## MARKET NOTE

# NEC Global Analyst Summit 2017

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## EXECUTIVE SNAPSHOT

## FIGURE 1

**Executive Snapshot: NEC - Orchestrating a Brighter World**



Digital transformation (DX) remains a key topic of interest for NEC, with strong analytics and AI developments for its target customers. NEC aims to achieve a sustainable society that creates vitality in enterprises industries, cities, and people by connecting resources to people, things, and contexts.

**Key Takeaways**

- Horizontal technologies such as the sustained preparation and R&D for 5G mobile networks and wireless systems are under way. This includes the submarine cables business, which continues to be a key revenue generator for NEC. In addition, AI developments in supercomputers and predictive analysis automation are core technologies that will spearhead new revenues in this DX drive.
- Safe cities through integrated physical and cyber security solutions remain a key driver of vertical industries solutioning. These solutions help bring about other interesting use cases in cross-industry solutioning (e.g., retail, manufacturing, healthcare and energy, among others).
- NEC would do good to understand that horizontal technologies in silos will need to be fully integrated and packaged as vertical solutions for more successful go-to-market wins. The need to determine use cases for innovative technologies will be critical and NEC is expected to market globally but develop unique solutions locally. Therefore, partnership ecosystems will be key toward helping broaden the market opportunity for NEC's innovative solutions.

Source: IDC and NEC 2017

## IN THIS MARKET NOTE

This IDC Market Note covers key discussions and announcements shared during NEC Global Analyst Summit in Tokyo from November 7 to 10, 2017. This session happened alongside the NEC Future Creation Forum as well as the C&C User Forum and iExpo 2017.

## IDC'S POINT OF VIEW

### IDC Opinion

On November 9, 2017, NEC's President and CEO (Representative Director), NEC Corporation, Takashi Niino, opened the annual summit at the Tokyo International Forum. He anticipated a post digital transformation (DX) world that would span across key focus industries for the company such as manufacturing, finance, healthcare and public safety (airports, streets, and events). Notably, these DX occurrences are expected to be led by cutting-edge technologies such as next-generation 5G networks, supercomputers, cloud computing, artificial intelligence (AI), and the Internet of Things (IoT).

The CEO keynote and the rest of the event underscored NEC's social value creation and commitments in its drive to be "Orchestrating a Brighter World." The point of departure was six global megatrends (including resource and environmental issues, sustainable cities, and diversified threats) that are shaping technology and business demands. Thus, these megatrends drive NEC's seven themes for social value creation: sustainable earth, quality of life, work style, safer cities, lifeline infrastructure, communication, and industry ecosystem. This approach remains a differentiator for NEC, compared with many technology vendors with a narrow quarterly result focus, and one that the company should emphasize in non-Japanese markets such as Europe, the Middle East, and Africa. As such, this approach is also heavily outcome-based, which is a major leap forward from the product-centric approach of the past. This means that there is a significant focus on "co-creation" in the industry ecosystem, working with a range of partners to achieve the business outcomes implicit in the seven themes for social value creation. These partners ranged from operational technology players such as GE Digital to agricultural players and universities, leveraging areas such as AI and IoT.

In addition to "co-creation," such an outcome-based approach requires a new role for the channel partners, and indeed, often new types of partners. In specific geographies such as EMEA, there could be huge potential upside for NEC as it moves from being a provider of IT building blocks such as IP PBX and network equipment to an enabler of the smart enterprise, where solutions such as unified communications and software-defined networking come together to improve quality, reliability, and availability. However, it will require a set of channel partners that can demonstrate vertical expertise and thrive in an outcome-based world shaped by social value creation.

### Horizontal Technologies

#### *5G*

5G (or 5th generation mobile networks or 5th generation wireless systems) is expected to provide the fastest, lowest latency, and widespread connectivity required by organizations across a wide range of industries to digitally transform. Notably, mobile and IoT devices will be able to connect to these networks simultaneously, enabling the real-time exchange of information. In addition, the increased use of artificial intelligence (AI) will play a critical role in a whole generation of eservices, strategic operations models, human-technology interactions, and industry value chains for data assets. NEC seeks to drive acceleration of DX through 5G toward the achievement of a fulfilled society. The

company has demonstrated a keenness to support this new wave of digital transformation for telecommunications carriers, companies, and government organizations through its proprietary ecosystem of technologies such as AI, IoT, and other digital technologies across three pillars of innovation: social, operations, and network transformation. NEC demonstrated at the summit its full commitment to the realization of the 5G era ecosystem with its own internal digital transformation plans. These include the commitment of over 1,000 personnel that will be involved in research and development, partnering activities, as well as solution planning.

## Submarine Cables and Natural Disaster IoT Solutions

NEC claims to be an active provider of one-third of the world's submarine cables yearly. Every year, the company notes growth in submarine cables demand worldwide to be consistent with around 60,000 to 70,000 kilometers of cables being laid. This is expected to accelerate with the current digital transformation fever globally.

Notably, growing cloud computing demand is expected to drive the growth of undersea cables further. The company claims that the latest submarine cables can carry up to 80 terabits (Tbps) of information using Dense Wavelength Division Multiplexing (DWDM) transmission technology. 80Tbps is equivalent to 1.2 billion voice circuits per cable or 2,100 DVDs (each 4.7 gigabyte) transmitted in one second. NEC has been involved in most major projects in deep water environments (up to 8,000 meters) globally for over 25 years. The company has been in charge of providing a total solution for these submarine cable projects, which include systems engineering, systems integration, installation, commissioning tests, and long-term maintenance support. Interestingly, these submarine cables have also provided NEC the capability to deploy earthquake and tsunami sensor-based monitoring systems. These were deployed around Japan and Taiwan.

## Supercomputer and AI

NEC's new supercomputer system, the "SX-Aurora TSUBASA," is expected to demonstrate the company's venture into high-performance computing (HPC). With its newly created vector processor and x86/Linux architecture, the new SX-series architecture boasts sustained performance with ease of use. When probed about potential use cases, executives highlighted tertiary research institutions, medical and genome/DNA research organizations, climate institutes, and manufacturing operations as key future customers.

AI was a huge recurrent theme through the conference. NEC's President and CEO detailed AI automation as a key underlying technology that the company will focus on to bring about better social-value creation by empowering companies/industries, cities, and people. A follow-up briefing by the NEC's Data Science Research Laboratories detailed the social-value creation that will require the coordination between humans and AI. Three main focuses of development were introduced: Visualization, Analysis, and Prescription. Three use cases were also highlighted for advanced AI:

- **Urban surveillance:** To detect potential dangers for crime prevention and boost existing public safety solutions. NEC claimed to have helped reduced vehicle theft by 80% with an unnamed customer.
- **Fresh food demand prediction:** For predicting demand and streamlining the entire retail supply chain while considering demand spikes and troughs of human-led events (e.g., festive events such as Christmas that demands more turkey meat). NEC claimed to have helped an unnamed customer reduce disposal wastage by 40%.

- **Customer voice analysis:** For the automated suggestion of appropriate responses through a real-time analysis of the customer's inquiries. NEC claimed to have helped an unnamed customer reduce work hours by 30%, thereby improving staff productivity and customer wait times.

## Predictive Analysis Automation

The scarcity of data scientists globally is notable and this means many business programs will not have sufficient manpower to fully exploit the potential of their advanced analytics systems. In addition, the time it takes to build predictive models can span weeks to months of machine training as well as trial-and-error retuning.

NEC proposes to help its customers scale out data-driven business processes with NEC's predictive analysis automation solutions, thereby providing clear confidence with accurate answers for customers, which is critical to determine the ROI for such systems. These solutions are expected to play a major role in digitally transforming myriad business processes across multiple industry verticals. Some uses of predictive analysis automation solutions include the ability to predict potential customers through more personalized marketing campaigns, the ability to assess needs and demands for whole supply chain processes, as well as the automation of credit administration such as fraud detection or loan investigations to improve business efficiency.

# Vertical Industries and Case Studies

## Safe Cities: Securing the Physical and Cyber Worlds

Globally, the rise of digital transformation is bringing about borderless innovations and collaborative opportunities. Many corporate organizations, including local or city governments, have stepped up investments in these cutting-edge technologies to continually engage their stakeholders effectively. Such progress of increased mobility and connectedness also means the additional burden of security risks. Governments, enterprises, technology experts, and several other stakeholders need to take a more collaborative approach to the systemic security of critical infrastructures. This means a stronger multi-agency and multi-stakeholder collaboration is essential in the digital ecosystem.

For instance, selected data from previously siloed systems in both public and private domains are weaved together into one coherent view (typically at command centers) and real-time protective, corrective, and restorative actions can be performed. Moreover, in addition to physical security systems, more and more nations globally are building cybersecurity mechanisms in tandem. This will help ensure the pervasiveness of sound cybersecurity practices to reassure city stakeholders on the safety of their cities, thereby strengthening sustainable socio-economic betterment.

The summit featured two live government end-user demonstrations. The first was NEC's trial collaboration with the Ministry of Home Affairs in Singapore for the safety and security of public areas, crowd monitoring & analytics, and drone surveillance programs. The second was the United States' Customs and Border Protection's use of an integrated border security system. Key security solutions during the NEC C&C User Forum and iExpo 2017 include:

### Walkthrough Face Recognition System

An integrated border security and cybersecurity system to help ease the increased movement of people globally at checkpoints. This solution includes a physical recognition security system with an integrated picture database, which analyzes the similarities of an individual in front of the camera mounted on the gate system to the registered pictures. This solution can either be a standalone system or be provided with a partner.

### Gaze Detection

This solution is used to boost CCTV footage data. It is well noted in public safety spaces that gaze detection of suspects (who are checking out surveillance camera locations) across a distance has been perceived to be difficult. However, with this technology, NEC believes it is now possible. Beyond boosting the capabilities of potential human threat detection with CCTVs, this technology can also be used at retail outlets to better understand human interest, minds, and behavior, thereby helping retail outlets psychologically predict product placements to boost sales.

### Smart Sound and Acoustic Analytics

The use of sonar technologies can help boost surveillance solutions, especially in dark areas where visibility is bad (e.g., badly lit areas, underwater, haze/fog environments). The tracking of sound waves trajectory can help command centers map out to help public safe enforcement teams navigate through poor visibility. Besides their use in public safety contexts, these solutions are also recommended to be used in smart homes or hospices (especially for the elderly), as well as in manufacturing operations that operate 24 hours a day, 7 days a week (e.g., weird sounds could mean some portions of the machinery have worn out).

### Speaker Recognition: Voice Biometrics for Personal Identification

In addition to fingerprint, face, and iris recognition technologies, NEC is now venturing into speech recognition. The company claims its solution can conduct a matching with 3 million unique persons in one second of analysis. The solution seeks to track a "voiceprint" of each analyzed individual for two specific use cases: in telephone banking with multifactor authentication needs and in entrance control at specific facilities (e.g., medical centers, food factories).

## LEARN MORE

### Related Research

- *The Workforce of the Future* (IDC #AP42881917, July 2017)
- *Asia/Pacific Public Safety Market* (IDC #AP41870016, October 2016)

## Synopsis

In this report, IDC covered key discussions and announcements shared during NEC Global Analyst Summit in Tokyo from November 7 to 10, 2017. This event occurred alongside the NEC Future Creation Forum as well as the C&C User Forum and iExpo 2017, where analysts had the opportunity to walk the grounds and explore the innovative technologies and solutions as well as NEC's customers deployment best practices.

Horizontal technologies such as preparations and growing R&D activities for 5G mobile networks and wireless systems are noticeably proceeding. NEC shared its dominance in the submarine cables global market, which continues to be a key revenue generator for the company. Moreover, ecosystem-based enabling technologies such as AI developments in supercomputers and predictive analysis automation are core technologies expected to spearhead new revenues for NEC in this DX drive. IDC notes that public safety or safe city solutions through integrated physical and cyber security solutions continue to be a key driver of NEC's vertical industries solutioning. These cutting-edge solutions have direct implications and impact on other cross-industry solutioning and potential market growth (e.g. retail, manufacturing, healthcare and energy, among others).

## About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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