

OWN
TECHNOLOGY
IN ACTION



OFFERING A
NEW VALUE
TO SOCIETY

IOWN TECHNOLOGY IN ACTION: OFFERING NEW VALUE TO SOCIETY



NTT is innovating to enable our mission of contributing to society into practice and building a better future for all of us. These efforts span many sustainability considerations, from improvements to core social infrastructure to technologies that extend into space and transcend conventional limits. Here we explore five areas of how IOWN technologies will change people's lives for the better and the value they offer to the world around us.

1. ULTRA-HIGH PRECISION PREDICTIONS

The creation and analysis of massive amounts of data in the digital space is expected to enable more efficient operations and help address significant social challenges. At the same time, services that create new value by coordinating data across industries and platforms remain a work in progress. An IOWN innovation known as a 4D Digital Platform promises to solve many challenges in this area.

It processes cross-industry integration of sensor information into a high-precision, real-time, geospatial environment, including accurate location and time data. This enables present analysis, future prediction, and simulation of possibilities that can be harnessed to support specific business and societal goals.



VALUE TO SOCIETY:

- **Taming road traffic:** Detecting causes of accidents and traffic congestion in real-time and supplying information based on current conditions and future predictions – Preventing problems before they occur. Roadside cameras, traffic signals and other sensors are connected to platforms that ensure safe and comfortable travel without unexpected events.
- **Managing urban assets:** Sourcing information from sensors and devices, new technology will create digital twins of urban spaces, offices, commercial venues and residential places to optimize usage based on preferences and predictive movements of people.
- **Predicting environmental disasters:** Real-time understanding of environmental activity enables more precise weather simulations and predictions, aiding environmental conservation and advanced preparation to mitigate disasters and damage.

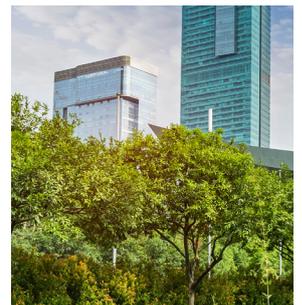
2. ENHANCED VIRTUAL EXPERIENCES

As we shift towards remote activities for work, education, medicine, sports and entertainment, society demands that our virtual experiences transcend what can be achieved in person. IOWN aims to bring environments and people together regardless of their location, leading to shared experiences that move beyond the boundaries of distance, nations or cultures.



VALUE TO SOCIETY:

- **Improving virtual collaborative spaces:** Enabling large-scale events with virtual spaces that allow sensing human and environmental factors to create a realistic experience without physically gathering.
- **Closer team collaboration:** Avatar robots and services will sense people's thoughts and intentions and connect them to colleagues to create working models of diverse human abilities and skills that can collaborate remotely for new outcomes.
- **Transcending culture and value barriers:** Technology that allows simultaneous language translations, creating the ability to interact more closely and in real-time with other cultures.
- **Combining in-person and virtual:** Creating optimal experiences that effectively combine physical and virtual experiences.



3. IMPROVED INDIVIDUAL HEALTH AND WELLBEING



The future of individual wellbeing extends beyond the physical to include mental and social indicators. This extension of health and wellbeing has spurred a growing number of initiatives that seek to understand the individual through medical, personal, social and spiritual layers. IOWN architectures make it possible to rapidly process enormous amounts of data to help us learn and fully comprehend the whole individual like never before. This approach will enable better personalization with specific responses such as relevant predictions and recommendations for improving our wellbeing.

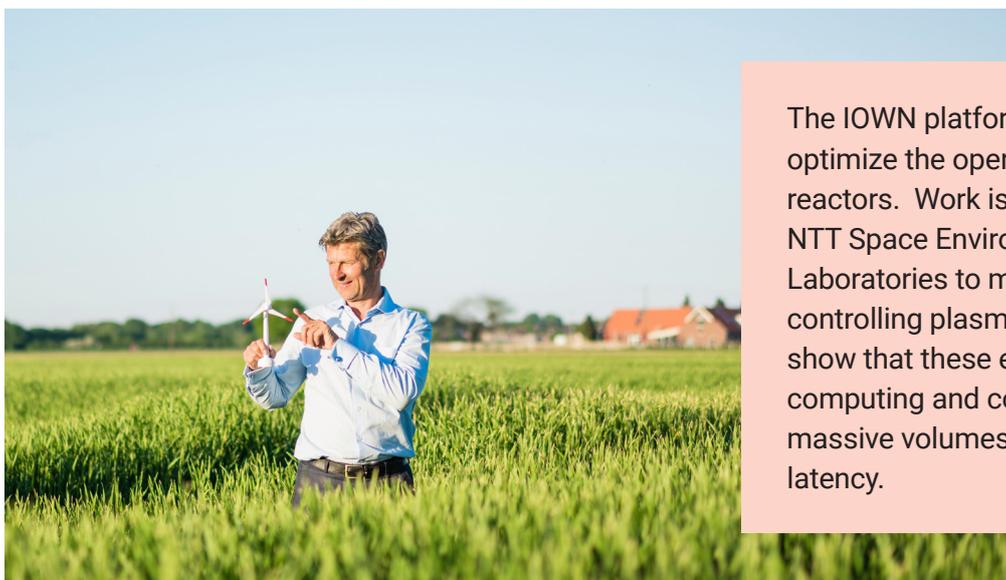


VALUE TO SOCIETY:

- Optimal wellbeing:** Through data visualization, we can help individuals more deeply understand their physical and mental sources of wellbeing. Presenting these attributes through data and information processing creates an environment for people to accurately grasp their own physical and mental states to help inform better decisions.
- Personalized wellbeing:** Technology will make it possible to predict and present wellbeing options to users that match individual preferences.
- Increased individual autonomy:** People will choose their actions for shared experiences and social relationships that benefit their wellbeing most.
- More connected wellbeing:** Linked frameworks across people's lives – work, relationships, nature, healthcare, and technology – supporting a more integrated approach than we have today.

4. ZERO ENVIRONMENTAL IMPACT

We urgently need to shape a society that can cope with global environmental changes such as climate change, major disasters and pandemics. Developing next-generation energy technologies and new ways that enable resilient environmental adaptation will reduce the burden on the planet and contribute to its regeneration and long-term sustainability.



The IOWN platform makes it possible to optimize the operation of nuclear fusion reactors. Work is underway with the NTT Space Environmental and Energy Laboratories to manage nuclear fusion while controlling plasma. Experimental results show that these enable innovations in computing and communications to transmit massive volumes of information at ultra-low latency.

We are also pursuing the development of more diverse energy networks, including power generation from lightning and space-based solar power generation. Combining these energy technologies with weather forecasting will allow us to create a society that can respond more flexibly to environmental changes.

VALUE TO SOCIETY:

- A more resilient society:** As future disasters emerge, we prepare and respond with lower energy usage, new energy technologies and better management.
- Cleaner energy distribution network:** Create more resilience through local energy production and consumption using renewable energy for a safer and more reliable source. IOWN platforms, such as Digital Twin Computing, will control supply and demand with greater precision based on well-informed future predictions.
- Optimal operation of new energy supplies:** IOWN technology will be used for real-time, latency-free stability control for fusion reactors. Systems will use digital twins to control reactors through networks to optimize the operation of this new and exceptionally clean energy source.
- Ultra-high accuracy weather prediction:** Even if we reduce our environmental impact, we are likely to experience some patterns of climate change. We can predict and proactively respond, for example, to typhoons or torrential rains using low-earth orbit satellites and meteorological sensor devices to acquire detailed data.

5. SAFER AND MORE SECURE COMMUNICATIONS

Even though the possibilities are endless, it doesn't mean we shouldn't put limitations and principles on emerging technology. There needs to be a very high level of security involved. The rise of digitization has opened the door to cybercriminals. For example, telemedicine, bio digital twins, and other health data are becoming more available. Information on individuals and their human bodies will continuously increase—this level of information results in the potential for cybercrime having life and death implications. IOWN supports a safer and more secure society by allowing the exchange of large amounts of information through remote networks across all aspects of the human, physical and digital world without the threat of interception.



VALUE TO SOCIETY:

- **More robust, simple security:** use of distributed computing systems built on high-capacity, low-latency communications capabilities will enable new functions, including data usage protocols that no longer leave copies of data in computing environments
- **Connected value chains:** servicers, suppliers, and customers will connect securely with one another, creating value chains that span from contract to payment that make it possible for companies and customers to communicate across industries

SAFER DATA-DRIVEN VALUE

Our research and development focus is to create a data utilization platform that both data providers and users can trust by learning from computation results equivalent to having exchanged data without actually exchanging data.



INNOVATION FOR A SUSTAINABLE FUTURE

MOVING TOWARD A BETTER US

NTT believes in resolving social issues through our business operations by applying technology for good. We help clients accelerate growth and innovate for current and new business models.

Our services include digital business consulting, technology and managed services for cybersecurity, applications, workplace, cloud, data center and networks – all supported by our deep industry expertise and innovation.

As a top 5 global technology and business solutions provider, our diverse teams operate in 80+ countries and regions and deliver services to over 190 of them. We serve over 80% of Fortune Global 100 companies and thousands of other clients and communities around the world.

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