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Data Center Construction Market - Global Outlook and Forecast 2021-2026

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Abstracts

In-depth Analysis and Data-driven Insights on the Impact of COVID-19 Included in this Global Data Center Construction Market Report

The data center construction market is expected to grow at a CAGR of 4.8% during the period 2021–2026.

The global data center construction market continues to witness a slew of mergers and acquisitions, followed by joint ventures. The growing demand for data center services across industries has led service providers to collaborate, participate, and sign several mergers and acquisitions to expand their portfolios, expand their reach, and increase their penetration in the market. M&A activities have been followed up with joint ventures, which have acted as a catalyst for market growth. Although the market witnessed several mergers and acquisitions in 2020, the most remarkable ones are the acquisition of Digital Realty merger with Interxion in March 2020, Hypertec by Vantage Data Center in Nov 2020 in Canada. The APAC region witnessed a few high-profile mergers, however, the data center market in India observed two majors acquisitions in 2020 ¬– Equinix's acquisition of GPX Global Systems in Aug 2020 and Carlyle Group's merger with Airtel Nxtra Data Center (25%).

The following factors are likely to contribute to the growth of the data center construction market during the forecast period:

5G to Grow Edge Data Center Investments

Growth in Procurement of Renewable Energy

Innovative UPS Battery Technology

Availability of Power Resources and Tax Incentives

The study considers the present scenario of the data center construction market and its market dynamics for the period 2020?2026. It covers a detailed overview of several market growth enablers, restraints, and trends. The report offers both the demand and supply aspects of the market. It profiles and examines leading companies and other prominent ones operating in the market.

Data Center Construction Market Segmentation

The global data center construction market research report includes a detailed segmentation by facility type, electrical infrastructure, mechanical infrastructure, cooling technique, general construction, tier standards, geography. Currently, the US, Germany, Sweden, Australia, Canada, India, and France are witnessing the highest development and expansion of small data center projects, which fall under the capacity of less than 5 MW. Europe witnessed the development of multiple small projects, accounting for over $2 billion in investments. In 2020, the US accounted for around 80% of data center projects with an estimated investment of around $700 million in the Americas data center market. Germany, France, and Switzerland are the major contributors with more than $700 million in investments. The APAC market witnessed the construction of several small projects, accounting for over $2 billion investments.

In terms of electrical infrastructure, several data center facilities in North America have adopted 2N redundant UPS systems. Hyperscale operators are deploying end-of-rack UPS solutions supporting up to six racks. Generators are still being deployed in N+1 redundant configuration. Most facilities have deployed over 1,000 kVA UPS systems and >2 MW generators. However, the increasing procurement of renewable energy is likely to decrease the need for generator systems. The UK, Germany, the Netherlands, France, and Ireland are witnessing high investments in power infrastructure. Several facilities have adopted flexible designs to facilitate the installation of dual power feed, 2N redundant UPS and PDU systems, and N+1 generator. The Western Europe market share of metered and monitored rack PDU solutions has observed a remarkable increase. Hyperscale service providers in the Nordic region are procuring 48V DC UPS systems. These systems prevent a 5–10% loss in AC to DC conversion. Most facilities in the region are powered by renewable energy with a grid stability of over 95%. This reduces the number of redundant generators in the market.

A majority of facilities in North America are cooled via free cooling solutions. Several facilities built-in 2020 adopted free cooling techniques to reduce the energy cost. Economizers, evaporative and adiabatic coolers, and free cooling chillers are adopted among data centers during summers and winters. Also, direct liquid cooling and liquid immersion cooling solutions are growing among data centers. Adiabatic coolers, evaporative coolers, and free cooling chiller systems are observing adoption in Western Europe. The use of water-based cooling includes water-treatment plants and systems that can aid the consumption of water by up to 20%. Several facilities in the Nordic region install free cooling techniques. Hence, the use of free cooling systems is expected to add significant revenues during the forecast period. Several data centers in Central and Eastern Europe have been equipped with in-direct evaporative/adiabatic coolers and support free cooling of over 6,000 hours per year. A few facilities have also adopted water/glycol-based cooling systems along with highly efficient DX-based CRAC systems. Several data centers in the APAC region have air- and water-based cooling systems. China, Japan, Australia, New Zealand, and South Korea benefit from cooling systems that support free cooling and reduce power consumption.

Greenfield data center construction of Tier III standards is more common in the APAC region. The region has a strong presence of local and global contractors. The average labor cost in many countries, including India, is economical than in the US and Europe. While the Middle East market is dominated by greenfield constructions, the UAE and Qatar are likely to witness high modular data center investments. Most greenfield projects covering an area of over 50,000 square feet, require strong expertise in construction, design, and engineering services. The labor cost is moderate in the Middle East due to the availability of a skilled workforce. Most major data center constructions in the region are managed by Europe-based construction service providers that include architects and engineering firms. However, the non-availability of skilled workforce to manage multiple hyperscale projects is a major challenge for several contractors in the region.

Over the last five years, the increasing awareness of redundant infrastructure has decreased the number of Tier I and Tier II data centers significantly across the globe. UPS and PDU systems of Tier II data centers are equipped with minimum N+N redundancy. Around 200 Tier III data centers were under construction in 2020, with 125 data centers opening in 2020. Most of these new facilities are designed to be Tier III standards with a minimum of N+1 redundancy. However, Tier IV facilities are expected to witness significant investments in the market, with focused investment on highly efficient cooling systems. Tier IV facilities equip 2N+1 cooling units. Data center buildout announcements from Apple, Facebook, and Google are likely to significant boost to the tier IV market.

By Facility Type

- Small
- Medium
- Hyperscale

By Electrical Infrastructure

- UPS Systems
- Generators
- Transfer Switches and Switchgears
- PDUs
- Other Electrical Infrastructures

By Mechanical Infrastructure

- Cooling Systems
  - CRAC & CRAH Units
  - Chiller Units
  - Cooling Towers, Dry Coolers, & Condensers
  - Economizers & Evaporative Coolers
  - Other Cooling Units

Racks

Others Mechanical Infrastructure

By Cooling Technique

Air-based Cooling Technique

Liquid-based Cooling Technique

By General Construction

Core and Shell Development

Installation and Commissioning Services

Engineering and Building Designs

Physical Security

DCIM/BMS

By Tier Standards

Tier I &II

Tier III

Tier IV

INSIGHTS BY GEOGRAPHY

The US data center construction market has attained maturity. The growing popularity of the Internet of Things (IoT) is a major driver for the growth of the US data center construction market. The usage of cloud computing services and applications continues to grow rapidly in the US, thereby leading to the establishment of large hyperscale cloud-based data centers. The adoption of modular, scalable, and lithium-ion powered systems in facilities is likely to increase investments in UPS systems. Diesel generators will continue to grow, which are likely to be replaced by fuel cell generators by 2025. Switchgears are likely to grow because of increased construction of large and mega facilities that require medium and high-voltage switchgears. Moreover, the adoption of metered, monitored, switched, and metered-by-outlet PDUs is expected to grow in the market.

By Geography

- North America
  - US
  - Canada
- Latin America
  - Brazil
  - Other Latin American Countries
- Western Europe
  - UK
  - Germany
  - France
  - Netherlands
  - Ireland
  - Other Western European Countries
- Nordic

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Denmark

Iceland & Finland

Norway

Sweden

Central & Eastern Europe

Russia & Czech Republic

Poland & Austria

Other Central and Eastern European Countries

Middle East

GCC

Other Middle Eastern Countries

Africa

South Africa

Kenya

Other African Countries

APAC

China & Hong Kong

Australia & New Zealand

India

Japan

- Rest of APAC
- Southeast Asia
  - Singapore
  - Malaysia
  - Thailand
  - Indonesia
  - Other South Eastern Countries

INSIGHTS BY VENDORS

The growth in mega and hyperscale data centers across the globe has increased revenue opportunities for vendors, which include electrical, mechanical, and general construction. The electrical infrastructure segment has become highly competitive owing to the heightened interest shown by operators in procuring energy-efficient infrastructure solutions. Similarly, mechanical infrastructure providers include both global and regional vendors.

The high consumption of electricity by data center cooling units has led to multiple innovations, which increase the efficiency of data center operations by 90% and reduced cooling OPEX by up to 50%. Owing to the growing construction of hyperscale facilities, revenue opportunities for construction contractors are high as several data centers are spread over thousands of square feet. Several colocation facilities are being built with multiple data halls, where infrastructure adoption, installation, and commissioning of infrastructure is carried out on an on-demand basis.

Key Data Center Support Infrastructure Providers

- ABB
- Eaton

Rittal

Schneider Electric

STULZ

Vertiv

Caterpillar

Cummins

Key Data Center Construction Contractors

AECOM

Bouygues

DPR Construction

Holder Construction

Jacobs Engineering Groups

Mercury Engineering

M+W Group

Key Data Center Investors

Apple

Amazon Web Services (AWS)

CyrusOne

Digital Realty

Equinix

Facebook

GDS Holdings

Google

Microsoft

NTT Communications

Other Prominent Data Center Support Infrastructure Providers

Airedale Air Conditioning

Asetek

Alfa Laval

Altima Technologies

Assa Abloy

Bosch Security Systems (Robert Bosch)

Condair Group

Delta Group

Green Revolution Cooling (GRC)

Hitech Power Protection

KOHLER (SDMO)

Legrand

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Nlyte Software

Rolls Royce Power Systems

Mitsubishi Electric Corporation

Socomec Group

Trane (Ingersoll Rand)

ZincFive

Other Prominent Construction Contractors

Arup Group

Cap Ingelec

Corgan

CSF Group

Faithful+Gould

Fluor Corporation

Fortis Construction

Gensler

Gilbane Building Co.

HDR Architecture

ISG

Jones Engineering

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Kirby Group Engineering

KKR Investment Group (Aceco TI S.A.)

Larsen & Toubro (L&T)

Linesight

Mace Group

Morrison Hershfield

Mortenson Construction

Red-Engineering

Structure Tone

Syska Hennessy Group

Winthrop

Other Prominent Data Center Investors

21Vianet (Century Internet Data Center)

Africa Data Centres

Cologix (Colo-D)

Colt Data Centre Services (COLT DCS)

Compass Data Centers (Root Data Center)

COPT Data Center Solutions

CoreSite Realty

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Canberra Data Centres

Etisalat Group

Global Switch

Keppel DC

NEXTDC

QTS Realty Trust

ST Telemedia Global Data Centres (STT GDC)

Shanghai Athub

Scala Data Centers

Tenglong Holdings Group (Tamron)

Turkcell

Teraco Data Environments

Vantage Data Center

KEY QUESTIONS ANSWERED

1. What is the data center construction market size and growth rate in terms of area?
2. What are the innovative data center technologies adopted by data center operators?
3. Which region is the largest revenue contributor to the data center construction market?
4. Which is the targeted segment of growth in data center construction market share?
5. Who are the key players in the global data center construction market?
6. What are the key factors driving the data center construction market?

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Contents

17 COOLING TECHNIQUE

18 LIQUID COOLING TECHNIQUE

19 GENERAL CONSTRUCTION

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Exhibit 289 Data Center Construction Market in Other Southeast Asian Countries by Infrastructure 2020?2026 ($ million)

Exhibit 290 Schneider Electric: Product Offerings

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List Of Tables

LIST OF TABLES

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