

Nano Technology 2020 - Market Analysis

The global nanotechnology market was valued at \$1,055.1 million in 2018, and is projected to reach \$2,231.4 million by 2025, growing at a CAGR of 10.5% from 2019 to 2025. Nanoscience and nanotechnology are the study of nanoparticles and devices, which find their application across all the science fields such as chemical, bio-medical, mechanics, and material science among others. Nanotechnology market encompasses the production and application of physical, chemical, and biological systems and devices at scales ranging from individual atoms or molecules to around 100 nanometers. Nanotechnology carries a significant impact, and serves as a revolutionary and beneficial technology across various industrial domains, including communication, medicine, transportation, agriculture, energy, materials & manufacturing, consumer products, and households. Emerging use cases and application is expected to be one of the key factors contributing towards the growth of nanotechnology market size. The U.S. National Nanotechnology Initiative has estimated that around 20,000 researchers are working in the field of nanotechnology. For the UK, the Institute of Occupational Medicine has estimated that approximately 2,000 people are employed in new nanotechnology companies and universities where they may be potentially exposed to nanoparticles. Furthermore, various organiza-

tions globally are investing in nanotechnology market and its emerging applications. For instance, in 2018, Osaka University-led researchers, in a joint research project with The University of Tokyo, Kyoto University, and Waseda University, constructed integrated gene logic-chips called gene nanochips. Using integrated factors on the nanochips, these self-contained nanochips can switch genes on and off within a single chip, preventing unintended crosstalk. In addition, nanoscale sensors and devices may provide cost-effective continuous monitoring of the structural integrity and performance of bridges, tunnels, rails, parking structures, and pavements over time. Moreover, nanoscale sensors, communications devices, and other innovations enabled by nanoelectronics support an enhanced transportation infrastructure that can communicate with vehicle-based systems to help drivers maintain lane position, avoid collisions, adjust travel routes to avoid congestion, and improve drivers' interfaces to on-board electronics. All these factors are expected to be major nanotechnology market trends globally.