Data Center Development: The New Gold Rush for Project Management?

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The demand for data center capacity is only going to increase as more and more businesses and individuals rely on digital services. However this sudden explosion in both infrastructure development and technology delivery, has taken many within the traditional project management industry by surprise.

And while this lucrative new market appears to be a well hidden secret, it's growing list of opportunities is basking in plain sight of those within its global sector niche.

However the list of statistics pertaining to the growth of the Data Center market do not lie. And as such, it is unlikely that this secret will be hidden for much longer.

According to leading research firm Grand View Research **"The global data center market is expected to grow at a compound annual growth rate (CAGR) of 11.7% from 2023 to 2030, reaching a total market value of $764.4 billion by the close of 2030"** (Grand View Research, 2024).

This astounding statistic, demonstrates the substantial growth anticipated in the data center industry.

The proliferation of data has ushered in an era of unprecedented demand for data centers. As businesses, governments, and individuals increasingly rely on digital services, the need for robust infrastructure to store and process data has skyrocketed. This surge has created a lucrative and rapidly expanding market for project managers specializing in data center development.

Data Centre Take Up 2016-2024 (MW)
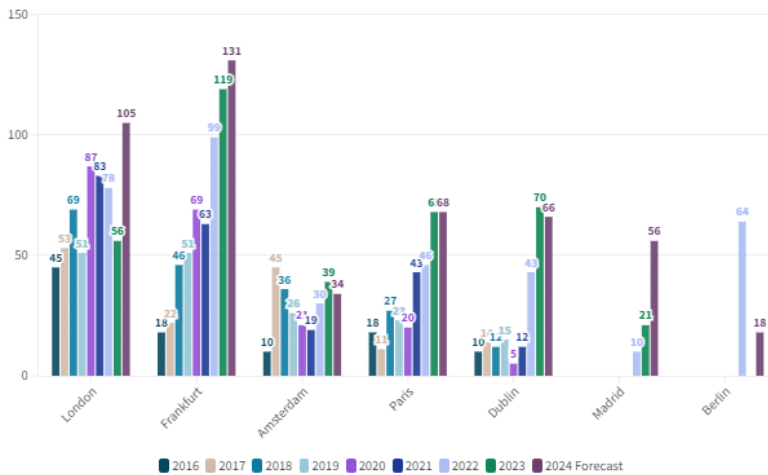
Source: JLL

Graph from JLL EMEA Data Centre Report Q1 2024

The expansion of data centers is a global phenomenon driven by the increasing digitization of economies and the growing demand for data storage and processing capabilities.

The growth in data centers is expected to create millions of new jobs worldwide, including positions in construction, IT, operations, and management.

The four largest data center markets, by inventory in each global region is as follows:

North America: Northern Virginia, Dallas-FT. Worth, Chicago, and Silicon Valley.

Europe: Frankfurt, London, Amsterdam and Paris

Latin America: Queretaro (Mexico), Sao Paulo (Brazil), Santiago (Chile) and Bogota (Colombia).

Asia-Pacific: Singapore, Tokyo, Hong Kong and Sydney.

The economic impact of data center development over the next ten years is likely to impact not just those in the project management sector, but the global investor market, attracting the attention of, policymakers, and individuals seeking career opportunities in the technology sector.

Figure 1: Data Center Inventory by Market
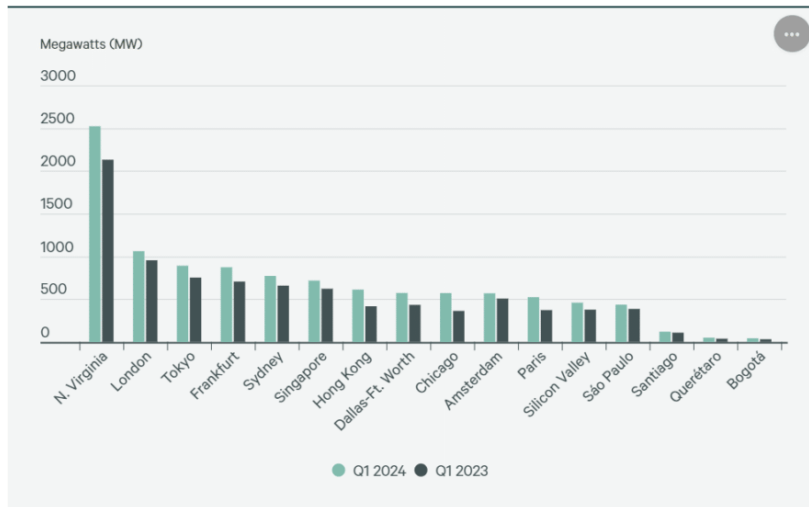
Graph from CBRE Report on Global Data Center Trends 2024

Several factors are fueling the growth of data centers:

- **Digital Transformation:** The shift towards cloud computing, IoT, AI, and other digital technologies has intensified the demand for data storage and processing capabilities.
- **E-commerce Boom:** The rise of online shopping and digital marketplaces has necessitated the construction of large-scale data centers to handle the increased transactional data.
- **Big Data Analytics:** The growing importance of data-driven decision-making has led to a surge in demand for data centers to support advanced analytics and machine learning.
- And **Regulatory Compliance:** Stricter data privacy and security regulations, such as GDPR and HIPAA, have driven organizations to invest in robust data center infrastructure to ensure compliance.

This rapid expansion has created significant opportunities for project managers.

Data center projects often involve complex technical challenges, tight deadlines, and stringent requirements. Project managers with expertise in managing large-scale infrastructure projects, IT systems, and data center technologies are in high demand.

Data centers are being developed worldwide, with regions experiencing rapid economic growth and technological advancements witnessing particularly significant activity.

Some notable Data Center mega projects to be aware of include:

- **Project Peach (Atlanta):** This massive data center campus is being developed in Atlanta, Georgia, and will serve as a hub for cloud computing and data storage. The campus will comprise up to eight data center buildings totaling 2.1 million sq ft. With the project expected to be completed by 2036.

- **Northern Virginia Data Center Market Expansion:** The region around Northern Virginia has become a global data center hotspot due to its proximity to major technology hubs and abundant energy resources. Virginia is home to 70% of the world's data centers, with a history of federal investments in fiber optics and tax advantages, which have helped it become the world's largest data center market.

- **European Core and Secondary Market Growth:** The european core market, comprising of Frankfurt, London, Amsterdam, Paris and Dublin (FLAPD), is forecasted to have year on year growth of 16% in 2024, seeing a record 467MW being add. Frankfurt continues to take the bulk of this demand, commanding nearly a third in its region alone. However the secondary markets, which include the regions of Milan, Madrid and Zurich will see the largest overall growth. With this secondary market predicted to grow by over 50% across the respective metros. A key indicator of the scale of increased future growth include the substantial subsea cable launches in Southern Europe, with record-breaking 300,000km of new cable infrastructure being laid by 2025.

- **China's Data Center Boom:** China is investing heavily in data center infrastructure to support its growing digital economy and technological advancements. Currently estimated to be 2.32 GW this number is expected to increase to 3.35 GW by 2029. Whilst initially, most of the data centers in China were located in the Eastern regions like Shanghai, Beijing etc., large scale development of data centers was not sustainable in these areas where land, energy and other resources were scarce.

As a result in 2022, the National Development and Reform Commission (NDRC) introduced a new concept called "East Data, West Computing" (东数西算). The idea is to generate data in the economically advanced and densely populated eastern regions, where digital and industrial development is high. This data is then processed in the resource-rich western regions, which have ample land and energy but lower data demand. The climate and geographical locations also make building sustainable data centers more plausible in the western regions.

To excel in data center project management, practitioners need to develop a specialized skill set:

- **Technical Expertise:** A strong understanding of data center technologies, including servers, storage systems, networking equipment, and cooling systems is essential.
- **Risk Management:** Data centers are susceptible to various risks, such as power outages, natural disasters, and cyberattacks. Effective risk management strategies are crucial for project success.
- **Cost Management:** Data center construction and operation can be expensive. Project managers must carefully control costs while ensuring quality and performance.
- **Sustainability:** Increasingly, data centers are expected to be environmentally sustainable. Understanding green building practices and energy-efficient technologies is important.
- **Collaboration:** Data center projects often involve multiple stakeholders, including IT teams, architects, engineers, and contractors. Effective collaboration is essential for successful project delivery.

While data center projects share some similarities with other infrastructure projects, the unique technical and operational requirements demand specialized knowledge and skills.

The data center market is highly lucrative, with significant growth potential. According to market research firm IDC, **"global spending on data center infrastructure is expected to reach $200 billion by 2026"**. This growth is driven by factors such as increasing digitalization, cloud adoption, and the growing volume of data.

For further information on the economic prospects and career opportunities in the Data Centre space, PMG has curated the following resources, and look out for our Digital Trend Report, which we will be publishing shortly in conjunction with Nottingham Business School. And discover more about the Atlanta initiative Project Peach, in our recent news article.

Useful Resources for Data Center Development

Data Reports and Whitepapers:

- **IDC:** The International Data Corporation regularly publishes reports on data center market trends, spending forecasts, and technology adoption.
- **Gartner:** Gartner provides in-depth analysis of the data center industry, including market share data, vendor assessments, and emerging technologies.
- **Uptime Institute:** This organization focuses on data center infrastructure and operations. They offer whitepapers, certifications, and best practices guidelines.
- **Cloud Industry Forum (CIF):** The CIF provides research and analysis on cloud computing and its impact on data centers.

Government Policy Announcements, Partnerships, and Consortium Arrangements:

- **National Institute of Standards and Technology (NIST):** NIST develops standards and guidelines for various technologies, including data centers. They often publish policy recommendations and best practices.
- **Energy Star Program:** The U.S. Environmental Protection Agency's Energy Star program provides voluntary labeling for energy-efficient products, including data centers.

Specific examples of recent government policy announcements, partnerships, and consortium arrangements related to data center development include:

- **The European Union's Digital Compass:** This initiative aims to make Europe a leader in the digital economy, including investments in data centers and cloud infrastructure.
- **The U.S. Department of Energy's Data Center Energy Efficiency Initiative:** This program focuses on reducing the energy consumption of data centers through research, development, and deployment of energy-efficient technologies.
- **The China Internet Investment Fund:** This government-backed fund invests in data center infrastructure and other digital technologies to support China's digital economy.
- **The Digital Realty Trust:** This company is a major data center provider that often partners with governments and organizations to develop large-scale data center facilities.