

Digital Finance and Its Social Implementation are Essential for the Digital Transformation of Government and Industry

During the coronavirus pandemic, Japan's lag in digitalization was brought to the forefront. As the digital transformation (DX) of the government and enterprises advances, the perspective of aligning with digital finance becomes ever more necessary. While strengthening our efforts in the field of digital finance, NEC is supporting progress in the DX of government and industry. Takayuki Morita, the Vice President of NEC, which is steadily making progress toward realizing a digital society for the age of 5G and Beyond, spoke to us about the present and the future of DX.

Efforts Are Important for Both Technology and Societal Implementation

How do you perceive the current state of digitalization in Japan?

As a result of the coronavirus pandemic, the lag in digitalization of the government and companies in Japan has been brought to the surface. In recent years, various organizations have engaged in DX. However, the current situation is that DX involving finance has yet to fully materialize.

The flow of money lies in the background for many social and business activities. The perspective of how to integrate digital finance is essential in the DX of government and industry. Even in fields of social challenges that require new investment — such as regional revitalization to produce the flow of humans and money that transcend physical restraints and the achievement of a green society — digital finance plays an important role.

Please tell us about NEC's strategy in the field of digital finance.

Not only do we support customers who seek to utilize digital technology to innovate financial operations, we also promote the societal implementation of digital finance functions to create new services by connecting various players to the government and enterprises. In addition, we are also committed on our software business within the wider global market. NEC's strengths are the core technologies — such as telecommunications, security, biometrics authentication, AI, and blockchain — that we have cultivated and the know-how that we have obtained through mergers and acquisitions globally, which includes business practices that utilize technology and experience regarding societal implementation. These strengths help us to rapidly develop the global business.

What can be learned regarding societal implementation through overseas M&A?

In order to utilize digital technology to create an even better future, innovation for societal implementation is just as important as technology. In addition to technical innovations, we must also strive for the ideal state of governance

that utilizes data, AI, blockchain, and other elements as a result of various players sharing their vision, as well as innovative methods of handling new risks that emerge. Therefore, there is also a need for industry, government, and academia to go beyond their traditional roles when synergizing with one another.

Preparing for the Age of 5G and Beyond

Beyond developments in digital finance, please tell us about the evolution of networks, which serve as basic technical infrastructure.

The evolution of networks significantly impacts not only finance but various other industries. In the age of 5G and Beyond, tremendous amounts of data several magnitudes greater than current levels will be exchanged. ICT devices that support massive volumes and high-speed processing will be essential. As there are also social demands — such as reducing CO2 levels — large-scale reduction of power consumption is being sought as well.

I believe there is a need for a comprehensive reexamination, semiconductors included, ahead of the development of highly operational next-generation ICT devices while fulfilling these requirements. We are carrying out research and development while bringing together hardware and software technologies.

Please explain NEC's efforts toward 5G and Beyond 5G.

Rakuten Mobile was the first in the world to construct a completely cloud-native mobile network that is fully virtualized, achieving telecommunications with extremely high efficiency. NEC is supporting this innovation by providing

base stations, core networks, and other important pieces of infrastructure. This company has also set its sights on providing a software-based telecommunications system to overseas carriers, and NEC is cooperating by evaluating overseas expansion. Our partnership with NTT is also important from the mid- to long-term perspective. We are conducting joint research and development with NTT in an attempt to achieve a breakthrough in optical communication and wireless technologies. An example of this is the development of a miniature optical integrated circuit (DSP) with low power consumption and the highest performance level in the world and the ICT device that incorporates it. By combining the latest technologies of both companies, we aim to achieve the technical breakthrough that is needed for the future of our digital society and develop it toward the global infrastructure market.

What kind of technologies is NEC strengthening, ahead of the age in which the amount of data increases further?

We are utilizing our strengths in networks and AI to promote research and development while emphasizing the fields of technology of wireless and optical communication, automation and optimization of operations, a foundation for processing dispersed data, and security. NEC is one of the few companies that has world-class technologies in networks, IT, data services, and a wide range of other fields with good balance. We are going beyond our conventional framework of information and telecommunications technologies to strengthen our comprehensive approach as the NEC Group, in order to create new value in an age in where humans, things, and ideas

are connected.

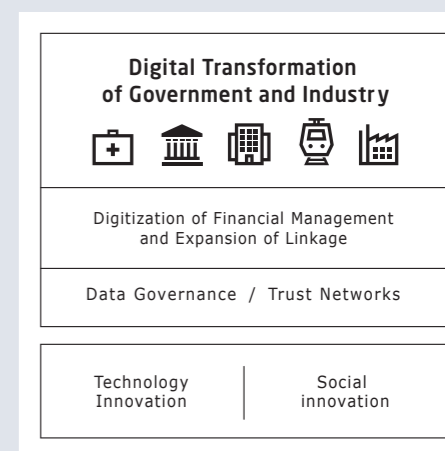
Driving Customer and Social Value Using Technical Capabilities

While the importance of data increases, concerns are also being raised about security risks.

Together with the increase in the volume of data, the diversification of data, including images and speech, is also advancing. Meanwhile, through the popularization of open architecture in telecommunications networks, the shift from conventional devices for exclusive use to flexible device configurations by multiple vendors is picking up steam. Under these circumstances, there is a desire to secure end-to-end reliability on all devices that form networks. An example of these types of efforts is our strategic partnership with Alaxala Networks and Cisco Systems, which was announced in January 2021. We are aiming to provide a highly reliable foundation for network systems, keeping in mind the enhancement of security for telecommunications, railways, government, and other important pieces of social infrastructure. Furthermore, we also engage in quantum cryptography, which is considered to be the ultimate form of cryptography for telecommunications. Moving forward, data processing will increase and disperse rapidly. Our policy is to focus even more of our efforts on activities to innovate and introduce telecommunication layer technologies that are ahead of this curve.

How will security measures evolve moving forward?

I believe it is important to successfully democratize data utilization after ensuring the security of the



telecommunication layers that handle data processing. With this in mind, the technologies receiving attention are those of federated learning, in which machine learning processes are carried out on data in a dispersed state, and secure computation, in which data is computed while encrypted. NEC continues to carry out research and development in order to enable the cross-industry and public utilization of data while protecting privacy.

I believe there are high expectations for NEC toward the DX of government and industry.

In order to construct an even better digital society, I would like to utilize our core technologies, as well as our capabilities for research, development and engineering. For this reason, I would also like to further enhance our ability to drive customer value and social value using our technical capabilities.

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