AI In Ultrasound Imaging Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Solution (Software Tools, Services, Devices), By Application (Radiology, Cardiovascular, Gastroenterology, Obstetrics & Gynecology), By Technology (Machine Learning, Natural Language Processing, Context- Aware Computing, Computer Vision), By Ultrasound Technology (Diagnostic Imaging, Therapeutic, 2D or 3D/4D Ultrasound Imaging, High Intensity Focused Ultrasound, Extracorporeal Shockwave Lithotripsy, Doppler Ultrasound), By End Use (Hospitals, Clinics, Research Labs & Diagnostic Centers, Others), By Region and Competition, 2020-2030F

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Report description:

Global AI In Ultrasound Imaging Market was valued at USD 1.25 Billion in 2024 and is expected to reach USD 1.82 Billion by 2030 with a CAGR of 6.43% during the forecast period. The Global AI in Ultrasound Imaging Market is being driven by several factors, including the increasing demand for non-invasive diagnostic techniques, the need for faster and more accurate diagnoses, and advancements in artificial intelligence technologies. AI algorithms in ultrasound imaging improve image quality, assist in automating image interpretation, and reduce human error, leading to more reliable and efficient diagnostics. The growing adoption of point-of-care ultrasound devices, especially in developing regions, is fueling market growth due to their affordability

and portability. The rising prevalence of chronic diseases, along with the push for personalized and precision medicine, further boosts the demand for AI-powered ultrasound solutions. Supportive regulatory frameworks and advancements in machine learning models continue to enhance the capabilities of ultrasound imaging, driving the market forward.

Key Market Drivers

Increasing Demand for Non-Invasive Diagnostic Techniques

The demand for non-invasive diagnostic methods has been one of the primary driving forces behind the growth of Global AI in Ultrasound Imaging Market. Non-invasive techniques are highly sought after in healthcare because they offer a safer alternative to invasive procedures, minimizing patient discomfort, reducing recovery time, and lowering the risk of complications. In this context, ultrasound imaging stands out as one of the most widely used non-invasive diagnostic methods. In July 2020, Zebra Medical Vision formed a strategic partnership with TELUS Ventures. This collaboration was designed to expand Zebra Medical's footprint across North America, facilitating the introduction of its AI solutions to healthcare providers in the region.

AI in ultrasound systems enhances image clarity and interpretation, enabling healthcare providers to detect and diagnose a wide range of conditions without the need for surgery or other invasive interventions. The addition of AI further accelerates the diagnostic process by automating image analysis and detecting even the smallest abnormalities that might be overlooked by the human eye. In applications like obstetrics, cardiology, and musculoskeletal imaging, AI-powered ultrasound devices can identify conditions like fetal abnormalities, heart diseases, and joint disorders early on, enabling timely treatment and better patient outcomes. As patient preferences increasingly lean toward non-invasive alternatives, the adoption of AI in ultrasound imaging will continue to rise, driving market expansion.

Technological Advancements in AI and Machine Learning

Technological advancements in AI, particularly in machine learning (ML) and deep learning (DL), have had a profound impact on ultrasound imaging. AI systems are able to analyze vast amounts of medical data in real-time, providing enhanced diagnostic accuracy and efficiency. Machine learning algorithms allow AI systems to learn from large datasets, improving their ability to recognize patterns and detect abnormalities with greater precision. In December 2024, at the 2024 EUROSON conference in Italy, Mindray introduced its latest premium radiology ultrasound system, the Resona A20. The system incorporates advanced technology features, such as AFM transducers and AI software, enhancing its performance and capabilities.

In ultrasound imaging, this means that AI can autonomously interpret images, identify key features, and flag potential areas of concern-such as tumors, cysts, or abnormal blood flow-making the task easier for healthcare professionals. These advancements significantly reduce the margin for error and enhance the diagnostic capabilities of ultrasound machines, ultimately leading to faster, more accurate results. AI-driven ultrasound devices are capable of real-time image enhancement, offering clearer, higher-quality images that help clinicians make better-informed decisions. As AI technologies continue to improve, ultrasound systems will become more sophisticated and capable of performing complex diagnostic tasks, further contributing to the growth of the Global AI in Ultrasound Imaging Market.

Cost-Effectiveness and Accessibility

The cost-effectiveness and accessibility of ultrasound imaging, especially when enhanced by AI, is a significant factor driving the market's growth. Ultrasound systems, compared to other imaging technologies such as MRI or CT scans, are generally more affordable and cost-effective to operate. This makes ultrasound an attractive option for healthcare providers, particularly in settings with limited budgets or where cost constraints are a concern. AI in ultrasound further enhances the cost-effectiveness of the technology by automating the image analysis process, reducing the need for specialized personnel and increasing workflow efficiency. In December 2023, Siemens Healthineers introduced the Acuson Maple ultrasound system, designed to combine ease of use, workflow improvements, and AI-enabled features. Recently cleared by the FDA, the Acuson Maple device integrates several AI tools aimed at reducing repetitive tasks and enhancing radiology workflows. Notably, the eSie Measure feature automates cardiac measurements, enabling up to a 44% reduction in keystrokes and cutting five minutes off the time required to complete routine echocardiography exams, according to Siemens Healthineers.

This allows healthcare facilities to serve more patients in a shorter time frame, improving overall productivity. AI-based ultrasound systems are highly accessible because of their portability and lower operational costs, especially in developing regions where healthcare access can be limited. With AI, ultrasound devices are becoming more user-friendly, allowing non-specialist clinicians to perform high-quality imaging and make diagnostic decisions. The affordability, accessibility, and operational efficiency offered

by AI-powered ultrasound systems are contributing to the rapid growth of the Global AI in Ultrasound Imaging Market.

Increased Demand for Personalized and Precision Medicine

The shift toward personalized and precision medicine is significantly influencing the Global AI in Ultrasound Imaging Market. Personalized medicine focuses on tailoring medical treatments to the individual characteristics of each patient, and ultrasound imaging plays a key role in providing the necessary diagnostic data. AI-enhanced ultrasound systems help clinicians obtain more precise and detailed information about a patient's condition, which is crucial for developing customized treatment plans. For example, in oncology, AI in ultrasound can identify the precise location, size, and characteristics of a tumor, helping oncologists design targeted therapies that are more effective and less invasive. Similarly, in cardiology, AI-powered ultrasound can provide real-time, accurate assessments of heart function, allowing for personalized management of cardiovascular diseases. The growing demand for personalized treatment, combined with AI's ability to analyze vast amounts of medical data and correlate it with patient-specific information, will continue to drive the adoption of AI in ultrasound imaging, making it a vital tool for precision medicine.

Collaborations and Partnerships in the Healthcare Ecosystem

Strategic collaborations and partnerships between medical device manufacturers, AI technology companies, and healthcare providers are accelerating the development and deployment of AI in ultrasound imaging. Many healthcare organizations are partnering with tech companies specializing in AI and machine learning to develop innovative solutions that integrate AI with ultrasound technology. In September 2024, Exo announced the launch of SweepAI, a new FDA-cleared ultrasound application designed for intelligent cardiac and lung scanning. This advanced AI, now available on the Exo Iris system, delivers instant feedback as the user moves the handheld ultrasound device across an organ. It automatically identifies the best imaging and provides real-time diagnostic insights, all without the need for internet or cloud connectivity.

These collaborations help enhance the capabilities of ultrasound systems, making them more advanced in terms of image processing, analysis, and real-time decision-making. For instance, companies like GE Healthcare and Philips are working with AI startups to integrate machine learning algorithms into ultrasound systems, improving image quality and automating diagnostic processes. These partnerships also help healthcare providers access the latest AI-driven ultrasound technologies, fostering innovation and expanding the market. As more collaborations emerge across the healthcare ecosystem, the development of AI-based ultrasound systems will continue to accelerate, leading to further market growth.

Key Market Challenges

Integration with Existing Healthcare Systems

Integrating AI-based ultrasound imaging systems into existing healthcare infrastructures is another significant challenge. Many healthcare facilities still rely on traditional ultrasound devices, and the transition to AI-enhanced systems can require significant changes in both hardware and software. The implementation of AI requires seamless integration with other diagnostic equipment, electronic health record (EHR) systems, and hospital management software. Healthcare providers may also face challenges related to interoperability between AI-powered ultrasound devices and other medical technologies, particularly when dealing with legacy systems that may not be compatible with newer AI software. Integrating AI solutions requires proper training for healthcare professionals, ensuring they understand how to use the technology effectively and interpret AI-generated results. The initial cost and complexity of integrating AI-based ultrasound systems into existing workflows can slow down the adoption rate, especially in smaller healthcare facilities with limited budgets or technical expertise.

High Initial Costs of AI-Enabled Ultrasound Devices

The high initial cost of AI-enabled ultrasound devices remains a major challenge for widespread adoption, particularly in developing regions and smaller healthcare facilities. While AI-enhanced ultrasound systems offer significant advantages, such as improved diagnostic accuracy and workflow efficiency, their upfront costs can be prohibitive. These advanced systems often require specialized hardware, software, and AI algorithms, which drive up the overall price. Many healthcare providers, especially those operating on limited budgets, may find it difficult to justify the investment, particularly in the absence of immediate cost savings. While AI can improve efficiency in the long term, the initial cost burden may deter healthcare providers from adopting these systems. Despite the potential long-term benefits, the cost challenge remains a significant barrier to the wider implementation of AI-powered ultrasound devices.

Key Market Trends

Rise in Chronic Disease Prevalence

The increasing prevalence of chronic diseases such as cardiovascular diseases, cancer, musculoskeletal disorders, and diabetes is another key factor driving the growth of the Global AI in Ultrasound Imaging Market. These conditions require continuous monitoring, early diagnosis, and effective management to improve patient outcomes. Ultrasound imaging, enhanced by AI, plays a crucial role in the detection and monitoring of chronic diseases. In cardiology, AI-powered ultrasound devices are used to detect heart conditions such as valve diseases, myocardial infarction, and arrhythmias. In oncology, AI-based ultrasound can help identify and monitor tumors, cysts, or abnormal growths at an early stage, which is critical for timely interventions and personalized treatment plans. Musculoskeletal disorders, such as arthritis or tendon injuries, are also diagnosed through AI-enhanced ultrasound, which can provide detailed images of soft tissues and joints. As the global prevalence of chronic diseases continues to rise, healthcare providers will increasingly turn to AI-based ultrasound imaging solutions to support early detection, continuous monitoring, and personalized treatment, all of which drive the expansion of the market.

Growing Adoption of Point-of-Care Ultrasound Devices

The growing adoption of point-of-care (POC) ultrasound devices has been another significant driver of the Global AI in Ultrasound Imaging Market. Point-of-care ultrasound devices are compact, portable, and affordable, making them ideal for use in emergency situations, rural clinics, and remote healthcare settings where access to traditional imaging equipment may be limited. These devices enable healthcare professionals to conduct immediate diagnostic evaluations, providing rapid insights into a patient's condition. AI integration in POC ultrasound devices further enhances their capabilities by automating image interpretation, which reduces the reliance on specialized expertise. For example, in emergency rooms or trauma centers, AI-powered ultrasound devices can quickly assess conditions like internal bleeding or organ damage. The ability to access instant diagnostic information improves clinical decision-making and patient care outcomes. POC ultrasound devices are being used in a variety of medical specialties, such as obstetrics for monitoring fetal health, cardiology for evaluating heart function, and musculoskeletal imaging for diagnosing injuries. The increasing demand for POC devices, combined with the enhanced capabilities offered by AI, is driving growth in the Global AI in Ultrasound Imaging Market.

Segmental Insights

Solution Insights

Based on the Solution, Software Tools are emerging as the dominant segment, with their critical role in enhancing the functionality and accuracy of ultrasound devices through AI integration. While ultrasound devices and related services are integral components of the market, software tools are driving much of the growth due to their ability to provide sophisticated image processing, real-time analysis, and automated diagnostics.

AI-based software tools are responsible for improving the overall performance of ultrasound systems. These tools leverage deep learning and machine learning algorithms to enhance image quality, automate image segmentation, and aid in anomaly detection. For instance, AI algorithms can analyze ultrasound images to automatically detect and diagnose conditions like tumors, cysts, and cardiovascular anomalies, which might otherwise require a highly skilled radiologist to interpret manually. This capability is especially beneficial in busy clinical environments, where the demand for fast and accurate diagnoses is high. The AI-powered software tools can help identify even the smallest abnormalities with greater precision, thus reducing human error and accelerating the decision-making process for healthcare providers.

The ability of AI software to automate image interpretation is one of the key factors driving its dominance in the Global AI in Ultrasound Imaging Market. Radiologists and healthcare professionals rely on these tools for assistance in quickly identifying and analyzing complex medical images, which improves the diagnostic workflow. The software's real-time feedback and decision support capabilities are crucial in settings where immediate action is required, such as emergency care or obstetrics. AI software tools have the capability to learn and improve over time by analyzing vast amounts of imaging data, further enhancing their accuracy and performance. This ability to continually adapt and become more effective as more data is fed into the system makes AI software an indispensable tool in modern healthcare.

End Use Insights

Based on the end use segment, Hospitals are currently dominating the Global AI in Ultrasound Imaging Market. Hospitals represent the largest and most diverse segment of the healthcare industry, encompassing a wide range of specialties where AI-powered ultrasound imaging is highly beneficial. The growing adoption of AI technologies in hospitals is driven by the need to

improve diagnostic accuracy, enhance operational efficiency, and provide better patient outcomes, particularly in high-demand departments such as emergency care, obstetrics, cardiology, and oncology.

One of the key drivers of AI adoption in hospitals is the need to manage large volumes of patient data and diagnostic images. Hospitals often dealing with a broad spectrum of patients requiring various forms of diagnostic imaging, including ultrasound. AI enhances the efficiency of image analysis, allowing radiologists and clinicians to interpret complex ultrasound images more quickly and accurately. AI-powered ultrasound systems can automate tasks such as image segmentation, feature extraction, and the identification of abnormalities like tumors, cysts, or cardiovascular conditions. This reduces the workload of healthcare professionals, enabling them to focus more on patient care and decision-making. Hospitals are also increasingly looking for ways to reduce diagnostic errors and improve the overall quality of care. The integration of AI with ultrasound imaging allows for real-time analysis of images, which is crucial for accurate diagnosis and timely treatment. AI tools can help identify conditions such as heart disease, liver abnormalities, and fetal issues, facilitating early detection and treatment. Early intervention in conditions like these can significantly improve patient outcomes, which is particularly important in critical care or emergency situations where time is of the essence.

Regional Insights

North America was dominating the Global AI in Ultrasound Imaging Market. The region benefits from advanced healthcare infrastructure, a high rate of technological adoption, and a supportive regulatory environment, which collectively contribute to the widespread implementation of AI-powered ultrasound imaging technologies. The United States, in particular, is at the forefront of this growth, driven by its leading position in healthcare innovation, robust healthcare spending, and the presence of numerous companies developing AI solutions for ultrasound imaging.

One of the primary factors driving the dominance of North America in the AI in ultrasound imaging market is the region's significant investment in healthcare technology and research. Both private and public entities in North America have made substantial investments in developing and adopting AI technologies to improve healthcare delivery. This includes AI-driven diagnostic tools for ultrasound, which enhance the accuracy, speed, and efficiency of imaging procedures. The U.S. Food and Drug Administration (FDA) has also been proactive in approving AI-based medical devices, providing a clear pathway for companies to bring innovative AI solutions to market. The regulatory approval process in North America has been supportive, allowing AI-powered ultrasound devices to be adopted at a faster rate compared to other regions.

Another key driver of North America's dominance is the strong healthcare infrastructure in both the U.S. and Canada, which includes state-of-the-art hospitals, clinics, and research institutions. These facilities have the resources to implement AI in ultrasound imaging systems and integrate them into their existing workflows. Hospitals, particularly in the U.S., are increasingly adopting AI-powered diagnostic tools to enhance clinical decision-making, improve patient outcomes, and streamline operations. The need for better efficiency in handling high patient volumes and providing faster diagnostics has encouraged healthcare providers to invest in AI technologies, making ultrasound imaging more effective and accessible. North American healthcare facilities are more likely to integrate advanced technologies into their operations due to their high budget allocations for medical equipment and their openness to adopting innovative solutions.

Key Market Players

- NVIDIA Corporation
- SmartAlpha
- Intel Corporation
- EchoNous, Inc.
- General Vision Inc.
- Lunit Inc.
- Agfa-Gevaert Group
- Butterfly Network, Inc.
- Enlitic, Inc.
- Micron Technology, Inc.

Report Scope:

In this report, the Global AI In Ultrasound Imaging Market has been segmented into the following categories, in addition to the

industry trends which have also been detailed below:

- AI In Ultrasound Imaging Market, By Solution:
  - Software Tools
  - Services
  - Devices
- AI In Ultrasound Imaging Market, By Application:
  - Radiology
  - Cardiovascular
  - Gastroenterology
  - Obstetrics & Gynecology
- AI In Ultrasound Imaging Market, By Technology:
  - Machine Learning
  - Natural Language Processing
  - Context- Aware Computing
  - Computer Vision
- AI In Ultrasound Imaging Market, By Ultrasound Technology:
  - Diagnostic Imaging
  - Therapeutic
  - 2D or 3D/4D Ultrasound Imaging
  - High Intensity Focused Ultrasound
  - Extracorporeal Shockwave Lithotripsy
  - Doppler Ultrasound
- AI In Ultrasound Imaging Market, By End Use:
  - Hospitals
  - Clinics
  - Research Labs & Diagnostic Centers
  - Others
- AI In Ultrasound Imaging Market, By Region:
  - North America
    - United States
    - Canada
    - Mexico
  - Europe
    - France
    - United Kingdom
    - Italy
    - Germany
    - Spain
  - Asia-Pacific
    - China
    - India
    - Japan
    - Australia
    - South Korea
  - South America
    - Brazil
    - Argentina

 Colombia
o Middle East & Africa
 South Africa
 Saudi Arabia
 UAE
Competitive Landscape
Company Profiles: Detailed analysis of the major companies present in the Global AI In Ultrasound Imaging Market.
Available Customizations:
Global AI In Ultrasound Imaging market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
Detailed analysis and profiling of additional market players (up to five).

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