Indigenization of Technology, Meaning, Importance and Prospects

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Technological indigenisation is the creation, application and advancement of local skills, resources and expertise with a focus on designing, manufacturing and maintaining technological solutions within the boundaries of a country. It mainly focuses on self-reliance, minimising dependency on external technological imports and encouraging innovations tailored to domestic requirements as well as cultural contexts. In this article, we are going to cover the topic of Indigenization of Technology.

Indigenisation of Technology

The use of one's own country's technologies forms an important part of a country's heritage. Indigenisation of technology means having the ability to design, develop, and produce tools or equipment within the nation by using the available skills and materials. True self-reliance comes when people can also repair and maintain not only homegrown but also foreign-made machines without outside help. This level of self-sufficiency ensures that the country can meet its needs from within.The term does not just mean copying a product using foreign blueprints. It means the local industry should understand the science behind a product, improve it when needed, and make it better suited for new requirements. This shift makes a country not just a user but also a creator of technology.

Indigenization of Technology Knowledge and Innovations

Indigenization of Technology knowledge is the wisdom and experience of local communities, built up over hundreds of years and adapted to their culture and environment. This knowledge is very important for remote and rural societies because it helps them survive, farm, heal, and educate themselves. It is also a base for their cultural identity. But modernisation, colonisation, and the world's lack of value for traditional systems are causing much of this knowledge to fade away. Saving and improving this knowledge, while combining it with modern science, can lead to powerful and sustainable innovations. This not only benefits local communities but also offers solutions for global issues.

Indigenisation of Technology Importance and Prospects

Indigenisation of Technology is important both economically and strategically. Economically, it cuts costs because products can be repaired and maintained locally for years. Strategically, it is even more important in areas like defence, where having a local supply base provides safety and quick access Local manufacturers also have the benefit of upgrading products regularly with newer technology from their own research. Programmes such as Make in India aim to grow India's industries, attract investment, and build local strength in sensitive areas like defence.

India's achievements include:

- The Indian Air Force has made a roadmap till 2025 to adopt new technologies and weapon systems.
- The **BrahMos missile**, built with Russia, is one of the fastest cruise missiles in the world.
- **INS Vikrant**, the first indigenous aircraft carrier, is a major step in naval self-reliance.
- The Agni-5 missile gave India a place in the select group of nations with intercontinental missiles.
- ISRO's Mars Orbiter Mission proved India's strength by succeeding on its first attempt at a very low cost.
- These examples show that indigenisation is not just useful but necessary for India's progress and global standing.

National Innovation Foundation (NIF)

The National Innovation Foundation (NIF) was set up in March 2000, inspired by the Honey Bee Network, to encourage grassroots innovations and traditional knowledge in India. The goal is to create a knowledge-driven society by giving recognition, support, and opportunities to local innovators. Till now, NIF has collected more than 225,000 ideas and practices from over 585 districts, showing the creativity present all over the country.

It has honoured over 800 innovators through national awards, including the **Dr. A.P.J. Abdul Kalam** Ignite Awards for children. NIF has also built a Fab Lab with MIT and supported herbal technology labs at SRISTI. Its Grassroots to Global model promotes local innovations worldwide, proving that small community-driven ideas can solve big problems in sustainable ways.

Technology Information, Forecasting and Assessment Council (TIFAC)

Technology Information, Forecasting and Assessment Council (TIFAC) was set up in 1988 under the Department of Science and Technology, based on the recommendation of the Technology Policy Implementation Committee. Its

goal was to study existing technology, predict future needs, and suggest the right path for India’s growth in key areas.

It works as a knowledge network, filling important gaps in India’s science and technology system. TIFAC has conducted foresight exercises, promoted new technologies, prepared business opportunity reports, and carried out mission-mode projects that directly support development.

India Technology Vision 2020

In 1998, Dr. A.P.J Abdul Kalam proposed Technology Vision 2020 with the aim of making India a developed country through science and technology within 20 years.

The vision focused on food security, higher farm yields, and sustainable practices in states like Bihar and Uttar Pradesh. It also talked about the importance of education and literacy as the foundation for development.

Mission REACH was launched to build Centres of Relevance and Excellence (CORE) with partnerships between universities and industries. The vision also focused on improving health facilities, better diagnostics for diseases, and using ICT to create an information society.

Nine institutions were linked through CORE to improve manpower and provide knowledge for industry and society.

Technology Vision 2035

TIFAC later prepared Technology Vision 2035 to ensure that India becomes technologically strong by 2035.

It identifies twelve major sectors that need focus, such as agriculture, healthcare, water, energy, and ICT. It suggests roadmaps for achieving goals like nutritional security, clean water, better education, and decentralised energy.

It also points out new issues, like ethical challenges caused by the mixing of nanotechnology, IT, biology, and cognitive sciences. Still, the vision represents the hopes of people and promises prosperity, security, and dignity for every Indian through technology.

Classification of Technology

The Technology of India can be classified into the following types:

1. Technology Leadership: Areas where India is strong (like nuclear energy).
2. Technology Independence: Areas where local development is needed (like defence).
3. Technology Innovation: Using breakthroughs to make new solutions (like solar power).
4. Technology Adoption: Changing imported technology to suit Indian needs (like rainwater harvesting).
5. Technology Constraints: Risky or harmful technologies (like GM crops).
6. Technology Dependence: Technologies that still rely on imports but need localisation.

Indigenisation of Technology Call to Action

To succeed in indigenisation, India needs to:

- Improve technical education and training.
- Increase government funding for research and innovation.
- Involve the private sector in new projects.
- Strengthen partnerships between industry, research, and universities.

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