Empowered by Innovation NEC

NEC Vision
for Social Value Creation 2014



\Orchestrating a brighter world

Orchestrating a brighter world

In 2007, NEC formulated its “Group Vision 2017” and set out to become “a leading global company leveraging the power of innovation to realize an information society friendly to humans and the Earth.” Under the three-year “Mid-term Management Plan 2015” that started in 2013, we aim to make global-scale contributions by solving various social issues focusing on “solutions for society” that enhance social infrastructure by means of ICT (Information and Communications Technology).

Motivating NEC’s determination to focus on the provision of solutions for society is a variety of challenges that the world economy and society will face in the future. If the world’s population continues to grow and concentrate into urban areas, the current social infrastructure will no longer be able to support people’s daily lives. In this way, emerging social issues will require that social infrastructure be safer, more secure, more efficient and more equal in the future.

Until now, NEC has maintained its position as a technology leader by driving the development of cutting-edge technologies in the areas of computing and networks, both of which work as the base platforms for cloud computing and services.

These technological capabilities and know-how greatly contribute to the enhancement of social infrastructure. Making full use of ICT, NEC aims to organically combine individual infrastructures and create new value together with customers in a variety of fields, including transportation, power and energy, water and food, finance and health care services. These efforts are aimed at contributing to the realization of a society where safe and secure services are provided to people efficiently and equally.

Recently, NEC announced its new brand message, “Orchestrating a brighter world,” under which NEC group companies will work as one entity to promote the Solutions for Society Business. This message represents our firm determination that NEC will continue to exercise its leadership as a company boasting unrivaled network and computing technologies, while integrating its superior technologies, wealth of expertise and ideas to orchestrate bright and hopeful lives and a society of tomorrow together with people of the world.

In addition, starting with the new brand message “Orchestrating a brighter world,” NEC formulated the following seven themes to represent this approach of social value creation: (1) A “Sustainable Earth” aiming to live in harmony with the Earth, (2) “Safer Cities & Public Services” for creating safer and more secure cities and their administrative foundations, (3) safe and highly efficient “Lifeline Infrastructure,” (4) “Communication” to support a vibrant society, (5) “Industry Eco-System” to newly combine ICT with industries, (6) “Work Style” to offer diversified and borderless work styles, and (7) “Quality of Life” realized in an enriched, equal and active society.

As a social value innovator, NEC is committed to realizing “a brighter world” by collaborating closely with business partners and customers around the world while taking full advantage of ICT.

November 2014

遠藤信博

President, NEC Corporation

Nobuhiro Endo



NEC Vision For Social Value Creation

This booklet features a clear formulation of our thoughts on how ICT (Information and Communications Technology) can contribute to society, business and daily life in order to achieve the goal of social value creation.
NEC group is focusing its efforts on providing “solutions for society” by enhancing the social infrastructure that utilizes ICT in order to ensure the safety, security, efficiency and equality of society and enable people to live abundant lives.
Addressing various social issues poses a great challenge for us. At the same time, we consider it a promising opportunity to rebuild social structures that achieve both customer value and social value.

With this booklet, we wish to convey two key messages.
The first message is that as the world population grows and urbanization continues as it moves toward 2050, the demand for energy and food will keep outgrowing the population. ICT serves as the key driving force for making full and efficient use of the limited resources on the earth and establishing a new, sustainable and efficient infrastructure that ensures people can live equally.
The second is that NEC sets out our thinking on the process of social value creation: (1) identifying fundamental issues, (2) partnering for problem resolution, (3) utilizing business models and assets in the ICT industry, and (4) satisfying both customer value and social value. NEC has established a new corporate key message, “Orchestrating a brighter world” along with the seven themes to represent this approach of social value creation. Collaborating closely with customers and business partners, NEC is committed to achieve our goal as a social value innovator to make world a brighter place.

We have also issued a separate booklet titled “NEC Vision: Case Studies and Highlights 2014” which features eight highlighted businesses of solutions for society. We sincerely hope it will prove to be useful to you.

CONTENTS

Chapter 1 Mega Trend and Technology Trend 6
Future Trends of the World Economy and Society 6
6 Megatrends and Their Complicated Linkage 8
Technology Evolution to Resolve Social Issues 10

Chapter 2 NEC Vision for Social Value Creation 14
Creation of Social Values through Problem Resolution 14
Orchestrate Smarter and Brighter Future with Seven Themes 16

Chapter 3 Create the Future with Customers 18
Sustainable Earth:
Sustainable International Society Supported by ICT 18
Safer Cities & Public Services:
Safe and Secure Urban Foundation and Glocal Administrative Services 20
Lifeline Infrastructure:
ICT Build Safe and High-Efficiency Lifelines 22
Communication:
Advanced Information and Communications Systems Supports Enriched Society 24
Industry Eco-System:
ICT Rebuilds Industrial Foundation from Scratch 26
Work Style:
Diversified New Work Style (cross-border and co-creation with robots) 28
Quality of Life:
Affluent Society Where Individuals Thrive and Equality of Treatment and Education 30



Chapter 1

Mega Trend and Technology Trend

Global-scale change and technology innovation -- these two trends are the key drivers to shape the future. In this section, the global trend, the technology trend and challenges we will face are discussed.

Future Trends of the World Economy and Society

Growth in urban population and resource consumption

Although accurately forecasting the future is not easy, we still can anticipate big global trends and prepare for them.
According to the United Nations, the world's population of approximately 7 billion people as of 2011 is expected to reach 8 billion people in 2025 and increase to 9.6 billion in 2050. It is also anticipated that, as more people move into urban areas, the world's urban population will increase from 3.5 billion in 2011 to 6.3 billion in 2050. As a result, the demand for food, water and energy will increase 1.7 times, 1.6 times and 1.8 times respectively. Also, greenhouse gas emissions are expected to increase up to 1.5 times. This means that if today's urban lifestyle persists, in 2050 we will need twice the resources that the whole Earth can supply. Therefore, in order to build a sustainable world, we have no other choice but to improve resource productivity, modify social structure and lifestyle and reduce resource consumption.

Growth in emerging countries and maturity in advanced countries

The growth in the world's population also accelerates the economies of emerging countries. According to PricewaterhouseCoopers (PwC), the total GDP of the top 7 emerging countries (China, India, Brazil, Russia, Indonesia, Mexico and Turkey) has already reached 80% of the sum of the GDPs of the G7 nations (the United States, France, the United Kingdom, Germany, Japan, Italy, Canada) and it is expected to grow up to 175% in 2050, 1.75 times that of the G7 national economies. If the economies of emerging countries continue to grow at this pace, these countries and their surrounding countries will see more urbanization with a greater number of middle-income households, which will form a massive cross-border economic sphere. On the other hand, in advanced countries, the percentage of elderly people in the population is expected to increase from 18% at present to 26% in 2050, which will inevitably result in the relative decline of their economic clout. The world economy is already shifting from the traditional G7-centered or US-centered economic structure to a multi-pole economic framework involving the emerging countries. In the future, this trend will be spurred and decentralization of economic clout will be further evident.
Economic growth in emerging countries is also



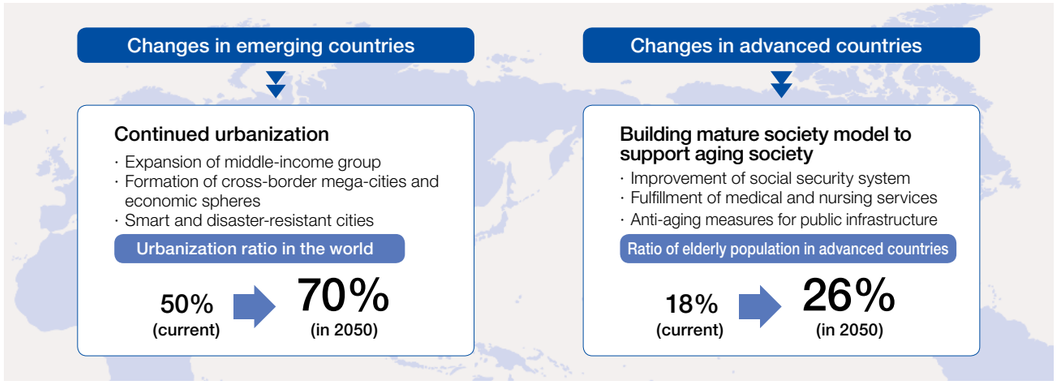
(Source: Data from OECD, FAO, PwC and the United Nations)

driving the global penetration of the Internet.
The number of Internet users worldwide was reported to be 2.74 billion in 2013 and is expected to exceed 3 billion in 2014. And in 2025, it is expected that 4.7 billion people, which account for 60% of the anticipated 8 billion world population, will gain access to the Internet. The worldwide popularization of the Internet will certainly narrow the digital divide among countries and activate the borderless transmission and distribution of information on a personal basis. Through the Internet, individuals will gain the power to gather and transmit information and influence society as well as corporations and organizations.

New social infrastructure required

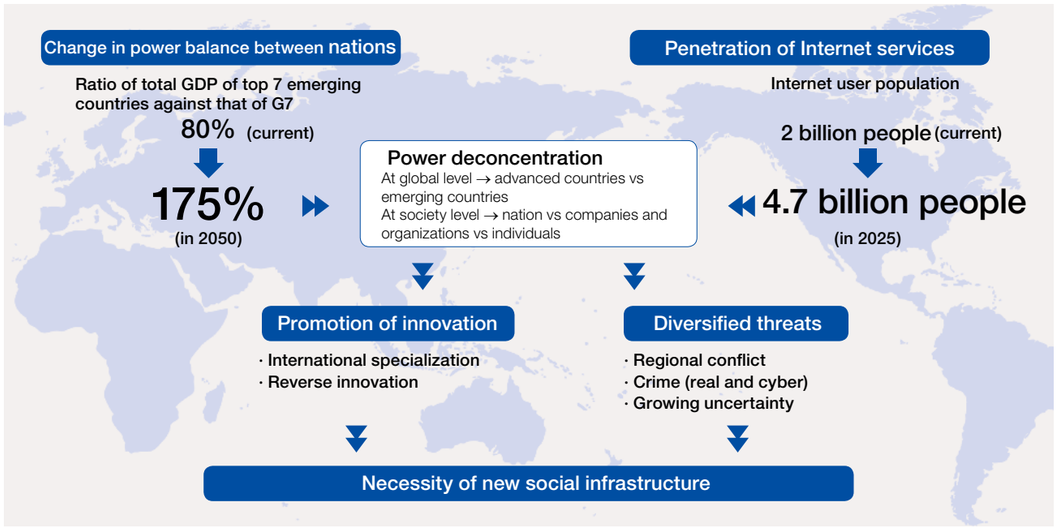
The deconcentration of economic power resulting from economic growth in emerging countries and the expanded influence of individuals enabled by Internet penetration will form a flat and open world. On the one hand, the flat and open world will bring about desired effects such as acceleration of global collaboration and progression of innovation on a global scale including "reverse innovation", an innovation that is born in and spread from emerging countries that used to unilaterally import technologies from advanced countries. On the other hand, in the flat and open world, there could be increased risks of large-scale conflicts and crimes arising from historically peaceful areas.
The deconcentration and networking of the world economy increase interdependencies among each national economy. The increased interdependency will cause the impact of an incident such as a conflict, a cyberattack, or a natural disaster in a certain country to propagate to all countries and regions in the blink of an eye. This means that, while maintaining its economic growth, each emerging country is required to implement safe and smart cities and social infrastructure development with a particular focus on enhancing measures against the steep increase in urban population and environmental burden. On the other hand, each advanced country needs to maintain its national power. More specifically, each advanced country is required to take appropriate measures to build "a mature society model" including improvement of the social security system to cope with increasing aging population, fulfillment of medical and nursing services and anti-aging measures for public infrastructure.
Emerging countries presumably have different social challenges and approaches to address than those of advanced countries. A "new social infrastructure" that takes into account such differences, makes full and efficient use of the limited resources on the earth and provides all people with brighter lives is now required.

Changes in emerging and advanced countries



(Source: Data from the United Nations)

Power deconcentration



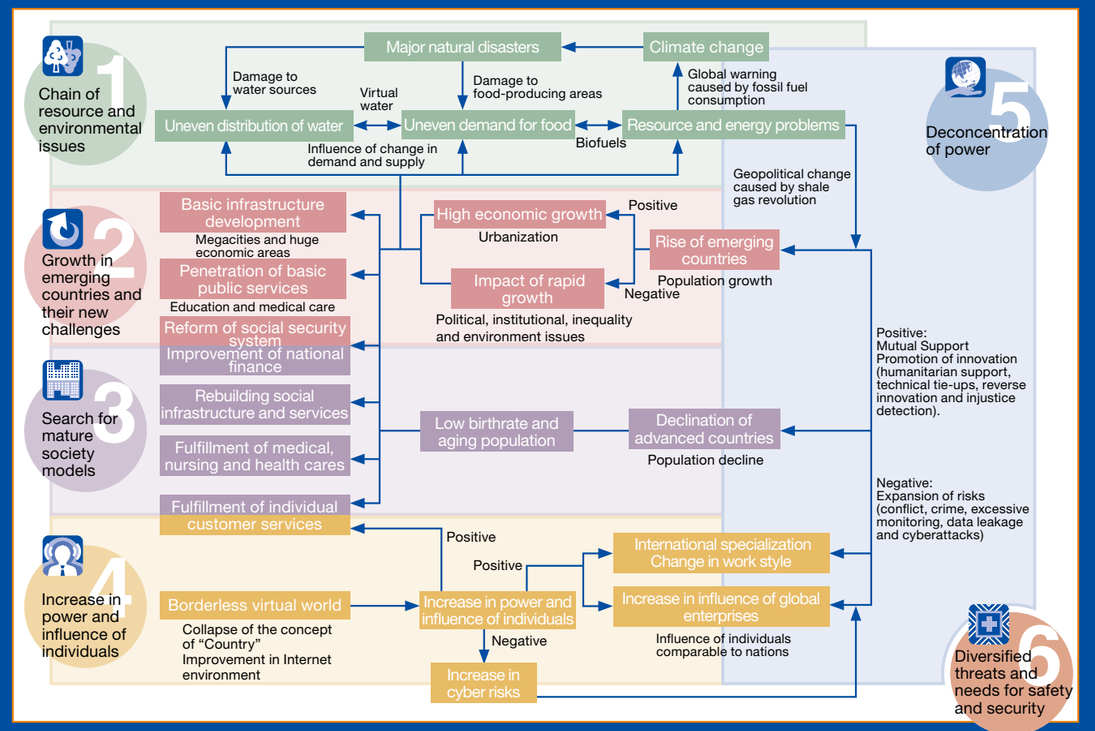
(Source: Data from PwC and International Development Engineering Society)

6 Megatrends and Their Complicated Linkage

Guiding compass toward the future in 10 years

If we thoroughly analyze the trends of the world economy and society, we will see major trends for the next 10 years. NEC classifies such huge trends of changes and transformations into the following 6 megatrends toward the year 2025: (1) progression of resource and environmental issues, (2) growth in emerging countries and their new challenges, (3) search for mature society models, (4) increase in power and influence of individuals, (5) deconcentration of power and (6) diversified threats and needs for safety and security. These six interdependent megatrends link with each other like a complex circuit. For example, the world population growth, continued economic development and urbanization in emerging countries will significantly impact the resource and energy issues. The consequent increase in demand for grain may cause a water shortage for such crops. Water shortages may also lead to desertification with a tremendous impact on the global environment. In addition, energy issues will not only promote the use of new energies including the shale gas revolution, but will also change the power balance among nations in the same way as oil did between countries with it and without it. Flat and open technologies like the Internet will bring out the potential of emerging countries and individuals and accelerate borderless relationships such as international specialization.
Since these kinds of complex chains increase uncertainty in the global economy and society, it is almost impossible to accurately forecast when, where and how a wave of change or transformation will arise. Paradoxically, it would not make much sense to accurately forecast the future in the era of uncertainty. It is rather more important to ascertain the direction of change and innovation in the world economy and society by recognizing both “highly probable changes” such as demographics and “changes posing uncertainty in the future” that will trigger a chain of interactions. On that basis, we can delineate a picture of our future and find new opportunities. From the perspective above, the 6 megatrends shown in this chapter can be referred to as a compass that indicates the direction toward which people, organizations, corporations and society as a whole should proceed in the next 10 years.

Correlation of 6 megatrends



6 megatrends

1 Chain of resources and environmental issues
Consumption of water and food due to population growth and urbanization will impact the other resources and the environment.

2 Growth in emerging countries and their new challenges
Rapid economic growth in emerging countries will, while their national power grows, cause new issues such as environmental concerns and resource shortage.

3 Search for mature society models
In advanced countries, continued low birthrate, aging of the population and deterioration of facilities will press for reform of the current legal and social systems.

4 Increase in power and influence of individuals
Advancement of the Internet will raise concerns such as cyberattacks while increasing the influence of individuals on the global stage.

5 Deconcentration of power
As emerging countries and individuals have more influence, the world will get more decentralized and see a new power balance.

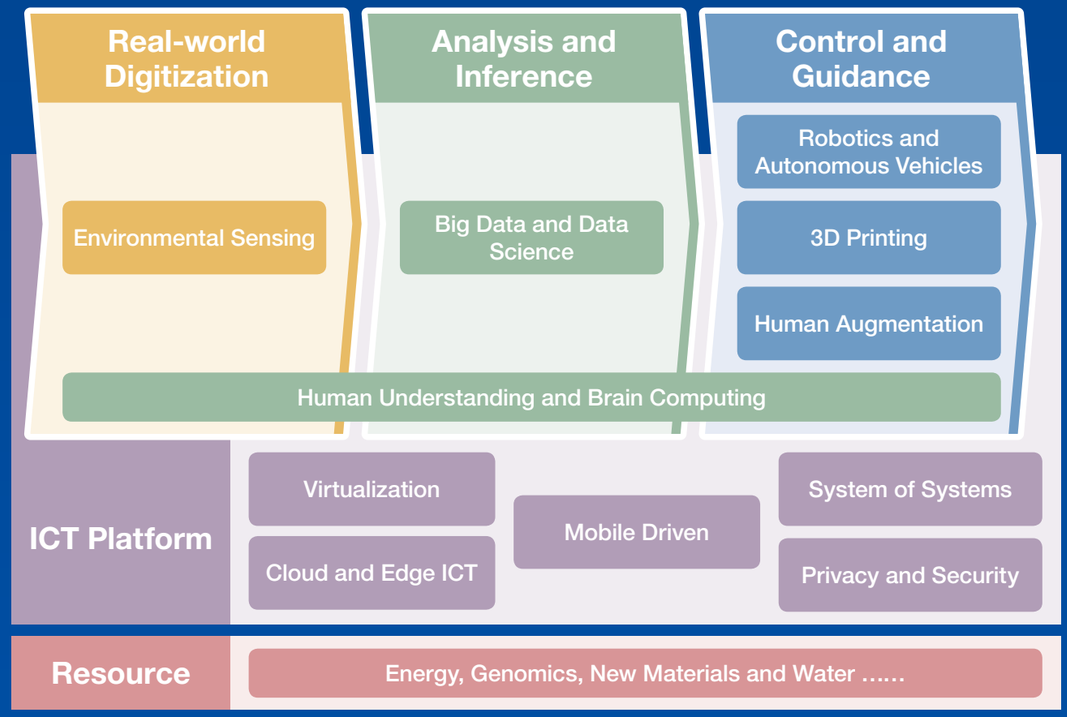
6 Diversified threats and needs for safety and security
Big changes in the world will generate various kinds of threats not only in the real world but also in a cyberspace and increase demand for safety and security.

Technology Evolution to Resolve Social Issues

Re-creation of society with technology

Some megatrends are new changes in society that are emerging with the development of technology.
Looking at two trends of the probable global change in the future and the direction of technology, we will be able to find how to create new approaches to big challenges and opportunities and create innovation.
NEC has formulated technology trends that will impact society and become more important leading up to 2025, by overviewing the direction of technology in the world.
Even in areas where it is difficult to digitize information, technologies such as environmental sensing, imaging and understanding human thought and emotion will capture the state and status of all humans, goods and things so that they can be processed with ICT (Real-world Digitization). Various kinds of data will be gathered instantaneously into the next-generation ICT platform to form big data. Then, a new value or solution is developed in real time through highly-developed data science (intelligence processing). The new value produced by intelligence processing will be utilized to control social infrastructure, facilities such as production factories and plants and mechatronics such as robots and autonomous vehicles. It will also be used for guiding people, understanding human thought and emotion, analyzing the delicate processes of the human brain and expanding human abilities. Consequently, the new value will be fed back to the real world (Control and Guidance). While technologies for Real world Digitization and Intelligence are being widely employed, technological development in the field of Control and Guidance will be more important in the future.
Although the structure in which ICT platform supports Real world Digitization,Intelligence and Control and Guidance in the real world can be applied to various social issues, ICT cannot necessarily solve all issues by itself. Combining this technologies with those of other fields such as energy, genome, new materials and water is also important. We are required to resolve major issues by utilizing evolving technologies.

Technology Trend in the Next 10 Years



Environmental Sensing
Environmental Sensing

Ultra-compact and intelligent sensors will be installed in any place. In combination with these fixed sensors, wide-range sensors mounted on satellites and unmanned aircrafts for mobile use will enable remote sensing in any environment.

Virtualization
Virtualization

As virtualization of computers, networks and storages advances, infrastructures will become “Software-driven” as a whole. As a result, operation management will be made more efficient and services will be dynamically provided in accordance with required loads and functions.

Cloud & Edge ICT
Cloud & Edge ICT

The allocation of processing tasks and data storage for each application will be controlled by and between cloud and edge terminals. As a result, the performance and energy efficiency of the whole system can be optimized.

Mobile Driven
Mobile Driven

The ICT industry will see technical innovation and new services driven by mobile communication technologies, mainly smartphones. The bandwidth, coverage, quality and efficiency in mobile networks will greatly improve.

System of Systems
System of Systems

This technology combines multiple existing individual systems into a single new system. This new system will create a synergy effect among each system and make building low-cost real-time services a possibility.

Privacy & Security
Privacy & Security

Since privacy protection is a key to gaining profit from a data handling business, technologies for managing ownership of data and anonymity will become more important. Technologies for a social infrastructure security management will become important as well.

Big Data & Data Science
Big Data & Data Science

Artificial intelligence and machine learning technologies will make further progress by utilizing a huge amount of stored data, to forecast weather and predict disasters. The capability is comparable and sometimes superior, to that of experts.

Robotics & Autonomous Vehicles
Robotics & Autonomous Vehicles

The enhancement of sense, dexterity and intelligence of robots facilitates cooperative actions with humans. Cars and airplanes are automatically operated and consequently improve industrial efficiency and quality in logistics and manufacturing.

Human Understanding & Brain Computing
Human Understanding & Brain Computing

Advanced computing ability to understand human thought and emotion will produce UIs with the ability to understand user’ intentions and, provide natural guidance for user actions. Advanced analysis of brain information is used for communications and marketing.

3D Printing
3D Printing

3D printing can develop any object from food to organs. 3D printing also assists in reproducing the virtual entire life cycle of things in the Internet and realizing manufacturing through knowledge populated from around the world.

Energy, Genomics, New Materials & Water…
Energy, Genomics, New Materials & Water…

With increased use of new energies like shale gas, hydrogen, solar energy and wind power, energy management for residences, buildings and whole communities will be promoted.

In addition, high-speed and low-cost analysis of complex correlations between gene sequences and biological functions will accelerate applications to the development of pharmaceuticals, agriculture and biofuels. Materials that are designed to have special characteristics and features will be developed progressively, while water resources, which are essential for agriculture and industry will be managed efficiently.

Human Augmentation
Human Augmentation

Robotics and wearable technologies will expand intellectual abilities such as memory and judgement, as well as augment the physical abilities of arms, legs and vision to superhuman levels.



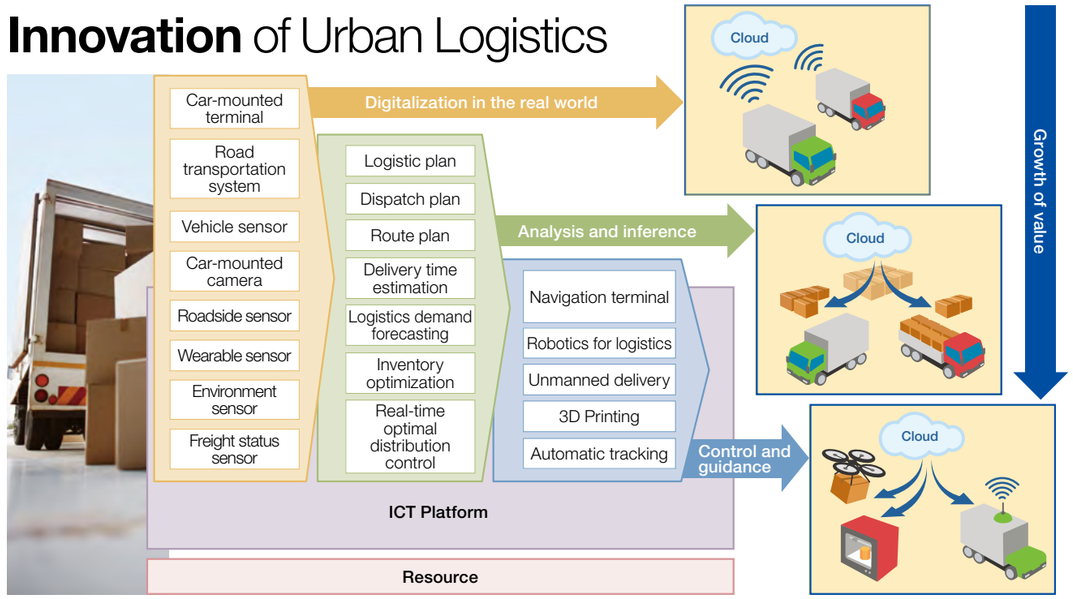
Challenges, Technologies and Innovations

NEC believes that the proper combination of technology trends will create advanced solutions for society. For instance, issues of urban logistics are social issues arising from the concentration of population in urban areas and the change of lifestyle to work around the clock. Small-lot and frequent deliveries are rapidly increasing because of the popularization of small retailers and EC (e-commerce). This involves two contradictory and difficult issues, i.e. a logistic issue as to how deliveries can be made in a timely and efficient manner to meet customers' convenience and a social issue as to how the urban logistics can be ensured without aggravating traffic congestion and environmental problems.
In an early stage, efforts to visualize logistics are made by collecting information on a vehicle's position and speed with a car-mounted and network-connected terminal in addition to traffic conditions from road traffic systems.
Currently, the route plan and delivery schedule derived from analysis of the visualized information are delivered to a driver in advance, as well as the freight arrival to the consignee. However, these kinds of trials have just begun and are still in the transitional stage.
In the future, as more vehicles become connected with networks that are equipped with more environmental sensors and cameras, digitalization of every situation in the logistics will advance. Evolution of ICT platforms will drastically improve real-time performance and intelligence technologies will make sophisticated and accurate route plans based on real time. In addition, evolution of control and guidance technologies will create an innovation that can make a significant change in the logistics. In the future world of urban logistics, automatic tracks will keep working 24 hours a day safely and with fewer burdens to society and unmanned delivery by drones (unmanned aerial vehicles) will support people's lives. If 3D printers become sophisticated enough to reproduce manufacture things on site, it will make an essential change in the logistics. The potential of technologies is immeasurable.
Evolving with trends, technologies are applied one after another to society. The efforts to evolve technologies, combine old and new systems, use different technologies for better results and so on, will lead to the innovation from technologies created to solve social issues.

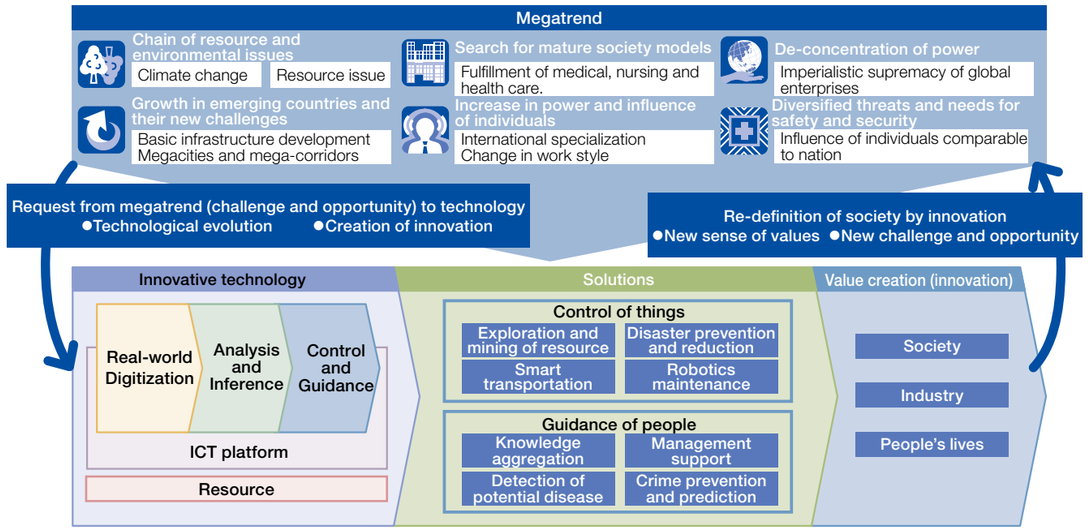
Evolving solutions for society

There are many methods to solve social issues and only a few of those are introduced in this booklet. Each country and region should have a different approach to the solution. However, there is no doubt that ICT will play an important role in the solution. The optimal control and operation of social infrastructure, the optimal reallocation of maldistributed resources and the early detection of various threats and risks - these values are created by combining innovative technologies in the technology trend and other fields.
From now on, ICT will penetrate into diversified areas to create new values by linking various systems and controlling them as a whole. ICT is a requisite technology for technological development in all fields and technological consolidation in multiple fields. New technologies born in this way will create new innovations in the future.
With a comprehensive understanding of technological trends, NEC will create sophisticated solutions for society through new approaches. These challenge-oriented and open-oriented solutions for society will create new social values and megatrends, streamline industries and produce better livelihoods.

Innovation of Urban Logistics



Circulation of megatrend and Technology Trend





Chapter 2

NEC Vision for Social Value Creation

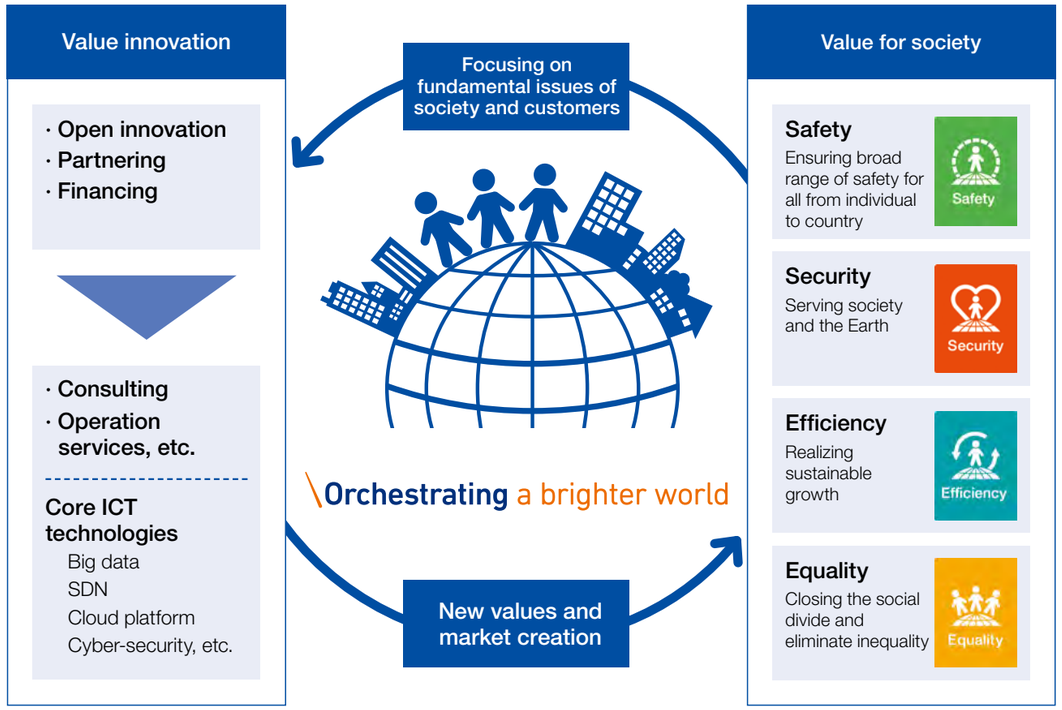
Keeping an eye on two trends, issues arising on a global scale, and technological innovations based on ICT, NEC aspires to realize a society where people can live brighter and more abundant lives.

Creation of Social Values through Problem Resolution

Awareness of social issues

As shown in the megatrend discussion in the previous chapter, the world is expected to experience drastic population growth and further urbanization in the future. We must address the subsequent social issues that arise from these developments, such as an increase in resource consumption, global warming, climate change, environmental destruction, aging in advanced countries and diversified crimes. On the other hand, key technologies that may change the world in a large scale are invented one after another, and ICT will play a central role in solving these issues.
NEC puts importance on the question, “What is the fundamental issue for society and/or the customer?” as the starting point for social value creation. Identifying fundamental issues in environments where unexpected incidents may destroy a traditional sense of value is not an easy task.
Design-oriented thinking is one of the promising methods to gain awareness of the essence of an issue. In order to identify fundamental issues, NEC utilizes “the Social Value Design” method, which focuses attention on experiences of the “user” and “society”. Those who can identify a fundamental issue and find a solution for it make breakthroughs. NEC aims to identify and solve fundamental issues based on local needs together with society and customers around the world.
It is expected that continuous growth in world population will require twice the resources that the earth can supply in 2050. This estimation is based on the assumption that we continue the “current lifestyle”.

Value Creation of Solutions for Society



The current structure of society that supports our lifestyle includes many things that we call “MOTTAINAI” (the Japanese word for wasteful). In spite of the fact that only 0.01% of water on the earth is drinkable, people in big cities around the world safe water is wasted from 10% to 30% simply from leaking. One third of the food produced in the world is disposed every year. Traffic congestion, which wastes gasoline and the time of drivers and passengers, is another example of “MOTTAINAI”.
In the ICT industry, perspectives such as “shifting usable time according to the user’s convenience (leveling)” and “not owning but jointly using (sharing)” are widely employed. NEC believes that applying these ideas to society and industry on a full scale can fundamentally reduce “MOTTAINAI”.

Co-creation of new Social Value

ICT cannot solve social issues by itself. The most important thing among these is the domain knowledge and know-how of users. Collaboration with NGOs, NPOs and local municipalities who comprehend the issues that local society faces, partnerships with various companies and organization of a standardized body of thought are absolutely necessary. Also, NEC will aggressively adopt methods of open innovation, lean startup and effective financing to solve issues.
NEC will maximize the capability of ICT through partnering to build new infrastructure. “Create new values with ICT together with customers and business partners” is NEC’s wish and the foundation of its management policies in providing social and industrial infrastructures.
Collaborating closely with customers and partners, NEC is committed to creating new values.
In September 2013, NEC Laboratories Singapore was established as a core center for new solution research. Having built a flexible joint research framework with local research institutes, universities and clients in the region, NEC is creating a new solution based on NEC’s unique leading-edge technologies through active participation in various projects for solutions to urban related issues.
The solutions created here will be introduced into various countries and regions, such as the ASEAN region and South America where there are strong needs for advanced social infrastructure.

Recently, NEC announced our new corporate key message, “Orchestrating a brighter world”, in order for NEC group members to work together as one entity and promote NEC’s solutions for society. This message represents our firm determination that NEC will continue to exercise its leadership as one of the few companies with a combination of network and computing technologies like no other company can supply. NEC will bring together and integrate its unique technologies and wealth of expertise and ideas to orchestrate bright and hopeful lives and a society for tomorrow together with the people of the world.
The word “orchestrating” carries the meanings of “cooperation” and “co-creation”. The word “brighter” carries the meanings of making the world wiser and smarter.

Orchestrate Smarter and Brighter Future with Seven Themes

Create Social Value with ICT

NEC formulated the following seven themes for social value creation: (1) “the Sustainable Earth” for co-existence with the Earth, (2) “Safer Cities & Public Services” for creating safer and secure cities and their administrative foundations, (3) safe and highly efficient “Lifeline Infrastructure”, (4) “Communication” to support an abundant society, (5) “Industry Eco-System” in which ICT and industries are tied up in a new manner, (6) “Work Style” to enable diversified and borderless work styles, and (7) “Quality of Life” in which people live in an enriched, equal and active society. These seven themes are meant to embody our initiatives for solution for society to solve social issues arising from the aforementioned six trends.



NEC’s leading-edge ICT supports orchestration

Among technologies to support social value creation, “Network virtualization”, “Real-time processing” and “Stored information processing and analysis” play important roles. Virtual network utilizing SDN (Software-Defined Networking) can dynamically optimize IT/ Networks. Consolidation of system-dedicated networks into a common network enables the provision of new and speedy services. Also, data centers can save their initial costs and running costs for networks by grouping virtual servers and virtual networks into a server pool. In “Real-time processing” and “Stored information processing and analysis”, a highly parallel processing technology enables a continuous operation of multiple CPU cores. It maximizes computing capability making it possible, for example, to process as many as 6 million items per second, when applied to face recognition.
In the theme of “Safer Cities & Public Services”, high-speed processing technology for images from surveillance cameras, cyberattack defense technology and cloud-based disaster recovery schemes for IT systems contribute to building flexible and robust urban infrastructure whether in a peaceful or emergency situation. For application to administrative services, technologies for national ID management, cloud and big data will make services more internationalized and safer.
In “Lifeline Infrastructure”, water, gas and electricity infrastructures will be managed more efficiently by utilizing sensor information and big-data analysis technology while cloud-based logistics solutions will remove distance and time constraints significantly. In our efforts to address “Quality of Life”, preventive care systems making full use of medical data and electronic medical records will promote the realization of equal social security in aging countries.
Based on these seven themes for social value creation, NEC is committed to orchestrating a brighter world with customers who will be future stakeholders and partners.

Megatrends and themes for Social Value Creation

6 Megatrends	\Orchestrating a brighter world	
Chain of resource and environmental issues	Sustainable Earth	Establish a sustainable platform for activities by utilizing limited resources effectively and taking measures to prevent damage to the global environment in order to coexist with the Earth.
Growth in emerging countries and their new challenges	Safer Cities & Public Services	Help emerging countries build safe and secure cities and help developed countries mature their societies. Establish a “global” administrative service platform through joint initiatives between the public and private sectors.
Search for mature society models	Lifeline Infrastructure	Establish logistics that resolve disparities of area and delivery time and build safe and efficient lifelines while population concentrates in cities and people’s lives become diversified and complex due to around-the-clock activities in society.
Increase in power and influence of individuals	Communication	Build a platform for information and communications to support the distribution of information and knowledge, which becomes more important as society advances.
Deconcentration of power	Industry Eco-System	Innovate a new industrial ecosystem including connection of industrial machinery with the Internet, 3D printers, crowdsourcing and reverse innovation.
Diversified threats and needs for safety and security	Work Style	Create new work style and relationship with society in which people work together with communities and robots regardless of gender and generation.
	Quality of Life	Build a diversified and equal society to support people’s enriched and active lives through contributions to education, health care and medication.

Chapter 3

Create the Future with Customers

\Orchestrating a brighter world
Sustainable Earth

Sustainable International Society Supported by ICT

**The world population growth and urbanization pose threats of a big burden to the global environment and increasing natural disasters. From a global perspective beyond the boundaries of countries and regions, we must share the limited resources such as energy, water and food efficiently and equally in order so that they can continue to be used.
As for energies in particular, the conversion to natural energies will be of importance.
NEC operates in a variety of areas ranging from the seafloor to space.
In combination with these business areas, NEC aims to contribute to people's safe and secure lives in such applications as prediction and alerting people of natural disasters including earthquakes, destructive storms and tsunamis with relevant data from the natural environment. In addition, we think that we can contribute to solutions of environmental issues and activities to conserve our ecosystem by comprehending changes in our natural environment with a high degree of precision on a real-time basis.**

Toward sustainable society

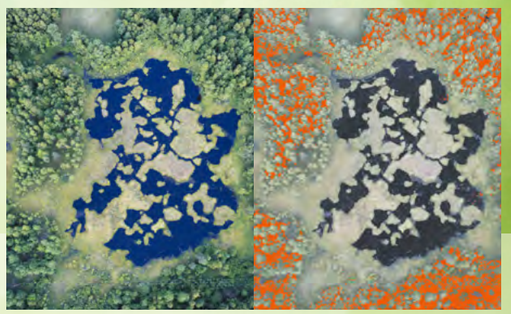
The annual consumption of resources on the Earth in 2050 is estimated to be almost twice the current consumption due to the explosive population growth. Since resources on the Earth are unevenly distributed in specific countries and regions, their proper allocation and efficient use in a balanced manner are required. It is also reported that expanded usage of fossil fuels increases the emission of carbon dioxide, and causes climate changes including greenhouse warming and results in natural disasters (e.g. rise in sea levels, massive rain and floods, huge typhoons and hurricanes and droughts). Controlling the emission of CO2 and enhancing disaster prevention are imminent issues to be tackled on a global scale and in a cooperative manner. This negative chain must be broken to obtain a sustainable Earth.

Solving environmental issues through ICT

The key to solving these serious issues is evolving and advancing the utilization of ICT.

Visualization of the real world with sensing technology, identification of the essence of issues, and prediction of its changes in an early stage with analysis technology are of particular importance.
Combination of high performance environmental sensors and the information from observation satellites with a resolution of tens of centimeters will enable us to detect changes in the global environment precisely and promptly, and get more prepared for climate changes and environmental issues.
Lately, an initiative to preserve forests, which is one of the global-scale activities to achieve the biodiversity conservation goal set forth in the Convention on Biological Diversity, is becoming more important. Monitoring systems to observe changes in forests by utilizing data from the GIS (Geographic Information System), images from observation satellites and spectrum data, are playing an important role in the initiative. Once the monitoring systems recognize the detailed status of forest distribution and find any illegal logging with data from sensors on a real-time basis, it will be of great help for forest preservation.

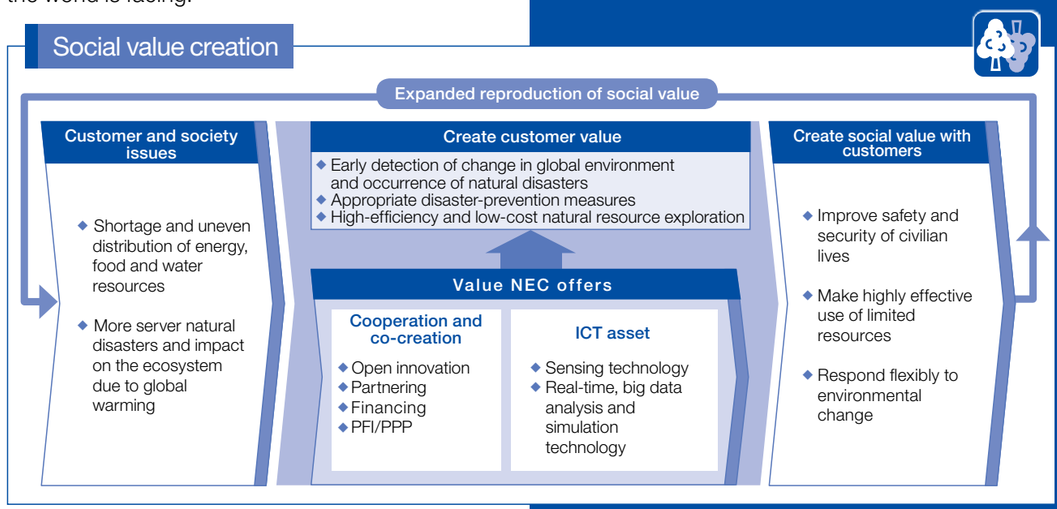
Monitoring of forest resources



Evolution of the High Performance Computing (HPC) system drastically improves simulation accuracy and speed. That will allow us to predict the emergence of concentrated downpours and tornadoes, and the paths of typhoons and hurricanes more quickly and accurately. National and local governments can take advantage of the above mentioned information to predict the occurrence of possible disasters and notify people of those areas for preparation or evacuation directive in an early stage of emergencies.
Moreover, these sensing and analysis technologies are expected to be used for exploration of natural resources. They can be applied to the analysis concerning the influence to nature and the ecosystem as well as resource exploration to prevent excessive mining and cost increase in order to minimize the impact to the environment.
All countries and regions, companies and individuals must work together to realize a world where humans can live with the environment in harmony. NEC aims to contribute to international society by means of ICT utilization to solve issues the world is facing.

NEC Initiatives

NEC has developed ICT that ensure a sustainable Earth many countries around the world.
For instance, the satellite-mounted "Synthetic Aperture Radar", which is capable of observing a vast range of a forest regardless of climate conditions 24 hours a day, contributes to crackdown on illegal logging. The underwater sensor used in "the Marine Environment Monitoring System" can provide wide-range, real-time and high-density marine information without being affected by weather for a long period of time, 24 hours a day on a real-time basis. In "the Solution for Visualizing Forest Value", the aerial photo analysis of forest images can estimate the height of each tree and calculates the total amount of forest resources by superimposing mapping information with GIS (Geographic Information System). We are addressing the issues in a society through local-based business deployment by gathering information obtained by remote sensing into a cloud, utilizing it for analysis and control, then feeding it back to the real world.
As a part of our CSR (Corporate Social Responsibility) activities, we implement "the provision of energy saving solutions and technologies" and "the monitoring and control of social infrastructure and global environment and provision of appropriate information" to promote climate change mitigation and aims to achieve the goal of reducing CO2 emissions by five times the amount to be emitted from our supply chain in 2020.



Safe and Secure Urban Foundation and Glocal Administrative Services

The percentage of the population who live in urban areas is expected to increase from 50% at present to 70% in 2050, which will require both economic growth and safety and security in urban lives. Desirable cities of tomorrow should be the ones with not only a convenient and developed urban infrastructure but also good public security and comfort. Such desirable cities will provide innovative administrative services including special zone planning and attract fascinating and creative people from around the world. NEC will contribute to the safety in those cities in the field of collection and analysis of image information from many kinds of sensing devices like surveillance cameras in the city. When the monitoring system detects even a very small abnormal change, it can help prevent crimes and accidents and facilitate disaster prevention and emergency response. Providing a solution to support cyber security and quick recovery to the progressively computerized urban-government administration will realize flexible and robust administrative services. NEC aims to create a society where everyone can enjoy efficient and equal administrative services.

ICT realizes safety, security and comfort

To build a highly value-added, safe and secure city and society, it is necessary not only to consolidate sophisticated sensing technology, data science and systems to control goods and guide people, but also to build an infrastructure equipped with all of these. For instance, an appropriate combination of a group of sensing devices, such as car-mounted sensors, traffic cameras and surveillance cameras, with a group of technologies, such as image/data analysis and man/vehicle control and guidance systems (including traffic lights, electric traffic signs, mobile terminals, etc), will enable us to develop a scheme that can forecast change in traffic volume and eliminate excessive traffic congestions. Analysis technology to detect anomalies in a huge amount of information can detect the anomalous flow of pedestrians on a real time basis and find accidents and crimes immediately. It can also judge a car driver from his motions and facial expressions, and determine if he is too fatigued or sleepy to drive. Autonomous aircrafts (HAC) that are developed with robotics technology and patrol over downtown can expand the surveillance area greatly.

Administrative services give peace of mind

In the near future when internationalization accelerates the migration of people between countries, administrative services will be required to make a scheme to secure safety in society. Since administrative services are also required to be comfortable and equal for their service beneficiaries, they need to pursue safety and convenience in terms of security at the same time. One possible solution to this issue is a cooperative foundation in which administrative services in multiple countries are coordinated with each other through national ID management. With the cooperative foundation based on advanced security technology and a highly available and reliable cloud, the immigration control operations utilizing national ID and biometric authentication technology will be streamlined and enhanced in terms of security level at the same time. In addition, this approach can be deployed in various applications: administrative and public services can be provided at a single contact on-line by consolidating these services into a common platform; a machine-translation cloud can handle multiple languages: artificial intelligence equipped with automatic learning capability responds as intelligently as a human. If governments promote open data and uses cloud platforms, we might be able to get certificates and file registration applications on any device around the world based on coordination with a national ID. Safer and more secure administrative services based on ICT platform are eagerly awaited in many countries and regions.

Advanced sensors prevent accidents and crimes.

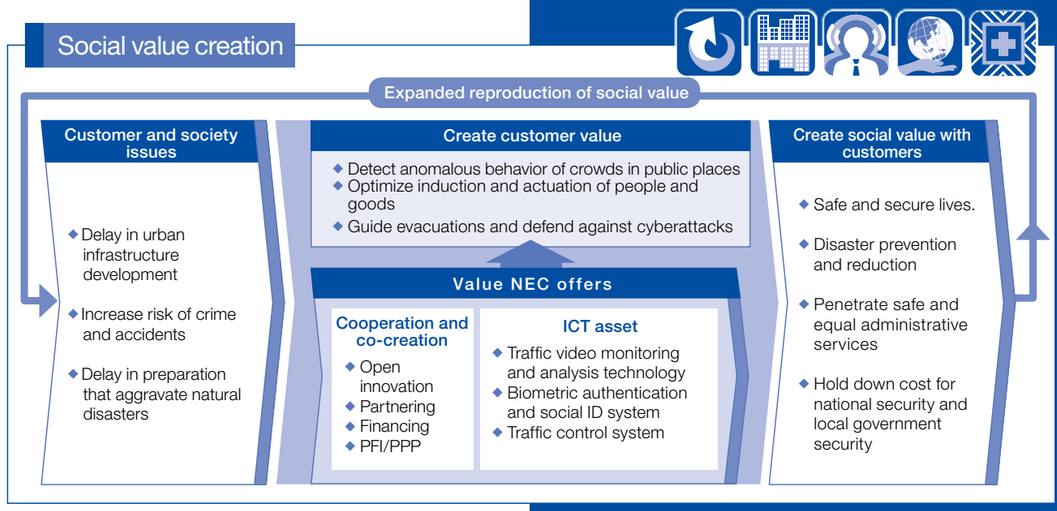


NEC Initiatives

Many projects for developing safe, secure and comfortable cities with ICT are in progress around the world. NEC has joined many of them and is making many achievements.
The project of the city of Santander, Spain, is a trial to make the city more intelligent, save energy and improve environmental sanitation by installing sensors in social infrastructures, homes and cars. NEC contributes to improving the efficiency of the city's trash collection management by providing sensors and IoT (Internet of things) infrastructures. In Asian countries, NEC is working on improving solutions in such projects as the wide-area disaster prevention system in the Philippines, the emergency information management system in Taiwan and the ASEAN disaster information communication system in Indonesia.

ICT replaces over-the-counter administrative services





\Orchestrating a brighter world

Lifeline Infrastructure

ICT Builds Safe and High-Efficiency Lifelines

Utilities like water and energy are supplied through supply infrastructures, namely pipelines and cables, which are densely extended throughout a city. Foods must be supplied constantly through distribution networks. These infrastructure services are essential that, in times of emergency, must be recovered as quickly as possible.
Also, demand for infrastructure services greatly fluctuates in urban areas and the peak load tends to increase while there are risks that aging and failure of the infrastructure could cause an unexpected incident. With the combination of sensor technology and data analysis technology, NEC contributes to the equal and efficient supply of water and energies. We make efforts to eliminate waste and inefficiencies without forcing people to compromise their comfort. Increased prediction accuracy by utilizing ICT will optimize transportation and logistics, and generate an economic effect as well. NEC aims to be a business partner to support new distribution networks with ICT and enrich people's safe, secure and comfortable urban lives.

Lifeline Infrastructure ICT Evolves Lifeline

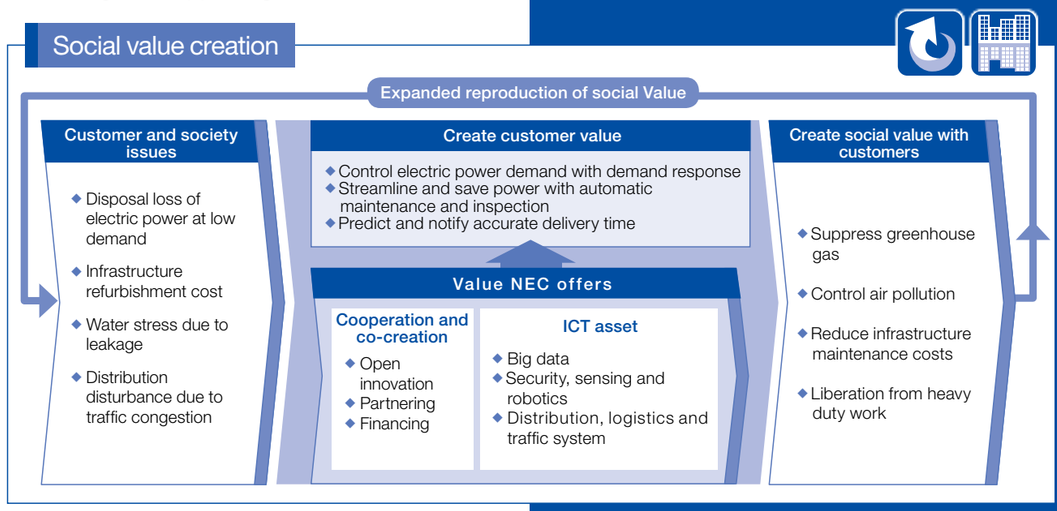
Urbanization will accelerate population concentration around the world in the future. In rapidly developing cities, lifelines that underlie people's lives such as water, electricity, gas, distribution and logistics must be developed in a timely manner and operated in a stable manner. Advanced infrastructure operation with the maximum use of ICT must solve many issues and support people's safe and comfort lives "around the clock".
Sensing technology and analysis technology to process a large amount of data from sensors can rationalize and improve maintenance and operation of important infrastructures for energy, water, gas and other utilities that support people's daily lives.
For example, acoustic sensors that detect the sound of water flow with high sensitivity can significantly improve countermeasures for water leakage. Infrastructure inspection robots that crawl into pipelines gather maintenance information to find anomalies that humans cannot detect. Finding anomalies in an early stage can reduce the cost for maintenance and eliminate waste of water in areas which suffer chronic water shortage.
Even the OECD countries that have well-developed lifelines will face continued works on anti-aging and optimization of lifelines. Analyzing information from car-mounted sensors and ones installed on bridges and roads can precisely predict aging and anomalies of the infrastructure on a real-time basis. Coordinating this analysis technology with a system that controls traffic signals and guides detours will ensure safe and smooth logistics and timely and efficient deliveries of daily commodities.
Delivery services of foods and daily commodities on demand from customers can be made more efficient by means of sensing, big-data analysis, artificial intelligence and robotics. For example, optimization of inventory, in which data analysis technology predicts consumer demand and the size of trading zones, enables retailers to eliminate disposal losses while satisfying consumer needs. Also, organizing a joint distribution network in a region, where autonomous vehicles with artificial intelligence make deliveries, is one of the new and efficient logistics infrastructures with a lighter burden on the environment and society.
The future lifelines that support urban residents will not work without advanced ICT. ICT keeps advancing and supporting lifelines.



Monitoring the lifelines by robot

NEC Initiatives

Optimal control of infrastructure that supports lifelines needs a scheme to collect a huge amount of information from sensors, analyze them, and make a prediction on a real-time basis.
To realize the scheme, NEC, with its distributed processing control technology, aims to build an environment that can analyze and predict any event arising in the real world on a real-time basis.
Also, to realize a high efficiency lifeline, NEC is carrying out various research and development activities and empirical studies. In the field of electric power, looking at the next generation power grid, NEC works on research and development for an energy cloud technology that collects many power consumers' batteries to build a community grid and a digital grid that combines energy and information.
Also, in the field of water, NEC makes effort to solve social issues through joint researches such as smart water management with Imperial College London in the United Kingdom to pursue effective water use and a pipe management system utilizing inspection robots with the Japan Sewage Works Agency and the city of Funabashi, Japan.
For distribution and logistics, we have already started to provide major distributors a solution to predict product demand and make purchase orders automatically based on the heterogeneous mixture learning technology, and are now getting results in reducing disposal losses successfully.
Based on advanced analysis technology, NEC is making efforts to create new values in the fields of fault prediction and demand forecast and control optimization of various lifelines.

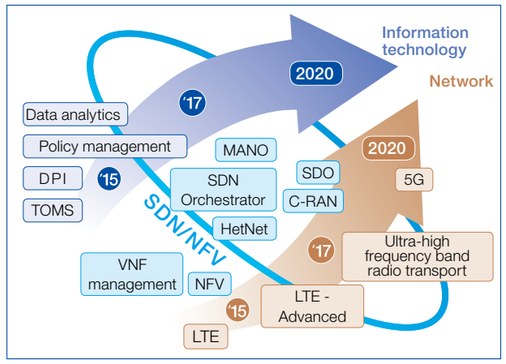


4.7 Billion People, 1 Trillion Devices

The Internet will have 4.7 billion users, 2.5 times the number of current users and 1 trillion connected devices in 2025 – With the explosive growth of the number of devices such as cars and sensors connected to the Internet, the IoT (Internet of Things) era will call for information and communications systems in which a wider variety of information ranging from sensor information to human sensations are communicated in the most efficient manner. Furtermore, there will be more need for solutions to realize a safe, secure and enriched society by utilizing these connected devices. Information and communications systems will be used in even more various applications in society.
Information from 4.7 billion users and 1 trillion devices will make significant contributions to solutions for social issues, including food and water shortage, disasters and healthcare and energy problems.

Paradigm Shift in Communication Industry

Advanced applications used in future social infrastructure will be totally different from those used by people in their smartphones today, in terms of requirements for real-time processing ability, stability, throughput and security.
Therefore, the future communication infrastructure will have to be dynamically and flexibly controlled in accordance with the requirements of applications.
Promising technologies expected to meet these requirements are the virtuaization of network functions and the dynamic control of network functions by applications. In addition, technologies to dynamically control and manage not only existing networks, but also the total network system including virtualized networks, will be important.
Once this future network system is in place, software on the virtualized IT platform will enable the development of flexible, robust and secure networks, deployment of services in a timely fashion and a single platform commonly used for network functions and IT applications, which will make the establishment of more efficient infrastructure possible.
The innovative concept that information technology can change networks will be an important factor in future networks. This technology fusion will realize the advanced information and communications systems in which applications and platforms are functionally separated. Then functions for each application can be combined in an optimal way, which will greatly improve the convenience of communication service users.



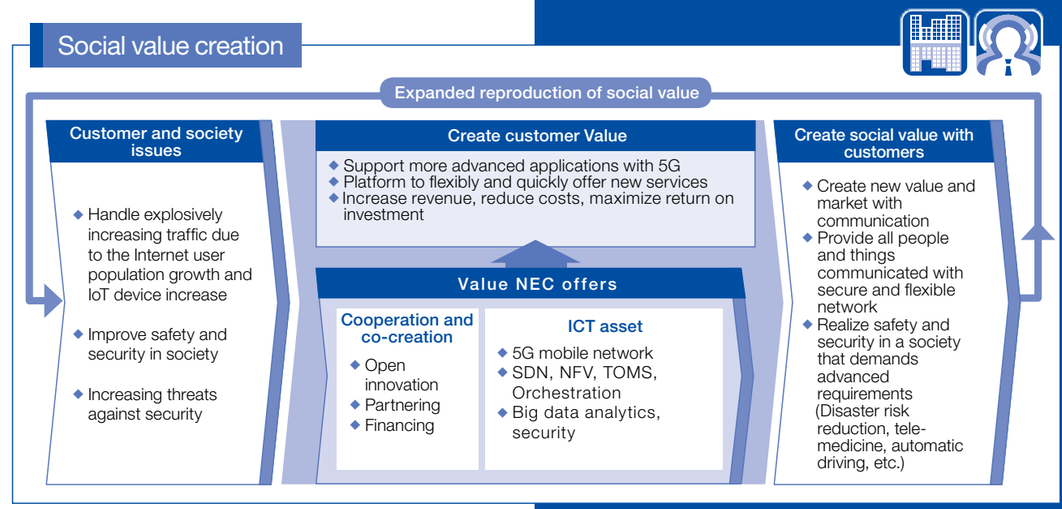
Technology Forecast in Communication Industry Toward the Year 2020

World of New Communications

In the near future, society supported by information and communications systems, with real-time processing, super-low latency and ultra-high reliability, will be able to provide safer and more secure lives. For example, control systems that achieve the automatic coordination of vehicles and traffic will bring safer, faster and more efficient travel or everyone. A further example is the technological evolution in the fields of haptic communication and manipulation feedback, which along with ultra-high-resolution image communication, will realize high-precision remote surgeries and make medical services equally accessible to all.

NEC Initiatives

Advanced networks will be required to be secure and stable with almost no delay, not to mention have higher speeds. Also, it is expected that they will be required to be flexible enough to change communication paths and channel capacities as needed, while maintaining high-rate-of-return cost efficiency.
NEC takes part in global innovative activities including participation in international standardization bodies for the 5G technology, the next enhanced mobile communication after LTE (Long Term Evolution). NEC also works on innovative solutions that can predict network failures, user satisfaction and degrees of congestion on a real-time basis. In order to prevent obstructions, dynamically control resource allocation and change communication paths, the solutions analyze network information such as traffic volume and delay information on the communication networks, in combination with other social data such as climate, SNS and road traffic. Furthermore, NEC offers solutions to integrally manage networks and their business to help communication service providers streamline their overall business management.
NEC, through its efforts in expansion and upgrade of submarine cables, satellites communications, wireless base stations and other equipment, is committed to making significant contributions in realizing advanced information and communications systems, in which people and things in the world can communicate with each other anytime and anywhere.





\Orchestrating a brighter world
Industry Eco-System

ICT Rebuilds Industrial Foundation from Scratch

As the manufacturing industry is tied more strongly with the Internet, industrial barriers are being removed. Popularization of 3D printers and crowdsourcing has brought about a new era where individuals can supply high-quality products as if they are small manufacturers. Advanced countries that are losing workforce will make use of personnel regardless of age and gender and make practical use of robots more aggressively, in which some fresh ideas to solve issues in emerging countries create reverse innovations. Work environments and industrial structures will be transformed significantly. NEC provides our customers with a wide range of support to achieve an efficient and flexible SCM (supply-chain management) by utilizing digital information analysis and prediction support to introduce IoT in customers' research, marketing, design, development, manufacturing and sales activities in conjunction with their global business deployment and a consortium to utilize common digital platforms to develop a safe and efficient eco-system.

Major digital industrial foundation emerges

The evolution of ICT accelerates industrial digitalization, which will greatly change industrial structures in the next ten years. In the distribution business, with customer purchase and demand at the starting point, retailers, logistics and even suppliers started employing SCM (Supply-Chain Management) based on data and new businesses such as SPA (Specialty store retailer of Private label Apparel), private brands of retailers and service-oriented manufacturers, are expanding. ICT is prevailing in the primary industry as well. Farmers and livestock production facilities that introduced autonomous control technology have improved productivity significantly and have started production and planned shipment according to market demands.

Digitalization in the manufacturing industry is implemented as national policy mainly in advanced countries. For instance, the German government is promoting a big joint project called "Industry 4.0" with an industry-university collaboration. The project is intended to bring about the 4th Industrial Revolution by driving ICT such as sensors, M2M, IoT, cloud, big data, robotics and other technologies. NEC aims to achieve autonomous control of production systems in the real world, "smart manufacturing" in other words, by collecting and analyzing information throughout the supply chain and data from sensors.
In this trend, a huge engineering platform will be formed and all processes from product development to production and procurement will be performed digitally under a unified format. It is said that digital information processed on one engineering platform will be worth 10 to 25 trillion Japanese Yen on a shipment basis of final products and that



Standardized Engineering Platform

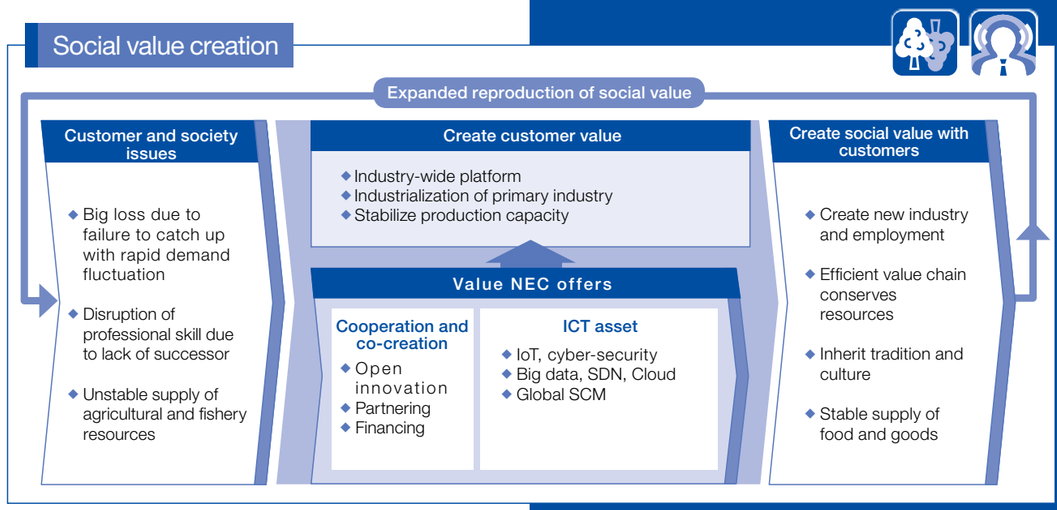
several to several dozens of companies will join in a consortium and share the platform.

Online-digitalized products

Backed up by advancement of 3D printers, a trend of many kinds of small volume production at lower cost is gaining traction on a global scale. Once all manufacturing processes from product planning/ design to shipment are digitalized, the manufacturing scheme may change drastically.
Even foods and pharmaceutical products as well as industrial products can be dynamically produced as much as necessary, anytime and anywhere. Various types and categories of business will continue to shift to a business model incorporating horizontal specialization to promote co-creation of value beyond the boundaries of region. Along with this trend, the trends of open innovation and reverse innovation will become enormous.
There is no doubt that companies with a mastery of advanced ICT will rebuild industrial eco-system and transform the infrastructure and process of manufacturing drastically in the future.

NEC Initiatives

Keeping a close eye on industrial structure reform and trends of new value creation, NEC will keep supporting customer's business through ICT.
With the globlization of economy, value chains of research and development - product planning - design and production - procurement - logistics will advance dynamically in the future. NEC aims to establish a flexible foundation to cope with the changes of value chains with its technologies such as global SCM for advanced operation management based on data analysis and prediction, demand prediction solutions and logistics visualization solutions. NEC already provides cloud services for logistics in Asia that allow companies in each region to trace cargoes and to visualize and share inventory information during transportation.
NEC also carries out research and development for sensing and comprehending people, things and events in applications such as work flow assessment in faclities and instantaneous identification of enormous commodities.
We are expanding the CONNEXIVEM2M platform service as a base to collect digitalized information, and are proactivey involved in an agricultural ICT cloud project utilizing the CONNEXIVE that addresses solutions to monitor failures with industrial machinery and provide a foundation applicable to transportation and logistics.
Through these practices, NEC will incorporate evolving technologies for sensors, ICT infrastructure, and analysis and build a platform to support industrial reform.



\Orchestrating a brighter world

Work Style

Diversified New Work Style (cross-border and co-creation with robots)

We live in an era in which advanced countries face shortages of manufacturing workforce and co-creation by people with various different backgrounds is key to competitive power for countries, regions and organizations. A new work style will surely gain traction that transcends the borders of generation, gender, nationality and organization. Work styles such as having robots work in heavy labor and hazardous environments in the place of humans or a new type of work style where talented individuals exert their competitive edge in multiple organizations are supported by an information society. NEC offers an ICT environment that supports a variety of safe, comfortable and location-free work styles. NEC designs staffing networks from an ICT standpoint in order to flexibly assign workers. NEC promotes ICT use that creates the pervasive and even deployment of open and diversified work styles, knowledge through cooperation, high-quality work and employment.

A new work environment transcending gender, generation and nationality



Dynamic work style

The acceleration of an aging population combined with a diminishing birth rate is a major problem in Europe and East Asia that may cause decreased manufacturing output and economic stagnation. In the case of Japan, if it is not properly addressed, the number of working-age persons supporting a single elderly person will be 1.33 by 2050, half the figure in 2010. It is necessary to modify work styles and improve manufacturing capacity in order to avoid such situations.

In this context, much attention is being drawn to a co-creative work style in which persons with differing cultures, economic situations, skills and experience work in the right place for the right job that transcends generation, gender, region and organization. For example, in the field of open source software development, engineers from around the world, through a network, participate in projects they are highly interested in and combine their knowledge to refine technology. It is expected that this type of co-creative process incorporated in organizations and task forces formed for each project that transcends country and regional borders will become a popular work style.

Additionally, crowdsourcing in which co-creation is extended beyond companies and organizations continue to gain wide traction, and this new type of work style where one is not tied down to a single company or institution will be widely adopted. The co-creation between people, robots and artificial intelligence will also become a reality.

A more flexible and diversified work style is supported by core technologies and services such as the cloud. This type of work style could support individuals who have difficulty working full time, such as elderly persons who have difficulty getting around, those on maternity leave, childcare leave and those who regularly receive medical treatment, creating an environment where they could work in their spare time. These technologies can help realize an optimized work environment that flexibly adapts to changes in work styles and changes in personnel availability, transcending countries and regions.

NEC Initiatives

Along with advancements in ICT, new opportunities will arise for both workers and companies in the future. Companies will be able to utilize individuals who full-time employment could not give an opportunity to work in the past, by accessing personnel with highly specialized knowledge, a high level of knowledge about various countries and regions and those with deep intelligence and insight.

NEC utilizes big data analysis to provide personnel matching solutions. The RAPID machine learning, which can achieve more accuracy as the amount of available data grows, makes it possible to find the one person who is a perfect fit for any given company or project. NEC runs Software Factory, the largest cloud software development environment in Japan, where there are currently over 10,000 engineers from India and China working on joint development. We aim to raise the number of engineers working on Software Factory to 30,000 by 2016. This type of co-creative environment demands the type of ICT that NEC has strength in, such as systems and smart devices that support telecommuting and remote working, a high level of security and core cloud systems.

NEC offers an ICT environment that supports a variety of safe, secure and location-free work styles.

Social value creation

Expanded reproduction of social value

Customer and society issues

- Demand-supply gap for persons with high proficiency and technical skills
- Missed work opportunities due to difficulties in work-life balance
- Environments where people are coerced into hard labor

Create customer value

- Diverse, cooperative cloud infrastructure
- Co-creation and cooperative environments between people and robots
- Dynamic, open use of specialized skills

Value NEC offers

Cooperation and co-creation

- Open innovation
- Partnering
- Financing

ICT asset

- Work style transformation solution
- Mobile, cloud
- Robotics
- Proficiency matching
- SDN

Create social value with customers

- Bring out humanity with more creative activities
- Bring about productivity through globally accepting diversity
- Promote independence and create work opportunities for women and the elderly
- Improve work-life balance

Affluent Society Where Individuals Thrive and Equality of Treatment and Education

An aging society drives up social expenditure such as medical costs, and puts pressure on government finance. On the other hand, not all children have opportunities for high-quality education and medical treatment. Providing younger generations opportunities for a healthy life and education is key to promoting regional and national independence, as well as economic development. Through various devices, NEC links personal vital data with electronic medical records at medical institutions, helping promote preventative medical care. NEC also designs systems from the viewpoint of using ICT to help individuals maintain and improve their health in cooperation with regional communities, local and national governments.
NEC also aims to create educational ICT without barriers such as time, location and language in order to accommodate the curiosity and desire to learn that increase as the digital society spreads across the globe. With these efforts, NEC will help support an affluent living environment for all.

Personalized medical care

Although Japan and the EU are currently facing the issue of an aging population, it will soon become an issue in South Korea. Singapore and China as well, and by 2020, more than one billion people will be age 60 or over. An aging population means unavoidable increases in spending for social security, medical insurance and nursing care.
ICT will play a major role in helping solve these issues. Personalized healthcare can be achieved by intelligent analysis of data acquired from high-precision sensors embedded in wearable devices. For example, if information on daily health maintenance (medication, blood pressure and blood sugar measurement) of the elderly is automatically carried out by sensors and robots and then shared seamlessly with medical institutions and nursing stations, disease progression can be prevented, and quick response to emergency situations can be made possible.
Currently, separate ICT systems are used for healthcare, medical treatment and welfare. However, if information such as electronic medical records, prescription records, etc., are shared based on a national ID, a life cycle support platform can be developed where everything can be managed from health maintenance to identifying causes of disease and illness.
NEC supports health maintenance and improvement and helps create an affluent living environment where the burden of social security costs is reduced.



Sensors help protect your daily life

ICT brings about opportunities of Equal education

Approximately 72 million children around the world are not able to attend elementary school, and approximately 759 million adults (16% of adults) around the world do not possess the basic skills of reading, writing and math. E-school, made possible by ICT, is proving revolutionary in improving this situation. If resources such as the Internet, social networks and cloud services are used to create excellent remote educational facilities, an educational curriculum will be available any time, anywhere to all, without limits on language, age, or location. This kind of educational system structure could contribute to the training or personnel who plays an active role globally. Each individual would be able to freely absorb the various kinds of knowledge that interests them and fulfill their needs and live rich, creative lives.

NEC Initiatives

NEC has spent many years endeavoring to incorporate ICT into medical services. “MegaOak”, the electronic medical record system with a track record of implementation in numerous locations has contributed to computerization and work optimization in Japanese medical institutions. In addition to “ID-Link”, which is used to share scattered diagnostic information among medical institutions, NEC also addresses “Advanced Medical Interviews” in order to get a complete picture of a patient’s status and accurately communicate it to physicians. The NEC Smart Elderly Information Management Platform deployed in China comes with a comprehensive package of an ordering system that allows the elderly to order meals from a tablet device, a management one that helps staff with total management of information on the health of the elderly, and a monitoring one that detects the location of residents to see whether or not they are experiencing health difficulties. In addition, NEC possesses ICT that supports advanced medical and healthcare services and remote diagnosis, including analytical technologies that estimate which persons have a higher risk for worsening conditions based on health insurance statements and exam data, pathology image analysis systems that reduce the workload of diagnostic on doctors who are always busy, and cloud services that support health management (SaaS).
NEC also has a wide customer base for educational services, such as local governments and private educational institutions, and operates the largest educational cloud base in Japan, used by 130,000 teachers and students. From here on NEC will endeavor to provide an equal, global remote education ICT base in cooperation with overseas governments and educational institutions that is not limited by nationality, location, time, or region.



NEC Corporation
7-1, Shiba 5-chome
Minato-ku, Tokyo 108-8001
Japan
Phone: +81-3-3454-1111

Concerning trademarks
The names of products and companies appearing in this document are the trademarks or registered trademarks of their respective companies.

Precautions Regarding Forward-Looking Statements
This material includes forward-looking statements of NEC Corporation and its affiliated companies concerning strategies, financial goals, technologies, products, services, and track records.
For details, please refer to the following URL.
http://www.nec.com/en/global/about/solutionsforsociety/notice.html

©NEC Corporation 2014
Printed in Japan
Cat.No.14110005E