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India's IP Surge: A Questionable Patent Filing Boom Obscures a Persistent Innovation Deficit

By: Sunil Mani

Patent filings in India are surging in number, but these are being driven by a few private universities responding to distorted incentives that prioritise quantity over quality. Without significantly boosting R&D investment and reforming incentives structures, India will not become a true innovator.

India's intellectual property (IP) landscape is experiencing a remarkable surge, as highlighted by Union Minister of Commerce and Industry Piyush Goyal during his address at the National IP Awards and IP Conference in New Delhi on 9 March 2026. Goyal emphasised that patent filings in the country have grown by nearly 215% over the past decade, propelling India's global ranking in patent applications from 14th to 6th, a development he attributed to the innovative zeal among the nation's youth and a broader push towards strengthening the innovation ecosystem (Press Information Bureau 2026).

A key trend over the five-year period from 2020-21 to 2024-25 is the sustained and growing dominance of domestic innovation.

This progress is evident in several key metrics and policy measures. The official information provided closely aligns with government announcements, including the 215% increase in patent filings over the decade and India's rise in the Global Innovation Index (GII) to the 38th position from 81st in 2015, according to the 2025 GII rankings (World Intellectual Property Organisation 2025).

The government has implemented major reforms, such as reducing IP filing fees by 50% to 80% to improve accessibility for startups, micro, small, and medium enterprises (MSMEs), and women entrepreneurs. Plans to speed up the processing of patents, trademarks, copyrights, designs, and Geographical Indications (GIs) aim to position India's IP approval system among the top five globally for speed, transparency, and efficiency.

Further initiatives include establishing 50,000 innovation labs in schools to promote creativity and problem-solving among young students, as well as increasing participation from women, youth, and India's large STEM (Science, Technology, Engineering, and Mathematics) talent pool in the research and technology sectors (Press Information Bureau 2026).

These developments mark genuine, measurable progress in the IP ecosystem and innovation culture. However, a critical review of the most recent data from the Office of the Controller General of Patents, Designs, Trademarks and Geographical Indications Annual Report 2024-25 uncovers significant limitations regarding the quality and commercial impact of this patent surge.

1. Filing and Grant Trends

The Indian patent office experienced a historic surge in activity during the reporting period, with filings crossing the 100,000 milestone for the first time. A total of 110,375 patent applications were filed in 2024-25, a significant increase of 19.75% from the previous year (Controller General of Patents, Designs, Trademarks and Geographical Indications 2026). A key trend over the five-year period from 2020-21 to 2024-25 is the sustained and growing dominance of domestic innovation.

As illustrated in Table 1, applications of Indian origin have nearly tripled, growing from 23,527 in 2020-21 to 68,201 in 2024-25. Their share of total filings has correspondingly increased from just over 40% to 61.79%, marking a substantial structural shift in the innovation landscape.

Table 1: Trends in Patent Applications and Grants (2020-21 to 2024-25)

	Total applications filed	Applications by Indian applicants	Share of Indian applicants (%)	Total patents granted	Patents granted to Indian applicants	Share of grants to Indian applicants (%)
2020-21	58,503	23,527	40.2	28,385	5,629	19.8
2021-22	66,440	29,266	44.0	30,073	6,397	21.3
2022-23	82,811	38,568	46.6	34,134	9,239	27.1
2023-24	92,168	51,574	56.0	103,057*	25,082	24.3
2024-25	110,375	68,201	61.8	33,504	10,682	31.9
Source: Controller General of Patents, Designs, Trademarks and Geographical Indications (2026).						
Note: *Grants in a year correspond to applications filed in earlier years. Hence the grant rate can exceed 100%.						

However, the number of patents granted in 2024-25 was only 33,504, a dramatic decrease of about 67.49% from the 103,057 grants in 2023-24. The report attributes this decline to transitional challenges, including a delay in recruiting new examiners. Consequently, the grant rate fell sharply to 30.3% in 2024-25 from a remarkable 111.8% in 2023-24. While the 2023-24 figure was inflated by a special effort to clear a backlog, the 2024-25 figures reflect persistent bottlenecks in the examination pipeline.

Despite the year-on-year volatility in grant numbers, the share of patents granted to Indian applicants has shown a steady upward trend, reaching 31.9% in 2024-25, the highest in the five-year period.

2. Applications by Key Sectors

The *Annual Report 2024-25* by the Controller General of Patents, Designs, Trademarks and Geographical Indications (2026) provides a breakdown of patent applications by major technology fields, revealing the sectors driving innovation in India. Table 2 illustrates the trends over the five-year period.

However, a significant limitation of the analysis in this source is that it only details the distribution of patent applications, not of granted patents. A critical comment on this distinction is necessary, as the number of grants by field would offer a more accurate measure of successfully commercialised or high-quality innovation, whereas applications primarily reflect filing volume and strategy.

Table 2: Distribution of Patent Applications by Major Field of Invention, 2020-21 to 2024-25 (Percentage shares)

Field of Invention	2020-21	2021-22	2022-23	2023-24	2024-25
Computer Science & Electronics	20.39	23.44	24.58	28.02	26.72
Mechanical Engineering	18.02	18.01	17.61	16.07	17.1
Chemical & Pharmaceuticals	15.06	7.79	14.15	14.21	13.55
Communication	11.38	11.01	10.11	8.53	9.17
Bio-Medical	4.86	4.53	4.71	4.67	4.21
Other fields of invention	30.29	35.22	28.84	28.5	29.25
Total	100	100	100	100	100
Source: Computed from Controller General of Patents, Designs, Trademarks and Geographical Indications (2026).					

The distribution of patent applications across fields of invention shows a clear structural shift from 2020-21 to 2024-25. The most notable trend is the rising importance of Computer Science and Electronics, whose share increased from 20.4% in 2020-21 to 26.7% in 2024-25, peaking at about 28% in 2023-24. This indicates the growing prominence of digital technologies, including software, artificial intelligence (AI), and electronics-related innovations.

In contrast, Mechanical Engineering, traditionally a major field, shows a gradual decline in its share from about 18% to around 16%-17%, suggesting comparatively slower growth in patenting activity. Chemical and Pharmaceutical technologies exhibit greater volatility, with a sharp decline in 2021-22 followed by a recovery and stabilisation at around 13%-14% in subsequent years.

The share of Communication technologies shows a mild downward trend, falling from 11.4% to about 9%, indicating a relative shift of inventive activity toward broader computing and electronics technologies. Finally, biomedical inventions maintain a relatively stable but small share, remaining around 4% to 5% throughout the period. Overall, the data suggest an increasing concentration of inventive activity in digital and electronics-related technological domains.

As noted above, the data is confined to applications. The absence of a corresponding breakdown of patents granted by these major fields in the report prevents a fuller understanding of where India is not just innovating on paper but is successfully securing formal recognition and enforceable rights for its inventions. A grant-based analysis could reveal leading sectors or highlight disparities in examination success rates across technology fields.

3. Role of Private Universities

Educational institutions have emerged as a significant contributor to domestic patent filings in India. According to data from the Controller General of Patents, Designs, Trademarks and Geographical Indications (2026), patent applications filed by educational institutions rose from 11,150 in 2020-21 to 45,776 in 2024-25, accounting for approximately 38% of the country's total patent filings.

However, this growth has been highly uneven. Official statistics and institutional disclosures indicate that a small group of private universities—most notably two—account for a disproportionately large share of patent applications in the higher education sector. The Annual Report 2024-25 by the office of the Controller General lists private universities that are leading in patent applications (2026: 22-23). In recent years, these institutions have collectively outpaced the Indian Institutes of Technology (IITs) in sheer volume of filings.

Even if the weight assigned to filings [in the NIRF] seems modest within the framework, the overall, non-punitive structure encourages quantity over quality.

Despite their high counts of publications and patents, some of these universities have faced allegations of questionable publication practices (Meho and Akl 2025). Moreover, their grant rates remain low and heavily skewed. One analysis, for instance, reports grant rates below 3% for some of these high-filing institutions (Jain 2025), raising concerns about the quality and novelty of the patents being pursued.

The main driver of this trend appears to be the National Institutional Ranking Framework (NIRF), which incorporates patent-related metrics into its ranking process (Ministry of Education 2025). The NIRF assigns points for patents filed and granted through a dedicated Intellectual Property Rights (IPR) sub-indicator.

A closer look at its scoring system shows that points are accumulated at each stage—filing, grant—without penalising institutions for failing to move from one stage to the next. This creates a skewed incentive structure where institutions are rewarded for volume, regardless of subsequent results.

To illustrate: under the NIRF's current system, patent applications are treated as "publications" because they are automatically published in India. Consider two hypothetical universities:

? University A files 1,000 patents and receives grants on just 2% (20 grants). It earns 1,000 points for filings and an additional 20 points for grants, for a total of 1,020 points.

? University B files 50 patents, with a 40% grant rate (also 20 grants). It earns 50 points for filings and 20 points for grants, for a total of 70 points.

Although both universities secure the same number of granted patents, University A significantly outperforms University B in the rankings due to its higher filing volume. This scoring approach helps explain why these private universities aggressively pursue large volumes of patent filings despite low grant rates (reportedly between 1% and 3%, according to Jain 2025) and minimal commercialisation.

Even if the weight assigned to filings seems modest within the framework, the overall, non-punitive structure encourages quantity over quality, revealing a potential flaw in the current ranking system.

4. Analysis of Patent Quality

The extremely low working rate of patents, combined with data on grant ratios and abandonment rates, provides compelling evidence that a significant portion of these applications, particularly from academia and startups, are of poor quality or filed for strategic reasons.

a. Mismatch between filings and quality indicators

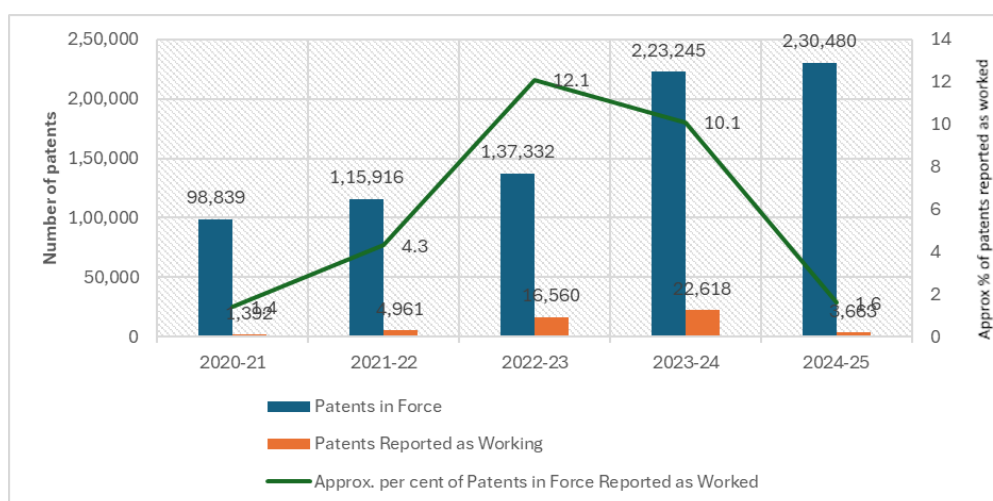
Low grant ratios for academia: The National Association of Software and Service Companies (NASSCOM) reported that for the top 15 filers of AI patents in India, the grant ratio for academia is a mere 1.1%. In stark contrast, corporates have a high grant ratio of 44.1% (NASSCOM 2025). Academic institutions appear to be filing patent applications that fail to meet basic patentability criteria such as novelty and inventive step. This is borne out by the success rate of prolific filers, which ranges from just 0% to 3% (Jain 2025).

Startup filing and abandonment: Between 2020-21 and 2024-25, startups filed 13,089 applications but received only 2,174 grants. Crucially, nearly 500 applications were abandoned at early procedural stages (for example, for failing to file complete specifications). Patent attorneys note that it is routine for founders to file provisional patents right before a fundraise to impress investors, with no intention or resources to see the process through, using the patent as a "signalling tool" rather than a genuine commercial asset.

b. Analysis of patent working rate

Under the Patents Act, patentees are required to file a statement (Form 27) regarding the working of their patented inventions. The data from the Controller General of Patents, Designs, Trademarks and Geographical Indications (2026), summarised in Figure 1, shows a sharp and alarming decline in the percentage of patents reported as being "worked" in 2024-25, following years of modest improvement.

Figure 1: Trends in Working Rate of Patents as Compared to Patents in Force



This precipitous decline to 1.6% strongly supports the contention that the surge in filings is not translating into commercial use. Even if one generously assumes that all 11,056 statements received represent unique, worked patents, the rate is still only 4.8%.

This low and volatile percentage is a persistent issue, indicating a significant gap between patent protection and industrial application. The negligible royalty receipts India earns—a net outflow of roughly US\$14.5 billion in IP charges (World Bank 2025a; 2025b)—is a direct macroeconomic consequence of this low rate of commercialisation.

5. Structural Challenge

Despite the impressive filing statistics, India's persistent role as a net importer of technology reveals a deeper structural weakness. The country's gross expenditure on research and development (GERD) as a share of gross domestic product (GDP) stands at around 0.64%, according to the Economic Survey 2025-26 (Government of India 2026). This figure has remained stagnant for years and lags significantly behind global leaders like the US (~3.5 per cent), China (~2.5 per cent), and Israel (~5 per cent). Most R&D is funded by the government, with private-sector input limited and concentrated in a few sectors, such as pharma and IT services.

Initiatives such as faster IP processing and school labs improve the environment for protecting ideas, but fall short of generating high-quality, original innovations without substantial upstream R&D investment. Granting patents more rapidly on incremental or imported technologies does not equate to establishing indigenous technological leadership. The recent Rs 1 lakh crore Research, Development and Innovation (RDI) Scheme shows promise in encouraging corporate investment, but it cannot swiftly compensate for decades of

underfunding, especially given its mode of funding and governance structures (Mani 2025).

However, the country remains weak in R&D-specific inputs, such as researchers per capita and top-tier scientific publications.

India's strengths in the Global Innovation Index, where it ranks 38th, are primarily in non-R&D pillars, such as information and communication technology (ICT) services exports (ranked 1st), venture capital, and intangible asset intensity. These are supported by the services-led economy and startup ecosystem.

However, the country remains weak in R&D-specific inputs, such as researchers per capita and top-tier scientific publications. IP reforms bolster the "business sophistication" and "creative outputs" pillars but have limited short-term effects on the "knowledge creation" pillar, which is vital for royalty inflows and technological self-reliance.

6. Conclusions

India's patenting performance in 2024-25 presents a complex picture. Filings surpassed 100,000 for the first time, driven by a surge in domestic applications from academic institutions and signalling a structural shift towards greater local engagement. However, grants declined sharply amid administrative bottlenecks-despite hiring 407 new examiners-while plummeting working rates and extremely low academic grant ratios highlight that much of this growth originates from low-quality, NIRF-driven filings by private universities, unlikely to lead to commercialisation.

Structural weaknesses persist, including stagnant gross expenditure on research and development and a \$14.5 billion net technology trade deficit, making current IP measures necessary but insufficient to promote original, high-calibre R&D.

To address these issues, two targeted policy reforms are essential. One, reforming NIRF metrics to penalise low grant and commercialisation rates and to reward quality over filing volume; and two, committing to raise the gross expenditure on R&D to 2% of GDP through improved tax incentives, public-private partnerships, and university-industry linkages.

Without such integrated action, India risks adopting global technologies efficiently rather than becoming a net IP exporter; headline filing gains will conceal ongoing innovation dependencies.

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