



CLOSE UP: Technology

Building Japan's Digital Backbone: Opportunities and Challenges in Data Center Development

Key Takeaways

- **Surging digital demand is reshaping Japan's infrastructure landscape**
AI expansion, cloud adoption, and economic security priorities are accelerating data center investment, with growing momentum toward regional decentralization beyond Tokyo and Osaka.
- **Power availability and decarbonization are now the decisive constraints**
Electricity supply, grid capacity, renewable energy access, rising costs, and disaster resilience have become the primary factors determining where and how projects move forward.
- **Local governments are emerging as strategic partners**
Municipal leadership in infrastructure preparation, permitting efficiency, incentives, and community consensus building is critical to attracting investment and enabling sustainable long-term development.

Overview

The rapid growth in the planning and building of data centers in Japan is mainly driven by a sharp increase in data processing demand, fueled by the widespread adoption of cloud services and generative AI. Government-led digitization initiatives and growing corporate investment in digital transformation (DX) are also pushing up demand. The high concentration of submarine cables and the stability of telecommunications infrastructure also encourages construction. In addition, there is an increasing focus on securing and processing data domestically for economic security reasons. In recent years, the trend has shifted away from concentrating data centers in Tokyo and Osaka, instead moving toward regional decentralization in places like Hokkaido and Kyushu, provided that sufficient electricity and land can be secured.

Major challenges in building data centers include securing enough electricity and achieving decarbonization. The need for renewable energy and limitations of the power grid influence site selection. Surging construction costs and shortages of semiconductors and equipment also remain issues. It has also become more time-consuming to acquire land, complete environmental assessments, and gain consensus from local residents. In addition, ensuring adequate cooling water and reducing disaster risks, such as from earthquakes and floods, are important considerations.

As Japan transitions toward a decentralized data infrastructure, the modern data center stands as a pillar of economic security—balancing massive processing power and AI integration with a commitment to renewable energy and regional harmony.





Why are Data Centers Necessary?

Data centers are physical infrastructure that securely store and process large volumes of data, supporting AI, cloud, and internet services. Today, they are seen not just as IT facilities, but as “social infrastructure” similar to power grids and transportation networks. The case for building data centers domestically in Japan rests on several key reasons.

First is the need to securely protect and manage digital data. The huge amounts of data generated every day by businesses and individuals need to be managed within a strong security framework. Data centers offer advanced security, uninterruptible power supply (UPS), and 24-hour monitoring, minimizing the risk of information leaks and system failures.

Second, data centers must operate with the stability needed of essential social infrastructure. Services like 5G, IoT, e-commerce, online finance, and government functions all require constant connectivity so a power outage or network failure would disrupt essential services. Data centers are designed to keep working even during disasters, thanks to reinforced structures and backup systems.

Third, data centers serve as foundational infrastructure enabling AI and big data applications. The recent surge in generative AI has sharply increased demand for facilities that can support large numbers of servers and high-performance GPUs. Training and running AI models requires large-scale, highly efficient facilities such as those found in data centers.

Furthermore, as companies push digital transformation, there is a growing shift away from internal data management to cloud-based data management. Centralizing data management in specialized facilities improves energy and operational efficiency, cuts costs, and boosts performance. Thus, data centers have become indispensable from the perspective of digital society development, economic competitiveness, and economic security.

Requirements for Data Center Construction Sites

The conditions required for data center construction are diverse, but the primary requirements include the following:

1) Low Disaster Risk

Japan faces high disaster risks from earthquakes, typhoons, floods, and other hazards. That’s why it is important to select sites with solid, stable ground and low risk of flooding or tsunamis. For example, Inzai City in Chiba Prefecture, known as the “Data Center Ginza,” has geographical advantages because it is on a plateau and is relatively far from the coast.

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(2) Ample Land and Expandability

Large-scale data centers include not only servers, but also power facilities and cooling systems. It is also important to consider future expansions, so a large, well-planned site is optimal.

(3) Stable Power Infrastructure

Reliable power infrastructure is essential for data centers to operate 24/7. Only a limited number of locations offer this, so regions with existing power infrastructure have a major advantage.

(4) Network Facilities and Accessibility

To reduce communication delays, it helps to be close to densely populated areas. Being near submarine cable landing stations also ensures stable international connections.

(5) Policy and Administrative Conditions

The speed of data center construction depends greatly on factors like financial support (such as GX-related subsidies), efficient administrative procedures, and flexibility in urban planning or land conversion. Support from local residents and political collaboration are also critical.

Future Challenges

As demand for data centers grows quickly, several structural challenges have emerged.

Electricity demand is surging leading to issues with power grid constraints. Concentration in certain regions has led to connection requests exceeding available supply capacity, causing long wait times for grid connections. In response, new policy frameworks are being considered such as “Watt-Bit Collaboration” which aims to integrate the development of energy and communications infrastructure.

Additionally, construction sites are unevenly distributed. To avoid overloading power grids in the Tokyo metropolitan area, and to reduce disaster risk, greater regional decentralization of data center development is needed.

The use of decarbonized power sources is essential as well. To achieve carbon neutrality, it is essential to introduce renewable energy and use electricity efficiently.

Lastly, working with local communities is key. Gaining residents' understanding about issues like large-scale power consumption and changes to the local landscape is essential.

What is Required of Municipalities?

For local governments to attract data centers, they need to do more than just provide land. They must clarify disaster risks and infrastructure conditions, develop industrial water and power facilities, speed up administrative procedures, offer one-stop services, and make use of financial support and tax incentives.

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Building consensus with local residents and working with local Diet members and ministries are also becoming more important. In particular, advancing urban and infrastructure development through long-term planning reassures companies considering investment in the region.

When data center operators enter a region, municipalities are expected to serve many roles. They must present a clear vision for attracting investment, provide support in coordinating with the national government and power companies regarding power and telecommunications infrastructure development, facilitate smooth permitting and licensing procedures, ensure linkage with subsidy programs and Green Transformation (GX) policies, and establish continuous partnerships after construction.

Data centers generate property tax revenue and bring economic benefits to local governments, but they also place long-term demands on infrastructure. That's why it is vital for local governments, the national government, and operators to build strong, long-term partnerships.

Scaling Japan's digital economy through regional hubs that prioritize energy efficiency, disaster resilience, and high-speed connectivity for the generative AI era.



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