and products is essential, it is by putting these to use as services that the rapid collaborative creation of value becomes possible.

Underpinning this approach is Hitachi's Lumada IoT platform. Along with a variety of individual technologies such as big data, AI, and security, Lumada offers a range of several dozen solution cores that package OT and IT use cases in the form of templates. Meanwhile, Hitachi also utilizes its proprietary Ex Approach and NEXPERIENCE tools for collaborative creation to provide support for all steps along the process that starts with sharing a vision with the customer and then proceeds to concept development and implementation.

In addition to its own technologies, Hitachi also seeks to speed up the collaborative creation of solutions by making extensive use of useful technologies such as Pentaho or other open source software. The number of collaborative creation projects with customers that have come about through these practices is steadily increasing. Outside Japan, Hitachi Vantara Corporation in Santa Clara, USA is acting as a base for accelerating the global roll-out of digital solutions that utilize Lumada.

Digital-centric Approach Transcends Industries

To facilitate further growth in its Social Innovation Business, Hitachi reorganized itself last year around the four core businesses of power and energy; industry, distribution, and water; urban; and finance, social, and healthcare, appointing vice presidents to manage each of these. While my own area of responsibility, finance, social, and healthcare, may at first glance look like a collection of only loosely related sectors, what they all have in common is being digital-centric, meaning that the central role played by digital technology in each of these sectors is expected to bring about major transformations. Along with the finance and social sectors to which Hitachi has been a supplier of IT services for many years, we also believe we can maximize our digital solution capabilities by increasing the range of areas that utilize digital technology in the healthcare sector and linking these together in ways that go beyond individual business units.

Looking at each sector in turn, the new trend toward fintech is attracting considerable attention in finance, with many instances overseas of start-ups offering services such as smartphone access to financial services. In Japan, too, Hitachi is putting an effort into digital financial innovations that aim to provide new value to end users and support the activities of customers amid rising expectations for the development of products and services for financial and insurance that utilize digital technology.

Examples of such leading-edge initiatives include the application of natural language AI to financial services, the development of new insurance products and services through the use of medical big data, and finger vein authentication using visible-light cameras built into smartphones and its application in payments. Payment systems are one of the core functions of finance and also form part of the social infrastructure. Use of the blockchain as a platform for integrating these with activities such as distribution and logistics provides a way to make contracts and other transactions smarter.

Focus Includes Security behind Data Applications

In the social sector, Hitachi is seeking to expand its digital solutions by drawing on its experience working not only with central and local government but also on core infrastructure systems in areas like energy and transportation. In energy, for example, efficiency enhancements and cost reductions can be achieved through the application of analytical and predictive techniques to data on electric power usage, while also opening up opportunities for new information services such as watching over. The integrated use of identification systems such as Japan's My Number[*2] across government, healthcare, and a wide range of private-sector services should provide the public with higher quality services. There is also the potential for solutions in which the real-time analysis of road and other transportation data leads to reduced congestion and more efficient logistics.

In healthcare, we are directing our efforts at informatics using medical big data, building on our existing base of products such as diagnostic imaging equipment, radiotherapy systems, and analyzers where Hitachi has a strong presence. Hitachi is also participating in the Data Health

*2 A 12-digit unique number that is assigned to individuals living in Japan under the Social Security and Tax Number System and used in the fields of social security, tax, and disaster response.

Hitachi's Approach to Society 5.0

QoL: quality of life

Plan[*3] being undertaken by the government and working on the use of AI and other technologies to enhance diagnostic imaging.

One element essential to all of these digital solutions is security. Hitachi was struck by a ransomware infection in May 2017. In addition to treating this as a lesson in revising and strengthening our own security measures, we have also provided open access to information where appropriate based on experience, sharing it with partners and customers. In security as elsewhere, Hitachi believes it is important to work not just on our own but also to devise measures together with partners and customers based on the philosophy of collaborative creation so that we can play a part in the safety and security of society as a whole.

Digital Solutions that Contribute to Wellbeing

As referred to above, Hitachi's Social Innovation Business is intended to help bring about Society 5.0, with one of its major objectives as contributing to the human-centric society this envisages. Even if the progress of digitalization leads to a world in which drones and robots play a part, this should not detract from the importance of human beings because it will still be people who come up with ideas and generate value. As technology is ultimately just a tool, Hitachi's Social Innovation Business and what we are seeking to achieve with collaborative creation are about the pursuit of wellbeing for people, keeping the people who are technology's end users central in our thinking.

In the global operation of our Social Innovation Business, it is important that we work toward providing safety, security, and comfort to people throughout the world, not just in Japan. When you consider that there are countries and regions that are unable to provide access to safe water, food, and healthcare, we need to go back to the 17 Sustainable Development Goals (SDGs) and think about how we can contribute to these through Hitachi's Social Innovation Business. Rather than lifting developed nations higher still, I want to create digital solutions that can lift the entire world from the bottom up. While this may sound idealistic, it is something we cannot lose sight of if we want to become a sustainable and truly global company.

Continuing to pursue such large goals, we will also contribute to the creation of a human-centric future society by making steady progress with the individual collaborative creation efforts we are currently working on with customers.

*3 A project program, advocated by the Japanese government, to maintain and improve the health conditions of subscribers based on the analysis of data such as health insurance claims, and so on.