About IDC Data Center Construction



Overview

Data Center Construction Projects: Complete GuideMaster data center construction projects from planning to completion. Learn costs, timelines, best practic.

Key Takeaways

IDC data center construction is experiencing a global boom driven by AI, cloud computing, and hyperscale demand, with nearly 100 GW of new capacity expected by 2030.

Global Construction Trends

The data center industry is undergoing unprecedented growth, largely fueled by AI workloads and cloud computing. Hyperscale operators like Amazon, Microsoft, Google Cloud, and major Chinese providers such as Alibaba, Tencent, and Baidu are investing billions in new facilities to meet surging digital demand. Global investment in data center construction could reach $7 trillion by 2030, with the US leading at over $74 billion in 2024, while Asia-Pacific and EMEA regions are rapidly expanding capacity.

Nearly 100 GW of new data centers are projected between 2026 and 2030, doubling global capacity and driving a 14% CAGR in the sector.

IDC Architecture and Design

An Internet Data Center (IDC) centralizes data management, including storage, computation, and networking, using thousands of servers and storage systems. Key architectural considerations include: Physical Infrastructure: Servers, storage devices, networking equipment, and power supply units. Environmental Controls: Temperature, humidity, and airflow management to ensure optimal operation.

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Power Management: Reliable power delivery, backup solutions, and increasingly, behind-the-meter power and battery storage. Location: Proximity to power sources, network connectivity, and low environmental risk. Scalability: Ability to expand and upgrade infrastructure as demand grows.

Security: Robust physical and cybersecurity measures. Energy Efficiency: Use of renewable energy and advanced cooling technologies, including liquid cooling for high-density AI workloads.

Drivers of Construction

The surge in construction is primarily driven by: AI Workloads: By 2030, AI could represent 50% of all data center workloads, with inference workloads overtaking training as the dominant driver. Hyperscale Expansion: Operators are executing dual strategies of leasing and self-building to meet demand. Cloud Migration: Enterprises are shifting from on-premises to hybrid, colocation, and hyperscale solutions.

Regional Growth: APAC capacity is projected to grow from 32 GW to 57 GW, while EMEA adds 13 GW, supported by government initiatives and sovereign AI cloud demand.

Challenges and Considerations

Despite rapid growth, several factors could constrain construction: Power Constraints: Grid limitations are a primary site selection criterion. Supply Chain and Labor Shortages: Material and skilled workforce availability can delay projects. Sustainability Concerns: Energy usage, carbon emissions, and environmental impact are increasingly critical in design and operation.

Technological Disruption: Advances in AI efficiency, quantum computing, and hardware may reduce future infrastructure needs.

Investment Outlook

The sector is in an infrastructure investment supercycle, requiring up to $3 trillion by 2030, including $1. 2 trillion in real estate asset creation and $1–2 trillion for IT equipment fit-out. High rack densities approaching 100 kW per rack and liquid cooling are becoming standard for AI-optimized facilities.

Hybrid portfolios combining on-prem, colocation, hyperscale, and edge deployments are expected to dominate future IDC strategies. In summary, IDC data center construction is rapidly expanding worldwide, driven by AI, cloud computing, and hyperscale demand, with a strong focus on energy efficiency, scalability, and advanced architecture to meet the evolving needs of digital infrastructure.

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Article Content

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Master data center construction projects from planning to completion. Learn costs, timelines, best practices, and emerging trends.

Datacenter Facilities Index

The index is updated annually. It encompasses capital spending for non-IT datacenter facilities, including racks for new construction, retrofits, and existing installed base. It also tracks annual opex spend for

AI Infrastructure Spending Caps Historic Year at ~$90 Billion in ...

AI infrastructure spending hit $89.9B in Q4 2025, signaling a shift to long-term investment as the market races toward $1 trillion by 2029.

Global Data Center Report (2026)

The latest IDCA Data Center Report provides a comprehensive view of the global data center landscape, covering energy consumption, connectivity, security, and the rise of AI-driven infrastructure.

IDC Data Center | Venttech

Our Container Data Centers are built to the highest quality standards, ensuring durability, reliability, and long-term performance. Designed with robust materials and cutting-edge cooling technology, these

Data Center Design and Construction: A Complete Guide

Learn how to design and build a data center with this 8-step guide. Explore key components, best practices & requirements for a secure, scalable facility.

Basic Construction of IDC Data Center

Basic Construction of IDC Data Center Learn how to design and build a data center with this 8-step guide. Explore key components, best practices & requirements for a secure, scalable facility.

IDC Data Center

Built with advanced thermal management and intelligent power distribution, our IDC data centers ensure continuous uptime, optimized performance, and sustainable operation.

International Data Centre Group | IDC-G

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From sourcing the right DC provider for a client to creating the roadmap for a new datacentre business IDCG has over 20 years'' experience in successful datacentre company creation operation and exits.

High Density Internet Data Center & IDC Solutions

Top Internet companies now offer cloud services and are building independent or joint data centers. Compared with traditional data centers, Internet data centers require more innovative technologies,

Construction Commences on $15 Billion Data Center Campus in Port

A major groundbreaking ceremony has officially launched the construction of a massive, multi-phase data center campus in Port Washington, Wisconsin, marking a significant infrastructure investment

Construction Begins on €3.4M Municipal Data Center in Meppen,

Construction has officially started on a new municipal data center in Meppen, Lower Saxony, Germany, as part of a broader effort to upgrade the Emsland region''s IT infrastructure. The facility, scheduled

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NTT Facilities Unveils Modular Construction System to Cut

NTT Facilities, the infrastructure arm of Japanese telecommunications giant NTT, has introduced a new prefabricated construction method designed to dramatically accelerate the delivery

Nebius Begins Construction on Gigawatt-Scale AI Data Center

Nebius (NASDAQ: NBIS) officially broke ground on a major AI data center campus in Independence, Missouri, marking a significant milestone in the company''s expansion of digital infrastructure in the

SK Telecom begins construction of AI data center in Ulsan

SK Telecom, one of South Korea''s largest telecom operators and part of the wider SK Group, has officially broken ground on its AI-dedicated data center in Ulsan. This is one of the largest such

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As the third largest data center provider, we operate over 160 data centers in more than 20 countries and regions. We understand that every business – large and

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Indonesia Data Center Market Investment Analysis Report 2025-2030 ...

The report considers the present scenario of the Indonesia data center market and its market dynamics for 2025-2030. It covers a detailed overview of several market growth enablers,

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