



DAILY NEWS PAPER ANALYSIS

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**CIVILS WITH AKASH
SECTOR 25 CHANDIGARH**

Centre tightened norms for foreign donations

NGOs must stick to the activities specified by Centre in their category and geographical area

NGOs must declare everything they published: books, magazines, and articles in newspapers

Existing registrations must comply within the next year; a minimum fine of ₹1 lakh will apply

Vijaita Singh
NEW DELHI

Non-governmental organisations (NGOs) wanting to access foreign funds must now stick to a list of activities specified by the Centre, according to the latest amendment to the Rules of the Foreign Contribution Regulation Act (FCRA), 2010, notified on Monday.

While NGOs seeking foreign funds are required to register under one of the five permitted categories, namely social, economic, educational, cultural, and religious, this is the first time separate activity lists have been laid out for those in each category.

NGOs must now disclose their activities, the geographical scope of their programmes, their websites, social media accounts, and publications. They must pay separate fees for each category and State or Union Territory they operate in, as opposed to the previous sin-

gle fee for FCRA registrants. Any new registration must follow the new norms and existing registrations must comply with the changes within the next year. Any violations will be penalised with a minimum fine of ₹1 lakh, according to another order from the Union Home Ministry. The Ministry regulates all foreign donations through the FCRA.

Earlier amendments of the Rules only required NGOs to give an undertaking that their acceptance of foreign funds is not likely to affect the sovereignty and integrity of India or impact friendly relations with foreign states or disrupt communal harmony.

Key functionaries
The amended Rules also restrict the definition of an NGO's "key functionary" beyond office bearers and directors to include trustees, partners, the Karta or head of a Hindu Undivided Family, governing body members, and

Funding check

Under the fresh changes to Rules of the Foreign Contribution Regulation Act, all NGOs are required to disclose specific activities and geographical scope of their programmes to receive contributions under 5 permitted categories:



anyone else controlling or managing the organisation.

Associations having foreign nationals (other than persons of Indian origin) as key functionaries will ordinarily not be considered eligible for registration or prior permission, unless specifically permitted by the Centre, according to the new Rules. NGOs must

EDUCATIONAL
• Schools, colleges, and libraries
• Scholarships
• Research institutions and think tanks
• Civic awareness and constitutional rights programmes



also declare whether their association or any of their key functionaries brought out any publication during the year, including books, magazines, and newspaper articles.

A senior government official said that the amendments were effected to bring uniformity in Foreign Contribution forms (FC) and to avoid duplication.

The amended Rules state that the certificate of registration or the application form (for fresh registrations) shall specify the purpose or purposes for which registration is granted, chosen only from such list of purposes as specified in the Schedule appended to the Rules, and the States or Union Territories in



ECONOMIC
• Livelihood generation
• Skill development
• Agricultural sectors
• Entrepreneurship and micro-enterprises
• Financial and digital inclusion



which the NGO proposes to undertake the activities. The Rules also impose a fee on NGOs to operate for each specified purpose, and within each State or Union Territory.

Some categories specifically exclude political activities. For instance, the "educational" purpose lists 22 activities but adds the caveat that "awareness programmes on constitutional rights, fundamental duties, and civic responsibilities" must be "strictly non-political in nature."

The "cultural" purpose lists "promotion of con-

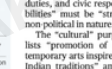
RELIGIOUS
• Places of worship
• Religious education
• Pilgrim services
• Meditation programmes
• Preservation of religious traditions



temporary arts inspired by Indian traditions" among 18 categories, adding the caveat to "exclude political ideological content."

There are 16 permitted categories of religious activities, including "conduct of religious education, moral instruction, satsang, discourses, and meditation retreats (excluding proselytisation)", and "burial/cremation ground development and maintenance". There are 19 activities listed

CULTURAL
• Preservation of Indian arts and languages
• Museums, archives, and cultural festivals
• Heritage conservation



under "economic" purpose, and 30 items under the "social" category.

Any use of funds for purposes other than those for which they were received can attract a penalty of up to 30% of the amount misused or ₹1 lakh, whichever is higher. Similarly, using foreign funds for purposes or in areas not covered under the NGO's approval also invites a fine of 30% of the amount or ₹1 lakh, whichever is higher. In addition, spending beyond the permitted expense limit is penalised with fines calculated as a percentage of the amount involved, subject to a minimum of ₹1 lakh.

under "economic" purpose, and 30 items under the "social" category.

Fines for violations
MHA notified another order which specifies fines for FCRA violations such as excess administrative spending, speculative investments, misuse of funds, unauthorised receipt/use of foreign contributions, and using funds for unapproved purposes or in unapproved States/UTs.

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• Exception may be granted by the Central Government.

6. Penalties

- Minimum penalty: ₹1 lakh
- Unauthorized use of foreign funds:
 - Up to 30% of amount involved or ₹1 lakh, whichever is higher.
- Applicable for:
 - Misuse of funds
 - Use in unapproved States/UTs
 - Use for unapproved purposes
 - Excess administrative expenditure

FCRA: Quick Revision

AspectDetails - Original Act

- FCRA, 1976 - Present Law
 - FCRA, 2010 - Nodal Ministry
 - Ministry of Home Affairs
 - Objective - Regulate foreign contribution and foreign hospitality
 - Major Amendment - FCRA Amendment Act, 2020
- ### Important Provisions of FCRA Amendment Act, 2020
- FCRA account mandatory in SBI, New Delhi Main Branch.
 - Administrative expenditure capped at 20%.
 - Prohibition on transfer of foreign contribution to another NGO.
 - Aadhaar identification mandatory for key office bearers.
 - Suspension period extended up to 360 days.

KEY HIGHLIGHTS:

Context

- Ministry of Home Affairs (MHA) amended the Rules under the Foreign Contribution (Regulation) Act (FCRA), 2010.
- NGOs receiving foreign contributions must now register under specified categories and approved activities.
- Existing FCRA-registered organizations must comply with the new provisions within one year.

Key Provisions of the Amendment

1. Activity-Based Registration

NGOs must register under one or more of the following categories:

- Social
- Economic
- Educational
- Cultural
- Religious

2. Purpose-Specific Approval

Registration certificate will specify:

- Approved purpose(s)
- Approved State(s)/UT(s) of operation

3. Enhanced Disclosure Requirements

NGOs must disclose:

- Activities undertaken
- Geographical area of operation
- Website details
- Social media accounts
- Publications issued

4. Expanded Definition of Key Functionary

Includes:

- Trustees
- Partners
- Governing body members
- Karta of HUF
- Any person controlling or managing the organization

5. Restrictions on Foreign Nationals

- NGOs having foreign nationals as key functionaries will ordinarily not be eligible for registration.

Constitutional & Judicial Linkages

Constitutional Provisions

- Article 19(1)(c): Freedom to form associations.
- Reasonable restrictions can be imposed in the interests of:
 - Sovereignty and integrity of India
 - Security of the State
 - Public order

Supreme Court Judgment

Noel Harper v. Union of India (2022)

- Upheld validity of major provisions of FCRA Amendment Act, 2020.
- Held that receipt of foreign contribution is a statutory privilege and not an absolute right.

Significance

- Enhances transparency and accountability.
- Improves monitoring of foreign-funded activities.
- Prevents diversion and misuse of funds.
- Strengthens national security safeguards.

Concerns

- Increased compliance burden on NGOs.
- Higher operational costs.
- Possible impact on smaller grassroots organizations.
- May reduce flexibility in developmental interventions.

Way Forward

- Strengthen digital compliance systems.
- Adopt risk-based regulation.
- Ensure ease of compliance for genuine NGOs.
- Balance national security concerns with civil society participation.

UN maritime body secures safety pledges to evacuate ships stuck in Persian Gulf

M. Kalyanaraman
CHENNAI

International Maritime Organisation (IMO) Secretary-General Arsenio Dominguez has announced a plan to evacuate all the ships – and the 11,000 seafarers on them – stranded in the Persian Gulf due to the war in West Asia.

"This large-scale operation will be carried out in close cooperation with Iran, Oman, and all other coastal states in the region, the United States, and the maritime industry," he said.

Although his statement does not explicitly refer to Iran's plan, the plan put out by the Sultanate of Oman does mention both routes – one along the Omani coast and the other along the Iranian coast – that ships are currently using to transit the Strait of Hormuz. The plan also asks vessels to contact the respective "coastal state" of their selected route to confirm transit.

Mr. Dominguez added: "We have secured the necessary safety guarantees and have thoroughly verified the conditions for safe navigation to support these operations."

The IMO, a UN agency, referred to a letter written by Oman's Ministry of Defence to Pakistan's National Hydrographic Office that gives a detailed plan for the evacuation. Pakistan, along with Qatar, has been a mediator in the negotiations between Iran and the U.S.



The plan announced by IMO involves two routes that ships are currently using to transit the Strait of Hormuz. REUTERS

The letter says that the Sultanate of Oman has worked with the IMO to provide all vessels with the option of a temporary maritime corridor as per listed coordinates. To reduce risks and ensure safe navigation, the IMO has developed a phased approach based on groups of vessels.

Threat of mines

The letter says that the traditional traffic separation scheme is unsafe in a reference to mines, and two routes, one south and another north of it, shall be used for transit. Vessels will be contacted individually and advised of their allocated transit day by the parties coordinated by the IMO.

These two routes can handle 20-30 ships a day while the traditional route at the centre of the strait used to see some 130 ships transiting every day before the war.

Hundreds of ships are still stranded in west of Strait of Hormuz.

There will be a designated waiting area within international waters where ships will go. From there, the vessels will contact "the relevant coastal state", in a reference to Iran for the northern route.

The letter adds: "Each shipowner and master remains responsible for conducting an independent risk assessment prior to voyage."

The Automatic Identification System of the vessel shall stay on, the letter adds.

The letter gives the coordinates of the Omani route that ships should take.

A few days ago, Iran had announced that vessels that submit their passing requests to the Persian Gulf Strait Authority that it set up during the ceasefire "will be cleared for passage promptly."

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- Ships are required to:
 - Keep their Automatic Identification System (AIS) active.
 - Conduct independent risk assessments before transit.
- Iran has established a Persian Gulf Strait Authority to regulate vessel movements during the ceasefire period.

Static Linkages

- Strait of Hormuz Connects the Persian Gulf with the Gulf of Oman and the Arabian Sea.
- Lies between Iran (north) and Oman/UAE (south).
- One of the world's most important oil transit chokepoints.
- UNCLOS Provides for the right of Transit Passage through international straits used for international navigation.
- Coastal states cannot suspend transit passage.
- SOLAS Convention (1974) International Convention for the Safety of Life at Sea.
- Mandates carriage of AIS for specified vessels.
- Traffic Separation Scheme (TSS) Shipping lanes designed to reduce collision risks in congested waters.

Why It Matters for India

- About 60% of India's crude oil imports pass through the Strait of Hormuz.
- Major LNG imports from West Asia also use this route.
- Any disruption can impact:
 - Energy security.
 - Inflation.
 - Trade and supply chains.
 - Current Account Balance.

Critical Analysis

Significance

- Prevents humanitarian crisis involving thousands of seafarers.
- Ensures continuity of global maritime trade.
- Demonstrates the role of the IMO in crisis management.
- Highlights the importance of international maritime cooperation.

Challenges

- Reduced shipping capacity through temporary corridors.
- Continued threat from mines and military escalation.
- Rising freight and insurance costs.
- Vulnerability of global trade to maritime chokepoints.

Way Forward

- Strengthen maritime security cooperation under IMO mechanisms.
- Enhance Maritime Domain Awareness (MDA).
- Diversify energy import sources.
- Expand Strategic Petroleum Reserves (SPR).
- Promote adherence to UNCLOS principles.
- Strengthen naval cooperation in the Indian Ocean Region.

KEY HIGHLIGHTS:

Context

- Amid the ongoing West Asia conflict, the International Maritime Organisation (IMO) has announced a coordinated evacuation plan for ships stranded near the Strait of Hormuz.
- Around 11,000 seafarers and hundreds of vessels are affected.
- The operation is being coordinated with Iran, Oman, the United States, and regional coastal states.
- Oman, in cooperation with the IMO, has proposed temporary maritime corridors for safe transit.

Key Points

- International Maritime Organisation (IMO) Specialized agency of the United Nations.
- Established in 1948; came into force in 1959.
- Headquarters: London, United Kingdom.
- Objective: Maritime safety, security, and prevention of marine pollution.
- Due to security threats (including possible naval mines), the conventional shipping route through the Strait of Hormuz has become unsafe.
- Two temporary transit routes have been identified:
 - Southern route along the Omani coast.
 - Northern route along the Iranian coast.
- New routes can handle only 20–30 ships/day compared to about 130 ships/day under normal conditions.

T.N. raises concerns over Centre's norms on projects in Cauvery basin

T. Ramakrishnan
CHENNAI

Tamil Nadu is deeply concerned about the latest guidelines of the Union Ministry of Jal Shakti and the Central Water Commission with regard to appraisal of water resources projects in the Cauvery basin.

On Monday, Water Resources Minister N. Anand told the Assembly that the Union government had framed the guidelines 'unilaterally' last December.

The Centre's norms assume relevance amid the controversy over the Mekedatu drinking water-cum-balancing reservoir project mooted by Karnataka.

The opposition to the guidelines is fundamental, as Tamil Nadu is of the view that the Cauvery basin is a deficit one, the position of which has been stated in the final award of the Cauvery Water Disputes



The Centre's norms assume relevance in the light of the ongoing controversy over the Mekedatu project mooted by Karnataka.

Tribunal, and by the Supreme Court in a February 2018 judgment.

Under such circumstances, where does the question arise for mooted projects, regardless of the purpose and the site, a water expert asked.

An official said the State had conveyed its objections to the Centre, but the latter had defended the guidelines.

Besides, there is a provision in the guidelines for presumptive concurrence with the stand of the Central Water Commission (CWC) for a project, if the Cauvery Water Management Authority (CWMA) fails to convey its views within six months, or if the CWMA returns the project proposal without offering its views regarding conformity or otherwise of the

proposed water utilisation with the Cauvery Water Disputes Tribunal award. In the event of conflict in the views of the CWMA and the CWC, the former's stance will prevail.

The State is anxious about the provision as this might be used against its interests.

Project reports

As per the guidelines, detailed project reports will have to be submitted to the CWC for medium and major irrigation projects, multi-purpose projects, drinking water and industrial use projects.

After examining the reports from various angles, including inter-State issues, the CWC will send them to the CWMA for comments.

Meanwhile, the CWMA held its meeting to take stock of the current water realisation and flow.

- Possible dilution of CWDT Award provisions.
- Risk to allocated water share of Tamil Nadu.
- Mekedatu project may gain procedural advantage.

Prelims Focus

Cauvery River

- Origin: Talakaveri, Brahmagiri Hills (Karnataka)
- Drains into: Bay of Bengal
- States: Karnataka, Tamil Nadu, Kerala
- UT: Puducherry
- Major Tributaries:
 - Kabini
 - Hemavati
 - Harangi
 - Shimsha
 - Arkavathi
 - Bhavani
 - Amaravati
 - Noyyal

Cauvery Water Disputes Tribunal (CWDT)

- Constituted: 1990
- Legal Basis: Inter-State River Water Disputes Act, 1956
- Final Award: 2007
- Modified by Supreme Court: 2018

Institutions

- CWC: Technical appraisal of water projects.
- CWMA: Implementation of Cauvery water-sharing arrangements.
- CWRC: Monitoring and regulation of water releases.

Constitutional & Legal Provisions

- Article 262 – Adjudication of Inter-State River Water Disputes.
- Entry 17, State List – Water.
- Entry 56, Union List – Regulation and development of Inter-State Rivers.
- Inter-State River Water Disputes Act, 1956.

Issues

- Upstream–downstream conflict.
- Balancing developmental needs and water-sharing obligations.
- Delays in dispute resolution.
- Increasing water stress due to climate variability.
- Need for cooperative basin management.

Way Forward

- Ensure strict compliance with CWDT Award and Supreme Court judgment.
- Strengthen CWMA's oversight role.
- Improve transparency in hydrological data sharing.
- Adopt Integrated River Basin Management (IRBM).
- Promote water-use efficiency and demand-side management.
- Enhance cooperative federalism among basin States.

KEY HIGHLIGHTS:

Context

- Union Ministry of Jal Shakti and Central Water Commission (CWC) issued new guidelines (December 2025) for appraisal of water resources projects in the Cauvery Basin.
- Tamil Nadu opposed the guidelines, alleging they were framed unilaterally.
- Issue assumes importance in the backdrop of Karnataka's Mekedatu Drinking Water-cum-Balancing Reservoir Project.
- Tamil Nadu maintains that the Cauvery Basin is a water-deficit basin, as recognized by:
 - Cauvery Water Disputes Tribunal (CWDT) Final Award, 2007
 - Supreme Court Judgment, 2018

Key Points

New Project Appraisal Mechanism

- DPRs of:
 - Medium and Major Irrigation Projects
 - Multipurpose Projects
 - Drinking Water Projects
 - Industrial Water Projects
- to be submitted to CWC.
- CWC will examine:
 - Technical feasibility
 - Hydrology
 - Inter-State implications
- Projects will then be referred to the Cauvery Water Management Authority (CWMA) for comments.

Controversial Provision

- If CWMA does not convey its views within 6 months, CWC's position may be presumed accepted.
- If CWMA returns a proposal without clear comments on conformity with the Tribunal Award, appraisal may proceed.
- In case of conflicting views, CWMA's opinion will prevail.

Tamil Nadu's Concerns

- Potential approval of upstream projects affecting downstream flows.

Connecting public health with people's needs

Public health policies, like other public policies, are crucial in determining the overall health of the population and are an important contributor to a nation seeking to reap the benefits of its demographic dividend. One of the major claims of health policies in recent years has been the achievement of universal health coverage (UHC), a novel idea that seeks to ensure that every individual has access to needed health services without suffering financial hardship. Yet, populist ideas often dominate public policy despite evidence to the contrary, as seen in the case of publicly funded health insurance schemes. The changing nature of public health policy in recent years is particularly concerning, not only because it has often failed to be evidence-based, but also because of its inability to guarantee even minimal health benefits to the population.

More troubling is the failure of public health policies to improve access to health care at a time when access is deteriorating significantly owing to rising costs in the private sector and poor quality in the public sector. Two recent government initiatives – the Ayushman Bharat Health and Wellness Centres and the Digital Health Mission – illustrate these inadequacies.

The Interpretation

The Ayushman Bharat Health and Wellness Centres, introduced as a policy initiative in 2018, were intended to strengthen health infrastructure. What eventually happened, however, was that the names and identities of grassroots-level institutions – namely, the health sub-centres (SCs), primary health centres (PHCs), and community health centres (CHCs) – were altered by mandatorily adding “Health and Wellness Centre” as a prefix. The identity of these grassroots institutions and their mandates have evolved over time based on their roles within the district health system. The use of a common prefix has created considerable ambiguity among health professionals and policymakers regarding their actual mandate. Another consequence of the “health and wellness” approach has been a shift in focus from population health outcomes to individual well-being. The major challenge in using well-being as an outcome measure lies in the elusive and subjective nature of the concept itself.

A historical inquiry into the concept of wellness reveals that it was initially used to denote the absence of disease and was often contrasted with illness. It was also frequently used interchangeably with health. During the 1950s, the wellness movement popularised the idea of positive well-being by conceptualising health beyond its biological dimensions. The mental care model similarly emphasised the psychological and spiritual aspects of healing, influenced by these developments, the World



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Health Organization (WHO) defined health as not merely the absence of disease, thereby promoting the notion of positive well-being. Over time, wellness expanded beyond physiological health to include mental, spiritual, social and environmental dimensions, offering a more holistic understanding of health. In public health, however, the emphasis shifted towards health promotion – a population-based approach that recognises how social, economic and environmental conditions shape people's ability to adopt healthy behaviours.

Another reason for preferring health promotion over wellness was the greater rigour and feasibility associated with measuring the former. There are no universally accepted measures of well-being at the population level, as the concept is inherently individualistic and deeply subjective. Unlike health promotion, the concept of wellness places the primary responsibility on individuals, assuming that they possess the capacity and opportunity to modify their health-related choices. In doing so, it often underestimates the structural and social determinants that shape health outcomes.

The individualisation of health

The shift from population health status to individual well-being is a consequence of the changing wellness narrative brought by the public health policy. The implication is that health status, which was previously assessed through unmet needs in preventive, promotive, curative and rehabilitative care – including access to basic services such as drinking water, food and nutrition, chronic disease management, emergency care, and maternal and child health services – is increasingly being replaced by the aspiration to achieve individual well-being. This shift in focus has contributed to the rise of health coaches and the proliferation of social media messages promoting individual well-being, often under the banner of public health.

When health outcomes are framed primarily in terms of individual well-being, there is a risk of failing to systematically capture a wide range of unmet health needs that remain significant for the population. The broader narrative increasingly suggests that the achievement of individual well-being is the ultimate objective of health and wellness centres. This presents a serious challenge. As the well-known principle in management states, “If you cannot measure it, you cannot improve it”. Given the inherently subjective nature of well-being, an excessive policy focus on this outcome may undermine the ability to evaluate health systems effectively and address concrete deficiencies in health care access and service delivery.

Another major public health policy initiative of recent years is the Ayushman Bharat Digital Health Mission (ABDM), whose principal

objective is to create a digital repository of health information for every individual through a unique health ID, known as the ABHA card. In addition, the mission seeks to maintain registries of health facilities, health-care professionals and information related to health insurance. However, an information portal containing health records and details of health infrastructure cannot, by itself, address the challenges posed by inadequate access to health care. Nor does it justify the annual budget of around ₹500 crore to the ABDM in the absence of measurable outcomes.

Factors behind inadequate access to care

It is well established that inadequate access to health care in India stems from the unaffordability of care in the private sector and the lack of quality health-care facilities in the public sector. Merely creating databases of individual health records, health facilities and health-care professionals cannot improve access to health care. If the argument is that information is the first step towards strengthening the health system, there exists a substantial body of reports and datasets that provide such information.

The more pertinent question is how information contained in an individual's health record, through an ABHA card, can guarantee access to health care when health-care infrastructure remains grossly inadequate and unaffordable for large sections of the population. Even if every individual in a district possesses an ABHA card and all health facilities and health-care professionals are digitally mapped, the delivery of health care still requires a robust institutional mechanism. Unfortunately, the ABDM, as currently designed, has little to say about the provisioning of care. It primarily generates information on individuals, facilities and health-care professionals, all of which continue to operate largely in silos.

It is therefore difficult to identify a compelling public health rationale for this scale of data generation. What is missing from current policy initiatives are concrete measures to strengthen public health-care institutions, as envisaged under India's three-tier health-care system. Instead, these institutions continue to weaken in many parts of the country.

For most people, access to curative care constitutes an immediate and pressing need. Only after these basic health-care requirements are met can individuals meaningfully engage with preventive and promotive health interventions. When public health policies fail to recognise people's felt needs, they risk becoming mere checkboxes for advancing the priorities of policymakers and health-care providers rather than addressing the actual concerns of the population.

The views expressed are personal

- Disease burden
- Maternal and child health
- Nutrition
- Public health indicators

Ayushman Bharat Digital Health Mission (ABDM)

- Launched in 2021.
- Key component:
 - ABHA (Ayushman Bharat Health Account) ID
- Creates:
 - Digital health records
 - Health facility registry
 - Healthcare professional registry

Concerns

- Digital records alone cannot improve healthcare access.
- Does not directly address:
 - Doctor shortages
 - Infrastructure gaps
 - High treatment costs
- Raises concerns regarding:
 - Data privacy
 - Data security
 - Digital divide

Static Linkages

Universal Health Coverage (UHC)

- Ensures:
 - Access to quality healthcare services.
 - Financial risk protection.
- Part of SDG Target 3.8.

Constitutional Provisions

- Article 21 – Right to life includes right to health (Judicial Interpretation).
- Article 38 – Promote welfare of people.
- Article 39(e) – Protection of workers' health.
- Article 41 – Public assistance during sickness.
- Article 47 – Improvement of public health is a primary duty of the State.

Health Governance

- Entry 6, State List – Public health and sanitation.
 - National Health Policy, 2017
 - Strengthening primary healthcare.
 - Public health expenditure target: 2.5% of GDP.

Health Infrastructure Pyramid

- Sub-Centre (SC)
- Primary Health Centre (PHC)
- Community Health Centre (CHC)
- District Hospital
- Medical College/Tertiary Care Hospital

KEY HIGHLIGHTS:

Context

- Concerns have been raised regarding the effectiveness of:
 - Ayushman Bharat Health & Wellness Centres (AB-HWCs) (2018)
 - Ayushman Bharat Digital Health Mission (ABDM) (2021)
- Debate centres on whether current public health policies are focusing excessively on:
 - Individual wellness
 - Digitalisation of health records
- While inadequately addressing:
 - Healthcare infrastructure deficits
 - Human resource shortages
 - Affordability of healthcare
 - Universal Health Coverage (UHC)

Key Points

Ayushman Bharat Health & Wellness Centres (AB-HWCs)

- Launched in 2018 under Ayushman Bharat.
- Aim:
 - Comprehensive Primary Healthcare (CPHC).
- Covers:
 - Preventive care
 - Promotive care
 - Curative care
 - Rehabilitative care
 - Palliative care
- Existing SCs, PHCs and CHCs upgraded into HWCs.

Concerns

- Shift from population health outcomes to individual wellness.
- Wellness is subjective and difficult to measure.
- Risk of ignoring:

Critical Analysis

Positives

- Strengthens primary healthcare framework.
- Promotes preventive healthcare.
- Facilitates digital integration of health services.
- Enhances continuity of care through digital records.

Challenges

- Excessive focus on wellness over measurable health outcomes.
- Inadequate public health infrastructure.
- High Out-of-Pocket Expenditure (OOPE).
- Rural-urban disparities in healthcare access.
- Digital exclusion of vulnerable groups.
- Privacy and cybersecurity concerns.

Way Forward

- Strengthen SCs, PHCs and CHCs.
- Increase public health expenditure.
- Focus on measurable health indicators.
- Improve doctor-population ratio.
- Integrate digital health with service delivery.
- Address social determinants of health:
 - Nutrition
 - Sanitation
 - Safe drinking water
 - Education
- Ensure robust data protection safeguards.

India's next challenge — from invention to global scale

India has never lacked technological vision. Time and again, it has anticipated transformative technologies long before they became mainstream. It has built impressive scientific capabilities, developed indigenous innovations, and demonstrated remarkable ingenuity. Yet, in several critical sectors, it has struggled to convert early technological leadership into globally dominant industries. As India embarks on ambitious missions in semiconductors, artificial intelligence (AI), quantum computing and space technologies, it is worth reflecting on an important lesson from its past: invention alone is not enough. The true measure of technological success lies in scaling innovation into globally competitive enterprises.

Ahead of its time

Consider semiconductors. India established the Semiconductor Complex Limited (SCL) in the 1970s – when semiconductors were still an emerging industry – recognising early that integrated circuits would become the foundation of the digital age. Yet, while Taiwan built TSMC and South Korea developed Samsung's semiconductor empire, India failed to translate its early lead into a globally competitive manufacturing ecosystem. The problem was not vision or scientific capability, but limited capital, inadequate scale, inconsistent policy support and an inward-looking public sector approach.

A similar story can be told about ECIL. Established in 1967, it developed indigenous computers, control systems and strategic electronics when India faced severe technology embargoes. ECIL played a vital role in building technological self-reliance. However, its focus remained on strategic requirements rather than globally competitive commercial products. As a result, scientific excellence stayed within institutions instead of creating large industrial ecosystems. The Simputer followed a similar trajectory. Conceived in 1998 by Indian technologists, it anticipated many features that would later define smartphones and tablets. Yet,



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Executive
Chairperson,
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despite its innovation, the supporting ecosystem was absent. Venture capital, software platforms, component supply chains and consumer markets were not mature enough to help it achieve global scale. A few years later, Apple transformed personal computing through the iPhone and built one of the world's most valuable technology ecosystems. The lesson is clear: being first matters little if you cannot scale. India has seen similar patterns elsewhere. It developed early expertise in computing, telecommunications and electronics. Yet, many pioneering initiatives remained prototypes, pilots or public-sector achievements rather than globally dominant businesses.

Models of success

Fortunately, history also offers examples of success. India's pharmaceutical industry evolved into a globally competitive manufacturing powerhouse, making the country the pharmacy of the world and a leading vaccine producer. India also developed indigenous supercomputing capabilities through the PARAM programme. More recently, Aadhaar and UPI have shown how technology platforms designed for scale can transform a nation. Scale creates ecosystems, ecosystems create industries, and industries create global leadership.

Today, India stands at another technological inflection point. AI, quantum computing and space technologies are likely to shape the next half-century, just as semiconductors and software shaped the last. India already possesses significant strengths in software engineering and digital infrastructure. The challenge now is to build globally scalable AI products and platforms. The emergence of DeepSeek showed that technological leadership is not only about building the largest models. It is also about making intelligence cheaper and more accessible. The AI race may ultimately be won by those who make intelligence affordable, ubiquitous and widely available. India is uniquely positioned to lead this

movement, just as UPI democratised financial inclusion. India should aspire to democratise intelligence through low-cost, energy-efficient AI models that can serve billions of people.

Quantum computing presents another opportunity. Rather than merely replicating existing approaches, India should focus on reducing the cost of quantum infrastructure and developing practical applications in health care, materials science, climate modelling and drug discovery.

The same should extend to space. The successes of Chandrayaan and Mangalyaan proved that frugal innovation can coexist with world-class ambition. As computing demands escalate globally, concepts such as space-based data centres powered by continuous solar energy are attracting serious attention. India should not merely participate in these conversations; it should lead them. We should ask bold questions about orbital computing infrastructure, space-based AI platforms or even data centres and quantum communication networks.

These ideas may seem futuristic today. But so did semiconductors, smartphones and AI when they first emerged.

Stopping too soon

The deeper lesson from SCL, ECIL and Simputer is not that India failed, but that it often stopped too soon. We celebrated technological capability before building the ecosystems needed for global scale. The next phase of India's technological journey must combine self-reliance with global ambition. The challenge is no longer merely to invent; it is to build, scale, commercialise and create enterprises that can compete globally.

India has already demonstrated world-class scientific and engineering capabilities. The opportunity now is to translate that ingenuity into globally competitive industries that shape the technologies of the future.

The countries that lead tomorrow may not be those that invent first, but those that scale best. This time, India must do both.

- Low-cost handheld computing device developed by Indian innovators.
- Anticipated several smartphone-like features.
- Failed to scale because of:
 - Weak venture capital ecosystem.
 - Lack of software platforms.
 - Inadequate manufacturing supply chains.

Successful Indian Models

Pharmaceutical Industry

- India is among the world's largest producers of generic medicines.
- Known as the "Pharmacy of the World".
- Demonstrates successful scaling from innovation to global manufacturing leadership.

PARAM Supercomputers

- Developed by C-DAC.
- Established India's indigenous capability in High-Performance Computing.

Digital Public Infrastructure (DPI)

- Aadhaar enabled digital identity at scale.
- UPI transformed digital payments and financial inclusion.
- Illustrates how scalable technology platforms can create large ecosystems.

Emerging Opportunities

Artificial Intelligence (AI)

- Supported through the IndiaAI Mission.
- Focus on:
 - AI infrastructure.
 - Indigenous AI models.
 - Innovation ecosystem.

Quantum Technologies

- National Quantum Mission (2023–31) with an outlay of ₹6,003.65 crore.
- Focus on:
 - Quantum Computing.
 - Quantum Communication.
 - Quantum Sensing.

Semiconductors

- India Semiconductor Mission (2021) aims to develop:
 - Semiconductor fabrication.
 - Display manufacturing.
 - Chip design ecosystem.

Space Sector

- Supported through:
 - IN-SPACe.
 - Indian Space Policy 2023.
- Focus on commercialization and private sector participation.

Static Linkages

- Article 51A(h) – Development of scientific temper as a Fundamental Duty.

KEY HIGHLIGHTS:

Context

- India is pursuing major initiatives in Semiconductors, Artificial Intelligence (AI), Quantum Technologies, and Space Technologies.
- The debate stems from India's past experience where pioneering innovations failed to become globally dominant industries.
- Key examples include:
 - Electronics Corporation of India Limited (ECIL) – 1967
 - Semiconductor Complex Limited (SCL) – 1976
 - Simputer – 1998
- The central lesson is that technological invention must be complemented by commercialization and scale.

Key Points

Historical Lessons

Semiconductor Complex Limited (SCL)

- Established in 1976 to develop indigenous semiconductor manufacturing.
- India recognized the strategic importance of semiconductors early.
- Failed to evolve into a global manufacturing hub due to:
 - Limited capital investment.
 - Lack of scale.
 - Weak ecosystem support.

Electronics Corporation of India Limited (ECIL)

- Established in 1967 under the Department of Atomic Energy.
- Developed indigenous:
 - Computers.
 - Control systems.
 - Strategic electronics.
- Focus remained on strategic needs rather than global commercial markets.

Simputer (1998)

- Technological innovation is a key driver of productivity, economic growth, and strategic autonomy.
- Innovation ecosystems require synergy among:
 - Government.
 - Industry.
 - Academia.
 - Venture capital.
- R&D expenditure is a critical indicator of technological capability.
- Intellectual Property Rights (IPR) facilitate innovation and commercialization.

Critical Analysis

Opportunities

- Large STEM talent pool.
- Strong software ecosystem.
- Expanding startup ecosystem.
- Successful DPI model (Aadhaar-UPI).
- Government support through mission-mode programmes.

Challenges

- Low R&D expenditure (~0.7% of GDP).
- Dependence on imported semiconductor technologies.
- Weak industry-academia linkages.
- Limited commercialization of research.
- Inadequate deep-tech financing.
- Intense global competition in frontier technologies.

Core Lesson

- India's past challenge was not lack of innovation, but inability to scale innovation into globally competitive industries.

Way Forward

- Increase public and private R&D investment.
- Strengthen academia-industry collaboration.
- Promote deep-tech startups and venture capital.
- Develop indigenous semiconductor and AI ecosystems.
- Improve technology transfer from laboratories to industry.
- Encourage IP creation and commercialization.
- Build globally competitive technology champions.
- Integrate innovation policy with global value chains.

Evident distress

Stress from the West Asia crisis has revealed economic pain

As the resolution process of the West Asia crisis drags on, an increasing number of economic metrics are exposing key weaknesses in the Indian economy. Many of these existed before the crisis broke out in late February and are now becoming apparent as the economy faces stress. The latest data on the Index of Eight Core Industries show that these sectors cumulatively grew just 0.5% in May 2026, the second-lowest in 21 months. It would have been easy to pass this off as a war-related impact, but the data also show that the index grew by an almost equally anaemic 1.1% over the course of the entire financial year 2025-26. What remains a concern is that the domestic crude oil and natural gas sectors continued their multi-year streaks of contractions in May as well. By this time, the third month of the conflict, oil prices had settled somewhat lower than their April peaks. As a result, oil imports by oil marketing companies began rising once again to meet domestic demand. A strategic goal continues to be missed here. While imported oil can be used to meet demand, domestic production should nevertheless be ramped up to fill strategic reserves. This reserve oil, even of inferior quality, can be released in times of shortage. The same holds true for natural gas. With natural gas imports and domestic production contracting, it followed that the fertilizer sector would also contract. The good news, however, is that the contraction – of 0.9% in May 2026 – was much lower than it was even two months earlier. In any case, what impact the ‘super El Niño’ will have on fertilizer demand is still uncertain.

Coal production, too, contracted by the most in nearly a year. As the summer continues to heat up, electricity generation will increasingly have to rely on variable renewable sources or costly imported coal. Notably, the core sectors are not the only ones revealing economic distress. The latest Goods and Services Tax (GST) revenue data too show that domestic economic activity seems to be slowing. Revenues from domestic transactions contracted 2.6% in May 2026. The government argues that this is because of a one-time windfall transfer it received in May last year. Even so, the average growth of domestic GST revenue over the last six months was just 3.1%, lower than in 2025-26 and the year before that. This is not a supply issue, since merchandise exports hit a record high in May 2026. It is a demand problem, as low real wage growth meets rising inflation to squeeze wallets. These are all distressing signals even as India enters a deficient monsoon. Trade deals are no substitute for hard-hitting reforms.

KEY HIGHLIGHTS:

Context

- The prolonged West Asia crisis has exposed structural weaknesses in the Indian economy.
- Index of Eight Core Industries (ICI) grew only 0.5% in May 2026 (second-lowest growth in 21 months).
- Core sector growth during FY 2025-26 was only 1.1%, indicating slowdown predates the conflict.
- Weakness visible in crude oil, natural gas, coal production, fertilizer output, and GST collections.
- Concerns are compounded by the possibility of a deficient monsoon and Super El Niño conditions.

Key Points

Core Sector Performance

- Eight Core Industries account for 40.27% weight in IIP.
- Growth slowed to 0.5% in May 2026.

Energy Security Concerns

- Domestic crude oil and natural gas production continue to contract.
- Increased dependence on imported energy.
- Strategic Petroleum Reserve (SPR) objectives remain inadequately fulfilled.

Fertilizer Sector

- Fertilizer output contracted by 0.9% in May 2026.

- Natural gas shortage affects urea production.

Coal Sector

- Coal production witnessed its sharpest contraction in nearly one year.
- May increase reliance on imported coal and raise power generation costs.

Demand Slowdown

- GST revenue from domestic transactions contracted by 2.6% in May 2026.
- Average domestic GST growth during the last six months stood at 3.1%.
- Indicates weak domestic consumption demand.

External Sector

- Merchandise exports reached a record high.
- Slowdown appears to be driven primarily by weak domestic demand rather than supply constraints.

Static Linkages

- India imports around 85% of its crude oil requirement.
- Strategic Petroleum Reserves act as buffers against supply disruptions.
- Natural gas is a key input for urea manufacturing.
- El Niño is generally associated with below-normal monsoon rainfall in India.
- Core Industries serve as leading indicators of industrial growth.
- GST is a destination-based indirect tax.
- Higher energy imports can widen the Current Account Deficit (CAD).

Critical Analysis

Concerns

- Persistent decline in domestic oil and gas production.
- Weak domestic consumption demand.
- Rising import dependence for energy.
- Coal sector slowdown may affect power security.
- Deficient monsoon may aggravate inflation and rural distress.

Opportunities

- Record merchandise exports indicate external competitiveness.
- Renewable energy expansion can reduce long-term import dependence.
- Structural reforms can strengthen domestic demand and productivity.

Way Forward

- Accelerate hydrocarbon exploration under HELP.
- Expand Strategic Petroleum Reserve capacity.
- Increase domestic natural gas production.
- Improve coal sector efficiency while scaling up renewables.
- Strengthen rural demand through agricultural investments.
- Promote employment-intensive manufacturing.
- Ensure fertilizer security through diversified feedstock sources.
- Focus on structural economic reforms rather than relying solely on trade agreements.

India doesn't just need start-ups, but scale-ups that become global giants



SACHCHIDANAND SHUKLA

STATISTIC doing the rounds is that, at the current rate of profit growth, the taxes paid by Samsung and SK Hynix will be around \$430 billion over the next three years, almost equal to half of South Korea's national debt. Back home, amid the doom and gloom, two news items sparked hopes for our ability to build globally competitive giants. In early April, it was reported that Amul had become India's first FMCG firm to hit a turnover of ₹1 trillion. Then came news that RIL had become the first Indian company to cross \$10 billion in profits. India had 35 companies with a turnover of over ₹1 trillion in FY25. However, only one has crossed \$10 billion in profits, a watershed moment for the Indian corporate sector. The US and China boast of dozens of such firms, and Japan has multiple companies consistently above this threshold. A few questions come to the fore. How important is it to have large firms with big profit pools? Does this divergence between headline and bottom line in terms of scale point to any structural issue? There are issues of "economic populism" or anti-big business sentiment that view profits negatively? The history of economic development suggests large, well-governed companies have been among the most reliable engines of productivity and innovation, creating the economies of scale necessary to compete on

the global stage and raise living standards.

Let us start with productivity. Large firms spread fixed costs, such as those of R&D, compliance and digital infrastructure, across vast output, driving down unit costs and raising efficiency. Innovation, too, is often scale-dependent. Breakthrough requires patient capital, tolerance for failure and multidisciplinary talent — attributes concentrated in large enterprises. The US technology sector illustrates this vividly. Global competitiveness followed from this capacity to invest and integrate. Large firms build brands, control distribution, and orchestrate cross-border supply chains. They shape standards and capture value in global markets. They are significant direct employers and their larger contribution is often indirect. Dense supplier ecosystems, service providers and downstream distribution channels. They also contribute with higher wages. As for the structural issue, India's co-ordinated cycle story should not be viewed only through the lens of scale via revenues. By that measure, India has made real progress. A growing cohort of firms now cross the ₹1 trillion revenue mark and balance sheets are in their best-ever shape after years of deleveraging. Yet beneath this success lies an asymmetry that deserves closer attention. India has built large companies, but not enough that are globally dominant, innovation-led and embedded in the highest margin segments of the world economy.

Three features define this gap. First, Indian firms tend to scale domestically rather than globally. The home market is large and has been a powerful growth engine. Many firms have leveraged this demand to build formidable positions

India has built large companies. But not enough that are globally dominant, innovation-led and embedded in the highest margin segments of the world economy

across sectors. But global revenue exposure remains limited outside a narrow band of sectors, notably IT services, pharma and to an extent auto and oil products. Even here, the model is largely export-oriented services, assembly or re-exports rather than ownership of products, platforms or patents. In contrast, the world's most valuable companies, from Apple to Toyota, derive strength from global market share, cross-border supply chains and pricing power built on brand and intellectual property.

Second, India's corporate profit pool is still unusually concentrated in finance and commodity finance. Financials and commodity majors account for a disproportionate share of aggregate profits with profit after tax contributions of 41 per cent and 19 per cent respectively. This is not unique to India, but the skew is more pronounced. These sectors are capital-intensive and often cyclical, with returns shaped by global price movements or credit cycles rather than sustained innovation. In advanced economies, a larger share of profits accrues to technology, pharmaceuticals and advanced manufacturing sectors where firms command durable margins through intellectual property and network effects.

Third, India's presence in high-margin, innovation-driven sectors remains negligible. There are few domestic equivalents of frontier firms like NVIDIA that dominate critical nodes of the global technology stack. India's digital economy has produced successful platforms, but most are domestically focused and operate in intensely competitive, low-margin environments. Global rents in software, semiconductors and advanced industrials continue to ac-

cure to firms headquartered elsewhere.

This divergence is not simply a matter of top-down policies or corporate strategy; it also reflects fundamental conditions. India's R&D spending, at sub-1 per cent of GDP, lags far behind that of peers. Access to patient risk capital, particularly for deep-tech ventures, remains constrained. Regulatory uncertainty and fragmented factor markets raise the cost of scaling across states and sectors. And while India has integrated into global trade, it is yet to fully embed itself in the most lucrative segments of global value chains.

India's development journey is entering a new phase amid a fast-changing global backdrop. The next leap, jobs creation at scale and flow of investments, will come not from incremental growth but from creating many profitable firms. Hopefully, we have travelled some distance from the Economic Survey 2017-18 — which observed that the country had shifted "from crony socialism to signified capitalism" — so that profit isn't a dirty word and businesses are not perpetually viewed with suspicion that hinders reforms and modus vivendi sentiment.

To power India's transition to a high-income economy, we need dozens more such domestic champions with the scale, ambition, and execution depth that earn more than \$10 billion in profits. The Korean examples above or the US Magnificent 7 are cases in point. India doesn't just need start-ups, it needs "scale-ups" that become global giants with large profit pools. The real question that needs answering by policymakers and corporates is then: Are we optimising for scale (only via revenues) or global competitiveness (profits plus pricing power)?

The writer is group chief economist, I&T. Views are personal.

- Regulatory and compliance burdens.
- Weak integration into high-value segments of GVCs.

Static Linkages

- Economies of Scale: Reduction in average cost as output increases.
- Global Value Chains (GVCs): International fragmentation of production processes.
- FDI: Facilitates technology transfer and market integration.
- Intellectual Property Rights (IPR): Promote innovation and competitiveness.
- Total Factor Productivity (TFP): Key driver of long-term economic growth.
- Schumpeter's Innovation Theory: Innovation drives economic development.

Critical Analysis

Positives

- Enhances export competitiveness.
- Promotes innovation and technology leadership.
- Generates quality employment.
- Increases tax revenues and investment capacity.
- Strengthens India's position in global markets.

Challenges

- Low R&D expenditure.
- Limited deep-tech ecosystem.
- Dependence on domestic consumption.
- Risk of market concentration.
- Weak global brand ownership.

Way Forward

- Increase R&D expenditure.
- Promote industry-academia collaboration.
- Support deep-tech and advanced manufacturing.
- Strengthen IPR ecosystem.
- Improve ease of doing business.
- Facilitate integration into GVCs.
- Encourage Indian firms to acquire global brands and technologies.
- Focus on innovation, profitability, and global competitiveness rather than turnover alone.

KEY HIGHLIGHTS:

Context

- Amul became India's first FMCG company to cross ₹1 trillion turnover.
- Reliance Industries Ltd. (RIL) became the first Indian company to earn over \$10 billion annual profit.
- India has 35 companies with turnover above ₹1 trillion (FY25), but very few globally dominant firms.
- Debate: Is India creating globally competitive companies or merely large domestic enterprises?

Key Points

Why Large Firms Matter?

- Generate economies of scale and higher productivity.
- Invest heavily in R&D and innovation.
- Build global brands and integrate into Global Value Chains (GVCs).
- Create employment through supplier and distribution networks.
- Contribute significantly to tax revenues and exports.

Major Concerns

- Indian firms are largely domestic-market focused.
- Limited presence in high-profit sectors such as:
 - Semiconductors
 - Advanced manufacturing
 - AI and frontier technologies
- Profit pool concentrated in:
 - Financial services
 - Commodities and energy sectors
- Few Indian firms possess global pricing power through patents and brands.

Structural Constraints

- India's R&D expenditure remains below 1% of GDP.
- Limited availability of patient capital for deep-tech sectors.

Will a nation grow, stagnate, decline? Technology will tell



RAVEESH
CHANDRASEKHAR

THERE IS a question every civilisation has had to answer in its own era: What is the engine of prosperity? For most of human history, the answers were familiar — land, labour, capital, natural resources, trade routes. Nations that commanded these inputs commanded wealth and power. The Industrial Revolution added machinery and energy to that list. The 20th century added finance, institutions, and geopolitical leverage. But we are living through a rupture in that long pattern. For the first time, technology is not merely one factor among many that supports economic growth. It is the primary, foundational, and irreplaceable determinant of whether a nation grows, stagnates, or declines.

Consider what the last three decades have revealed. Countries that invested early and seriously in technology — the US, China, South Korea, Taiwan, Israel — have generated disproportionate shares of global wealth and wielded disproportionate geopolitical influence. Contrast this with resource-rich nations that failed to build technological capacity. They remain dependent — their wealth volatile, their growth episodic, their strategic position weak. Covid confirmed this in the starkest possible terms. Nations with strong digital infrastructure maintained economic activity. Nations with mRNA technology capability produced vaccines at unprecedented speed. Nations with advanced logistics and AI-enabled supply chains recovered faster.

History will record the current era as the moment when technology ceased to be a means to an end and became the end itself

Previous technological revolutions unfolded across decades or centuries. Nations could observe, adapt, and catch up. That window is narrowing rapidly. AI, in particular, is not a static capability that can be acquired off the shelf. It compounds. A nation that builds strong AI capability today will have exponentially stronger capability in five years. A nation that delays will face not a gap but a chasm. Recent moves by the US government to prohibit access to certain AI models are a clear sign that technology denial is and will be a part of the geopolitical toolkit of certain nations. India has the demographic scale and intellectual capital. What it has historically underinvested in

is the third ingredient: Technological sovereignty. The capacity to design, manufacture, and deploy critical technology on Indian soil, under Indian control, for Indian strategic and economic purposes. The India Semiconductor Mission, the PLI and DLI schemes, the IndiaAI mission, the Digital India Infrastructure, the STA framework for platform and AI regulation — these are steps in the right direction. But they are the first steps. The destination is an India that does not merely consume technology or export talent, but that is a full-spectrum technology power. That destination will only be reached if policymakers, investors, and entrepreneurs internalise that technology is the substrate on which every other sector runs.

There is a final, democratic dimension to this argument that is often overlooked. Technology-driven economic growth is, at its best, the most broadly distributed form of prosperity in history. Digital platforms have given small businesses access to national markets. Mobile payments have given unbanked citizens access to the financial system. Telemedicine has given remote communities access to healthcare. Online education has given first-generation learners access to world-class knowledge. In a country like India, these gains represent the difference between exclusion and participation for hundreds of millions of people. The politics of technology in India cannot be the preserve of elites.

History will record the current era as the moment when technology ceased to be a means to an end and became the end itself. Nations that understood this early and acted with seriousness and urgency will write the story of the century. Those that did not will find themselves reading it. India has every reason and every capability to be among those who write it. The question is only how urgently we choose to.

The writer is BJP Kerala state president, M.A. for Nemon, former minister of state for Electronics & IT, and the architect of India's IT Rules 2021 and the Safe-Trust-Accountable (STA) framework for platform and AI governance. Views are personal

- Globally recognized Digital Public Infrastructure:
 - Aadhaar
 - UPI
 - DigiLocker
 - CoWIN

Major Government Initiatives

India Semiconductor Mission (2021)

- ₹76,000 crore programme.
- Aim: Develop semiconductor and display manufacturing ecosystem.

IndiaAI Mission (2024)

- Promote AI computing infrastructure.
- Development of datasets and indigenous AI models.

Production Linked Incentive (PLI) Scheme

- Promote domestic manufacturing.
- Reduce import dependence.
- Enhance exports.

Digital India

- Improve digital governance and service delivery.
- Expand internet and digital access.

KEY HIGHLIGHTS:

Context

- Rapid advancements in Artificial Intelligence (AI), Semiconductors, Digital Infrastructure, Biotechnology, and Quantum Technologies are redefining economic growth and geopolitical power.
- Increasing technology restrictions and export controls by major powers have highlighted the importance of Technological Sovereignty.
- India is strengthening its technological ecosystem through initiatives such as:
 - India Semiconductor Mission (ISM)
 - IndiaAI Mission
 - Production Linked Incentive (PLI) Scheme
 - Digital India Programme
 - Digital Public Infrastructure (DPI)

Key Points

Why Technology Matters Today?

- Technology has become a critical factor determining:
 - Economic growth
 - Productivity
 - National security
 - Global competitiveness
 - Strategic autonomy

Technological Sovereignty

- Refers to a nation's ability to:
 - Design critical technologies
 - Manufacture strategic products
 - Control key digital infrastructure
 - Reduce excessive external dependence

India's Strengths

- Large demographic dividend.
- Strong STEM talent pool.

Static Linkages

- Innovation is a major source of long-term economic growth.
- Research & Development (R&D) enhances productivity and competitiveness.
- Strategic industries require technological self-reliance.
- Intellectual Property Rights (IPR) promote innovation.
- Technology is increasingly linked with national security.
- Human capital and skilled workforce are key drivers of technological advancement.

Critical Analysis

Opportunities

- Higher productivity and economic growth.
- Strengthening strategic autonomy.
- Improved public service delivery.
- Financial inclusion through digital platforms.
- Growth of startup and innovation ecosystem.

Challenges

- Dependence on imported advanced technologies.
- Low R&D expenditure (around 0.64% of GDP).
- Digital divide between regions and social groups.
- Cybersecurity threats.
- Ethical and regulatory issues related to AI.
- Shortage of high-end semiconductor manufacturing capabilities.

Way Forward

- Increase R&D expenditure.
- Strengthen academia-industry collaboration.
- Develop semiconductor fabrication ecosystem.
- Invest in AI, quantum computing, and deep-tech sectors.
- Promote digital literacy and inclusion.
- Strengthen cyber security architecture.
- Encourage indigenous innovation and patent creation.
- Integrate technology policy with national security strategy.