
Responsible Innovation
at with the speed of light
at the edge of space
and towards quantum futures
Digital & AI Summit
Lima 2026

Our Brand is

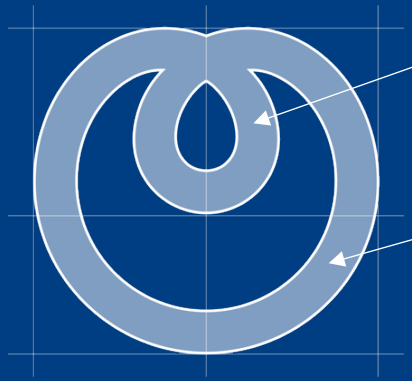
More than **a logo**

It has a great story to tell

Art, Science and Nature Combined

We aim to become a human company that is truly useful to the world by keeping people as the starting point of our thinking, always thinking about the future and continuing to innovate dynamically.

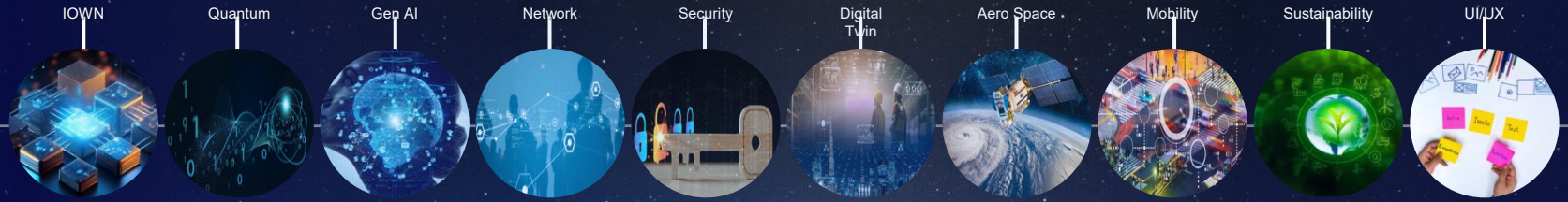
– 1985 Corporate Identity Statement



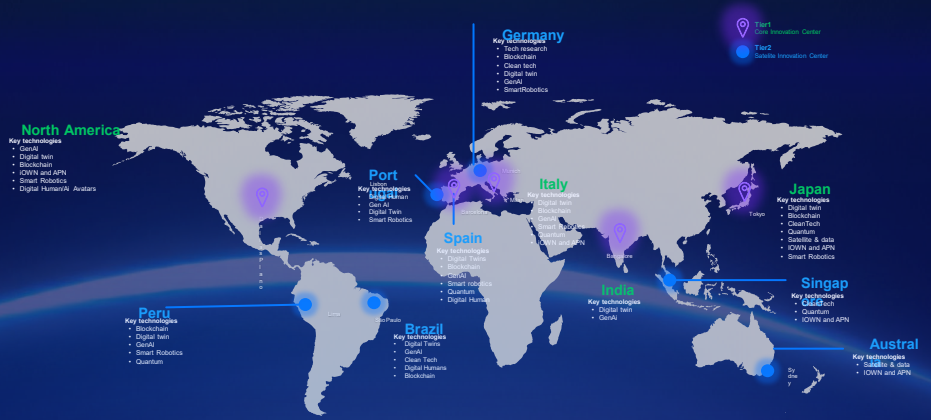
The small loop represents the voice of people, clients and society that is always at the heart of our business.

The infinite continuous curve represents NTT's dynamism and commitment to continuously innovate.

Leading in various technology fields

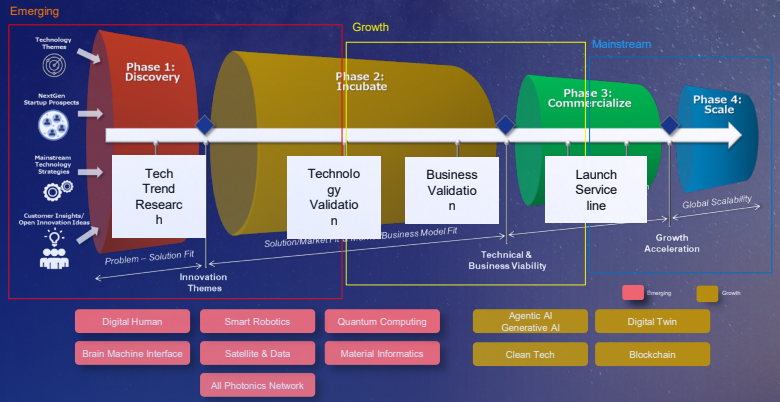


Innovation Center expansion
(as of Oct 2025)



A global innovation network and ecosystem of advanced technologies supporting growth

Innovation Lifecycle Model



~~At~~ With the Speed of Light

Next generation infrastructure transformation (from Earth to Space)

Powered by photonic technologies

IOWN Photonic Computing

01 **Converting electricity into light** to surpass **energy limitations.**

Building a low-power computing infrastructure to support the AI era.

Optical Quantum Computer

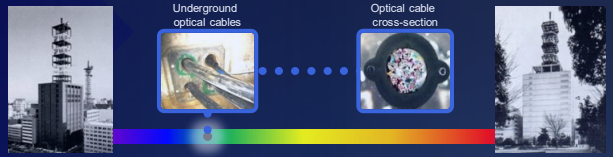
02 Overcoming **the limits of computation** using **quantum technology.**

Solving previously intractable problems with dramatically lower power consumption.


IOWN
Innovative Optical and Wireless Network

NTT's history of optical communication innovation

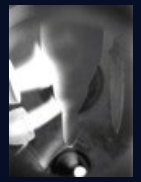
Between stations



Between equipment in stations

Between components within equipment

Continuously advancing optical communication at smaller scales to meet the demands of each era.



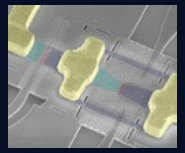
1977
VAD method
(optical fiber
mass production)

1983
Flame deposition method
(optical fiber mass production)

1990
AWG
(Arrayed Waveguide
Grating)

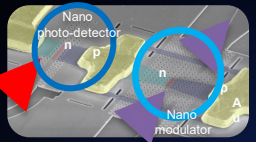
2000
FTTH splitter (outdoor
optical splitter)

2015
COSA
(optical interferometer)



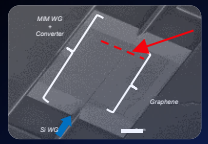
2019
Ultra-low-power optical
device core
technology

NTT’s Key Breakthroughs



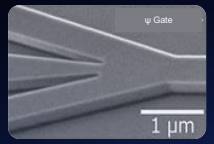
Photonics transistor

Apr. 2019



All-optical switch

Nov. 2019



Optical logic gate

Mar. 2020

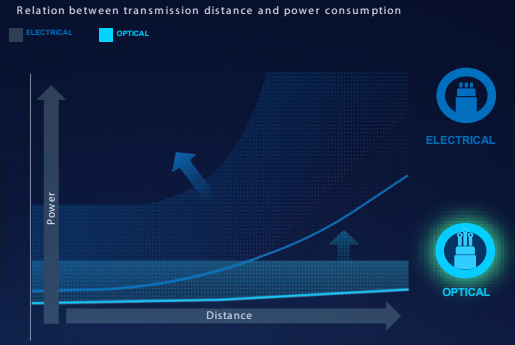
Directly modulated laser

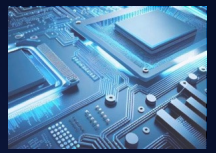
Oct. 2020

Published in:

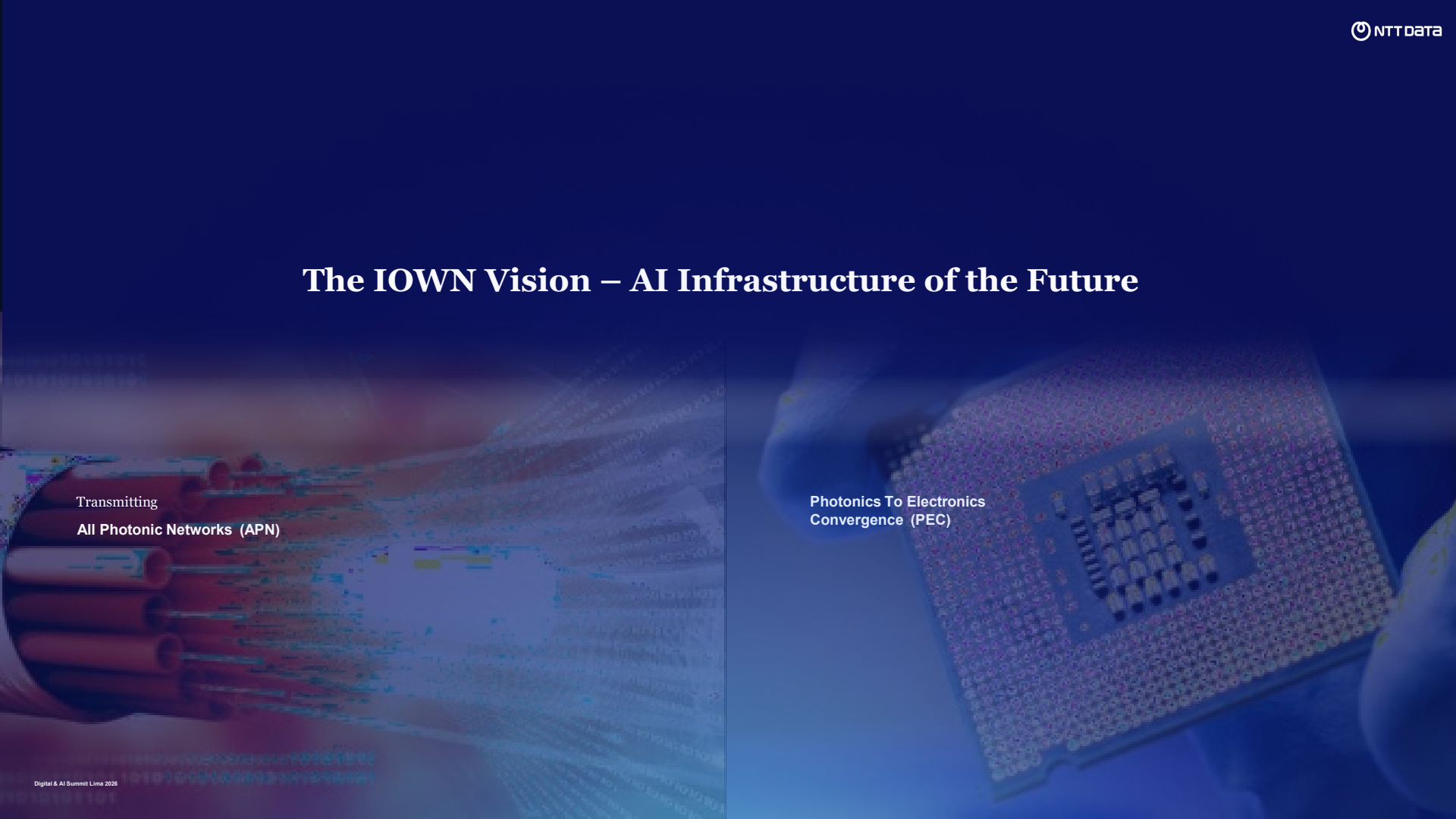
- Nature Photonics
- Communications Physics

Innovation ~~At~~ With the Speed of Light





The IOWN Vision – AI Infrastructure of the Future



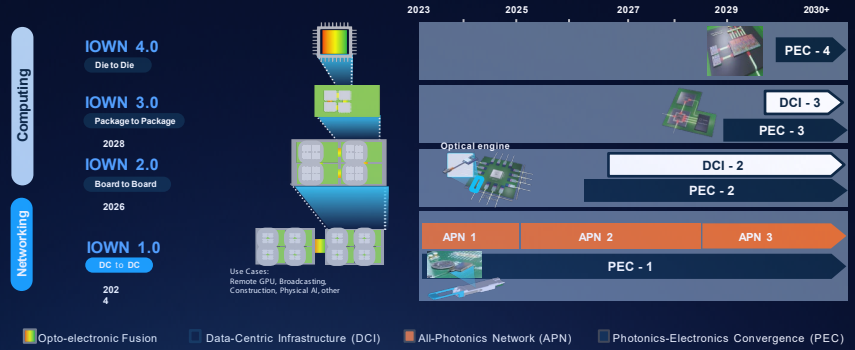
Transmitting

All Photonic Networks (APN)

Photonics To Electronics Convergence (PEC)

The IOWN Roadmap

Optical transmission between data centers, ASIC boards, Integrated Circuits and within IC's



Lower power consumption by

100x

Higher transmission capacity by

125x

Lower end-to-end latency by

200x

Initial IOWN based Use Cases

Primary – Backup Data Center interconnect. DB synchronization, DR failover, etc.

Connectivity to Cloud Service Provider

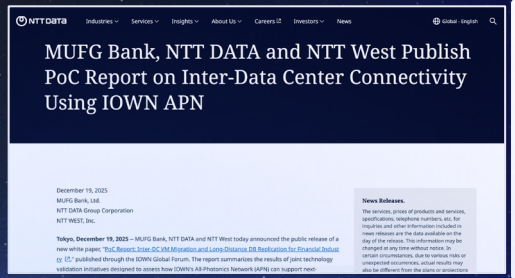
Virtual Data Center extension to utilize available land and power (preferably renewable)

Remote GPU access for training and inference

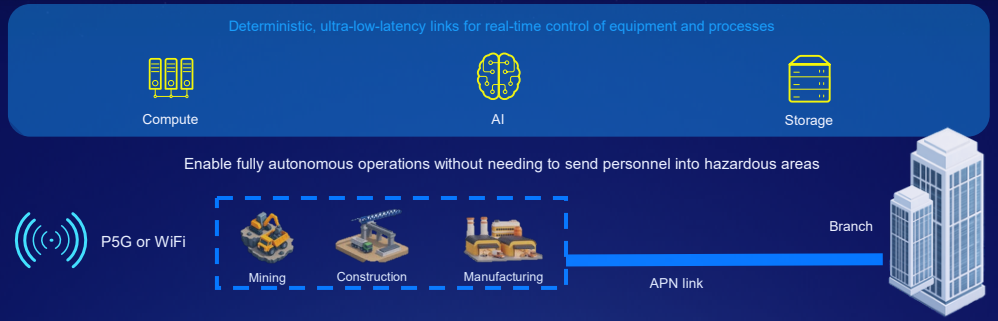
Equipment Remote Control (mining, factory robots


IOWN for Peru

Resilient Financial Sector Solutions

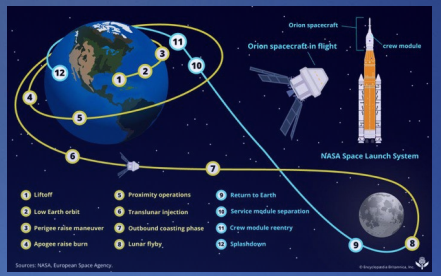


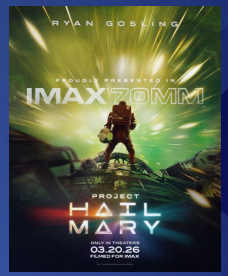
High-precision remote operations




NTT DATA
At the Edge of Space
Digital & AI Summit Lima 2026

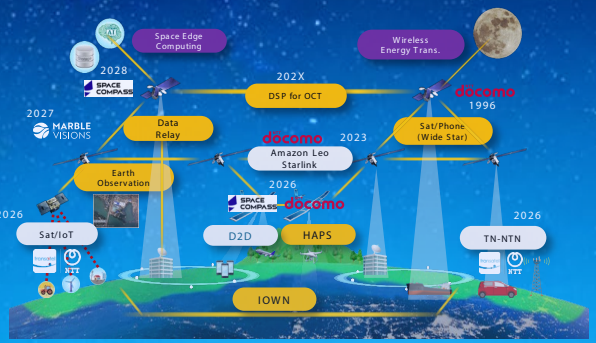

SPACEX


Orion spacecraft
Orion spacecraft in flight
crew module
NASA Space Launch System
1 Liftoff
2 Low Earth orbit
3 Perigee raise maneuver
4 Apogee raise burn
5 Proximity operations
6 Translunar injection
7 Outbound coasting phase
8 Lunar flyby
9 Return to Earth
10 Service module separation
11 Crew module reentry
12 Splashdown
Sources: NASA, European Space Agency.


RYAN GOSLING
PROUDLY PRESENTED IN
IMAX 70MM
PROJECT
HAIL
MARY
ONLY IN THEATERS
03.20.26
FILMED FOR IMAX

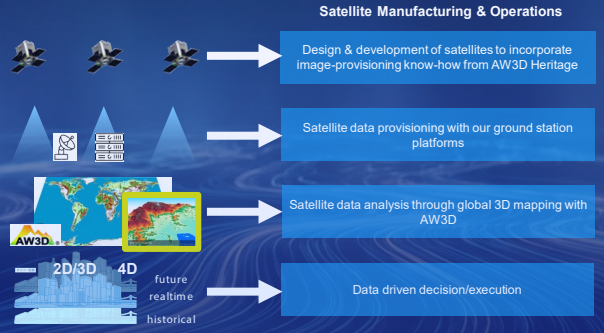
In-house Biz Dev
Partnership
NTT R&D

Moon 380,000km
GEO 36,000km
LEO 1,000km
HAPS 20-50km
Ground Under Sea level



Leo Earth Observation x Dynamic Digital Twin Solutions

Integrated Vertical Solution



- AI for Change Detection and Pattern Recognition
- Monthly-quarterly update of urban digital 3D with yearly update of entire globe
- Dynamic geospatial insights for infrastructure management and risk resilience

Our hybrid solution: cellular + satellite

IoT devices support satellite

The 3GPP Release 17 enabled satellite narrowband (NTN-IoT) connectivity on standard IoT modules that are now certified by operators

Truly global connectivity

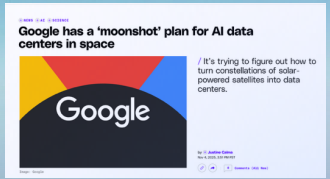
We sign direct access agreements with satellite operators to complement our terrestrial footprint with both LEO and GEO constellations

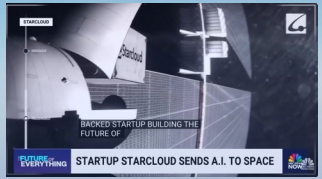
Seamless switch

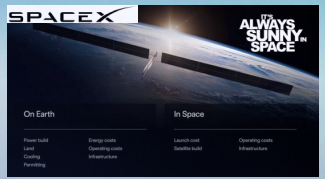
Our global SIM cards are capable of automatically switching between terrestrial and satellite networks based on signal availability

One SIM. Cellular and standardized satellite coverage, now and in the future.

Space Based Data Centres

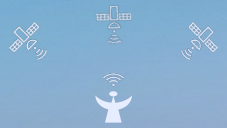






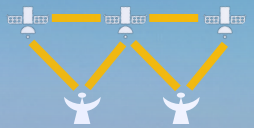
From Earth to Orbit with IOWN

Current



RF based communication
with international license
approved by ITU-R
and dominated by first movers

What's Ahead



Optical based (with data relay features)
High Capacity & Low Latency
+Low Energy
with no license required

Powered by
Terrestrial IOWN technologies

Innovation in Computing Powered by Photonic Technology

IOWN Photonic Computing

1 **Converting electricity into light** to surpass **energy limitations.**

Building a low-power computing infrastructure to support the AI era.


Towards Quantum Possibilities

Innovation in Computing Powered by Photonic Technology

IOWN Photonic Computing

1 **Converting electricity into light** to surpass **energy limitations.**

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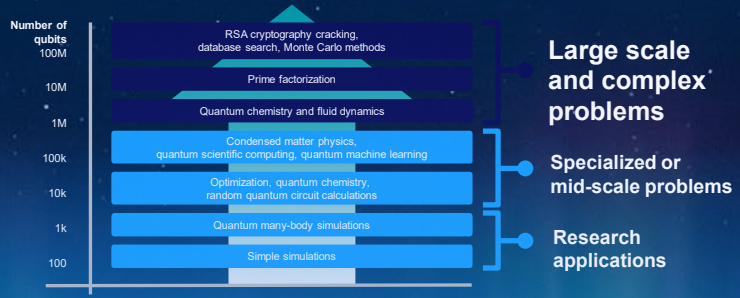
Optical Quantum Computer

2 Overcoming **the limits of computation** using **quantum technology.**

Solving previously intractable problems with dramatically lower power consumption.

Relationship between qubit count and solvable problem complexity

- The more qubits available, the more complex and impactful problems can be solved.
- General-purpose applications with major societal impact will require between 1m-100m qubits



Quantum Innovation at NTT

QUANTUM SOFTWARE

Based on our industry experience and best practices we develop own **algorithms**, **simulators** and a **Quantum Computing SDK** called **Alquemy™**.

PROFESSIONAL SERVICES

NTT Data has **20+** dedicated Quantum Technology **Consultants and Developers**.

QUANTUM HARDWARE

NTT Research and NTT R&D have built the worlds first **optical quantum annealer** called **LASOLVE** providing strong benefits compared to superconducting technologies.

Gate-based QC

IOWN GLOBAL FORUM

CIM

CyberCIM

BASIC RESEARCH

NTT Research and NTT R&D have **2500+ scientist** working globally across all relevant technology fields, with over 50 scientific publications on Quantum Computing in the last 5 years.

NTT's Focus: Optical Quantum

- Operates at room temperature and normal pressure → Compact
- Spatial multiplexing ➡ time and wavelength multiplexing → Compact
- Operates at the frequency of light → High-speed
- Requires minimal electrical circuitry → Energy-efficient
- Leverages existing optical communication technologies → Low-cost implementation

Exceptional scalability
(easy to increase qubit count)

Realizing scalable and reliable optical quantum computers

2030

1 million qubits - world-leading performance

2027

10,000 qubits - top-level performance in Japan

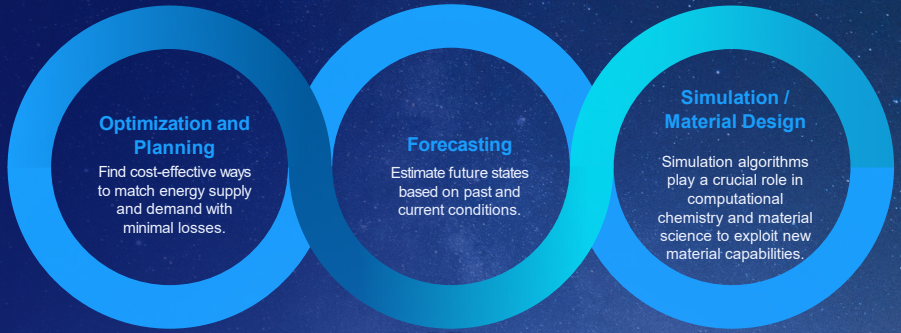
Value Created by Optical Quantum Computing

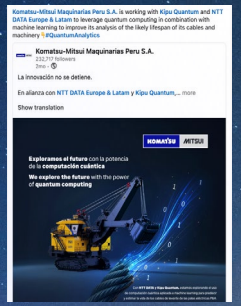
Creating a New Paradigm with Large-Scale and Highly Reliable Optical Systems

VIDEO

Quantum “Community of Concept” at NTT DATA

Use Case Areas





These problems have the common theme that there are potential future issues concerning scalability of current approaches, that quantum computing will help address.

Next-generation infrastructure anchored in optical and photonic transitions

¡Asu Mare!

Gracias

Rika Nakazawa

Chief Commercial Innovation NTT