

SCIENCE AND TECHNOLOGY



INTRODUCTION

India ranks third among the most attractive investment destinations for technology transactions in the world. Modern India has had a strong focus on science and technology, realizing that it is a key element of economic growth. India is among the topmost countries in the world in the field of scientific research, positioned as one of the top five nations in the field of space exploration. The country has regularly undertaken space missions, including missions to the moon and the famed Polar Satellite Launch Vehicle (PSLV).

Currently, 27 satellites including 11 that facilitate the communication network to the country are operational, establishing India's progress in the space technology domain. India is likely to take a leading role in launching satellites for the SAARC nations, generating revenue by offering its space facilities for use to other countries.

MARKET SIZE

India is among the world's top 10 nations in the number of scientific publications. Position-wise, it is ranked 17th in the number of citations received and 34th in the number of citations per paper across the field of science and technology (among nations publishing 50,000 or more papers). The country is ranked ninth globally in the number of scientific publications and 12th in the number of patents filed.

India's analytics industry is expected to touch USD 16 billion by 2025 from the current USD 2 billion, as per the National Association of Software and Services Companies (Nasscom).

With support from the government, considerable investment and development has incurred in different sectors such as agriculture, healthcare, space research, and nuclear power through scientific research. For instance, India is gradually becoming self-reliant in nuclear technology. Recently, the Kudankulam Nuclear Power Project Unit-1 (KKNPP 1) with 1,000 MW capacity was commissioned, while the Kudankulam Nuclear Power Project Unit-2 (KKNPP-2) with 1,000 MW capacity is under commissioning.

RECENT DEVELOPMENTS

Some of the recent developments in the field of science and technology in India are as follows:

- ISRO has successfully placed remote sensing satellite RESOURCESAT-2A in orbit, to provide continuity to ISRO's three tier imaging data, which will be extremely useful for agricultural applications.
- The Defense Research and Development Organisation (DRDO) has tied up with French engine maker Snecma to guide the Gas Turbine and Research Establishment (GTRE) to

improve the performance of Kaveri engines being used in India's indigenously developed Light Combat Aircraft (LCA) Tejas.

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has announced a research and development (R&D) initiative to develop next generation sustainable refrigerant technologies as alternatives to the currently used refrigerant gases like hydrofluorocarbons (HFCs), in order to mitigate its impact on the ozone layer and climate.
- The Indian Space Research Organisation (ISRO) plans to partner with private firms to jointly build a navigation satellite that it would launch by March 2017, which would allow the space agency to free its resources to focus on research and deep space missions.
- Intertek Group, a UK-based total quality assurance provider, has launched an Agricultural Technology (Agritech) laboratory in Hyderabad, which will perform high-tech Deoxyribonucleic Acid (DNA) analyses for the agri-biotech, plant seeds breeding, and plant seeds production industries.

INVESTMENT SCENARIO

- Infosys Ltd has invested Rs 14.5 crore (Danish Krone 15.22 million) in a Danish artificial intelligence start-up called UNSILO, which specializes in advanced text analysis and has built a semantic search engine with best-in-class text intelligence.
- NIDHI (National Initiative for Development and Harnessing Innovations), an umbrella program pioneered by the Department of Science & Technology (DST), has committed Rs 500 crore (USD 75 million) to implement Prime Minister Narendra Modi's Startup India initiative, by providing technological solutions and nurturing ideas and innovations into successful Startups.
- Ecoppia, an Israel-based developer of robotic cleaning technology for solar sites, has signed a deal with Sanmina Corporation, a US-based Original Equipment Manufacturer (OEM), to begin mass production of their E4 robots at a new facility near Chennai.
- InnoNano Research, a clean water technology company, has raised USD 18 million from NanoHoldings, a US-based energy and water investment firm, which will be used to set up manufacturing facility, modern research laboratory and technology delivery offices across North America, Asia and Africa to make India an exporter of water technologies.
- Saama Technologies Incorporation, the Big Data analytics solutions and services company, headquartered in the Silicon Valley, plans to invest USD 2 million to create the largest pure play data science and analytics hub in India.

India is aggressively working towards establishing itself as a leader in industrialization and technological development. Significant developments in the nuclear energy sector are likely as India looks to expand its nuclear capacity. Moreover, nanotechnology is expected to transform the Indian pharmaceutical industry. The agriculture sector is also likely to undergo a major revamp, with the government investing heavily for the technology-driven Green Revolution. Also, several automobile manufacturers, from global majors such as Audi to Indian companies such as Maruti Suzuki and Mahindra & Mahindra, are exploring the possibilities of introducing driverless self-driven cars for India. The Government of India, through the Science, Technology and Innovation (STI) Policy-2013, among other things, aspires to position India among the world's top five scientific powers.