Ai Infrastructure Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 130 pages | Mordor Intelligence

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Report description:

The AI infrastructure market was valued at USD 38.34 billion in 2021, and it is expected to reach USD 120.69 billion by 2027, registering a CAGR of 20.59% during 2022-2027. Increasing demand for AI hardware in high-performance computing data centers and rising application of machine learning and deep learning technologies are expected to drive the growth of the market.

Key Highlights
Enterprises increasingly recognize the value associated with incorporating artificial intelligence (AI) into their business processes, as they improve operational efficiency and reduce cost through automation of process flows. Thus, companies have been using autonomous processes to improve operations and change the face of customer service (for example, through AI-powered chatbots) while spurring innovation to new heights. AI is a set of algorithms that can solve specific problems and works best with a significant volume of high-quality Big Data. Chatbots can cut down the operational costs for businesses by up to 30%.
Furthermore, as the focus of IT strategy moves from data management to intelligent action, enterprises have increasingly recognized AI's role in supporting humans in problem-solving, decision-making, and creative endeavors. Enterprises acknowledge that implementing and using AI is critical for their continued growth in the competitive environment, with many potential opportunities, such as new opportunities using AI to drive innovation, make connections, and identify and foster new developments.
To take advantage of the increasing AI opportunities, one of the first considerations for any organization is to have a suitable infrastructure to support AI developments. Moreover, AI solutions frequently demand new hardware and software integration to function. For instance, collating and annotating data sources, scalable processing, or creating and fine-tuning models require AI solutions, such as repurposing existing hardware and buying a one-off AI solution, building a broader platform to support multiple AI solutions, and outsourcing AI solution delivery. Thus, infrastructure plays a vital role in the growth of the AI landscape.
Different companies have been offering AI infrastructure-related solutions in the market, enabling the company to leverage its AI

infrastructure. For instance, in February 2022, Spell, the leader in operationalizing AI for natural language processing (NLP), machine vision, and speech recognition applications, and Graphcore, a maker of the Intelligence Processing Unit (IPU) for next-generation AI compute, have announced a partnership to deliver the next generation of AI infrastructure. The new solution integrates Graphcore's IPU-POD scale-out systems with Spell's eponymous hardware-agnostic MLOps software platform for deep learning (DLOps) to make advanced AI development faster, easier, and less expensive.
In August 2021, Dell Technologies announced the certification of Dell EMC VxRail for the newly available NVIDIA AI Enterprise software suite. NVIDIA AI Enterprise is an end-to-end, cloud-native suite of AI and data analytics software optimized, certified, and supported by NVIDIA to run on VMware vSphere with NVIDIA-Certified Systems. It includes critical enabling technologies from NVIDIA for rapid deployment, management, and scaling of AI workloads in the modern hybrid cloud.
Furthermore, the COVID-19 pandemic caused many organizations to accelerate their migrations to public cloud solutions since cloud service elasticity can meet unexpected spikes in service demand. Migrations to the cloud helped companies reinvent the way they conduct their businesses in the time of COVID-19. The need for AI services has grown, and many cloud providers offer AIaaS and MLaaS. As a result, the global cloud market recorded significant growth in the healthcare segment in 2020. AI and ML technology is being used considerably to fight COVID-19. For instance, several researchers are using machine learning to create an intelligent monitoring system that tracks and detects suspected COVID-19 infected persons. One proposed system is a new framework integrating machine learning, cloud, fog, and Internet of Things (IoT) technologies to create a COVID-19 disease monitoring and prognosis system.

AI Infrastructure Market Trends

Hybrid Deployment is Expected to Hold a Major Market Share

The rising transition of companies providing AI solutions from SMEs to large enterprises bolsters the demand for on-premise solutions that enable vertically and horizontal scalability. This factor has created a significant need for hybrid integration solutions (that comprise a mix of on-premise applications and cloud-based services) among enterprises. ?
The main advantage of using the hybrid model for AI solutions is that organizations can deploy solutions depending on the scalability they require for particular operations or applications. ?According to the Flexera 2020 State of the Cloud Survey Report, 93% of enterprises have a multi-cloud strategy, and 87% of the enterprises with a hybrid strategy, while organizations with a design of multiple public clouds or multiple private clouds grew slightly by 6%.
According to Pure Storage, some of the prominent vendors in the market are Amazon, IBM, Google, and Microsoft, as their public cloud can be easily integrated into a hybrid cloud and multi-cloud, according to the data gathered to form a survey of more than 500 IT professionals. Similarly, with such growing demand, the company has announced the number of partners in their hybrid cloud environment. IBM and Amazon stand at a higher position as of May 2021, with 65 and 63 partners, respectively. This is a solid indication of hybrid cloud adoption in the market.
It is also possible to create a data-centric IT architecture for AI, which further means modernizing IT environments with hybrid multi-cloud. The importance of a hybrid multi-cloud in creating an AI roadmap is the essential aspect enterprises consider while building their hybrid multi-cloud. Moreover, enterprises should integrate their public and private clouds and legacy data centers into their hybrid multi-cloud framework. An integrated hybrid multi-cloud enables a unified IA, improving both applications and data portability and interoperability. Hybrid multi-cloud also solves the issues of security, compliance, and latency. Besides these factors, enterprises must also be aware of certain imperatives of developing an AI strategy.
Businesses are also designing a multi-pronged strategy for their hybrid multi-cloud. As a part of this step, they should identify cloud platforms with embedded AI capabilities and plan continuous training for their AI and hybrid multi-cloud teams to ensure success. As an entity with data authority on the hybrid cloud, NetApp AI solutions remove bottlenecks at the edge, core, and cloud to enable more efficient data collection, accelerated AI workloads, and smoother cloud integration, helping the hybrid cloud deployment to grow. For instance, in May 2021, Hewlett Packard Enterprise announced that Carestream Health, a global provider

of medical imaging systems, selected HPE GreenLake to transform the healthcare platform using a hybrid cloud AI platform. Carestream will change X-ray systems across the globe using HPE GreenLake for ML Ops powered by HPE Ezmeral.

Asia-Pacific is Expected to Register the Fastest Growth During the Forecast Period

It is anticipated that AI research in China to accelerate as more major Chinese AI companies embrace open-sourcing, clearing the path for further innovation. Engineers can focus on the high-level structure of their model without going into the details of underlying algorithms with the help of a pre-built and optimized framework. Meanwhile, the government is speeding up the construction of "new infrastructure" projects, like 5G networks and data centers, bolstering information services for the expanding market. Soon after, the Chinese government announced the establishment of the Next Generation Artificial Intelligence Development Plan, which promises policy support, central coordination, and investments totaling more than USD 150 billion by 2030. By the end of this decade, China's AI business is expected to produce USD 160 billion in yearly revenues, with allied industries generating USD 1.6 trillion in annual sales.
China's digital behemoths have been encouraged by the government to develop artificial intelligence. More relationships with industry incumbents will be catalyzed by libraries, platforms, and frameworks enabling small and medium businesses to use artificial intelligence at a lower price. It also has the added benefit of ensuring that each ecosystem develops a more equitable collection of complement makers, allowing the digital behemoths to take a more significant portion of the value that artificial intelligence generates and creates.
Further, India is one of the world's fastest-growing economies, with a huge interest in AI's worldwide development. The Indian government recognizes the potential and is taking all necessary steps to steer the country and place it among the leaders in AI. Despite the favorable ecosystem, there are considerable obstacles that the government must overcome to achieve rapid progress in AI. India, for example, lacks the infrastructure to support large-scale experimental testbeds and a data ecosystem that allows intelligent data to be accessed.
According to a report by the Center for Security and Emerging Technologies, India is well-positioned to become a significant player and an essential partner in the AI ecosystem (CSET). According to research published by a US think tank, India's AI policy is on the right track. Six more Indian technology start-ups have joined the Unicorn club. To put things into context, India only produced seven unicorns in 2020 and six in 2019. Experts believe that by 2025, India will have more than 150 unicorns.
Many AI firms in India rely on cloud infrastructure due to a lack of infrastructure. However, cloud usage in India is still in its infancy. India barely spent 1.6% of its GDP on IT, which is less than half the global average. India barely spent 6% of its IT budget on cloud computing, lagging the global average of 7.9%, as stated by CSET Report.
The United Kingdom and India struck a USD 1.4 billion trade deal in May 2021, promising thousands of employment on both sides and the possibility of a future free trade agreement. The package comprises a USD 338.56 million investment by the Serum Institute of India in their vaccine business in the United Kingdom. It will assist in research, clinical trials, production, and export of artificial intelligence-based drones (AI).

AI Infrastructure Market Competitor Analysis

The AI infrastructure market is highly competitive, owing to multiple prominent players operating in domestic and international markets. The market appears to be moderately concentrated, with the significant players primarily adopting effective strategies such as product innovations and mergers and acquisitions. The market is a technology-driven market that witnesses players are putting substantial efforts into R&D to widen the functionality of their solutions. Some major players in the market are Nvidia Corporation, Microsoft Corporation, Google, and IBM.

November 2021 - AMD announced the new AMD Instinct MI200 series accelerators, the first exascale-class GPU accelerators. AMD Instinct MI200 series accelerators include the world?s fastest high-performance computing (HPC) and artificial intelligence (AI) accelerator.
October 2021 - Truveta announced its partnership with Microsoft to leverage its Azure cloud service and artificial intelligence (AI) capabilities. Truveta?splatform is expected to use Azure and AI solutions to gather insights from broad deidentified data points, including medical records, images, and genomics.
September 2021 - Microsoft and OYO, a global travel technology company, announced a multi-year strategic alliance to co-develop next-gen travel and hospitality products and technologies. OYO is expected to adopt Microsoft Azure Cloud Infrastructure and Artificial Intelligence solutions to improve the digital capabilities of small and medium hotels.
June 2021 - Google selected AMD?s 3rd Gen EPYC Processors to launch its first Tau Virtual Machines instance, T2. By collaborating with AMD, Google Cloud customers can now leverage impressive performance for scale-out applications, with excellent price-performance, all without compromising x86 compatibility. AMD EPYC processors power numerous instances at Google Cloud that support workloads including computing optimized, general-purpose, high-performance, and confidential computing.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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