

# CASE STUDY



NTT DATA  
Global IT Innovator

## NTT DATA Technology Foresight 2016



### Measuring biosignal of driver during races with sensor-embedded shirt

The application of hitoe, a functional material capable of capturing heart rate and cardiac potential, is broadening. At the IndyCar Series held in the U.S., we successfully measured the driver's biosignals while driving the course under severe tension and intense gravitational force. This is done non-intrusively by wearing a sensor-embedded undershirt using hitoe technology. Going forward, we are considering using this quantified information to improve conditions and training methods for the driver.



### Communication robots assist retail stores of financial institution

We are conducting experiments using communication robots in numerous fields. For example, a cloud connected robot talks with people appropriately by recognizing voices, capturing images, and using various sensor information gathered to the cloud. The range of such applications are expanding: assisting care of the elderly in nursing homes, conducting interview surveys to visitors at public facilities, and answering questions as a receptionist at the retail stores of a financial institution.

## ABOUT NTT DATA

*NTT DATA is a leading IT services provider and global innovation partner headquartered in Tokyo, with business operations in over 40 countries. Our emphasis is on long-term commitment, combining global reach with local intimacy to provide premier professional services varying from consulting and systems development to outsourcing. For more information, visit [www.nttdata.com](http://www.nttdata.com).*

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Contact NTT DATA Technology Foresight team if you are interested in knowing more about any of these trends.



*Looking ahead: Technology trends driving business innovation.*

*NTT DATA Technology Foresight aims to map out the impact that technology will have on society and business in the coming years and outline expected business innovation.*

# Information Society Trend

We anticipate four key trends will have significant impacts on our clients' medium to long-term business.

## Power of the Individual

The growing influence of individuals will transform existing societies and industries. Digitization will force providers to extend their existing business models to be more customer-centric, embracing the increasing power of the individual.



IST01

## Decentralized Collaboration

Many people and all kinds of things will be linked to the Internet, resulting in innovation. Each component will act autonomously, and a new ecosystem will be built where relationships will change dynamically.



IST02

## Hyperconnected Society

Big data analytics will fuel innovation. Products after shipment will become ever-evolving things with growing functionality and performance. This in turn will boost customer value and promote the transformation of business models.



IST03

## Smarter Society

The physical-digital convergence will broaden in scope. More flexible and effective use of technology will create new value, improve social issues, and lead to a smarter society.



IST04

## Immersive Interaction

Devices and technology to enrich one's perception of reality is emerging. By enabling people to naturally perceive and utilize more information, new computer interaction can potentially transform human behavior and enhance the scope of their actions.



TT01

## Precision Life Science

DNA analysis has become readily available and obtaining continuous biological information will be easy through the use of sensors. Analytical research utilizing large-volumes of shared data will enable a better understanding of people's daily lives leading to positive changes.



TT02

## Symbiosis with Artificial Intelligence

Advanced machine learning algorithms will enable computers to understand time and be aware of context. Hence roles of computers will expand. The coexistence of humans and computers will advance through an evolution where people will take charge of work to realize overall optimization.



TT03

## Autonomous Mobility

Next-generation mobility centered around connected cars will innovate the transportation of people and things. Cities will develop as a fluid system through real-time, mutual sharing of information, including the transportation of people, the operator's condition, and the external situation.



TT04

# Technology Trend

The following eight technology trends are expected to have the biggest influence in the coming years.

## Ambient Commerce

Service tailored to the preference, affiliation, and condition of individual customers will emerge. The continuum of customer point of contact, from discovery, purchase, payment and receiving of products, will become seamless, enabling customers to have a stress-free experience.



TT05

## Distributed Mesh Computing

New distributed architecture has appeared to adapt to cloud-native applications and big data processing. "Block chain," the peer-to-peer bitcoin platform, is expanding its application to diverse systems, not limiting its use to virtual currency.



TT06

## Cyber-Physical Security

The advent of Internet of Things has extended the impact of cyber attacks to the physical world, requiring every device to have security measures. To cope with the growing scope of cyber attacks, joint defence, such as immediate sharing of threat information, is required.



TT07

## Engineering Innovation

The application of new technologies to manufacturing, such as virtual reality, sensors, 3D printers, and robots, will lead to sophisticated digital manufacturing. The application of design methods that make products evolve through the repetition of high-speed verification will expand.



TT08