

## MARKET NOTE

# Digital Inclusion and Digital Create a Brighter Future for All: NEC iExpo 2019

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## EXECUTIVE SNAPSHOT

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### FIGURE 1

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#### Executive Snapshot: Digital Inclusion and Digital Create a Brighter Future for All: NEC iExpo 2019

This Market Note covers NEC iExpo 2019, held in Tokyo on November 7 & 8, 2019. The event highlighted NEC's vision for wider digital inclusion, connecting people, things, and processes beyond traditional social, corporate, and industrial boundaries to create new value. Cutting-edge technologies such as artificial intelligence (AI), quantum computing, and Internet of Things (IoT) were matched to various innovation value chains (e.g., digital finance, retail CX, logistics, mobility) as a means of productivity gains and service experience enhancements.

#### Key Takeaways

- Creating social value through actualizing innovative ideas for digital transformation, growth, and sustainability was the core message NEC advocated at the event.
- NEC is expanding its European footprint. Its acquisition of the United Kingdom's Northgate Public Services and Denmark's KMD are expected to bring in strong AI, public safety, and digital ID; 5G networking; and smart hospitality asset finance platform solutions (and Smart City for European public sectors).
- NEC has a heavy focus on AI for visual computing and biometrics, which will be very credible for government and security-based use cases. But this will require clear ethical guidelines on how these technologies can and should be used in civil society.

Source: IDC, 2020

## IN THIS MARKET NOTE

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This Market Note discusses NEC iExpo 2019, held in Tokyo on November 7 & 8, 2019. Creating social value through actualizing innovative ideas for digital transformation, growth, and sustainability was the core message showcased by NEC at the event.

## IDC'S POINT OF VIEW

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With several new international market business wins, acquisitions, and deeper partner networks, NEC is continually focusing on co-creation with its customers, as well as the customers of its customers, as a critical pillar of its long-term strategic goals. Established in 1899, the company has an annual revenue of over US\$26 billion (FY2018) and has recently been taking on a larger global footprint.

### Executive Insights

IDC analysts were given access to senior-level NEC executives during the NEC iExpo 2019, which include: Takashi Niino, President and CEO (Representative Director); Masakazu Yamashina, Executive VP; Toshifumi Yoshizaki, SVP; Akio Yamada, VP; and Raffie Beroukhim, SVP.

### Spurring New Digital Intelligence Solutions and Digital Identity Innovations

Takashi Niino, President and CEO (Representative Director) with NEC Corporation, opened iExpo 2019 with "Digital Inclusion" as a key theme for the company's 120<sup>th</sup> anniversary going into 2020. Much of their focus is in the democratization of leading emerging technologies (e.g., facial analytics, biometrics, next-generation security and 5G networking) that provide advanced "visualization, analysis and prescription," to continually automate, augment, and amplify the increasingly interconnected lives of individuals in society today.

#### *NEC's AI Services*

NEC has long been developing AI technology most notably in the fields of visual computing and biometrics. Starting with character recognition, visual computing has expanded into fingerprint identification and face recognition with the goal of better assessing human behavior and emotive states. To do this NEC has developed a suite of visualization, analysis, and prescriptive models modestly branded as 'NEC the WISE.' On the visualization side, the focus has been on improving the data quality of underlying images, and fusing image data from multiple sources. Once the data is in place, recognition of entities in the data can begin, typically facial or fingerprint or iris recognition, or of stream-based data such as video or speech. This is followed by analysis about the meaning of the entities, say, profiling a customer over time, analyzing individuals in a crowd, or determining emotions embedded in facial images. More sophisticated applications incorporate a prescriptive element: the autonomous control of systems or optimizing responses based on historical data. These models are available as APIs and as customizable templates, inevitably modified to take advantage of local data and specific functional requirements in the AI projects typically embedded in larger NEC systems integration (SI) engagements.

#### *NEC's Digital ID Services*

##### **Gavi: Infant Biometrics-Based Digital ID**

NEC President Niino shared an example from Gavi: The Vaccine Alliance, a non-profit organization that estimated one-tenth of children worldwide do not receive the necessary health vaccinations,

largely due to a lack of formal identification solutions or documentation. Although mobile devices can easily help capture biometric data such as fingerprints today, it is harder to do this for infants under five due to their small fingers. Gavi brought NEC to partner with Simprints to develop a scalable, AI-based algorithm that can accurately capture infants' fingerprints and link their identities with their medical records. This is expected to boost vaccination coverage globally, streamline the manufacturing supply management of vaccines, and therefore reduce medical waste.

### **India's National Digital ID: Biometric Identification for 1.3 Billion Individuals**

The Unique Identification Authority of India (UIDAI) manages the Aadhaar Program, an ambitious national identification system designed to provide digital IDs to all 1.3 billion residents of India, which captures unique biometrics characteristics such as face, iris, and fingerprint identification. This provides Indian citizens the ability to easily and quickly authenticate anytime and anywhere when accessing government or personal finance services. India's National Digital ID solution is powered by the multimodal NEC Biometric Identification engine that is ranked first worldwide based on NIST's (the U.S. National Institute of Standards and Technology) accuracy testing.

In creating such groundbreaking digital ID solutions, NEC realized the increasing need to protect private citizen information and establish an ethically aligned AI system. To this end, seven rules of AI and Human Rights Principles were established: fairness, privacy, transparency, responsibility to explain, proper utilization, AI and talent development, and dialogue with multiple stakeholders.

### ***Social Value Creation***

Niino further cited several cross-vertical case studies to illustrate social value creation:

#### **Buenos Aires' Blockchain-Based Digital ID: NEC, IDB Lab, and NGO Bitcoin Argentina to Deploy a Blockchain-Based ID System to Alleviate Poverty**

The goal of this four-year project is to increase access to quality goods and services for the city of Buenos Aires through a digital citizen ID that is portable, secure, accountable, and self-sustainable. Here, imperfect information was cited as one of the main causes of Buenos Aires' poverty level of 16.2%. To address these concerns, the project seeks to provide all residents with a digital identity by integrating blockchain technology that allows accurate and secure identification of information about an individual's activities while protecting their privacy and enabling them to monitor their own data. To illustrate, this service will receive data input for unbanked individuals created by a digital wallet, enabling them to access financial services, such as storing digital money and making payments, transfers, and remittances while building a transactional log chain that is immutable and secure.

#### **Next-Generation Airport Customs Procedure System: 6 Japanese Airports (New Chitose, Narita International, Haneda, Chubu International, Kansai International, and Fukuoka)**

With rising air travel accessibility and a booming tourism industry, Japan expects that the number of international visitors will continue to double, reaching 60 million by 2030 from 31 million in 2018. This means that its airports' immigration systems need to be equipped with accurate personal identification systems that can continually shorten waiting times and thus enhance travelers' experiences. Currently, NEC's facial recognition technology is being deployed at Narita International Airport Terminal 3 as of April 15, 2019. The remaining five airports, which will account for 90% of the annual passengers entering Japan, will have these new electronic customs procedure systems from March 2020 onward. These systems are designed to accelerate the customs procedures through facial recognition

technologies at declaration terminals, customs inspection areas, and exit gates. In addition, baggage management can be traced electronically using smartphone applications.

### Next-Generation Passenger Loyalty Biometrics Solution: Star Alliance

Coming in the first quarter of 2020, Star Alliance customers will enjoy more seamless customer journeys. Customers can opt-in to a biometrics data-based identification platform that is expected to bolster greater customer experience and loyalty within the Star Alliance travel ecosystem. Broadly speaking, a seamless and hands-free passenger experience can be expected from curb-to-gate touch points within airports (e.g., check-in counters/kiosks, bag-drop, lounges, boarding gates). Jeffrey Goh, CEO of Star Alliance, stated that a bottom-up design approach will be used to give customers the ability to actively manage the flow of their data through consent management that is compliant with data protection laws.

### I:Delight: Personalized Adventures Unified by Trust

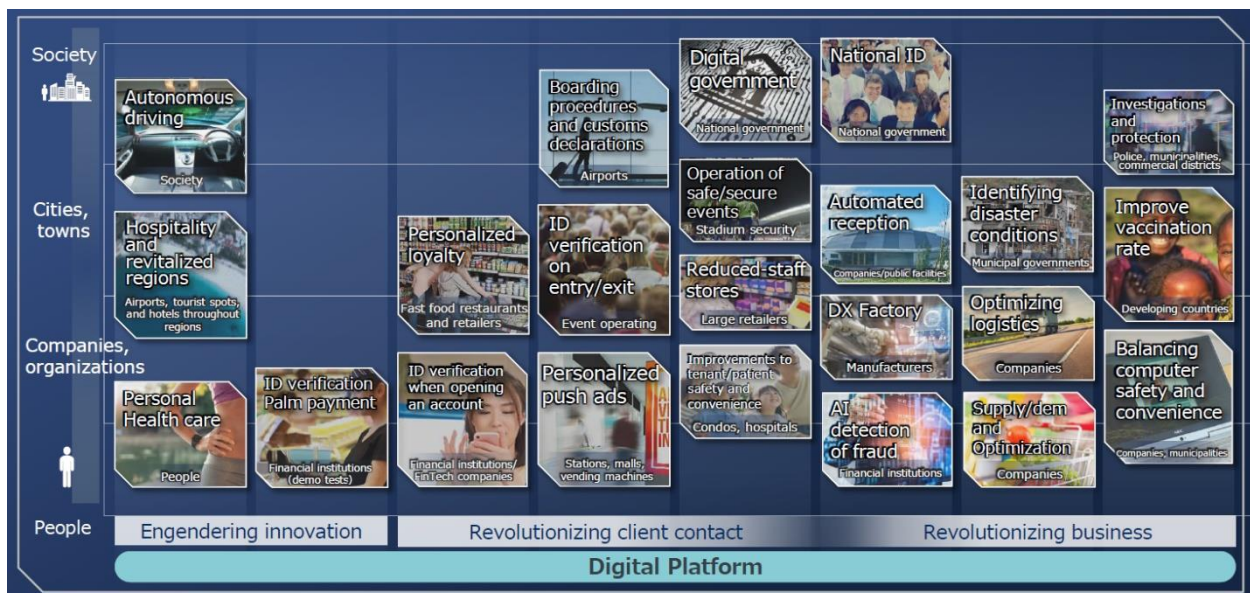
NEC President Niino cumulated his keynote with the introduction of NEC's I:Delight holistic solution. Interestingly it's a revolutionary bottom-up approach to digital platform developments as the solution illustrates the use of personal identification and digital technologies to interconnect people, processes, and things that go beyond national and corporate jurisdictions. Within these ecosystems, participants can independently choose to partake in digital services securely and efficiently in myriad everyday "live, learn, work, and play" scenarios.

### Toward a True Digital Business Approach

To this end, Toshifumi Yoshizaki, Senior VP, NEC Corporation, shares the following unique digital use cases and solutioning strengths that NEC will be focusing on enhancing in the coming years:

FIGURE 2

### NEC's Digital Frameworks and Use Cases



Source: NEC, 2019

## Expanding European Footprint

According to Masakazu Yamashina, Executive VP, NEC Corporation, following NEC's £475 million (US\$532.12 million) acquisition of U.K.-based IT services company Northgate Public Services Limited (NPS) from Cinven, which completed in January 2018, the company continued its purchase of KMD Holding ApS for 8 billion kr. (US\$1.2 billion) from Advent International, which completed in February 2019. These acquisitions are expected to bring in strong AI capabilities, public safety and digital ID (e.g., biometrics-based solutions and crime management systems), finance solutions (e.g., analyzing bank transactions), and data utilization (e.g., aggregating/integrating and analyzing cross-functional government data for city services) for European public sectors to quickly detect fraudulent activities, improve and reduce administrative costs, digitize and digitalize more citizen and operational services, and improve overall public sector innovations that will generate greater social value. With a projected 200 billion yen (US\$1.83 billion) FY2020 sales target (up 25 billion yen, or US\$229 million, from FY2019), a software-based go-to-market strategy will be expected to see the company through this growth expectation.

## Cross-Industry Value-Chain Innovation

Akio Yamada, VP, Enterprise Business Unit, NEC Corporation, shared on the Future Industries possibilities where value chains of digital innovation are deployed to link up diverse enterprises and industries via co-creation. All these transformations, with a dogged focus centered on customer journeys through connecting people, goods, and processes will streamline efficiencies and create social and financial value.

## IDC Opinion

Through specific use cases, the company shared diverse messages around cross-industry digital transformations as well as presented their case on the use of emerging technologies such as AI, quantum computing, 5G networks and IoT, and next-generation security to drive greater digital inclusion for all. Given the sensitive nature of security solutions such as AI-based facial recognition, it comes as no surprise that NEC is highlighting the ethical dimensions of this space. Much of the conversations were closely tied to the "what" and "how" of social value creation, thereby creating a "brighter future for all."

## LEARN MORE

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### Related Research

- *Creating Socioeconomic Value with Smart Solutions: NEC iExpo 2018* (IDC #AP44755318, January 2019)
- *NEC Makes Bold Strides to Transform; Sees Significant Opportunity Outside Japan* (IDC #IcEMEA44520418, December 2018)

## Synopsis

In this report, IDC covered the proceedings and discussions at the NEC iExpo 2019, held in Tokyo November 7 & 8, 2019. This event occurred alongside the NEC C&C User Forum and iExpo 2019, where analysts had the opportunity to walk the grounds and explore the innovative technologies and solutions as well as NEC customers' deployment best practices.

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