The Indian Journal for Research in Law and Management

Open Access Law Journal – Copyright © 2025

Editor-in-Chief – Dr. Muktai Deb Chavan; Publisher – Alden Vas; ISSN: 2583-9896

TRAPPED IN THE THICKET: HOW PATENT CLUSTERS STIFLE STARTUP INNOVATION

Prity Kumari

INTRODUCTION

In the quickly changing world of global innovation, startups play a crucial role in driving disruption, economic growth, and inclusive development. In many sectors, including health tech, fintech, green energy, and artificial intelligence, early-stage companies have shown their ability to spark change faster than established firms. However, the legal system meant to protect innovation, particularly the patent system, is becoming more of a hindrance. One troubling result of this is the rise of patent thickets. These are dense collections of overlapping patent rights that create significant barriers for new companies trying to bring innovative technologies to market without facing lawsuits or high licensing fees.

The growth of these clusters whether due to intentional evergreening, aggressive patent gathering, or fragmented IP ownership which brings serious and often overlooked challenges for startups. These challenges go beyond simple transactions; they are structural. They hinder innovation, distort market access, and undermine the basic goal of intellectual property law: rewarding creativity while promoting the sharing of knowledge. In fields where cumulative innovation is critical, like pharmaceuticals, semiconductors, telecommunications, and software, startups often feel trapped in these thickets. They are forced to delay or give up on market entry, switch to less impactful projects, or waste precious resources on litigation instead of research and development.

This issue is not limited to a single region. Whether a U.S. startup faces a lawsuit from a patent assertion entity or an Indian social entrepreneur tries to create affordable healthcare devices

amidst a sea of foreign patents, the obstacles are real, systemic, and growing. Therefore, it is essential to rethink how patent law interacts with startup ecosystems.

This paper examines the global and Indian aspects of patent clustering, looks at its effects on startup innovation, and most importantly proposes changes to structures, institutions, and laws aimed at creating a fairer balance between protecting intellectual property and fostering open, competitive innovation. The key question is not about whether patents should exist but whether they fulfil their intended purpose or mainly shield established companies at the cost of future innovators.

THE ANATOMY OF A PATENT THICKET

A patent thicket occurs when multiple patents, often owned by different entities, cover interconnected parts of a single product or technology. Richard Shapiro defines a thicket as "a

dense web of overlapping intellectual property rights that a company must hack its way through to commercialize new technology[1]." In areas like pharmaceuticals, semiconductors, biotech, telecommunications, and software, cumulative innovation has led to broad patent portfolios that effectively block new competition, increasing costs and legal complexity far beyond the value of innovation[2].

Patent thickets often relate to evergreening, a practice where secondary patents are filed on minor changes just to extend exclusivity. Scholars point out that evergreening and patent clustering create buffers that force competitors to innovate while worrying about infringing on existing patents[3]. Instead of fostering real innovation, companies focus on minor modifications to build a network of small patents, which they use for licensing and legal leverage.

Economic research shows that overlapping patents can reduce the number of firms entering fields like software. One study found fewer new companies in industries with high patent density, even though patents can help attract funding by signaling credibility in research and

---

[1] *Untangling the Patent Thickets*, Chadha & Chadha IP, Mondaq (Aug. 11, 2016), mondaq.com/india/patent/518368/untangling-the-patent-thickets.

[2] *Untangling Patent Thickets: The Hidden Barriers Stifling Innovation*, TT Consultants Blog (June 26, 2024), ttconsultants.com/untangling-patent-thickets-the-hidden-barriers-stifling-innovation.

[3] Dimitris Logothetis, *Rewarding Pharmaceutical Innovation For Being Innovative: A Summary Of The Pharmaceutical Patent System And An Amendment To The Patent Act To Negate "Evergreening" And "Patent Thickets*",29 UVic (2024)

development[4]. In summary, patents play a conflicting role: they are essential for protecting innovation but can easily be used to suppress competition.

WHY PATENT CLUSTERS ARE ESPECIALLY TOXIC FOR STARTUPS

For large established firms with legal teams and licensing budgets, patent clusters are often expensive but manageable. In contrast, startups face tight budgets, limited legal support, and a

need to focus on developing their products and validating their markets. Several interconnected factors explain why startups bear the brunt of these issues:

First, clearing hundreds of patents and negotiating multiple licenses can be incredibly costly. Unlike larger companies, startups cannot afford lengthy licensing discussions or high royalties —especially when they have not yet established product-market fit. A complicated licensing landscape can push early-stage ventures away from certain fields entirely.

Second, patent assertion entities or trolls target startups. Often, startups file patents early to signal value to investors, leaving behind weak patents if they fail. These abandoned patents can then be used by third parties to assert claims. This so-called “vicious patent cycle” undermines startup innovation, diverting limited resources into legal battles instead of product development[5]

Third, investors and venture capital firms may shy away from funding areas plagued by dense patent clusters due to high risks of infringement and uncertainties about operational freedom. Some studies show a correlation between strong patent environments and increased funding, but this only applies to companies that already have patents; new entrants without existing portfolios face a much tougher path[6].

---

[4] Iain M. Cockburn & Megan MacGarvie, *Patents, Thickets, and the Financing of Early-Stage Firms: Evidence from the Software Industry*, NBER Working Paper No. 13644 (Nov. 2007), nber.org/papers/w13644.

[5] Robert Chou, *Startups and Investors and Trolls, Oh My!: How Commercialization Patents Can Benefit Startup Innovation*, 17 Nw. J. Tech. & Intell. Prop. 349 (2020), scholarlycommons.law.northwestern.edu/njtip/vol17/iss3/2.

[6] Christian Helmers & Mark Rogers, *Does Patenting Help High-Tech Start-Ups?*, 40 Res. Pol’y 1016 (2011), doi.org/10.1016/j.respol.2011.05.003.

Finally, the fear created by a patent cluster, deterrence based not on actual infringement but on the risk of legal trouble can drive innovators away from essential technology areas altogether.

THE INDIAN LEGAL CONTEXT: SAFEGUARDS AND GAPS

India's patent system includes certain safeguards that many other jurisdictions lack. Section 3(d) of the Indian Patents Act prohibits patents on incremental changes unless they result in improved efficacy. The historic Novartis v. Union of India decision in 2013 upheld this standard by rejecting Novartis's application for imatinib (Gleevec), ruling that the new form did not have therapeutic benefits over the existing compound—effectively blocking an evergreening attempt[7] . This case acts as a barrier against pharmaceutical patent thickets.

Additionally, India's compulsory licensing system and post-grant opposition measures help eliminate weak patents, while the Traditional Knowledge Digital Library (TKDL) prevents the granting of patents on obvious prior art. Together, these policy tools limit the risks of patent floods in healthcare and agriculture[8].

Critics, however, argue that Indian case law on patent thickets is limited, with few rulings addressing the cumulative anti-competitive impact of clusters across various industries. A 2016 academic study noted that patent thickets are already "hindering the development and commercialization of technology" in India, particularly in domains like agriculture, biotech, and ICT. It called for patent pools and clearinghouses to facilitate easier access to technology without excessive licensing risks[9].

Some early initiatives have begun, such as the Medicines Patent Pool, which allows Indian generic firms to access vital drug patents for HIV and TB treatments, reducing barriers to access and ensuring affordable generics. In telecommunications, companies like Ericsson have utilized pooled licensing to enable Indian device manufacturers to access essential mobile-standard patents[10].

---

[7] *Untangling the Patent Thickets*, Chadha & Chadha IP, Mondaq (Aug. 11, 2016), mondaq.com/india/patent/518368/untangling-the-patent-thickets.

[8] Bhavpreet Soni, *Patent Thickets and Innovation*, Sonisvision Blog (Feb. 20, 2025), sonisvision.in/blogs/patent-thickets-and-innovation.

[9] V. Visha Kumari, P. Pichai & A. Yuvaraj, *Managing Intellectual Property in Collaborative Way to Meet the Agricultural Challenges in India*, 22 J. Intell. Prop. Rts. 55 (2017), manupatra.com.

[10] Divya Shekar & Rimpu Malhotra, *A Closer Look at Patent Pools Amid India's Growing Prominence on the Global Monetisation Stage*, in Inside India's IP Market: A Guide 2025 (Law Bus. Rsch. 2025),

Nonetheless, a recent media editorial pointed out that, while India has become the third-largest global startup ecosystem with over 100,000 startups and 110 unicorns, only a small number hold any IP assets. The governor of Karnataka emphasized the need for universities and

MSMEs to create IP centers under the national IPR policy to raise patent awareness and infrastructure nationally[11].

INTERNATIONAL JURISPRUDENCE: LESSONS FROM OVERSEAS

Across the globe, the United States and EU have struggled with patent cluster issues in high-tech sectors. In the U.S., court decisions and scrutiny of patent assertion practices, standard-essential patents (SEPs), and litigation abuse show significant systemic problems. Patent pools, such as MPEG Lincensing Administration (MPEG LA) for MPEG-2 video standards, serve as successful ways to reduce the presence of thickets by enabling easier licensing through centralized agreements[12].

Research from the National Bureau of Economic Research indicates that tech clusters like Silicon Valley promote innovation through strong networks of sharing and communication. However, these clusters also create thick patent portfolios that raise entry costs for newcomers who lack their own patents. One NBER working paper found that startup activity is significantly lower in tech markets burdened by patent density, even though patents can help established firms grow[13].

In legal literature, some scholars propose tailored patents for startups. A proposal from Northwestern's Startups and Investors and Trolls, Oh My! recommends creating a "small business commercialization patent"—a specialized tool to reduce assertion risk while still

iam-media.com/guide/india-managing-the-ip-lifecycle/2025/article/closer-look-patent-pools-amid-indias-growing-prominence-the-global-monetisation-stage.

[11] *Establish Intellectual Property Centres in Varsities: Governor*, **The Times of India** (June 29, 2025), timesofindia.indiatimes.com/city/bengaluru/establish-intellectual-property-centres-in-varsities-governor/articleshow/122134764.cms.

[12] *Untangling Patent Thickets: The Hidden Barriers Stifling Innovation*, TT Consultants Blog (June 26, 2024), ttconsultants.com/untangling-patent-thickets-the-hidden-barriers-stifling-innovation.

[13] Iain M. Cockburn & Megan MacGarvie, *Patents, Thickets, and the Financing of Early-Stage Firms: Evidence from the Software Industry*, NBER Working Paper No. 13644 (Nov. 2007), nber.org/papers/w13644.

allowing for signaling benefits. Such patents could replace standard patents for early-stage firms, lowering the entry barriers that dense patent ecosystems create[14].

HOW PATENT CLUSTERS HAMPER INNOVATION IN PRACTICE

In heavy tech areas like semiconductors or advanced biotech, overlapping patent families and cumulative innovation are common. Imagine hypothetical Indian social entrepreneurs trying to create low-cost diagnostic devices that combine sensor technology, algorithms, bio-markers, and user interface design. Each component typically involves many patents, owned by universities, large companies, or startups. Accessing the complete set requires negotiations with several rights holders—delaying product launches and wasting resources that could be better spent.

Similarly, in software startups, like an AI platform that integrates speech recognition, computer vision, encryption protocols, and data transmission methods, each patent area may have numerous overlapping owners. A single infringement claim can prompt demands for licensing or legal action. Without substantial patent budgets, startups may avoid critical fields altogether, leaving opportunities for incumbents or stifling local innovation.

Also, the rise of patent assertion entities means even abandoned patents can be purchased and used against startups. As stated in a Northwestern Note, "[Startups] file patents to signal worth … leave behind patents … for patent assertion entities to stifle innovation."[15]

PATHWAYS FORWARD: BALANCING PROTECTION AND ACCESS

To ensure the future success of startups, policymakers and industry leaders must confront patent clusters from multiple angles:

1. STRENGTHEN EXAMINATION STANDARDS

[14] Robert Chou, *Startups and Investors and Trolls, Oh My!: How Commercialization Patents Can Benefit Startup Innovation*, 17 Nw. J. Tech. & Intell. Prop. 349 (2020), scholarlycommons.law.northwestern.edu/njtip/vol17/iss3/2.

[15] Robert Chou, *Startups and Investors and Trolls, Oh My!: How Commercialization Patents Can Benefit Startup Innovation*, 17 Nw. J. Tech. & Intell. Prop. 349 (2020), scholarlycommons.law.northwestern.edu/njtip/vol17/iss3/2.

Patent offices, especially in India, should rigorously enforce Section 3(d) and limit secondary or trivial patents. By granting protection only for genuine innovations, they can regularly reduce overlapping patent density[16].

2. ENCOURAGE PATENT POOLING AND CLEARING HOUSES

Cross-licensing and patent pools can greatly simplify the process of negotiating multiple individual agreements. While still developing in India, successful models for essential medicines and telecom standards show the value of such policies. The industry and policymakers can support clearinghouses in fields like software, agri-tech, and electronics to democratize access to patented components[17].

3. BUILD UNIVERSITY STARTUP IP CENTRES

Governor Gehlot of Karnataka recently urged universities to establish internal IP infrastructure to advise startups, file reasonable patents, and responsibly commercialize innovations. Expanding such IP support centers can help limit unnecessary patent creation and prepare startups to manage licensing risks early on[18].

4. PROVIDE PATENT ALTERNATIVES FOR STARTUPS

Options similar to the proposed "small business commercialization patent" could allow startups to patent defensively without adding to assertion risks or thicket formation. These might have limited scope or duration, designed to give signaling benefits without inviting dense patent ecosystems[19].

5. ENHANCE POST GRANT AND OPPOSITION MECHANISMS

---

[16] Bhavpreet Soni, *Patent Thickets and Innovation*, Sonisvision Blog (Feb. 20, 2025), sonisvision.in/blogs/patent-thickets-and-innovation.

[17]Divya Shekar & Rimpu Malhotra, *A Closer Look at Patent Pools Amid India's Growing Prominence on the Global Monetisation Stage*, in Inside India's IP Market: A Guide 2025 (Law Bus. Rsch. 2025), iam-media.com/guide/india-managing-the-ip-lifecycle/2025/article/closer-look-patent-pools-amid-indias-growing-prominence-the-global-monetisation-stage.

[18] *Establish Intellectual Property Centres in Varsities: Governor*, The Times of India (June 29, 2025), timesofindia.indiatimes.com/city/bengaluru/establish-intellectual-property-centres-in-varsities-governor/articleshow/122134764.cms.

[19] Robert Chou, *Startups and Investors and Trolls, Oh My!: How Commercialization Patents Can Benefit Startup Innovation*, 17 Nw. J. Tech. & Intell. Prop. 349 (2020),scholarlycommons.law.northwestern.edu/njtip/vol17/iss3/2.

India's post-grant and pre-grant systems help protect against questionable patents, but awareness and usage are low. Making review mechanisms more accessible—and encouraging public interest challenges—can reduce dubious patents before they develop into thickets.

6. FOSTER OPEN INNOVATION AND TECH SHARING MODELS

Open innovation systems, such as the ones encouraged by the EU's Open Innovation 2.0 and India's emerging quadruple helix models (connecting government, academia, industry, and civil society), promote collaborative patenting approaches instead of exclusionary ones.

Technology sharing platforms, commons licensing, and open-source frameworks can help prevent the accumulation of patent thickets.[20]

CONCLUSION

The complex and extensive network of patent clusters, originally meant to protect innovation, has ironically become a significant barrier, especially for startups in knowledge-intensive sectors. This contradiction undermines the core purpose of the intellectual property regime: balancing the interests of inventors with those of the public. Research and industry analysis show that patent thickets now distort this balance, imposing excessive legal uncertainty and resource-heavy litigation on startups while making technology harder to access.

The Indian ecosystem, despite protections from Section 3(d) and a focus on compulsory licensing, remains at risk from this trend. Globally, the issue is more severe, with patent assertion entities and established firms using dense IP portfolios not for commercializing innovations but for blocking entire sectors. The overall result is not just a slowdown in startup activity; it leads to the stifling of innovation at its most promising stages.

Thus, there is a need to rethink the structure of patent law in startup economies. Patents should not be exclusionary tools that favour established players at the expense of future innovators. Instead, they need to evolve to support a more dynamic, open, and equitable innovation environment where protection does not exclude participation. This is not just a legal challenge but an economic necessity. If India and other emerging economies aim to lead in 21st-century innovation, they must dismantle the gatekeeping effects of patent clusters with careful and thoughtful action.

---

[20] *Untangling Patent Thickets: The Hidden Barriers Stifling Innovation*, TT Consultants Blog (June 26, 2024), ttconsultants.com/untangling-patent-thickets-the-hidden-barriers-stifling-innovation.