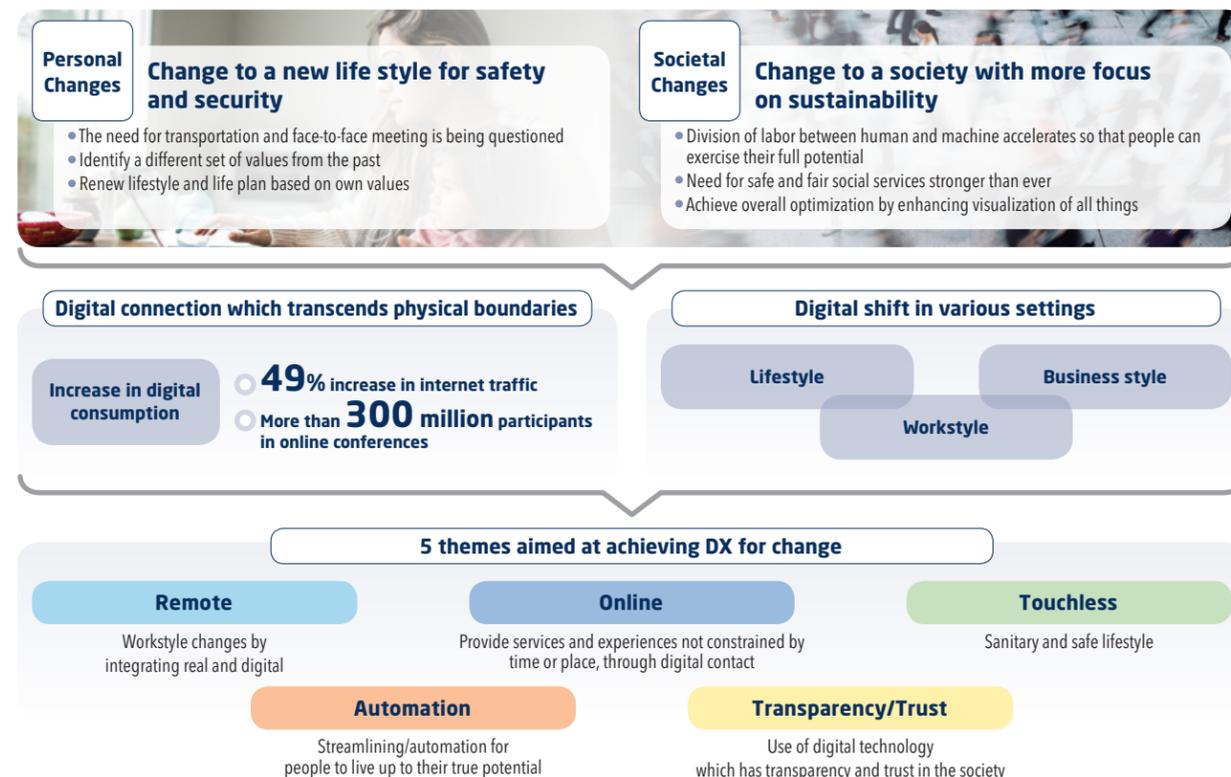# Feature

DX Initiatives in Response to the New Normal

The global COVID-19 pandemic has had a huge impact on our lives and economic activity. Even now, local and national governments all over the world are engaged in crisis management, while medical professionals are making every effort to treat and prevent infections. Consumers are leading their own lives and corporations are conducting their business activities under numerous restrictions.

The status, values and behavior patterns of society have already changed, and new values are going to be created, forming a "new normal." We must accept the new world and change our own behavior.

Since its foundation, the NEC Group has constantly acted as a Social Value Innovator, seeking through its actions to promote human safety and security, social fairness, and economic efficiency. In response to the current crisis, we will aspire to realize the "more sustainable world where everyone has the chance to reach their full potential" cited in the NEC Group's Purpose, as we create new social value that corresponds to the new normal through digital transformation (DX), which is now more important than ever.
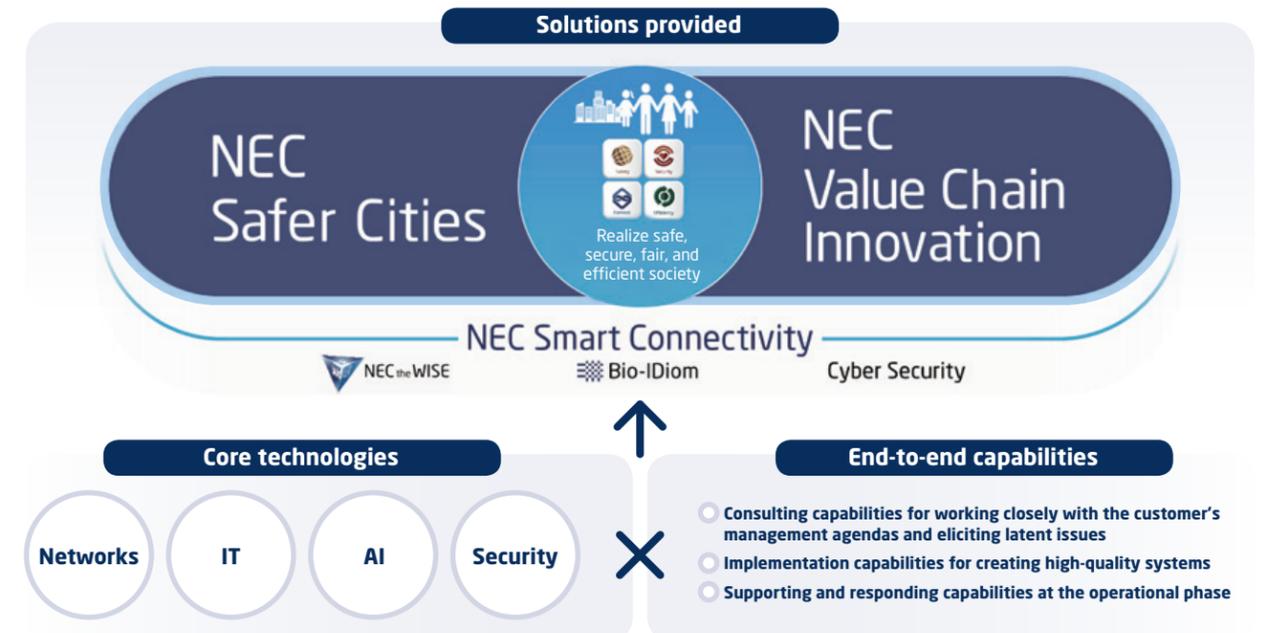
Changes under the New Normal

Changes under the new normal are sparking a digital shift that is accelerating through the whole of society. Society and companies are being called upon to act with greater speed to realize DX that responds to these changes.

Personal Changes

Change to a new life style for safety and security
- The need for transportation and face-to-face meeting is being questioned
- Identify a different set of values from the past
- Renew lifestyle and life plan based on own values

Societal Changes

Change to a society with more focus on sustainability
- Division of labor between human and machine accelerates so that people can exercise their full potential
- Need for safe and fair social services stronger than ever
- Achieve overall optimization by enhancing visualization of all things

Digital connection which transcends physical boundaries

Increase in digital consumption
- **49**% increase in internet traffic
- More than **300 million** participants in online conferences

Digital shift in various settings
- Lifestyle
- Business style
- Workstyle

5 themes aimed at achieving DX for change

Remote
Workstyle changes by integrating real and digital

Online
Provide services and experiences not constrained by time or place, through digital contact

Touchless
Sanitary and safe lifestyle

Automation
Streamlining/automation for people to live up to their true potential

Transparency/Trust
Use of digital technology which has transparency and trust in the society

NEC's Strengths Enabling the Realization of DX

The NEC Group has cultivated end-to-end capabilities over many years. These include network technologies such as local 5G, which is essential for realizing DX, as well as cutting-edge core technologies such as world-class biometrics technologies and various unique AI technologies. Through these technologies, we are providing solutions such as NEC Safer Cities, which realizes DX in the social and lifestyle domain, and NEC Value Chain Innovation, which brings DX to enterprise and industry, and we have already established a considerable track record.

Solutions provided

NEC Safer Cities — Realize safe, secure, fair, and efficient society — NEC Value Chain Innovation

NEC Smart Connectivity

NEC the WISE   Bio-IDiom   Cyber Security

Core technologies
- Networks
- IT
- AI
- Security

End-to-end capabilities
- Consulting capabilities for working closely with the customer's management agendas and eliciting latent issues
- Implementation capabilities for creating high-quality systems
- Supporting and responding capabilities at the operational phase

Initiatives for further Acceleration of DX

NEC is grasping the social issues and the changes required to respond to the new normal quickly and accurately, and providing the solutions for them. In this way, we will accelerate DX and create social value in the new normal.

To achieve these aims and to support an increasingly sophisticated digital society going forward, we will further refine the research, development, and implementation of the core technologies we have cultivated over many years and provide customers with end-to-end solutions such as NEC Safer Cities and NEC Value Chain Innovation. With this in mind, NEC will gather all of the capabilities of the Group, as well as focusing its efforts on the development and strengthening of human resources specializing in digital technologies.

Providing Value Inspired by Social Issues

Value Proposition
Response to the new normal

Solutions Provided
NEC Safer Cities — Realize safe, secure, fair, and efficient society — NEC Value Chain Innovation
NEC Smart Connectivity
NEC the WISE   Bio-IDiom   Cyber Security

End-to-End Capabilities
- Consulting
- Implementation
- Operation

Starting Point:
Social Challenges in Shifting Towards New Normal (examples)
- Remote
- Online
- Touchless
- Automation
- Transparency/Trust

NEC Safer Cities
https://www.nec.com/en/global/solutions/safercities/index.html

DX for Society and Daily Life—NEC Safer Cities

Case 01 **NEC I:Delight - Providing a Unified Customer Experience across Multiple Touchpoints through a Biometric ID, Such as Face and Iris Recognition**

NEC I:Delight revolutionizes the customer experience by streamlining physical and digital identities into a trusted ecosystem, creating a unified experience. With contactless solutions that make touchpoints touchless, NEC I:Delight shapes personalized experiences that are safe, secure and hygienic, while being seamlessly enjoyable. Each individual exercises autonomous control over their own personal ID and data, while connecting to multiple corporate and local government services to access them.

URL https://www.nec.com/en/global/delight/

Case 02 **Start of Trials for Next-Generation Online Medical Care at Saiseikai Central Hospital and Saiseikai Kumamoto Hospital**

At Saiseikai Central Hospital, NEC is conducting trials of an operating system that provides integrated online medical services, from medical treatment, billing, and prescription issuance. The system makes use of existing electronic medical records, ordinary medical information and online medical information in centrally managing medical examinations through a video telephone system.

At Saiseikai Kumamoto Hospital, which is a core regional hospital, NEC will conduct a trial with other relevant medical institutions of a system that links patients' electronic medical records and uses a video telephone system to conduct conferences on admission preparation, hospital transfer, discharge, and on-line follow-up.

Case 03 **Providing a Safe, Secure Online Education System in Denmark**

With educational institutions around the world in a state of disarray over their inability to provide lessons due to COVID-19, Group company KMD is providing the latest educational materials through its online education support system, MyEducation. Conventionally, education is considered to be a face-to-face activity, but MyEducation offers a completely new concept to protect and support people's fundamental right to education using digital technology.

Furthermore, MyEducation is also used to create communities between schools and families, teachers and students, supporting the children of Denmark.

DX for Enterprise and Industry—NEC Value Chain Innovation

Case 04 **Demand and Supply Optimization Platform Reducing Food Loss with AI-Powered Demand Forecasting**

The Supply and Demand Optimization Platform enables food manufacturers to optimize inventory and production, food wholesalers and distributors to optimize inventory and enhance resource efficiency, and food retailers to optimize order planning. The platform contributes to reducing food loss by optimizing demand and supply across the entire food value chain and resolving various issues including excessive production, return of expired food, surplus inventory, and unsold products.

URL https://www.nec.com/en/global/solutions/optimization/index.html

Case 05 **NEC SMART STORE Providing a Quick, Comfortable Shopping Experience Touching Only Products from Store Entry through to Completion of Payment**

At a cashierless Smart Store that opened in the NEC head office building, customers simply pick out the products they wish to purchase and then payment is processed as they walk out of the store, without the need to queue at the checkout. Automated payment eliminates crowding caused by checkout queues and enables stores to operate with a smaller staff, leading to the creation of stores that are comfortable and secure for both customers and staff. Moreover, with current concerns over physical contact with people and objects, the Smart Store realizes safety and security for customers and staff by reducing cashier interaction time and infection risk.

Case 06 **Comprehensive Logistics Visualization Platform to Enable Real-Time Tracking of Containers in Transit**

DMICDC* of India and NEC established a joint venture that provides logistics visualization services. The service works by affixing RFID tags to containers when they are unloaded or loaded at ports in Mumbai, reading their data from RFID reader/writers, and uploading the data to the cloud. It also enables operators to grasp accurate positional information about containers in real-time by linking with other systems such as port container management information systems.

This has resulted in shorter transport lead times, reduced inventories, and more accurate production plans, while also helping to reduce the use of fossil fuels by realizing efficient transportation.

* Delhi Mumbai Industrial Corridor Development Corporation Limited (DMICDC)

URL https://www.nec.com/en/global/about/vision/case/05.html

Networks Supporting the Realization of DX

Case 07 **Konica Minolta and NEC Strengthen Cooperation to Promote DX by Utilizing Local 5G**

NEC will collaborate as a partner to promote DX utilizing 5G in the fields of imaging and IoT/AI technologies, working styles, healthcare, and manufacturing. As a first step, NEC will establish local 5G verification environments in the brand new Takatsuki building of Konica Minolta Inc.'s development base, Innovation Garden OSAKA Center. Konica Minolta will combine its imaging and IoT/AI technologies with a variety of assets, including office equipment and medical equipment, as well as NEC's 5G and AI technologies. Through these efforts, they will increase the value added to industrial optical systems, medical equipment, and office equipment, thereby contributing to the achievement of Society 5. 0 and SDGs.

Case 08 **Rakuten Mobile, Inc. Supporting a Fully Virtualized Cloud Native Mobile Network**

NEC is supporting Rakuten Mobile's construction of the world's first highly secure, fully virtualized cloud-native mobile network by providing BSS (Business Support System) and OSS (Operation Support System) solutions and 5G radio equipment compatible with open virtualized RAN (vRAN) technology. NEC and Rakuten Mobile are also jointly developing a containerized standalone 5G core network based on NEC products for the Rakuten Communications Platform (RCP). Through this project, NEC will assist Rakuten Mobile's agile roll-out of mobile carrier services.

Case 09 **Increased Capacity of Optical Submarine Cable**

As society worldwide adopts various digital technologies, large volumes of data are being handled across national borders. Large-capacity optical transmission technology using submarine cables is core infrastructure supporting the handling of large volumes of data. NEC has supported increases in optical submarine cable capacity by compensating for signal distortion using AI analysis results. We are now honing our technologies to achieve even greater capacities by applying optical AI processing, which is expected to enable the achievement of high speed, low power consumption, and low latency simultaneously in submarine cable for the first time.

NEC's Own DX

Case 10 **Launch of Digital Office Project to Realize New Workstyles through DX**

NEC has launched the Digital Office Project for realizing new workstyles for the new normal era through DX. Focusing on the type of offices required for the new normal era, we have launched trials of various systems within NEC's head office building, such as a gateless entry system that uses advanced ICT (biometrics and image analysis), as well as a cashierless store that can recognize customers even wearing masks. We aim to begin providing solutions one by one during fiscal 2021.

Case 11 **Realizing Diverse Workstyles through Telework**

NEC respects diverse workstyles as a means of realizing both the growth of the Company and personal growth and happiness. As part of this approach, we have introduced telework. Over 80% of NEC employees carried out telework under the state of emergency that was declared in Japan, preventing infection among employees and their families while enabling business continuity.

Looking ahead, we will continue to place top priority on personal safety and peace of mind, while appropriately combining onsite and remote workstyles to increase employees' quality of life and achieve further growth in our business.

Initiatives for the Future

Case 12 **Drug Development Using Cutting-edge AI**

NEC is focusing on realizing advanced immunotherapy targeting cancer, infectious diseases, and autoimmune diseases through a new type of drug development method that requires advanced AI analysis.

In January 2020, we initiated clinical trials of individualized cancer vaccines in Europe and the U.S., and in April 2020, we used the AI technologies applied to cancer vaccine development to perform the genome analysis needed to design a vaccine for COVID-19 and published the results.

URL https://www.nec.com/en/global/solutions/ai-drug/index.html