

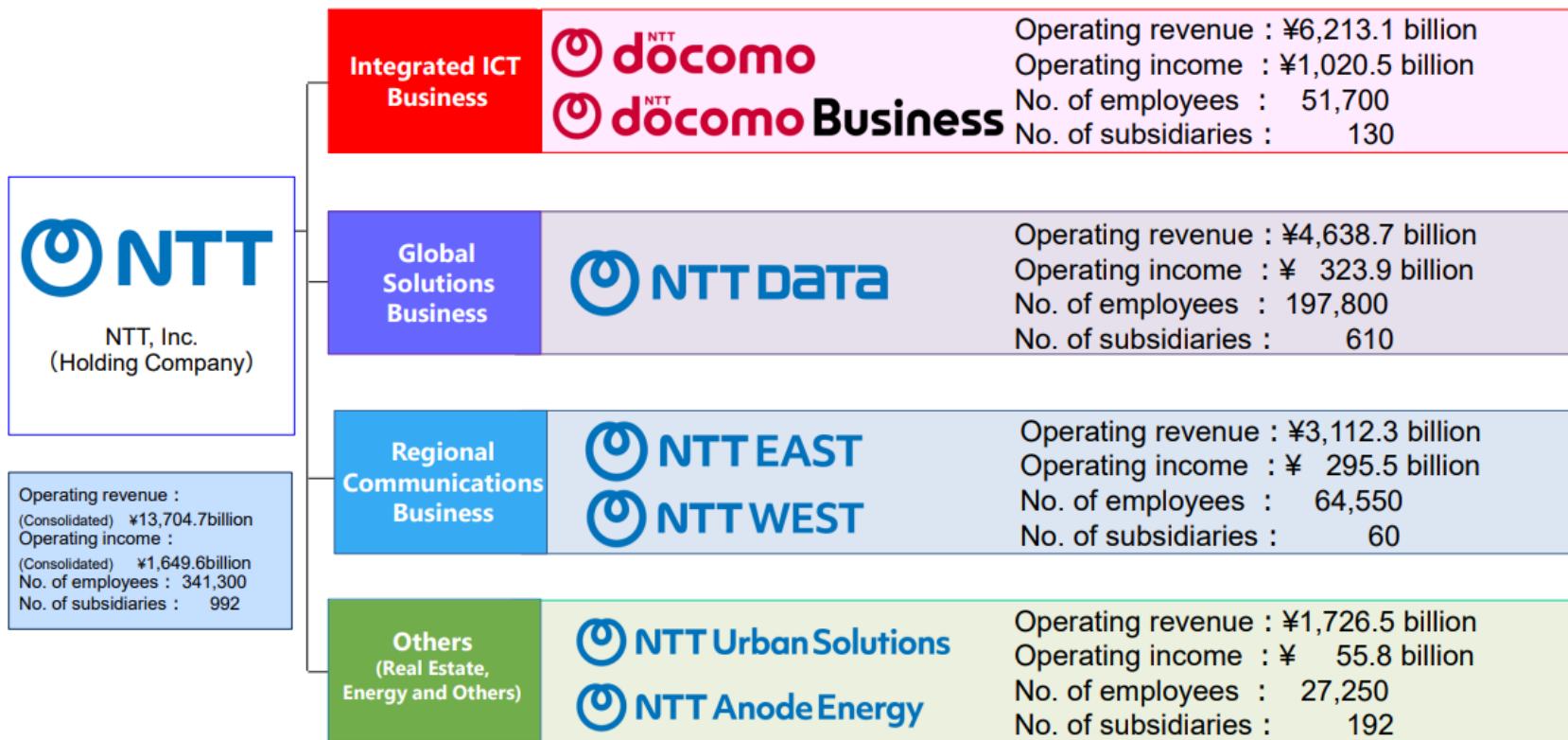


NTT's Initiatives Green and Resilient Digital Infrastructure and AI for Climate Act

Director, Head of Standardization Office
Research and Development Planning Department
NTT, Inc.

Hiroshi Yamamoto

About NTT Group



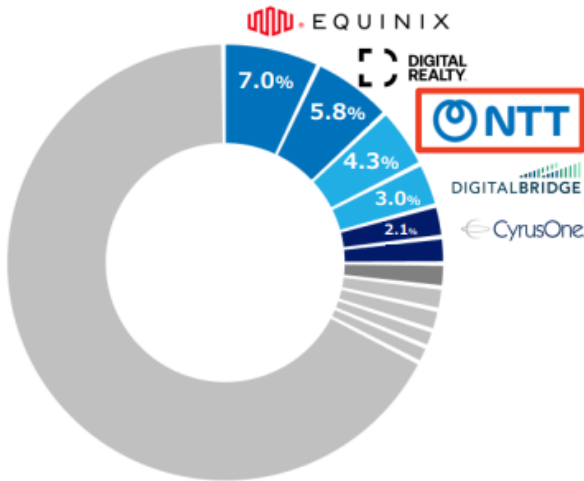
- Operating revenue and operating income for each segment are FY2024 figures including inter-segment transactions..
- The figures for both employees and subsidiaries are as of March 31, 2025.

Our Business Example



Global Data Center Colocation Revenue Share¹

1	Equinix
2	Digital Realty
3	NTT GDC
4	Digital Bridge
5	CyrusOne
6	CenterSquare
7	QTS
8	American Tower
9	Stack Infrastructure
10	KDDI Telehouse
11	Others

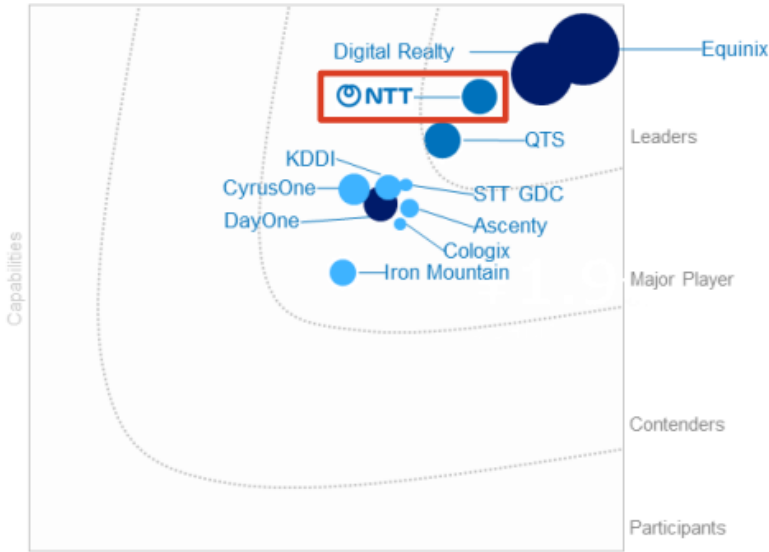


NTT GDC is widely recognized as the third largest data center operator with a global footprint

⁽¹⁾ NTT created the chart, excluding service providers in China, based on the Structure Research August 2025 Report.

Global IDC MarketScape Vendor Assessment²

IDC MarketScape Worldwide Datacenter Service, 2025



NTT is named as a “Leader” due to its broad service offering and global reach

² IDC MarketScape® : Worldwide Datacenter Services 2025 Vendor Assessment (August 2025, IDC #US52983725)

The IDC MarketScape visually ranks ICT vendors based on capabilities and strategy, using both qualitative and quantitative criteria. Capabilities reflect short-term execution; strategy reflects long-term alignment with customer needs. Icon size indicates market share.

Enormous Development/Training Costs

Estimated training cost of select AI models, 2016–24

Source: Epoch AI, 2024 | Chart: 2025 AI Index report

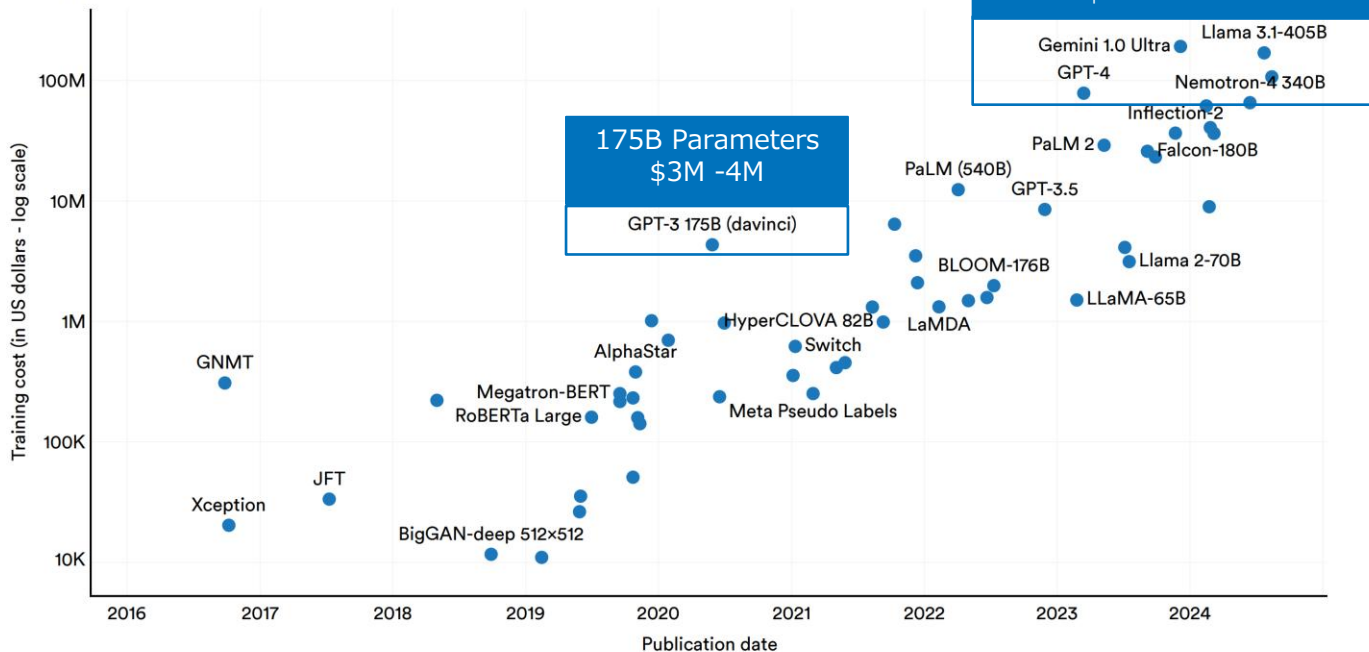


Figure 1.3.25

TO Develop GPT-4 class LLM

Power Consumption

Approx. 40,000MWh^[1] / 1 training



**Equivalent to
40 Nuclear Power Plants**

(Approx. 1,000MWh / 1 Nuclear Plant)

[1] Stanford Univ. Artificial Intelligence Index Report 2024 Figure 1.3.22
<https://gizmodo.com/chatgpt-ai-openai-carbon-emissions-stanford-report-1850288635>

Current approach

“Power Games” using Large Amounts of Resources (such as GPUs)



NTT's Approaches

Optimization of
AI Execution Environment

IOWN

Optimization of
AI Model

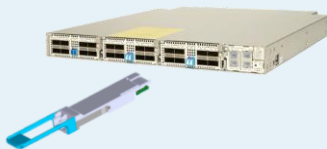
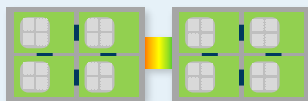
tsuzumi

From Electronics to “Photonics”

Networking

IOWN 1.0

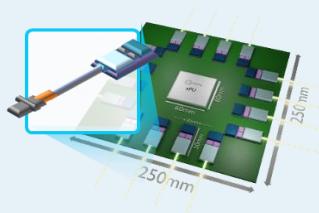
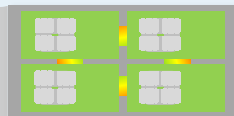
DC to DC



Computing

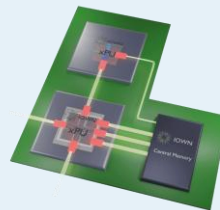
IOWN 2.0

Board to Board



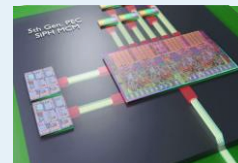
IOWN 3.0

Chip to Chip



IOWN 4.0

Inside Chip



Further evolution of NTT's LLM

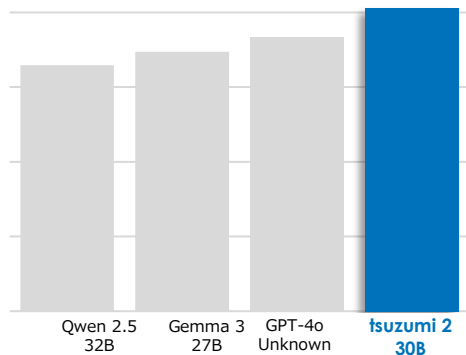
tsuzumi 2



(Released in Oct. 2025)

① World-class Japanese language performance

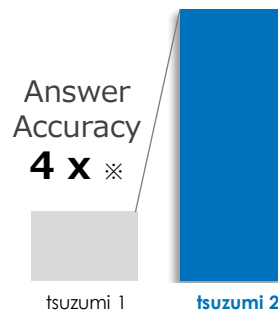
Japanese language performance superior to Gemma, Qwen, GPT-4o, etc.



※ The graph shows the evaluation results of the Japanese evaluation benchmark llm-jp-eval (excluding MR). tsuzumi 2 uses a version currently under development.

② High Customizability

Significant improvement in accuracy in business processing using RAG



※ Accuracy of inquiry responses using RAG based on NTT's internal financial processing information

③ High Security

Ideal for sovereign AI that handles confidential information

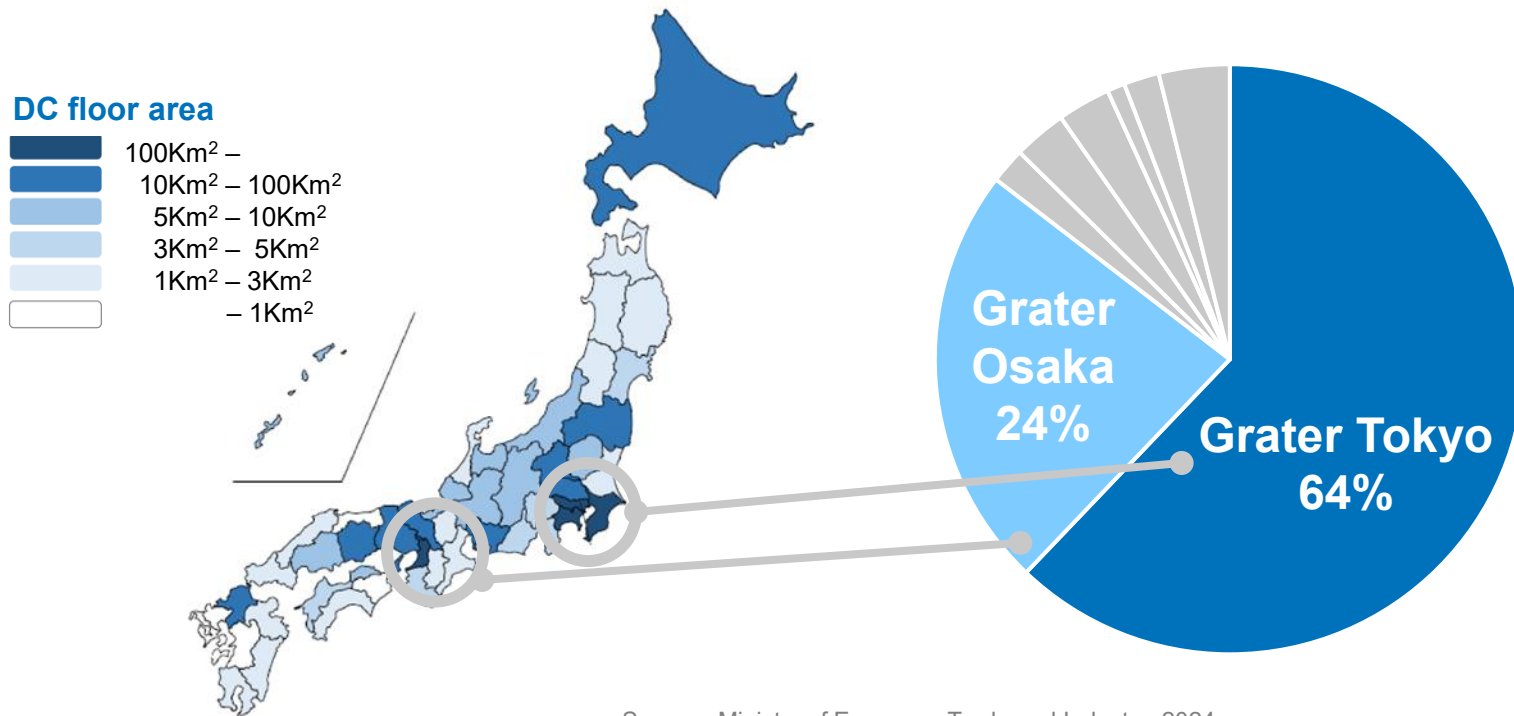
Developed from scratch by NTT

Training data is managed by NTT

Can be operated on-premises to support for highly confidential information

Challenge: Securing land

- Japan's data centers are concentrated in the Tokyo and Osaka metropolitan areas (88% of all data center land in Japan)
- It will become more difficult to secure land for data centers in the future



Challenge: Securing electricity

- In the Tokyo area, the development of the power grid has not kept up with the growth in DC demand, and waiting times for power supply can exceed 10 years

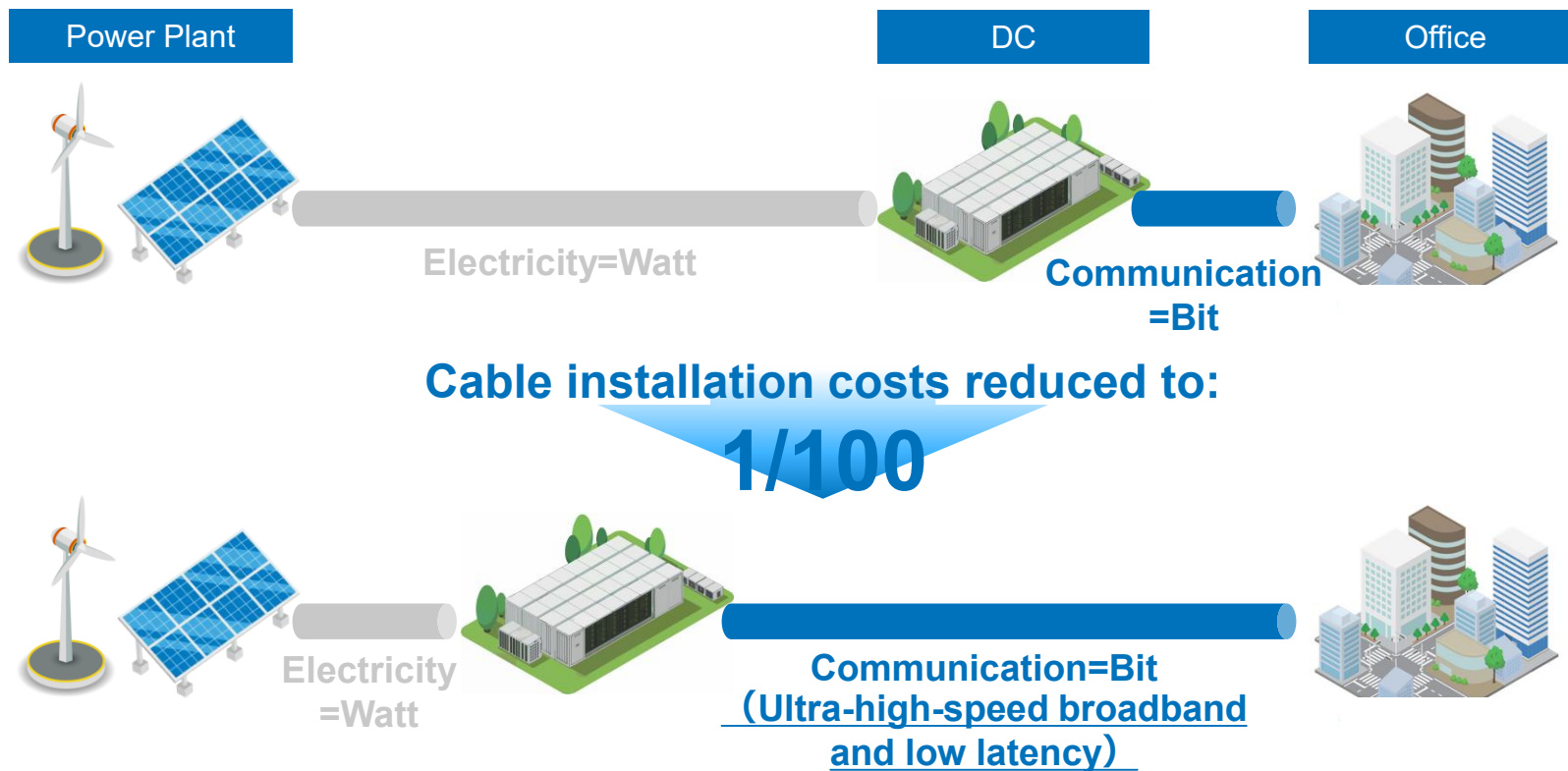
Waiting time for power supply to new data centers near Tokyo:

Ca. 10 years

Example:

Inzai City, Chiba Prefecture, near Tokyo (as of March 2025)
40 customers waiting for power (total 2.5GW)

Approach: Watt-Bit Collaboration



Ultra High Speed, Low Latency and Energy Efficient ICT Infrastructure will be Essential for AI era

Synergy Between Energy and ICT is Becoming Critical to Ensuring Future DC Capacity -> Watt-Bit Collaboration

ITU-T, Specifically SG5, is Anticipated to be Instrumental in Realizing These Objectives

