Internet Of Nano Things Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The internet of nano things market is expected to register a CAGR of 22.38% over the forecast period. The internet of nano things (IoNT) facilitates the interconnection of nano-sensors and nanodevices with the existing communication technologies in the market, including the internet.

Key Highlights
The development of nano-machines with communication capabilities and interconnection with micro-and macro-devices will empower IoNT, which is increasingly seen as the next major technological innovation. These devices have dimensions ranging from 1 nm to 100 nm and are interconnected with classical networks leading to new networking paradigms.
IoNT is a modern technology that allows numerous nano gadgets to communicate with one another via a high-speed network. IoNT is used for data gathering, pre-processing, and sharing with end users. It also opens up many possibilities with new technologies, such as cloud computing, big data, and machine learning (ML).
The increased government spending in the aerospace and defense sector is expected to drive the IoNT market during the forecast period, as IoNT has found significant applications in the fields of nano-drones that could be used for monitoring and carrying explosives sufficient enough to penetrate the targetted subject.
The technological advancements over the past few years have primarily led to the rapid growth of smart environments (offices, homes, and cities, among others). This rapid increase in such environments has paved the way for the interconnectivity of applications and the usage of the internet, prompting the emergence of IoT technology. The expansion of the IoT concept has also given access to IoNT, a new communication network paradigm primarily based on nanotechnology and IoT.
The significant market players focused on strategic collaborations and improving the solutions, which resulted in a rise in opportunities for the IoNT Market. In January 2022, Qualcomm Technologies, Inc. announced a collaboration with Microsoft at the 2022 Consumer Electronics Show (CES) to grow and accelerate the adoption of augmented reality (AR) in both the consumer and

enterprise sectors. Both companies believe in the metaverse, and Qualcomm Technologies is collaborating with Microsoft on a number of initiatives to propel the ecosystem forward, including the development of custom AR chips to enable a new wave of power-efficient, lightweight AR glasses to deliver rich and immersive experiences, as well as plans to integrate software such as Microsoft Mesh and the Snapdragon SpacesTM XR Developer Platform.

Nano-drones, employed for monitoring and transporting military troops, is another key use of IoNT. In addition, IoNT can provide more detailed and up-to-date images of cities, houses, and factories. The use of IoNT in smart city projects may monitor various characteristics, such as air and water quality, throughout a metropolis. IoNT can capture real-time data that can be utilized to improve infrastructure, public utilities, and services, among other things. Furthermore, rising awareness of the many benefits of IoNT and the development of nano-machines will considerably enhance market revenue growth throughout the forecast period.

As devices become more connected and IoT becomes abundant, the sheer rise in the volume of devices is expected to enable companies to improve service, offer newer products, or streamline existing processes. The IoNT ecosystem is gaining widespread adoption across multiple industries and increasing demand for IoNT-enabled devices. The Internet of Nano Things (IoNT) offers a medium to connect various nanodevices with the help of high-speed networks.

COVID-19 has altered the nature and working conditions of businesses worldwide. Companies must automate their operations even more while employees continue to work remotely. IoNT developers are presently working on implementing existing IoNT techniques, which will help the IoNT business flourish. Nano drones have proven helpful in delivering medical supplies and monitoring specific locations, and they are no longer regarded as merely a weapon of war and obscurity. Furthermore, implementing IoNT solutions in the healthcare sector has numerous benefits, such as lowering service costs and increasing treatment outcomes, propelling the IoNT market forward.

Internet Of Nano Things Market Trends

Healthcare Industry is Expected to Hold a Significant Share

Nanotechnology and the Internet of Nano Things (IoNT) have continuously impacted the healthcare sector and its transformation and contributed to better results. Including nanotechnology in medicine through nanomaterials and devices, known as nanomedicine, has brought many benefits to disease prevention, diagnosis, and treatment.

The healthcare and life sciences area is predicted to grow rapidly during the forecast period. IoNT can detect life-threatening disorders early on and assists in the collecting of real-time data from patients, allowing for life-saving medical measures. According to the American Cancer Society, an expected 1.9 million new cancer cases will be identified in the United States in 2022, with 609,360 cancer deaths. As a result, the rising number of cancer patients propels the healthcare nanotechnology industry forward.

Nanotechnology products have been increasingly beneficial in healthcare, resulting in the development of unique nanosystems for diagnosing, imaging, and treating various diseases, including cancer, cardiovascular, ophthalmic, and central nervous system ailments.

Incorporating the concept of IoNT into healthcare has enabled more personalized, timely, and convenient health monitoring and treatment. Therefore, nanotechnology and IoNT have the potential to completely revolutionize healthcare in the 21st century, creating a system that enables early detection and diagnosis of illness, followed by accurate, on-time, and effective treatment, significantly reducing medical costs.

The advancement of nanomedicines and nanodevices has spurred many researchers to seek alternative remedies, as current approaches are limited in earlier identification and treatment. The remarkable features and applications of diverse nanomaterials and nanosystems have made them ubiquitous in creating technologies that will be deployed in the near future.

The IoNT can also be used to form a body sensor network (BSN) that easily applies internal nano-sensors to monitor patient health and physiological activity. The patient can view this data obtained by the nano-sensor on a wearable gadget with a doctor. Smart wearables have played a significant role in expanding the scope of IoNT in the sector. The massive adoption of fitness

tracking devices and growing investments by companies like Apple, Fitbit, and Android enhance the range further by adding more healthcare features. Many startups are also bringing innovation into the sector.

North America is Expected to Hold the Largest Share

Modern manufacturing facilities in the United States rely on new technologies and innovations to produce higher quality products significantly with lower costs. Fast and secure 5G connectivity is expected to enable agile operations and flexible production. This technology is expected to facilitate automated warehouses, automated assembly, connected logistics, packing, product handling, and autonomous carts.
The prominent players in this region are focused on strategic acquisitions and collaborations to remain competitive and enhance their capabilities. For instance, In July 2022, Intel and MediaTek announced a collaborative agreement to manufacture semiconductors using advanced process technology from Intel Foundry Services (IFS). The partnership is intended to assist MediaTek in developing a more balanced, resilient supply chain by adding a new foundry partner with significant capacity in the United States and Europe.
Moreover, In July 2022, Intel announced the first open-source AI reference kits to make AI more accessible to enterprises operating in on-premises, cloud, and edge environments. The reference kits, which were first unveiled at Intel Vision, feature AI model code, end-to-end machine learning pipeline instructions, libraries, and Intel oneAPI components for cross-architecture performance. These kits teach data scientists and developers how to deploy AI more quickly and easily in healthcare, manufacturing, retail, and other industries, resulting in increased accuracy, better performance, and reduced overall cost of implementation.
Among emerging technologies that are expected to emerge out of the existing technologies transforming manufacturing in the United States is expected to include the convergence of AI and IoNT, with companies like SAS Software touting IoNT as the next wave for IoT based upon nanotechnology.?
The key players across this region are developing new solutions to remain competitive in the market. In May 2021, IBM announced the development of the world's first chip with 2 nanometers (nm) nanosheet technology, marking a milestone in semiconductor design and process. Semiconductors are used in various applications, including computing, appliances, communication devices, transportation systems, and critical infrastructure.
Also, the emerging 5G standards with New Radio (NR) are targeting capabilities, such as vehicle-to-everything and ultra-reliable low-latency communications, as industrial use cases. With industrial communication buses standardized by IEC, such as PROFINET and Modbus, the market is headed toward reliable and securer industrial adoption.

Internet Of Nano Things Market Competitor Analysis

The internet of nano things market is highly competitive and consists of several key players like Schneider Electric, IBM, and Intel. However, the market remains consolidated, with many players trying to occupy the share. Their ability to continually innovate their products and services by investing significantly in research and development has allowed them to gain a competitive advantage over other players.

September 2021 - Siemens AG is focusing on enhancing its distribution capabilities. For instance, the company announced that it entered a strategic distribution partnership with Digi-Key Electronics to offer its automation and control products.
March 2021 - Nokia announced the completion of a narrowband ?Internet of Things (NB-IoT) network deployment in the L 800 band as part of its strategic partnership with Mobily. As a result of this deployment, Mobily and Nokia have connected more than 4,000 sites and facilitated NB-IoT cell radius coverage averaging 20 km per cell, which is much broader than normal LTE cells. The

completion of the project would increase Mobily?s digitalization by offering new NB-IoT services to serve its enterprise customers better.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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