SMART SOLUTIONS

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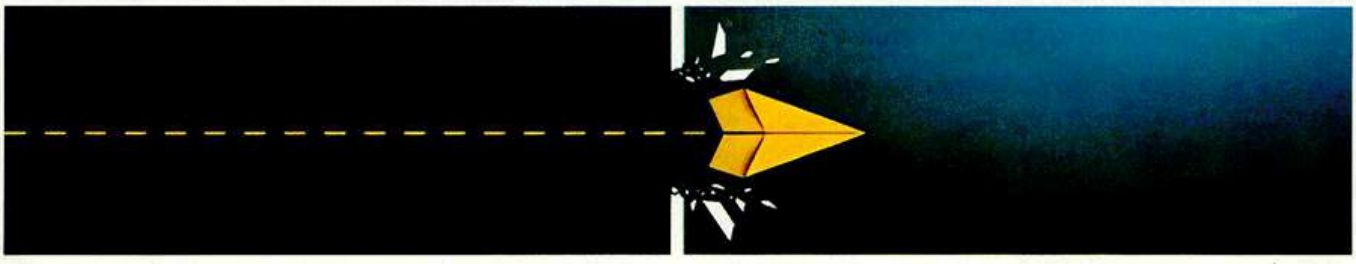
Quantum Leap in Global Innovation Landscape

India's remarkable ascent in the Global Innovation Index (GII) ranking, over the years, represents one of the most significant transformation stories in the global innovation landscape. As India marches forward on the path to Viksit Bharat@2047, sustained investment in R&D, patent quality, decentralised innovation hubs, and inclusive digital infrastructure will metamorphose India into the eminent global innovation leader, shaping technologies that solve local, national, and global challenges.

The Global Innovation Index (GII), published annually by the World Intellectual Property Organization (WIPO) in collaboration with Cornell University and INSEAD business school, stands as the world's most comprehensive innovation ranking framework. Established in 2007, the GII has evolved into a critical benchmarking tool that evaluates the innovation ecosystems of 139 economies worldwide, representing 93.6% of the world's population and 98% of the world's GDP. The Index is based on 80 indicators falling under a two-pillar structure of the Innovation Input Sub-Index and Innovation Output Sub-Index. The Input Sub-Index measures factors that enable innovative activities across five pillars, viz., Institutions, Human Capital and Research, Infrastructure, Market Sophistication, and Business Sophistication. The Output Sub-Index captures the results of innovative activities through Knowledge and Technology Outputs and Creative Outputs.

India's remarkable ascent in the Global Innovation Index (GII) ranking, over the years, represents one of the most significant transformation stories in the global innovation landscape. The country has climbed an impressive 42 positions, from 81st rank in 2015 to 38th in 2025, establishing itself as a leading hub of innovation and the top performer in Central and Southern Asia. This also represents the fastest sustained rise by any large economy in the GII index's history. The report explicitly notes that India performs above expectations relative to its GDP per capita and effectively translates costly innovation investments into more and higher-quality outputs. This positions India as an 'innovation overperformer' relative to its level of economic development.

This remarkable progress warrants careful reflection on India's systematic approach to building a comprehensive innovation ecosystem through strategic policy interventions, expansion in research



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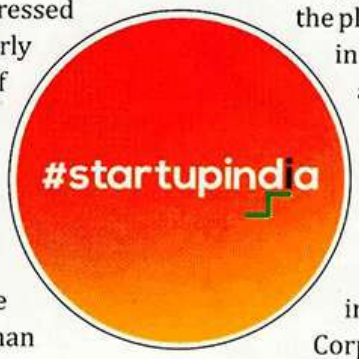
and development capabilities, strengthening of digital infrastructure, and promotion of entrepreneurship.

Transformative Policy Architecture

The story of India's innovation transformation begins with Startup India, launched in January 2016 when the Prime Minister of India announced the ambitious programme to transform India from a nation of job-seekers into a nation of job-creators. At that moment, India had approximately 500 recognised startups. Today, that number exceeds 1.61 lakh startups creating around 17 lakh direct jobs. Previously, starting a business meant navigating complex and fragmented approvals across various departments, viz., company registration with the Ministry of Corporate Affairs, tax registration with the Income Tax Department, various state-level clearances, labour compliance certificates, and more. Each step consumed weeks to months. Startup India facilitated a single digital portal where entrepreneurs could register their ventures in hours rather than months, seamlessly accessing a large network of incubators and accelerators spread across the country. Moreover, the programme created a Rs 10,000-crore Fund of Funds to provide seed funding for promising startups. It also offered tax exemptions and incentives for the first three profitable years, giving new ventures time to establish themselves before facing full compliance costs. By spreading resources beyond major cities, the initiative helped tier-2 and tier-3 cities now account for nearly 51% of India's new startups.

The rule of law and better risk resolution process have also enhanced investor and entrepreneurial confidence, a critical ingredient for an innovation-friendly ecosystem. Since 2016, the Insolvency and Bankruptcy Code (IBC) has provided a credible, time-bound path to rescue or close down stressed firms. In FY24, IBC accounted for nearly 48% of banks' total recoveries, ahead of SARFAESI Act (32%), Debt Recovery Tribunals (17%), and Lok Adalats (3%). Lifetime data show approximately 32–33% recovery against admitted claims, with an improving resolution-to-liquidation ratio; as a result, more companies are being revived rather than liquidated.



Digital Public Infrastructure Revolution

The Digital India Mission, launched in 2015, has created the techno-digital foundation upon which thousands of innovations could thrive. This initiative encompasses three key vision areas: digital infrastructure as a core utility, governance and services on demand, and digital empowerment of citizens. The trinity of Aadhaar, providing every resident with a unique digital identity; the Unified Payments Interface (UPI), creating a common digital payment system; and open Application Programming Interfaces (APIs) for data sharing created a universal platform that levelled the playing field between large corporations and individual entrepreneurs. Now, a vendor in a remote area can accept digital payments via a simple QR code printed on paper, without owning a point-of-sale terminal or a merchant bank account. Customers scan the code with their phones, enter the amount, and the payment routes instantly through the National Payments Corporation of India's common infrastructure, arriving in the vendor's bank account within seconds. In September 2025 alone, UPI processed over 24.9 lakh crore transactions.

This infrastructure is not only convenient but also enabling because when payments become frictionless

India's Global Strengths

India's Global Rank	Assessment Parameters
#1	Share of exports from IT & other tech services
#3	Size of India's domestic market
#4	Share in global late-stage Venture Capital deals
#8	Value of big firms driven by intangible value (brand, software, IP)
#9	Access to funding for startups & scaleups
#11	Value of Indian unicorns (as % of GDP)
#12	Entrepreneurship policies & culture
#13	Share of exports from cultural & creative services
#14	Investment rate in the economy (gross capital formation, % of GDP)
#16	R&D spend by top 3 India-based global corporate investors

Source: GII 2025

and universal, entirely new entrepreneurial models emerge. For example, Account Aggregator processes MSME loans, e-consultations, freelancing, fast grocery delivery at the city scale, weather-index crop insurance payments based on rainfall or temperature data, etc. The same DPI now supports Open Network for Digital Commerce (ONDC), ensuring that a home-based seller or a *kirana* owner can be discovered online and paid in seconds. This digital foundation has been instrumental in enabling fintech innovation, with UPI democratising financial transactions and contributing to India's leadership in ICT services exports, where it ranks 1st globally.

Integrating Manufacturing and R&D

In the year 2020, the Production-Linked Incentive (PLI) scheme, spanning fourteen sectors including semiconductors, pharmaceuticals, and electronics manufacturing, has mobilised over Rs 1.76 lakh crore in investment and created over 12 lakh employment opportunities. The programme's significance extends beyond these aggregate metrics to encompass a more nuanced innovation strategy embedded within its structural architecture. To qualify for PLI eligibility, firms must demonstrate progressive domestic value addition and establish the R&D facilities within India. This mandate has driven the creation of design centres, prototype laboratories, and testing facilities in the country and accelerated India's transition toward smart manufacturing and Industry 4.0 technologies. When multinational corporations establish design laboratories to qualify for PLI benefits, they embed advanced R&D capabilities within India's technical ecosystem. This generates knowledge spillovers, transferring cutting-edge methodologies throughout the innovation system. Consequently, electronics manufacturing surged 146% from Rs 2.13 lakh crore (FY 2020-21) to Rs 5.25 lakh crore (FY 2024-25), while India achieved 60% import substitution in telecom products and turned the drone sector into a seven-fold growth story driven by MSMEs. Continuing this momentum, the government has launched PLI 2.0 with special emphasis on Electronics & IT Hardware, and the Automobile sector to position India as a global electronics leader by 2030.

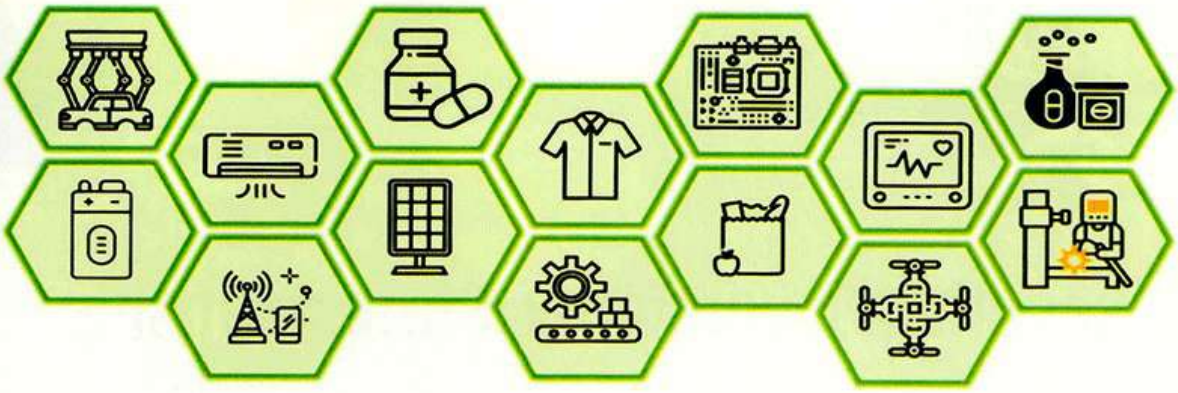
Moreover, to scale and fortify 'Design-in-India,' the Union Cabinet has recently approved a Rs 1 lakh crore Research Development and Innovation (RDI) scheme to encourage private-sector R&D in sunrise and strategic technologies. This holistic institutional governance and incentive architecture is propelling India towards 'invent, design, and make' and transforming the country into an innovation originator. This policy synergy is observable by India's 22nd global rank in Knowledge and Technology Outputs.

National Education Policy and Research Excellence

In the context of India's evolving education landscape, the National Education Policy 2020 stands as a landmark reform resembling the synthesis between Mahatma Gandhi's *'Nai Talim'* (Wardha Scheme of Basic Education 1937) and the visionary pedagogy of Rabindranath Tagore. Building upon the Gandhian ethos of holistic, vocational, value-oriented, and self-reliant learning and Tagore's vision of creativity, multidisciplinary scholarship, and cosmopolitanism, the National Education Policy 2020 advocates for interdisciplinary research to address complex societal challenges and promotes collaboration across disciplines, departments, and institutions. A key milestone has been the establishment of Anusandhan National Research Foundation (ANRF) with a Rs 50,000 crore hybrid funding model to support cutting-edge research across all disciplines.

The new education policy push has catalyzed remarkable growth in research outputs.India now ranks 3rd globally (from 7th position in 2010), in research publications, with research output rising 142% since 2015. Moreover, since 2015, Ph.D. enrollment has also doubled to over 2.34 lakh, with female enrollment increasing by over 135.6%. The policy's emphasis on industry-academia collaboration has been strengthened through initiatives like the KAPILA programme, which has

DigitalBharat



promoted intellectual property literacy in academic institutions through capacity building of faculties and students.

Expansion of Technical and Institutional Capacity

India's commitment to expanding its modern technical capability infrastructure is evident in the establishment of 42 new Central Higher Educational Institutions since 2014, including new central universities, IITs, IIMs, NITs, IIITs, and IISERs The recent Union Cabinet approval of Rs 11,828.79 crore for expanding five new IITs will increase student capacity by over 6,500 students and establish five state-of-the-art research parks to strengthen industry-academia linkages.

The Atal Innovation Mission (AIM), established in 2016, has created a comprehensive innovation ecosystem through 10,000 Atal Tinkering Labs in schools and more than 3,500 startups incubated at Atal Incubation Centres, creating over 32,000 jobs. This grassroots approach to innovation cultivation has been recognised internationally, with WIPO (World Intellectual Property Organization) entering into partnership agreements with AIM to showcase these models globally. Moreover, India's intellectual property ecosystem has undergone a remarkable transformation, securing a position among the global top 10 for patents, trademarks, and industrial designs according to the WIPO 2024 report. The country ranks sixth globally in patent applications with 64,480 filings in 2023, with over half (55.2%) now coming from domestic residents, which is a historic moment demonstrating India's growing indigenous innovation capacity.

Way Forward

To sustain and accelerate India's innovation trajectory toward *Viksit Bharat*@2047, the following pathways are critical:

- Increasing private sector R&D contributions, which are currently at 37% of the total, and taking Gross Expenditure on R&D (GERD) from the current 0.7% to 2% of GDP, to match top global innovators like China (2.4%), USA (3.5%), and Israel (5.4%), etc.
- Enabling multinational corporations to co-innovate with Indian universities and startups and creating homegrown design capabilities.
- Increasing the number of accelerators/incubators across rural areas and fast-tracking quality assessments, and patent commercialisation.
- Widening digital access by greater decentralisation of ONDC, UPI, and Digital Public Infrastructure networks to remote hinterlands of the country.
- Establishing nationwide, regional, and district innovation hubs to harness local expertise and address community-specific challenges, powering a nationwide *Vocal for Local* movement.

विकसित भारत

India's impressive rise in the GII is a testament to visionary policy architecture rooted in *Atmanirbhar Bharat* to transform the nation into an innovation-driven global powerhouse. Over the years, India has systematically built institutional capacity, entrepreneurial ecosystems, and research excellence. The rise in domestic patent filings, frontier technology startups, the UPI-led fintech revolution, etc., signals a structural shift toward an indigenous innovation paradigm. As India marches forward on the path to *Viksit Bharat*@2047, sustained investment in R&D, patent quality, decentralised innovation hubs, and inclusive digital infrastructure will metamorphose India into the eminent global innovation leader, shaping technologies that solve local, national, and global challenges. ❑