

NEC Working to Accelerate the Digital Transformation with DX Offerings

The ongoing digital transformation (DX) of society is powered by the inexorable advancement of digital technology, which is proceeding at an ever-faster pace. NEC has assembled a set of proven solutions based on our own best practices that we are now putting forward as DX offerings for our customers. In this special issue of *NEC Technical Journal* we discuss the three approaches to DX offerings we have taken, all of which are formulated around specific DX issues faced by our customers.

The first approach is the business process. This approach features a comprehensive set of solutions which we draw upon to propose the optimum solution for the customer-specific DX issues, starting from upstream consulting to downstream solution implementation. The second approach centers on technology. We have put together the core sets of technologies we have developed and created the NEC Digital Platform, which is commonly used on a global scale. The third approach focuses on talent. We have set up DX training programs and are implementing the digital shifts amongst our in-house professionals.

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1. Introduction

With the accelerating evolution of digital technologies such as information and communication technology (ICT), cloud, artificial intelligence (AI), and Internet of Things (IoT), digital transformation (DX) is expected to dramatically transform every aspect of people’s lives in the years ahead, bringing about fundamental changes that far exceed anything we have yet experienced.

At NEC, our business focuses on the creation of the social values of safety, security, fairness, and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential. That is our purpose. With this in mind, we hope to accelerate DX by making a comprehensive commitment from the upstream to the downstream such as R&D of digital technology, consulting to solve customers’ management issues, high-quality system integration and its operation and maintenance, and more.

The DX offerings introduced in this special issue are all best practices proven in actual implementation and deployment in our own and in our customers’ businesses. Another way of putting it would be to say that these

solutions address the customers’ DX issues at high speed and high quality. In the next few sections, we will look at these DX offerings in more detail, how they are structured, what they are composed of, what value they provide, and what features they have.

2. Changes in Society and Trends in DX Markets

We will start by outlining the trends that accompany DX. The acceleration of DX has become very apparent in

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Business	Technology
<ul style="list-style-type: none"> Acceleration of cross-industrial collaboration (i.e., smart city) Global alliance Need for sustainable supply chains Promotion of digital government (i.e., Digital Agency) Renewal of legacy systems ("2025 Digital Cliff") 	<ul style="list-style-type: none"> Progress in AI/IoT technology Increased value of data distribution and utilization Promotion of multi-cloud and cloud services Importance of cybersecurity (safety and security in digital space) Investment in network infrastructure (5G/6G)

Fig. 1 Trends Pertaining to DX.

both business and technology (Fig. 1).

In terms of business, cross-industrial collaboration is increasingly being implemented across a broad range of industries and businesses. For example, NTT and ENEOS have participated in Woven City — Toyota’s smart city project, while e-commerce companies like Amazon and Rakuten are now affiliated with brick and mortar supermarket. There has also been new interest in reviewing global supply chains triggered by the novel coronavirus infection (COVID-19). In 2021, the Japanese government moved to help shape the direction of these trends and hasten the digitalization of public services by launching the Digital Agency. As these new trends and technologies emerge, legacy systems are being reviewed and renewed on a company-wide level, including at NEC.

In terms of DX technology, AI is widely used in a broad range of industries. Already an indispensable tool in call centers and production sites, AI is now being used to leverage the invaluable information stored within the massive amounts of data captured daily in public and private facilities alike. However, as digitalization progresses, attention must be paid to the safety and security of cyberspace.

As for 5G and 6G, both SoftBank and KDDI have announced that they each plan to invest more than 2 trillion yen in these technologies in Japan.

3. Obstacles to the Acceleration of DX

In Japan today, the number of companies organizationally promoting DX is increasing steadily. Sixty-three percent of companies have now appointed people in managerial positions to lead DX in their companies (Fig. 2) and in 81 percent of these companies, those leading positions are occupied by executive officers or higher. This suggests that, for many of these companies, the digital issue is the transcendent management issue, a fact that takes on salience when one considers the many difficult



Fig. 2 Present Situation of DX in Japan.

challenges that face the advancement of DX. Some of the more common problems include the inability to draw up DX visions and roadmaps and the lack of talent with the skills and training to advance DX.

4. NEC’s Approaches to DX

At NEC we have set up three frameworks to promote DX from which we have derived action principles (Fig. 3).

4.1 Business process

The purpose of DX should not be merely the implementation of DX. That is, DX should not be considered an end in itself, but rather a means to achieve management goals in the current situation, where digital shifts have either been implemented, are underway, or both. It is extremely important to examine why DX should be implemented, which will in turn affect how DX will impact the company and society.

We have launched an in-house task force specializing in development of DX strategies, starting from the upstream and covering all aspects of the process. Some of the most remarkable characteristics of NEC’s DX consultants are that they are able not only to provide in-depth advice from the upstream to downstream implementation and operation, but also can feed back the experience and skills gained in DX implementation and operation into their consultation approaches.

To ensure that any plans offered are not just pie in the sky, these in-house DX consultants collaborate with about 5,000 DX talent to formulate specific roadmaps towards the achievement of DX. They also collaborate with about 5,000 consultants at ABeam Consulting — NEC’s strategic capital alliance partner, who boasts time-tested results in the consulting field.

Speaking of the results of NEC’s DX plan formulation, we have already started projects with about fifty clients in seven industries in the past year. These include global

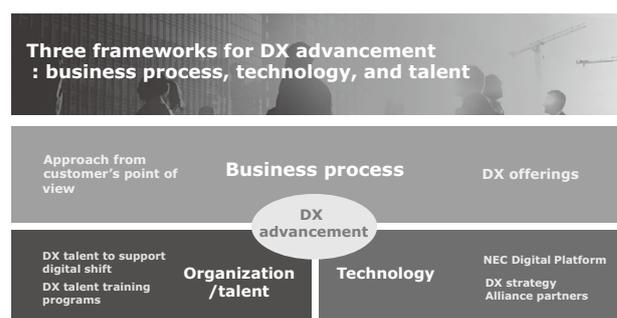


Fig. 3 Three Factors Required for DX Advancement.

projects such as the one at Hawaii’s airports.

The DX offerings introduced in this issue are positioned in the business process category of the DX approach offerings. We regard our clients’ management issues as creation of innovation, improvement of customer contacts, and reform of operations to provide DX offerings that solve the issues our clients are facing. We are proud that our DX offerings epitomize our specific know-how in different types of businesses and company-wide know-how including NEC’s core technologies.

Now let’s take a brief look at three examples involving the provision of our DX offerings.

The first example is our commitment to DX in cities. This involves smart city and super city planning (Fig. 4). To support the evolution of communities that build their future on a foundation of local traditions and characteristics, NEC has formulated three important policies for DX of communities — revitalization of economic infrastructure, improvement of quality of life (QOL) for both residents and visitors, and resolution of issues particular to the community.

Revitalization of economic infrastructure is handled by city management service consultants who help implement policies aimed at leveraging the latest digital technologies to streamline and power up local economies. To improve QOL, we offer co-creation processes

to create services tailored to the needs and aspirations of residents. Finally, to solve issues specific to that community, we utilize diverse data, such as medical data and inter-field data related to tourism by which we generate sightseeing plans tailored to individual tourists to encourage them to become repeat visitors. Leveraging such know-how, we have participated in many smart city and super city projects carried out by the government. To date, we have supported 13 municipalities in smart city projects and 31 municipalities in super city projects. For data analysis and management, we use FIWARE, a set of global standard open-source platform components for smart cities. Projects are now being deployed in Europe and India, where data utilization has reached an advanced stage.

The second example is our cloud service for government agencies (Fig. 5). With open, high-reliability multi-cloud capabilities, we are contributing to the swift digitalization of governmental operations. We offer a cloud platform service that complies with the Information System Security Management and Assessment Program (ISMAMP), which is a cloud services assessment program administered by the Japanese government.

The third and last example is an identity verification system using face recognition technology, which was utilized in a worldwide sports event held in Tokyo in 2021. NEC not only provided ICT systems but also a next-generation commercial radio system and congestion visualization system to contribute to safe, secure, and efficient event management.



Fig. 4 Commitment to DX of Cities.



Fig. 5 Cloud Service for Government Agencies.

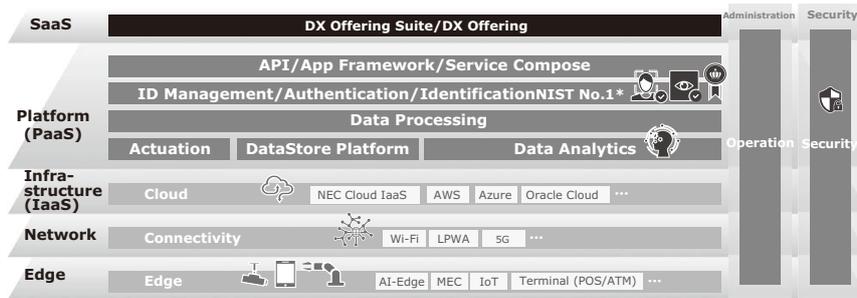
4.2 Technology

Technology also plays an indispensable role in the achievement of DX. Concentrating our core set of technologies into the NEC Digital Platform — a standardized global digital platform — that can be deployed across a broad range of applications, we are able to adapt to the requirements of a broad range of applications (Fig. 6). The following are some of the utilization examples of the NEC Digital Platform.

Deployment of the NEC Digital Platform has enabled us to solve customer problems much more quickly than would otherwise be possible. At airports, for example, we are introducing contactless boarding procedures in collaboration with SITA, an IT and telecommunication service provider to the air transport industry. In collaboration with Star Alliance we have launched Star Alliance Biometrics, an identity verification platform using NEC’s face recognition technology, at Frankfurt Airport and Munich Airport in Germany.

We have also introduced a new boarding procedure

Concentration of NEC's core set of IT and network technologies into a standardized global digital platform that can be deployed across a broad range of applications



* In benchmark testing conducted by National Standards and Technology Research Laboratories (FRVT ongoing, 2021). NIST test results by NIST do not recommend any particular product, service, or company

Fig. 6 NEC Digital Platform.

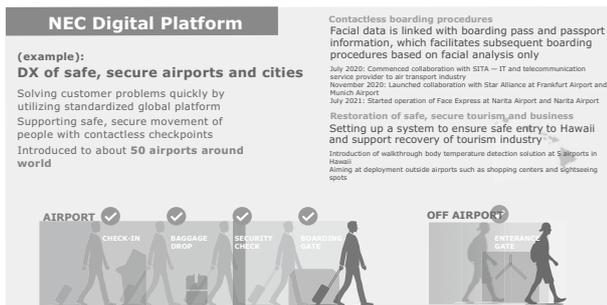


Fig. 7 DX of Safe, Secure Airports and Cities.

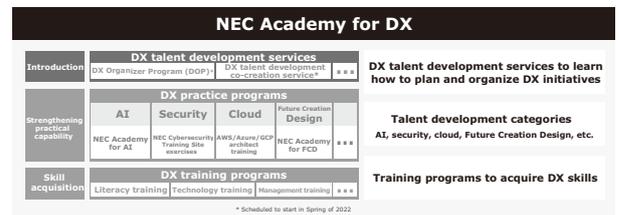


Fig. 8 Talent Development Programs and DX Personnel Training Services.

for international departure flights using face recognition technology called Face Express that has been put into operation at Narita Airport and Haneda Airport. To date, we have introduced systems utilizing the NEC face recognition technology at about 50 airports around the world.

In Hawaii, in the span of a month, we introduced our walk-through body temperature detection solution at Hawaii's main five airports with a view to helping restore safe, secure tourism and business. This system utilizes the NEC Digital Platform and we hope to deploy it at shopping centers and sightseeing spots, as well as airports (Fig. 7).

4.3 Talent

DX Talent power is vital to moving forward with DX. With this in mind, we are offering DX talent development programs, and working to train and upskill our in-house professionals in the theory and practice of DX so that we

may continue to enhance and improve our operations in this area. We already have about 5,000 DX talent in various fields and plan to double the number to 10,000 by 2025.

Collating and integrating our in-house human resource know-how and experience in fields such as AI, security, cloud computing, and design, we are committed to providing our customers with the DX talent development services that the digital age requires¹⁾. We also offer the DX Organizer Program, which trains participants in planning and organizing DX initiatives, as well as various other talent development categories that strengthen practical capabilities in fields such as AI and cybersecurity, as well as training programs to teach basic skills to beginners (Fig. 8).

Through these commitments and educational systems, we hope to rapidly train and onboard DX specialists with the skills and knowledge in both business and technology to support our customers as they undertake their own digital transformations.

5. Conclusion

In this issue, we hope to provide a comprehensive overview of the DX offerings NEC has to offer, together with details on various DX offerings that focus on solving specific issues faced by our customers when they implement DX. The articles that follow take a closer look at these issues, highlighting problems and solutions with in-depth case studies. Our commitment to creating social values of safety, security, fairness, and efficiency through DX is reflected in these pages and we do hope you find the material contained herein stimulating and informative.

Reference

- 1) NEC Press Release: NEC opens service design academy for promoting digital transformation, June 2021
https://www.nec.com/en/press/202106/global_20210603_01.html

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