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Artificial Intelligence (AI) Infrastructure Market Forecasts to 2030 – Global Analysis By Component (Hardware, Software, Services and Other Components), Deployment Mode, Technology, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Artificial Intelligence (AI) Infrastructure Market is accounted for $47.96 billion in 2024 and is expected to reach $243.54 billion by 2030 growing at a CAGR of 31.1% during the forecast period. Artificial Intelligence (AI) Infrastructure refers to the foundational technologies and systems required to support the development, deployment, and execution of AI applications. It encompasses hardware components such as GPUs, CPUs, FPGAs, and ASICs, along with software frameworks, cloud platforms, and data storage solutions optimized for AI workloads. AI infrastructure enables efficient data processing, model training, and inference, supporting applications like machine learning, deep learning, and natural language processing.

Market Dynamics:

Driver:

Increased adoption of AI across industries

Enterprises across industries like healthcare, automotive, finance, retail, and manufacturing are utilizing artificial intelligence (AI) to improve operational efficiency, automate procedures, and provide customized experiences. To manage demanding workloads, applications such as robotic process automation, image recognition, natural language processing, and predictive analytics need strong AI infrastructure. For

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instance, the automobile industry incorporates AI into autonomous driving technologies, and the healthcare sector uses AI for drug research and diagnostics. This broad use is increasing demand for cloud-based solutions, sophisticated hardware, and scalable, high-performance computing systems, which is fueling ongoing investment in the development of AI infrastructure.

Restraint:

Data privacy and security concerns

Large volumes of private information, such as financial, medical, and personal data, are necessary for AI systems to be trained and make decisions. With strict laws like the CCPA, GDPR, and HIPAA, improper data handling can result in breaches, illegal access, and noncompliance. Because of the possibility of data leaks and cyberattacks, cloud-based AI infrastructure introduces an additional degree of vulnerability. To reduce these dangers, it is crucial to have strong encryption, safe data storage, and access control systems in place. These worries not only make deploying AI infrastructure more difficult, but they also affect businesses' readiness to use AI, particularly in highly regulated sectors.

Opportunity:

Growing demand for high-performance computing (HPC)

AI applications need a lot of processing power to process and analyze large datasets, particularly those that use machine learning and deep learning. HPC systems offer the required processing power, utilizing GPUs, parallel computing, and specialized hardware such as TPUs (Tensor Processing Units) to speed up AI model inference and training. Faster and more potent computing infrastructure is becoming more and more necessary as AI technologies develop, particularly in fields like computer vision, natural language processing, and autonomous systems. Investment in cutting-edge infrastructure solutions is fueled by the growing need for HPC in order to satisfy the efficiency, scalability, and performance demands of contemporary AI workloads.

Threat:

High cost of implementation

Powerful processing resources and specialized gear, such as GPUs and TPUs, might

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be unaffordable. Significant financial investments are also required for the development and training of complex AI models, the acquisition and upkeep of high-quality datasets, and the employment of qualified AI specialists. It can be difficult, expensive, and time-consuming to integrate AI systems with current IT infrastructure. When taken as a whole, these elements make implementing AI a significant cost commitment for companies of all sizes.

Covid-19 Impact

The COVID-19 pandemic had a mixed impact on the Artificial Intelligence (AI) Infrastructure market. On one hand, the increased reliance on digital technologies and AI-driven solutions for remote work, healthcare, e-commerce, and supply chain management accelerated demand for AI infrastructure. On the other hand, global supply chain disruptions and economic uncertainties slowed the deployment of new AI projects. Despite this, the pandemic highlighted the importance of AI for business continuity, driving long-term investments in AI infrastructure across various sectors.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is estimated to be the largest, due to the increasing demand for high-performance computing to support AI applications like machine learning, deep learning, and data analytics. As AI models become more complex, specialized hardware such as GPUs, TPUs, and FPGAs are essential for accelerating processing speed and efficiency. Additionally, the growing adoption of AI in industries like healthcare, automotive, and finance requires powerful, scalable, and energy-efficient hardware solutions to handle large-scale data processing and real-time inference.

The fraud detection segment is expected to have the highest CAGR during the forecast period

The fraud detection segment is anticipated to witness the highest CAGR during the forecast period, due to the rising sophistication of cyber threats, the need for real-time decision-making, and the growing volume of financial transactions. AI-driven systems, powered by high-performance infrastructure, can analyze vast amounts of data to detect patterns, anomalies, and potential fraudulent activities faster and more accurately than traditional methods. Applications of AI in fraud detection span across banking, e-commerce, insurance, and financial services, helping organizations prevent fraud, reduce financial losses, and enhance security by identifying suspicious behavior in real time.

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Region with largest share:

Asia Pacific is expected to have the largest market share during the forecast period due to rapid digital transformation across various sectors, increasing government support for AI initiatives, and a burgeoning start-up ecosystem. The region's large and growing population, coupled with rising disposable incomes, is fueling demand for AI-powered solutions in areas such as e-commerce, fintech, healthcare, and smart cities. Furthermore, advancements in 5G technology and cloud computing are providing the necessary infrastructure for the widespread adoption of AI applications, further accelerating market growth.

Region with highest CAGR:

During the forecast period, the North America region is anticipated to register the highest CAGR, owing to a robust venture capital ecosystem fostering innovation. Significant investments in AI research and development by both private and public sectors further fuel market growth. The region boasts a highly skilled workforce and a culture of early adoption of emerging technologies, making it an ideal market for AI infrastructure solutions. Additionally, the increasing demand for AI applications across various industries, such as healthcare, finance, and autonomous vehicles, is driving the need for advanced computing power and specialized hardware, propelling the market forward.

Key players in the market

Some of the key players profiled in the Artificial Intelligence (AI) Infrastructure Market include NVIDIA Corporation, Intel Corporation, Google LLC (Alphabet Inc.), Microsoft Corporation, Amazon Web Services (AWS), IBM Corporation, Oracle Corporation, Advanced Micro Devices, Inc. (AMD), Huawei Technologies Co., Ltd., Hewlett Packard Enterprise (HPE), Dell Technologies, Samsung Electronics Co., Ltd., Cerebras Systems, Graphcore, Qualcomm Technologies, Inc., Xilinx, Inc. (AMD), Fujitsu Limited, Cisco Systems, Inc., Micron Technology, Inc., and Tencent Holdings Limited.

Key Developments:

In December 2024, Intel announced the new Intel® Arc™ B-Series graphics cards. The Intel® Arc™ B580 and B570 GPUs offer best-in-class value for performance at price points that are accessible to most gamers1, deliver modern gaming features and are

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engineered to accelerate AI workloads.

In October 2024, Siemens is revolutionizing industrial automation with Microsoft. Through their collaboration, they have taken the Siemens Industrial Copilot to the next level, enabling it to handle the most demanding environments at scale. Combining Siemens' unique domain know-how across industries with Microsoft Azure OpenAI Service, the Copilot further improves handling of rigorous requirements in manufacturing and automation.

Components Covered:

- Hardware
- Software
- Services
- Other Components

Deployment Modes Covered:

- Cloud-Based
- On-Premises

Technologies Covered:

- Machine Learning (ML)
- Natural Language Processing (NLP)
- Computer Vision
- Speech Recognition
- Deep Learning (DL)

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Applications Covered:

- Data Management and Processing
- Model Training and Development
- Inference and Deployment
- Predictive Analytics
- Fraud Detection
- Speech and Image Recognition
- Customer Experience Management
- Recommendation Systems
- Other Applications

End Users Covered:

- Automotive and Transportation
- Education
- Banking, Financial Services, and Insurance (BFSI)
- Retail and E-commerce
- Government and Defense
- Media and Entertainment
- IT and Telecom
- Healthcare and Life Sciences

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- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand

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South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

1 EXECUTIVE SUMMARY

2 PREFACE

2.1 Abstract
2.2 Stake Holders
2.3 Research Scope
2.4 Research Methodology
  2.4.1 Data Mining
  2.4.2 Data Analysis
  2.4.3 Data Validation
  2.4.4 Research Approach
2.5 Research Sources
  2.5.1 Primary Research Sources
  2.5.2 Secondary Research Sources
  2.5.3 Assumptions

3 MARKET TREND ANALYSIS

3.1 Introduction
3.2 Drivers
3.3 Restraints
3.4 Opportunities
3.5 Threats
3.6 Technology Analysis
3.7 Application Analysis
3.8 End User Analysis
3.9 Emerging Markets
3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

4.1 Bargaining power of suppliers
4.2 Bargaining power of buyers
4.3 Threat of substitutes
4.4 Threat of new entrants
4.5 Competitive rivalry

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5 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY COMPONENT

5.1 Introduction
5.2 Hardware
  5.2.1 Graphics Processing Units (GPUs)
  5.2.2 Central Processing Units (CPUs)
  5.2.3 Application-Specific Integrated Circuits (ASICs)
  5.2.4 Field-Programmable Gate Arrays (FPGAs)
  5.2.5 Memory & Storage
  5.2.6 Networking Components
5.3 Software
  5.3.1 AI Platforms
  5.3.2 Operating Systems
  5.3.3 AI Middleware
  5.3.4 Data Management and Analytics Tools
5.4 Services
  5.4.1 Integration & Deployment
  5.4.2 Support & Maintenance
  5.4.3 Consulting
5.5 Other Components

6 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY DEPLOYMENT MODE

6.1 Introduction
6.2 Cloud-Based
  6.2.1 Public Cloud
  6.2.2 Private Cloud
  6.2.3 Hybrid Cloud
6.3 On-Premises

7 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY TECHNOLOGY

7.1 Introduction
7.2 Machine Learning (ML)
  7.2.1 Supervised Learning

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7.2.2 Unsupervised Learning
7.2.3 Reinforcement Learning
7.3 Natural Language Processing (NLP)
7.4 Computer Vision
7.5 Speech Recognition
7.6 Deep Learning (DL)

8 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY APPLICATION

8.1 Introduction
8.2 Data Management and Processing
8.3 Model Training and Development
8.4 Inference and Deployment
8.5 Predictive Analytics
8.6 Fraud Detection
8.7 Speech and Image Recognition
8.8 Customer Experience Management
8.9 Recommendation Systems
8.10 Other Applications

9 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY END USER

9.1 Introduction
9.2 Automotive and Transportation
9.3 Education
9.4 Banking, Financial Services, and Insurance (BFSI)
9.5 Retail and E-commerce
9.6 Government and Defense
9.7 Media and Entertainment
9.8 IT and Telecom
9.9 Healthcare and Life Sciences
9.10 Other End Users

10 GLOBAL ARTIFICIAL INTELLIGENCE (AI) INFRASTRUCTURE MARKET, BY GEOGRAPHY

10.1 Introduction

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10.2 North America
10.2.1 US
10.2.2 Canada
10.2.3 Mexico
10.3 Europe
10.3.1 Germany
10.3.2 UK
10.3.3 Italy
10.3.4 France
10.3.5 Spain
10.3.6 Rest of Europe
10.4 Asia Pacific
10.4.1 Japan
10.4.2 China
10.4.3 India
10.4.4 Australia
10.4.5 New Zealand
10.4.6 South Korea
10.4.7 Rest of Asia Pacific
10.5 South America
10.5.1 Argentina
10.5.2 Brazil
10.5.3 Chile
10.5.4 Rest of South America
10.6 Middle East & Africa
10.6.1 Saudi Arabia
10.6.2 UAE
10.6.3 Qatar
10.6.4 South Africa
10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

11.1 Agreements, Partnerships, Collaborations and Joint Ventures
11.2 Acquisitions & Mergers
11.3 New Product Launch
11.4 Expansions
11.5 Other Key Strategies

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12 COMPANY PROFILING

12.1 NVIDIA Corporation
12.2 Intel Corporation
12.3 Google LLC (Alphabet Inc.)
12.4 Microsoft Corporation
12.5 Amazon Web Services (AWS)
12.6 IBM Corporation
12.7 Oracle Corporation
12.8 Advanced Micro Devices, Inc. (AMD)
12.9 Huawei Technologies Co., Ltd.
12.10 Hewlett Packard Enterprise (HPE)
12.11 Dell Technologies
12.12 Samsung Electronics Co., Ltd.
12.13 Cerebras Systems
12.14 Graphcore
12.15 Qualcomm Technologies, Inc.
12.16 Xilinx, Inc. (AMD)
12.17 Fujitsu Limited
12.18 Cisco Systems, Inc.
12.19 Micron Technology, Inc.
12.20 Tencent Holdings Limited

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List Of Tables

LIST OF TABLES

Table 1 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Region (2022-2030) ($MN)
Table 2 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Component (2022-2030) ($MN)
Table 3 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Hardware (2022-2030) ($MN)
Table 4 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Graphics Processing Units (GPUs) (2022-2030) ($MN)
Table 5 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Central Processing Units (CPUs) (2022-2030) ($MN)
Table 6 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Application-Specific Integrated Circuits (ASICs) (2022-2030) ($MN)
Table 7 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Field-Programmable Gate Arrays (FPGAs) (2022-2030) ($MN)
Table 8 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Memory & Storage (2022-2030) ($MN)
Table 9 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Networking Components (2022-2030) ($MN)
Table 10 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Software (2022-2030) ($MN)
Table 11 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By AI Platforms (2022-2030) ($MN)
Table 12 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Operating Systems (2022-2030) ($MN)
Table 13 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By AI Middleware (2022-2030) ($MN)
Table 14 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Data Management and Analytics Tools (2022-2030) ($MN)
Table 15 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Services (2022-2030) ($MN)
Table 16 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Integration & Deployment (2022-2030) ($MN)
Table 17 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Support & Maintenance (2022-2030) ($MN)
Table 18 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Consulting

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(2022-2030) ($MN)
Table 19 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Other Components (2022-2030) ($MN)
Table 20 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Deployment Mode (2022-2030) ($MN)
Table 21 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Cloud-Based (2022-2030) ($MN)
Table 22 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Public Cloud (2022-2030) ($MN)
Table 23 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Private Cloud (2022-2030) ($MN)
Table 24 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Hybrid Cloud (2022-2030) ($MN)
Table 25 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By On-Premises (2022-2030) ($MN)
Table 26 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Technology (2022-2030) ($MN)
Table 27 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Machine Learning (ML) (2022-2030) ($MN)
Table 28 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Supervised Learning (2022-2030) ($MN)
Table 29 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Unsupervised Learning (2022-2030) ($MN)
Table 30 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Reinforcement Learning (2022-2030) ($MN)
Table 31 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Natural Language Processing (NLP) (2022-2030) ($MN)
Table 32 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Computer Vision (2022-2030) ($MN)
Table 33 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Speech Recognition (2022-2030) ($MN)
Table 34 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Deep Learning (DL) (2022-2030) ($MN)
Table 35 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Application (2022-2030) ($MN)
Table 36 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Data Management and Processing (2022-2030) ($MN)
Table 37 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Model Training and Development (2022-2030) ($MN)

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Table 38 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Inference and Deployment (2022-2030) ($MN)
Table 39 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Predictive Analytics (2022-2030) ($MN)
Table 40 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Fraud Detection (2022-2030) ($MN)
Table 41 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Speech and Image Recognition (2022-2030) ($MN)
Table 42 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Customer Experience Management (2022-2030) ($MN)
Table 43 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Recommendation Systems (2022-2030) ($MN)
Table 44 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Other Applications (2022-2030) ($MN)
Table 45 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By End User (2022-2030) ($MN)
Table 46 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Automotive and Transportation (2022-2030) ($MN)
Table 47 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Education (2022-2030) ($MN)
Table 48 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Banking, Financial Services, and Insurance (BFSI) (2022-2030) ($MN)
Table 49 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Retail and E-commerce (2022-2030) ($MN)
Table 50 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Government and Defense (2022-2030) ($MN)
Table 51 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Media and Entertainment (2022-2030) ($MN)
Table 52 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By IT and Telecom (2022-2030) ($MN)
Table 53 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Healthcare and Life Sciences (2022-2030) ($MN)
Table 54 Global Artificial Intelligence (AI) Infrastructure Market Outlook, By Other End Users (2022-2030) ($MN)

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