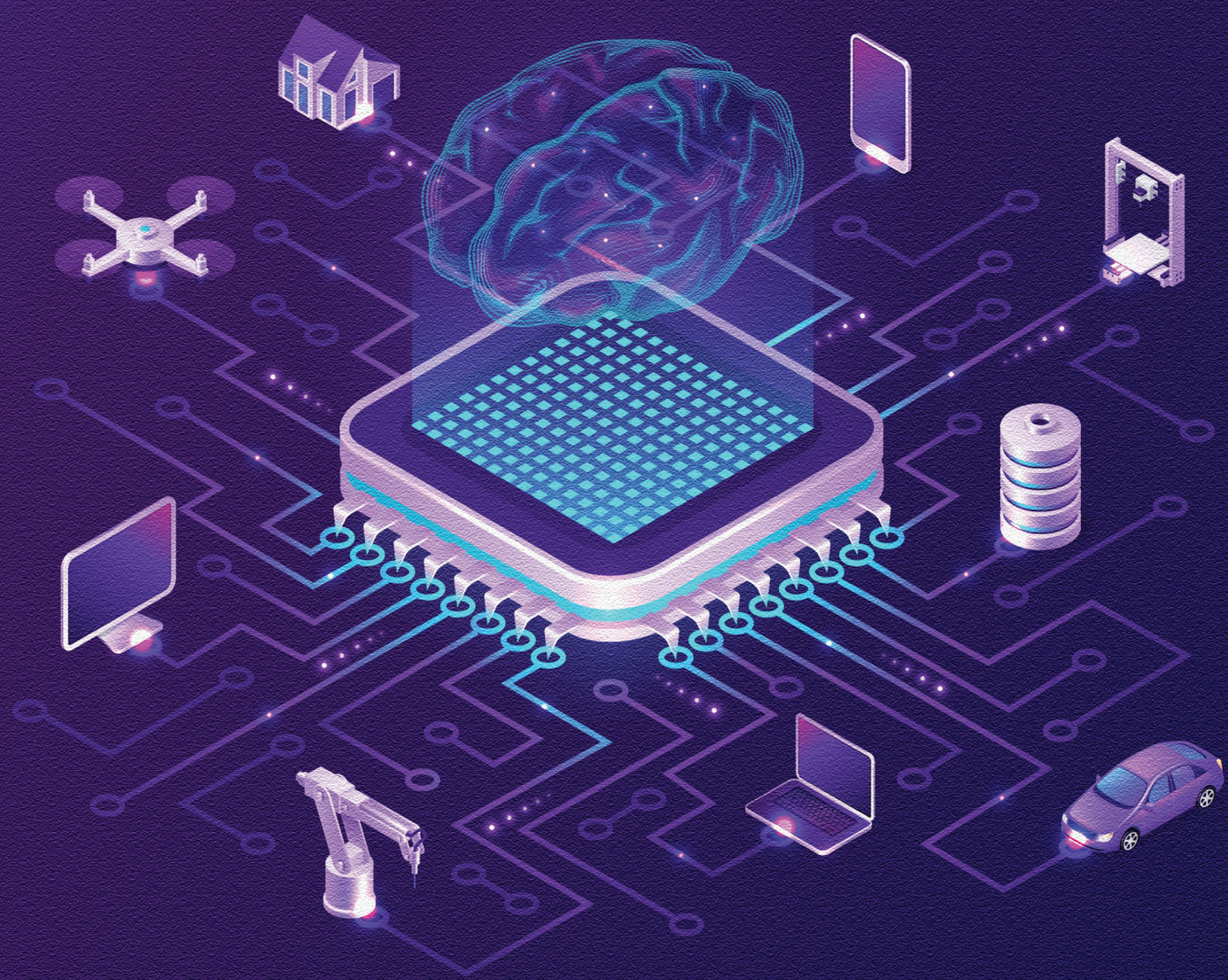
Qualcomm

Confederation of Indian Industry

A Comprehensive Report on

INDIAN DEEP-TECH STARTUP IP ECOSYSTEM



December 2025

Published by

i) Confederation of Indian Industry (CII), The Mantosh Sondhi Centre; 23, Institutional Area, Lodi Road, New Delhi 110003, India, Tel: +91-11-45771000; Email: info@cii.in; Web: www.cii.in; and

ii) Qualcomm Technologies, Inc., 5775 Morehouse Dr., San Diego, CA 92121, United States. Tel: +1-858-845-5959, Email: corpcomm@qualcomm.com, Web: https://www.qualcomm.com/

Foreword

The Confederation of Indian Industry (CII) has, over the years, undertaken several initiatives to strengthen India's innovation ecosystem and promote a culture of IP awareness to support research, entrepreneurship, and competitiveness. In partnership with Industry stakeholders, academia, and Government, CII works to create enabling conditions that allow ideas to be translated into technologies, products, and sustainable businesses.

India's startup ecosystem, now the world's third largest, is expanding rapidly, fuelled by digital transformation, entrepreneurial energy, and supportive Government initiatives. Startups are increasingly recognising Intellectual Property (IP) as a key driver of growth and competitiveness. With rising patent filings and greater focus on innovation, India is steadily evolving into a vibrant, IP-led innovation hub of global significance. The 'Comprehensive Report on Indian Startup IP Ecosystem', prepared in collaboration with Qualcomm, is an important step in this journey, focusing on a fast-emerging and strategically important segment of our innovation landscape: deep-tech startups.

Qualcomm's support through its QDIC (Qualcomm Design in India Challenge) and QWEIN (Qualcomm Women Entrepreneurship India Network) startup programmes has helped accelerate the maturation of a significant cohort of Indian deep-tech ventures. The startups profiled in this Report have benefited from mentorship, technical and financial support, as well as market connect, and together represent a concentrated source of IP creation. Qualcomm's database of supported firms includes 150+ startups with 602 patent applications filed in India and abroad. By using this data as the foundation for analysis, the Report provides a clear, evidence-based view of how IP is being generated, protected, and commercialised within India's deep-tech start-up community.

The key focus of the Report is therefore on highlighting strengths and patterns in IP activity among rapidly growing Indian deep-tech startups and surfacing insights to build policy, capacity building, and Industry interventions to sustain IP-led growth. I am confident that the findings and narratives presented herein will be informative to and of use for policymakers, Industry leaders, investors, and innovators alike. These findings not only show an increased IP intensity of deep-tech companies in India but also the power of targeted Industry programs and partnerships in translating research into protectable and potentially commercially viable inventions.

I trust this Publication will serve as both a reference and a catalyst to help shape policies and programmes that strengthen India's position as a global deep-tech hub and enable more startups to convert inventive ideas into enduring national and commercial value.

Chandrajit Banerjee
Director General, CII

Contents

Acknowledgements

The Confederation of Indian Industry (CII) would like to express its sincere gratitude to all the individuals and institutions who contributed to the preparation of "Comprehensive Report on Indian Startup IP Ecosystem". The report has greatly benefited from the expertise, guidance, and support extended by leaders from industry, academia, and the innovation ecosystem.

First, we would like to thank **Mr. Vivek Shah**, Vice Chairman, CII National Committee on Intellectual Property (2024–25) and CEO, Meril Life Sciences, for his encouragement and insightful inputs during this project.

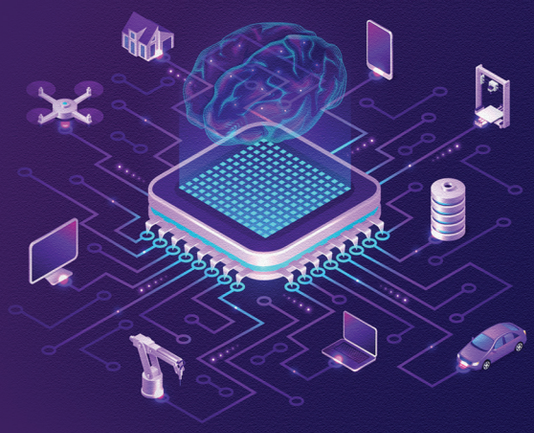
We would also like to thank the members of the Advisory Committee — **Mr. Rajesh Pathak**, Director General, Bharat 6G Alliance; **Dr. Ashish Bharadwaj**, Founding Dean, BITS Law School, Mumbai; and **Dr. Ajai Garg**, Head, Digital Tech and Law, Anand and Anand — for their valuable guidance and for highlighting key focus areas that have shaped the scope and direction of this report.

CII gratefully acknowledges the invaluable support of Qualcomm, whose collaboration made this study possible. We extend our sincere thanks to **Mr. Ram Krishnan**, Senior Director, Engineering; **Mr. Pushkar Apte**, Director, Business Development; and **Ms. Nivetha Ramesh**, Senior Project Analyst, for conceptualizing the need for this report, providing access to vital data, and continuously supporting CII throughout its preparation. Their efforts in mentoring and nurturing deep-tech startups under the QDIC and QWEIN programs have been instrumental in advancing India's innovation landscape.

From CII, Mr. Raghvendra Saha, Senior Advisor; Ms. Nabanita Mukherjee, Director; and Mr. Rajarshi Bhowal, Associate Counsellor – IPR, worked on the conceptualization, research, surveys, data analysis, and drafting of this report. Their collective inputs were integral to the development of this study.

This report stands as a reflection of the collective contributions of all partners and experts involved. It is hoped that the findings and insights presented here will serve as a valuable resource for policymakers, industry leaders, and innovators, and will contribute to strengthening India's position as a global deep-tech innovation hub.

Executive Summary



Overview

This report dives into the intellectual property portfolios of deep-tech Indian startups, using the database and information provided by Qualcomm from its ongoing support to start-ups based in India in the deep-tech area under its programme QDIC (Qualcomm Design in India Challenge) and QWEIN (Qualcomm Women Entrepreneurship India Network) initiatives. It finds that the innovation ecosystem is rapidly maturing, with strategic IP development, aspirations to enter international markets, and a growing technological competitiveness.

Please Note: This patent study focuses on a patent dataset of startups supported by Qualcomm through its QDIC and QWEIN programs. Out of 150 startups, 88 possess active patents (patent data as of April 2025) and were therefore included in the patent analysis. Two surveys were conducted among these 88 startups, yielding responses from 33 participants. The findings and insights presented in this report are based on the analysis of these survey responses.

Portfolio Maturity and Strategic Sophistication

Patent filings surged from just 1 in 2016 to nearly 200 by 2024 - A 200X innovation leap.

With 45% of patents already granted, Indian deep-tech startups exhibit exceptional IP maturity. This ratio is unusual in emerging markets and is a sign of high-quality filings. 85% of the portfolio mix is made up of patents, with 15% coming from industrial designs, which demonstrate advanced protection techniques. Comprehensive IP approaches are confirmed by survey data: 90% of respondents maintain trademarks, 80% own copyrights, 70% file designs, and 50% use trade secrets, indicating IP literacy that is uncommon in early-stage businesses worldwide.

Startups can be divided into three maturity categories: pipeline-heavy innovators creating significant future assets, balanced portfolios occupying the strategic growth "sweet spot," and high-grant portfolios indicating commercialization readiness. Importantly, over 95% of patents are planned for future integration, and 65% actively use all patents for commercial purposes. This demonstrates that IP is a strategic business asset rather than a defensive filing.

Qualcomm-supported ventures, representing 88 out of India's 6,290 deep-tech startups (about 1.3%), have contributed a significant 5% of all startup patent filings, illustrating the effectiveness of focused mentorship and IP support in driving high-quality innovation and IP creation within the nation's 1.57 lakh startup ecosystem.

90% of surveyed startups maintain Trademarks, 80% own Copyrights, 70% file Designs, and 50% use Trade Secrets.

India's patent grant time has dropped 5x — from over 6 years to just 1: Unlocking Faster Innovation.

Sectoral Innovation Clusters

Healthcare and diagnostics anchor India's deep-tech innovation, with companies like Adiuvo Diagnostics, Janitri, Dozee, Bioscan, and Blackfrog demonstrating exceptional patent portfolios. Nearly half of top-performing startups maintain healthcare patents, reflecting evolution from mechanical devices to AI-integrated, sensor-driven platforms in affordable medical technology.

> Healthcare, AI, and Sensors form the IP Backbone of India's Deep-Tech Startup Ecosystem.

Artificial Intelligence functions both as standalone vertical and horizontal enabler, with over 40% of startups integrating AI into patented inventions. This dual nature signals India's transition from hardware-only innovation to intelligence-embedded systems with proprietary ML models and perception algorithms.

Semiconductors and electronics represent a particularly significant development, with Steradian, Innogle, and Dimension NXG building deep-tech hardware portfolios which is rare in India and it's contributing automotive radar, perception systems, and core electronics IP.

Following Drone Rules 2021, robotics, drones, and autonomous systems have become powerful clusters, with Aereo (AUS), Ubifly, Hachidori, and Planys creating internationally competitive intellectual property. Wearables, automotive systems, and industrial automation across industries are all powered by sensors and actuators.

Healthcare, AI, and sensors together account for 60–65% of all filings, making up the intellectual property core of Indian startup innovation.

Exponential Growth Trajectory

As a result of the exponential adoption of strategic patenting, the number of patent publications has increased from 1 in 2016 to almost 200 in 2024. The turning point happened in 2021–2022, which was also the year of the pandemic-driven deep-tech boom, startup fee refunds, accelerated examination procedures, and the momentum of the National IPR Policy. According to current trends, India may rank among the top 5 global innovation economies by the early 2030s, with cumulative patents from these startups expected to reach 1,000 within three to four years.

Dramatic Grant Timeline Improvement

India's grant efficiency has improved by 5 times, or 83%, from more than 6 years (2016) to about 1 year (2023). 73% of patents are awarded in a span of one to three years, placing India on par with world leaders like the US and Japan. Startups are now able to pursue earlier licensing, show IP ownership more quickly during investor due diligence, and turn IP from a legal lag into an active strategic advantage.

Global Market Ambitions

Strong scalability intent is indicated by multi-jurisdictional protection strategies. Adiuvo Diagnostics is a prime example of global ambition with filings across 34 patent families in multiple jurisdictions which is unprecedented breadth for an Indian startup. International filings are dominated by the US, PCT, and European Patent Office (as observed in patents' expanded family dataset). With the healthcare, AI, and radar sectors spearheading foreign protection strategies, the PCT + US + EP combination has emerged as the gold standard for globally ambitious endeavours.

Adiuvo Diagnostics patents spans 34 families across multiple countries—setting a new benchmark for international IP reach.

Startups Like Cradlewise (58 Citations) and Lightmetrics (35+) show citation levels typical of Global-Scale Innovation Portfolios.*

Innovation Impact and Knowledge Export

Analysis of forward citations shows that Indian patents have a significant impact on international innovation. Businesses with impact levels typical of global-scale portfolios include Lightmetrics (35+ citations) and Cradlewise (55+ citations)*. With more than 30 citations, patents are influencing global R&D and signalling India's shift from "Make in India" to "Invent in India." The most globally relevant innovation fronts are wearables, healthcare, and AI-driven mobility.

**Forward citation metrics may be less reliable at this small sample size, as citation patterns can take time to develop and may not yet reflect the long-term significance of recent filings.*

IP as Funding Catalyst

70% of startups attribute patent portfolios to successful funding acquisition, with up to 50% of funding originating from government programs (Startup India Seed Fund, BIRAC, DST-NIDHI, MeitY TIDE 2.0). Nearly every survey respondent confirmed that patenting directly contributed to company valuation, investment attraction, and commercialization, positioning patents as trust signals for investors rather than defensive mechanisms. Startups with diversified IP portfolios consistently access multiple funding sources, confirming that investors reward comprehensive IP strategy.

Patents Drive Funding: 70% of startups link IP to investment success, with government schemes backing nearly half.

Women-Led Teams are Driving High-IP innovation in deep tech - proving impact scales with inclusion.

Gender Diversity

Mixed-gender teams make up 25–30% of IP-generating startups, whereas women-only founders make up 10–12%. Crucially, teams led by women exhibit a high level of intellectual property intensity in high-tech fields such as Adiuvo Diagnostics, Bioscan Research, Innogle Technologies, and Ashva Wearable, confirming material innovation output when women lead. QWEIN's role in mentorship and IP training emerges as strategically important for expanding women-led, IP-intensive ventures aligned with inclusive innovation goals.

Persistent Challenges

Despite progress, from the conducted survey, startups identify challenges including capital access for deep-tech hardware (as seen in survey responses), limited manufacturing infrastructure, regulatory bottlenecks (clean-tech/medtech), investor mindset gaps regarding IP-driven models, talent scarcity, and high patent drafting costs. Despite eligibility, there are still awareness gaps about Government Patent Facilitators, Central and State Govt. IP supporting schemes (as seen in survey responses), which suggests that outreach needs to be improved.

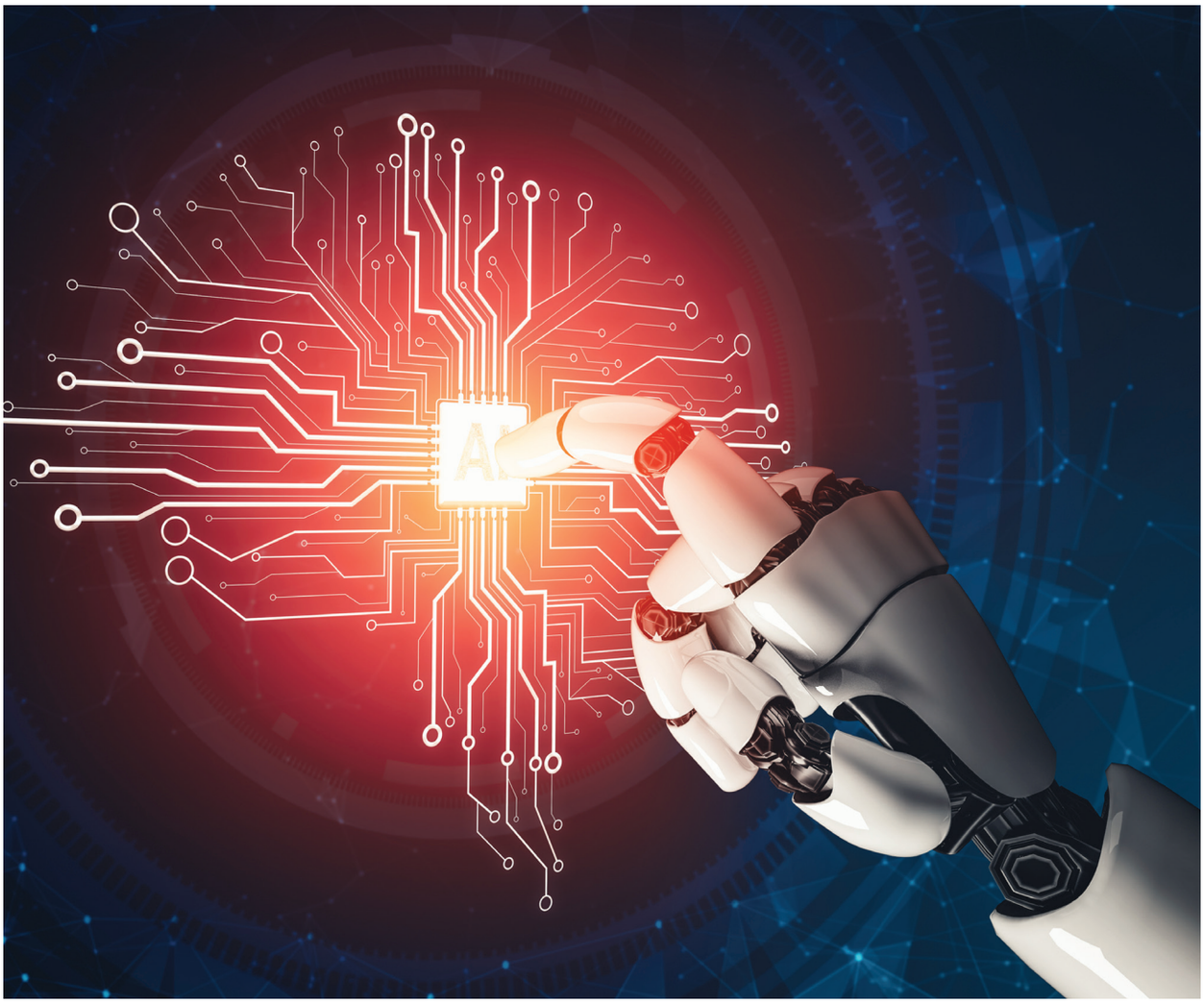
University-linked deep-tech startups are emerging as key innovation drivers, often spun out of premier academic institutions. However, more startup-friendly licensing and co-ownership frameworks are needed, as several patents remain solely under university ownership leading to limiting commercialization potential. Strengthening these pathways can unlock greater IP-to-market translation.

Startups still face capital access issues for deep tech hardware, limited manufacturing infrastructure, regulatory bottlenecks, talent scarcity, and high patent drafting costs.

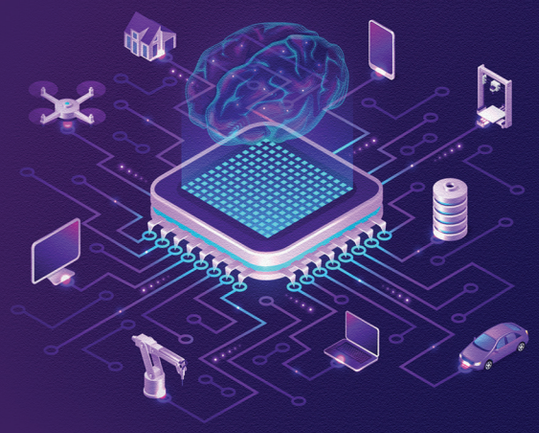
Conclusion

The deep-tech startup scene in India is at a turning point, moving from early-stage innovation to strategic IP-led competitiveness. The increasing use of multi-jurisdictional filings, commercial integration of patented technologies, and comprehensive IP strategies is indicative of a developing perspective in which intellectual property is essential to both business development and international expansion. In addition to enhancing India's capacity for domestic innovation, this development is establishing Indian startups as reliable contributors to international R&D and developing technology value chains.

However, sustaining this momentum requires continued policy support, especially in areas like deep-tech funding access, IP facilitation for global filings, and more proactive commercialization pathways through academia-industry partnerships. It will be crucial to increase public awareness and participation in government programs, remove regulatory obstacles, and expand gender-inclusive innovation initiatives. This report shows that targeted interventions, like those under QDIC and QWEIN, can help India become a top-tier global innovation economy based on strong, scalable, and inclusive IP creation.



What is Deep-Tech?



Deep technology, or deep tech, represents a paradigm shift from incremental innovation to transformative breakthroughs, rooted in substantial scientific and engineering progress. Unlike digital surface applications or consumer-focused platforms, deep tech ventures are built on fundamental research in fields like artificial intelligence, quantum computing, advanced materials, biotechnology, robotics, semiconductors, space technology, wireless communications and industrial IoT. These deal with complex, often previously unsolved problems ranging from contactless patient monitoring and autonomous underwater inspection to millimetre-wave radar chips and AI-powered diagnostic systems, which take many years of R&D, significant capital investments, and specialized inter-disciplinary expertise before commercialization takes place. Deep tech startups are characterized by long research and development cycles resulting in the generation of proprietary intellectual property.[1][2][3]

India, today, has emerged as a global powerhouse in the deep tech ecosystem, from being an IT services back office to a frontier innovation hub. As of 2025, India hosts more than 6,290 deep-tech startups[4], expected to reach 10,000 by 2030,[5] making it the third-largest startup ecosystem in the world and ranking 6th among deep-tech ecosystems around the world.[6] This remarkable growth trajectory of 53% CAGR[7] over the last decade-has been catalysed by decisive government interventions comprising the National Deep Tech Startup Policy (NDTSP), ₹1 lakh crore Anusandhan National Research Foundation corpus for R&D,[8] ₹20,000 crore Deep Tech Fund of Funds announced in Union Budget 2025-26,[9] and flagship initiatives such as IndiaAI Mission (₹ 10,300 crore),[10] National Quantum Mission (₹ 8,000 crore)[11] and the Production Linked Incentive (PLI) Schemes for semiconductors and electronics manufacturing.[12] In 2024 alone, Indian deep-tech startups raised $1.6 billion in funding, which is a 78% year-on-year increase, with 87% towards AI-led ventures.

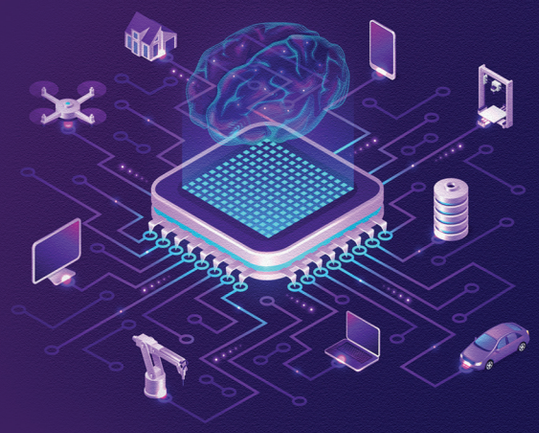
As of 2025, India hosts more than 6,290 deep-tech startups, expected to reach 10,000 by 2030, making it the third-largest startup ecosystem in the world and ranking 6th among deep-tech ecosystems around the world.

Premier institutions such as IIT Madras have become the epicentres of deep-tech entrepreneurship, launching over 100 startups annually and filing patents.

Premier institutions such as IIT Madras have become the epicentres of deep-tech entrepreneurship, launching over 100 startups annually[13] and filing patents. India's deep tech strength touches sectors addressing critical national priorities such as: healthcare innovation-maturity in contactless patient monitoring by Dozee; and AI-driven diabetic retinopathy screening by Artelus; Industrial Automation-ultrasonic sensors

by Xyma Analytics and autonomous mobile robots powered by Hachidori Robotics; Defence and Aerospace-mmWave radar by Steradian Semiconductors, XR training systems by Dimension NXG and DGCA-certified drones by Aereo Sustainable Infrastructure underwater inspection robots by Planys Technologies and ocean IoT Platforms by Innogle. With Bengaluru accounting for 25-30% of India's deep-tech startups[14] and government initiatives like Karnataka's INNOVERSE[15] campus positioning the state as Asia's Deep Tech capital, India is gradually transitioning from being a consumer of technology to becoming a global exporter of cutting-edge innovations which solve the most burning problems faced by humanity.

Indian Startup Support Schemes



India's national and state patent support schemes act as a strong backbone in nurturing innovation and protecting intellectual property among startups. From the SIPP program initiated by DPIIT[16] to various state-led reimbursement policies, these provide substantive financial benefits in the form of subsidized filing fees, facilitator support, and grants for both national and international patent filings.

For deep-tech startups, where high-cost, R&D-intensive inventions happen, it improves the accessibility to such programs and helps gain a competitive advantage by offering timely patent protection.

Despite the impact that has been created, many of these schemes remain underutilized, particularly among deep-tech ventures. Awareness and uptake of such schemes can help enable startups in the protection of their inventions, reduce the stress on finances, and actively contribute toward India's growing patent landscape. Startups in India should actively leverage the wide range of central and state government schemes that offer financial assistance for patent filing and IP protection. These programs significantly reduce the cost burden associated with both domestic and international patent applications—an area where many startups hesitate due to high expenses. By tapping into these incentives, startups not only secure their innovations affordably but also gain opportunities to file patents globally, helping them build international credibility, attract investors, and expand their market presence beyond India.

Table 1: Central Schemes

Scheme (Agency)	Key Features	Financial Support	Eligibility
SIPP – Startups IP Protection (DPIIT)[17]	Empanelled patent facilitators for startups (patent/design/trademark); Govt pays facilitator fees	Startup pays only reduced statutory fees; government covers facilitator charges (e.g. ~₹10K at patent filing/disposal)	DPIIT-recognized startups (newly registered)
MSME Innovative Scheme (Min. of MSME)	Reimbursement of IP registration costs (patents, trademarks, designs, GI) for MSMEs; IP Facilitation Centres are also funded	Up to ₹1,00,000 per granted Indian patent and ₹5,00,000 per foreign patent (also covers foreign TM/design filings)[18]	Udyam-registered MSMEs (and startups in MSME category)
Patent Facilitation Programme (PFP) (DST-TIFAC)[19]	State-level Patent Info Centres under DST/ TIFAC; assists academic and government R&D institutions to file patents	DST fully bears patent filing and prosecution costs for eligible institutions (no fixed reimbursement cap)	Government-funded R&D institutions and academic institutes

Scheme (Agency)	Key Features	Financial Support	Eligibility
BIRAC-PATH (DBT-BIRAC)	IP support for biotech/ health startups (especially BIRAC grantees); covers patent search, drafting, filing, and post-grant tech transfer help	Grant covers full Indian patent filing and PCT/convention filing costs (plus partial maintenance fees for 2 years); also reimburses eligible expenses incurred from application date	Biotech/health startups and entrepreneurs (esp. BIRAC-funded projects)
NRDC Patent Assistance (PIII) (NRDC, DPIIT)	Grant-in-aid for patent protection; aids inventors to prosecute patents to grant	Financial assistance up to patent grant/registration (no fixed cap; covers filing and legal fees)	Individual innovators, academia, R&D institutions, startups, grassroots inventors
KAPILA – Kalam Program for IP Literacy (MoE-Innovation Cell/ AICTE)[20]	IPR awareness in higher-education institutions; promotes patent filings by students/faculty	Reimburses 50% of patent application costs (filing + examination); max ₹1.12 lakh per institution per year; supports up to 40 patents per institute per year	Students and faculty of UGC/AICTE-recognized higher education institutions
PACE (Patent Acquisition & Collaborative R&D; DSIR/DST)[21]	Catalyzes industry–institute collaboration and technology development; supports acquisition of technology/patents and prototyping	Secured loans and grants (total DSIR support up to ₹5.00 crore per project); DSIR covers part of costs including prototype/pilot development and IPR protection; loan at ~12% (DSIR subsidizes interest to ~3%)	Indian industries (≥51% Indian-owned) and R&D institutions partnering with industry
CSIR Innovation Protection Unit (IPU)[22]	Central IP cell for CSIR; manages patenting and IPR for inventions from CSIR labs (fileing, prosecution, global portfolio)	CSIR funds all patent and IP protection costs for CSIR-origin inventions	CSIR laboratories/ institutes and CSIR-funded projects (e.g. NMITLI, EMR schemes)
TDB – Technology Development Board (DST)[23]	Equity/loan funding for commercialization of technology; enables R&D and technology startups to scale (technology development/adaptation)	Equity investment up to ~25% of project/company; loans at 5% interest; costs of patent filing (IN/PCT) can be included as eligible project expenses	Tech-based startups and companies with innovative projects (Indian-registered)

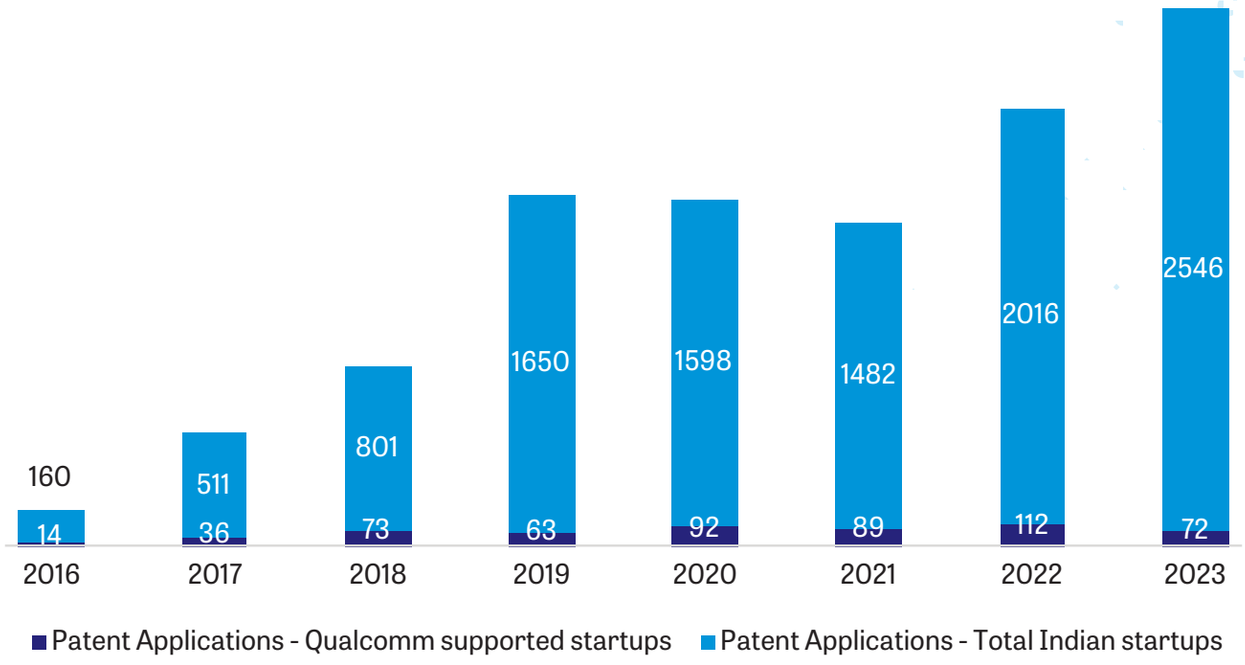
Scheme (Agency)	Key Features	Financial Support	Eligibility
NIDHI-PRAYAS (DST-NSTEDB)[24]	Prototype grant program for young innovators; provides mentorship, workspace and IP support	Grant up to ₹10,00,000 per innovator for prototyping (fully funded fellowship); includes IP facilitation support	Individual innovators (or startup founders) who are Indian citizens meeting NIDHI criteria (e.g. early-stage tech idea)
Atal Innovation Mission (AIM) (NITI Aayog)[16]	National innovation umbrella: funds incubators and challenge grants (AIC/ACIC, ANIC/ARISE, etc.), plus mentorship and network support	Grants for setting up Atal Incubation Centres (seed/ operational funding) and challenge-based grants for startups; no direct patent reimbursements (ecosystem support)	Host institutions (for incubators) and startups/MSMEs applying to AIM challenges (innovation potential and team evaluated)

Table 2: State Schemes

State	Max Reimbursement (Indian / Foreign)	Disbursement Details	Implementing Body
Karnataka[25]	₹2.0 lakh / ₹10.0 lakh	Paid upon patent grant (full amount)	Karnataka Startup Cell (KSDA)
Kerala[23]	₹2.0 lakh / ₹10.0 lakh	Staged: portions at filing, prosecution, and grant	Kerala Startup Mission (KSUM)
Uttar Pradesh[26]	₹2.0 lakh / ₹10.0 lakh	Paid after patent is awarded (grant)	StartInUP (UP Govt Dept. of IT & Electronics)
Telangana[27]	₹2.0 lakh / ₹10.0 lakh	100% after patent grant	Telangana Innovation Cell (Startup Telangana)
Tamil Nadu[16]	₹2.0 lakh / ₹10.0 lakh	75% after patent filing; remaining 25% after grant	TN Startup Mission / State Council for S&T (IP Cell)
Gujarat[28]	75% of patent cost (capped at ₹25.0 lakh/applicant) (domestic); 75% (same cap) for foreign	50% after publication/ notification, 50% after grant	Dept. of Industries & Mines (Gujarat) (GUJCOST IPFC)

State	Max Reimbursement (Indian / Foreign)	Disbursement Details	Implementing Body
Goa[29]	₹2 lakh / ₹5 lakh (start-ups) 50% of fees (MSMEs, up to ₹15 L)	A total reimbursement of up to ₹ 25,00,000 per unit for the expenses incurred towards the filing of patents during the policy period.	Goa Startup Policy Department of Information Technology, Government of Goa
Odisha[28]	Startups will be reimbursed 100% of the patent registration cost up to maximum of Rs.10 Lakhs as per the Odisha Industrial Policy 2015.[30]	Staged: 50% at filing, 50% at grant	Startup Odisha / MSME Dept.
Madhya Pradesh[29]	₹2.0 lakh / ₹5.0 lakh[31]	Staged: 50% at filing, 50% at grant	MP Startup Centre / Dept. of MSME
Haryana[32]	Up to INR 3 Lakhs per national patent / Up to INR 10 Lakhs per international patent. Maximum cumulative reimbursement of INR 25 Lakhs for all patents granted within 5 years.	Full reimbursement after grant	Startup Haryana / Dept. of Industries
Andhra Pradesh[33]	₹2.0 lakh / ₹10.0 lakh	Reimbursed after proof of grant	AP Innovation Society / APIIC
Maharashtra[34]	₹2.0 lakh / ₹10.0 lakh	50% after filing, 50% after grant	Maharashtra State Innovation Society (MSInS)
Chhattisgarh[35]	₹2.0 lakh / ₹10.0 lakh	Reimbursed after patent is granted	Startup Chhattisgarh / CSIDC
Rajasthan[36]	Reimbursement up to 75% of the costs of acquiring patents up to INR 5 lacs to be provided.	Claimed after patent grant	iStart Rajasthan / Dept. of IT & Communications
Punjab[37]	75% of the expenses subject to 10 lakh for domestic patent and 20 lakh for international patent	One-time grant post grant	Dept. of Industries & Commerce

Fig. 1: Total Indian Startup Patent Applications

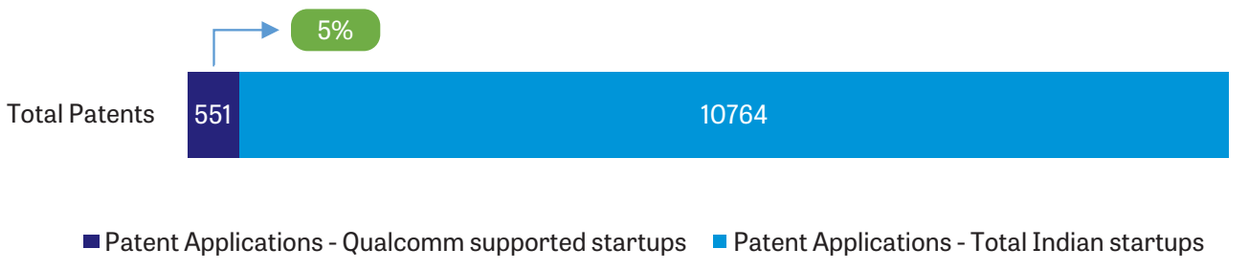


The QDIC and the QWEIN are flagship incubation programs, which support startups with finances and cutting-edge technology in their innovative ideas, fostering deep-tech hardware innovation in India. Every shortlisted startup in QDIC 2023 receives an initial grant of ₹1.6 lakh, followed by a mid-incubation top-up of ₹1.6 lakh based on the achievement of milestones. Finalists can win up to ₹65 lakh, while winners receive ₹50 lakh, ₹30 lakh, and ₹20 lakh, respectively. Other benefits include IP filing incentives of up to ₹1.6 lakh for India or US applications, access to the Innovation Commercialisation Fund, mentorship workshops, government connects, and opportunities to attend major industry events, taking the value of the program to nearly ₹1 crore per startup.[38]

Qualcomm-supported ventures, with 88 (~1.3% of indian deep tech startups) of them holding patents, have contributed 5% of all startup patent filings.

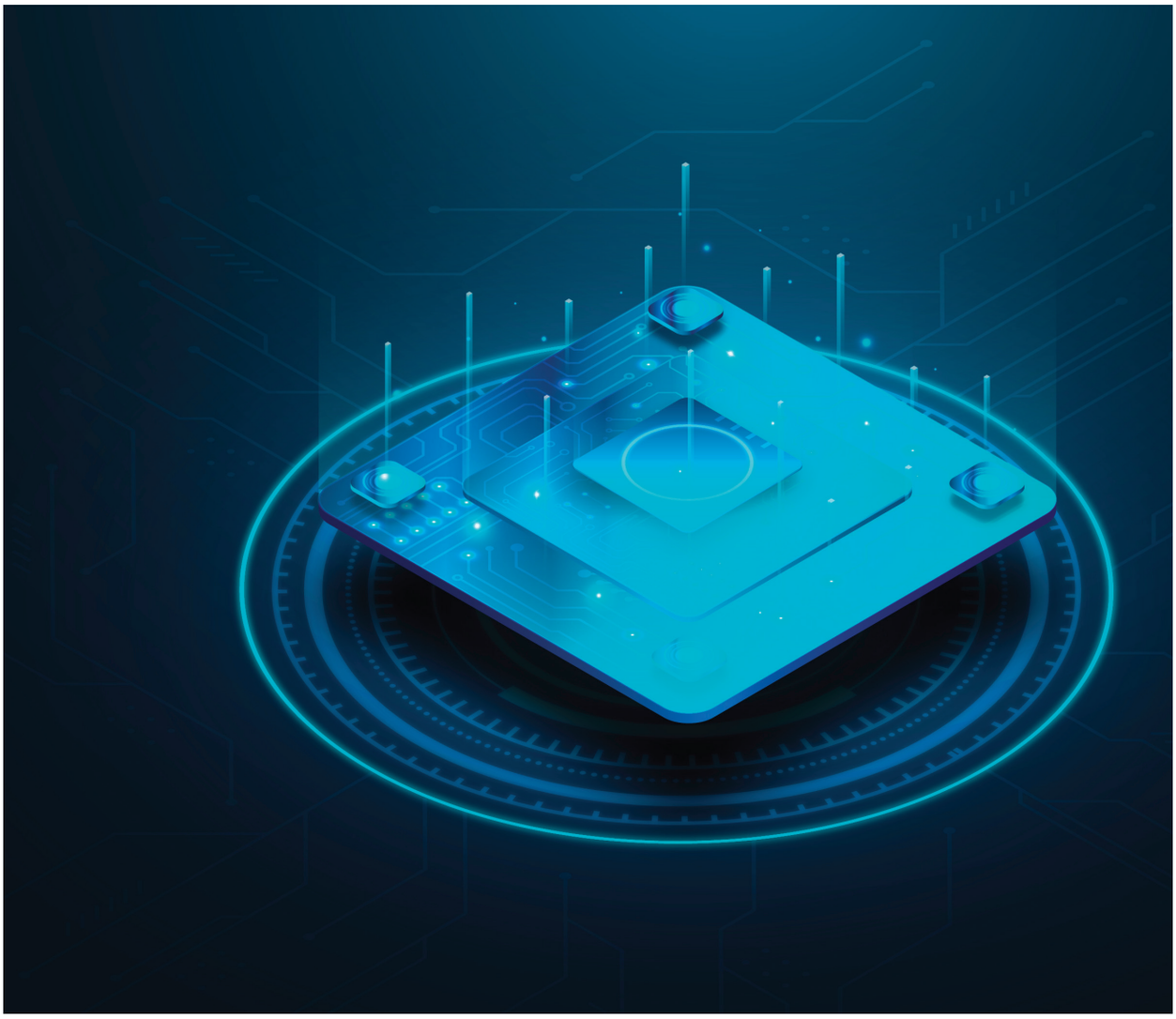
Qualcomm's programs have created a "Supercluster" of IP generators, punching far above their weight.

Fig. 2: Total Indian Startup Patent Applications - (Cumulative 2016-2023)

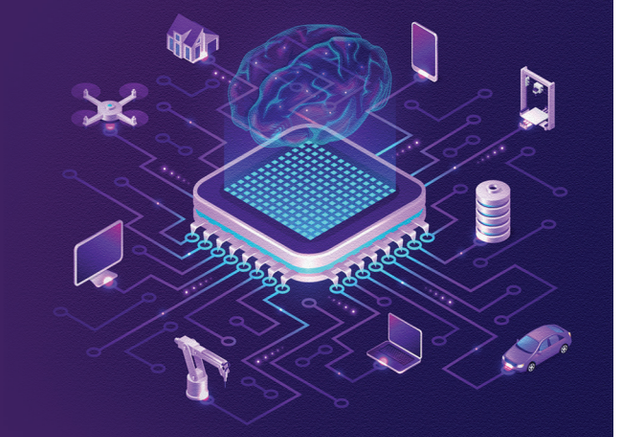


Participants chosen through these programs are given access to Qualcomm's Snapdragon processors, radio chipsets, embedded software, and other enabling technologies-all resources many alumni identify as the foundation of their products. Of India's 6,290 deep-tech startups, which contribute significantly to IP creation among the country's 1.57 lakh startups as of 2024[39], Qualcomm-supported ventures, with 88 (~1.3% of Indian Deep tech startups) of them holding patents, have contributed 5% of all startup patent filings. This output from a single incubation program illustrates how focused mentorship, combined with enabling technologies and IP support, can lead to high-quality, commercially successful, innovation-driven ventures.

To continue and amplify this momentum in the ecosystem requires increased awareness and adoption of such programs, particularly the central and state government IP support schemes. Raising the level of awareness among startups about the resources available for protection and commercialization of their innovations will be important for strengthening India's position as a global innovation hub.



Approach and Methodology



Research Methodology

This report assesses the intellectual property and innovation landscape of deep tech startups supported by Qualcomm under their start-up incubation programs. The methodology adopted has provided a structured and evidence-based assessment, combining primary data, patent analytics, and secondary research sources.

Scope and Dataset

Qualcomm prepared a list of 150 deep tech startups incubated and supported over different cohorts of QDIC and QWEIN. There are 602 patents granted to 88 start-ups out of the 150 start-ups. These start-ups provided information on IP filings, granted patents, jurisdictions of filing, invention titles, technology classifications, and related metadata. This dataset constituted the starting point for assessing the innovation output and technology orientation of the selected startups.

Project Governance

Several consultations were held between CII and Qualcomm for defining the scope and, methodology to be followed. A meeting was also conducted with Mr. Rajesh Pathak (Director General, Bharat 6G Alliance), Dr. Ashish Bharadwaj (Founding Dean, BITS Law School, Mumbai), and Dr. Ajai Garg (Head, Digital Tech and Law, Anand and Anand) to take their advice on the important subject matters to be addressed. Their inputs were instrumental in identifying key focus areas, refining the analytical framework, and shaping the scope and direction of the report.

Patent and IP Data Analysis

A structured analysis of the 602 patents dataset was undertaken to:

- Map the distribution of filings and grants across Indian and international jurisdictions.
- Identify technology domains, trends and clusters using international patent classification codes.
- Determine IP maturity levels, portfolio strengths, and innovation trajectories of startups over time.

This assessment helped highlight technology focus areas such as wireless communications, IoT, AI/ML, semiconductor design, robotics, AR/VR, and cybersecurity.

Primary Interactions and Surveys

Following the patent analysis, interactions were conducted with startups to gain qualitative insights into IP strategy, commercialization, and ecosystem enablers. Two surveys were conducted:

- **Survey 1** captured information on IP registration status, filing strategies, utilization of patents in business growth, and the role of government and private funding in supporting innovation.
- **Survey 2** focused on the impact of patents on scaling, investment access, product commercialization, and expanding to both domestic and global markets, plus challenges with sustaining IP development.

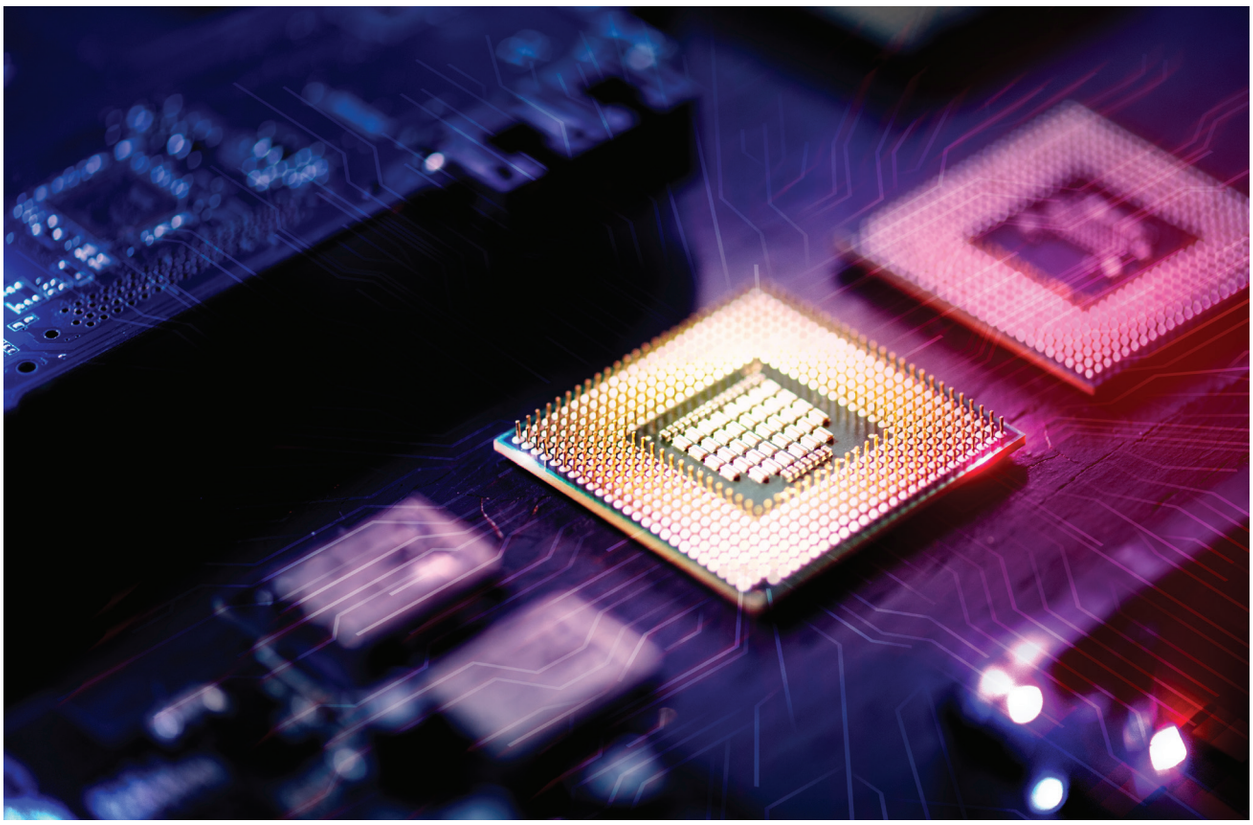
These inputs provided perspective on how startups perceive and leverage IP as a strategic asset.

Secondary Research

Secondary sources of information included, but were not limited to, Tracxn, Pitchbook, Crunchbase, LinkedIn, TechCrunch, CBInsights, Times of India, Financial Express, Livemint, Economic Times, YourStory, and PIB Delhi. This secondary research was useful in the validation of company profiles, funding rounds, product maturity, strategic partnerships, and market positioning.

Outcome

Patent analytics, direct startup insights, industry surveys, and secondary market data were put together to provide a comprehensive overview of how IP shaped the growth pathways of Qualcomm-supported deep tech startups and identified emerging trends and opportunities in the ecosystem.



Top 15 Qualcomm Supported Deep-tech Startups – Snapshot

Adiuvo Diagnostics

1. **Founding Year & Founders:** 2015; Geethanjali Radhakrishnan
2. **Core Technology / Focus Area:** Point-of-care wound assessment device and label-free diagnostics, Predictive Vision AI IoT Platform
3. **Funding Received:** QDIC 2020 Winner, BIRAC, Villgro Innovation Foundation, Venture Centre Pune, Menterra and Artha Limited
4. **Products Commercialised:** Illuminate BIO
5. **Patent Count:** Granted = 30; Published = 20

Steradian Semiconductors

1. **Founding Year & Founders:** 2016; Gireesh Rajendran, Apu Sivadas, Alok Joshi, Ashish Lachhwani, and Rakesh Kumar
2. **Core Technology / Focus Area:** 4D Imaging Radar for ADAS, Predictive Vision AI IoT Platform

3. **Funding Received:** QDIC II Cycle 1 winner, Endiya Partners, Karnataka Startup Cell, Inflexor Technology Fund-Pre Series A (SIDBI/Survam Partners), Visteon[40]
4. **Products Commercialised:** SVR4410 and SVR4414
5. **Patent Count:** Granted = 25; Published = 7

**Top 15 selected based on patent count*
***Please refer to Annexure I for more company details*

Dimension NXG

1. **Founding Year & Founders:** 2014; Pankaj Raut, Abhijit Patil, Abhishek Tomar, Gaurav Godbole
2. **Core Technology / Focus Area:** Mixed Reality (MR)/Augmented Reality (AR); AI/Cognitive Systems; Human Interface. Industrial training and Skill Development using VR/XR
3. **Funding Received:** QDIC 2018 finalist, Angel-backed by PayTM founder Vijay Shekhar Sharma, Sixth Sense Ventures partner Japan Vyas, Khimji Ramdas Group owner Nailesh Khimji, and Kajaria Ceramics Joint MD Chetan Kajaria, among others.
4. **Products Commercialised:** AjnaLens – AjnaXR PRO, AjnaXR SE, AjnaVidya (learning platform)
5. **Patent Count:** Granted = 11; Published = 21

Planys Technologies

1. **Founding Year & Founders:** 2015; Tanuj Jhunjhunwala, Vineet Upadhyay, Rakesh Sirikonda, and professors Krishnan Balasubramanian and Prabhu Rajagopal
2. **Core Technology / Focus Area:** ROV Fleet for Smart underwater inspection
3. **Funding Received:** QDIC 2020 First Runner-Up, India's IDEX, Ashish Kacholia, Samarthya Advisors, Golden Birch Investments, Cogniphy Angel Fund, Krishna Defence, and Impact India Investment Partners LLC
4. **Products Commercialised:** ROVs – Orca, Beluga, Trikhand, Jal Avlokini. AUVs – Svaayatt, Tritanta
5. **Patent Count:** Granted = 26; Published 5

Aereo

1. **Founding Year & Founders:** 2013; Vipul Singh, Suhas Banshiwala, Nikhil Upadhye, Yartha Yeswanth Reddy
2. **Core Technology / Focus Area:** Drone mapping, analytics, mining, construction
3. **Funding Received:** QDIC 2016 finalist, Qualcomm Innovation Lab, StartupXseed Ventures, 3ONE4 Capital
4. **Products Commercialised:** Aereo – INP, ZFR
5. **Patent Count:** Granted = 15; Published = 9

Turtleshell Technologies (Dozee)

1. **Founding Year & Founders:** 2015; Mudit Dandwate, Gaurav Parchani
2. **Core Technology / Focus Area:** Hospital/Home-bed remote vitals monitoring
3. **Funding Received:** Prime Venture Partners, YourNest VC, 3one4 Capital, with new investors State Bank of India, J&A Partners family office, and Dinesh Mody Ventures
4. **Products Commercialised:** Dozee, Dozee Pro, Dozee VS
5. **Patent Count:** Granted = 5; Published = 16

Janitri Innovations

1. **Founding Year & Founders:** 2016; Arun Agarwal
2. **Core Technology / Focus Area:** Portable fetal heart rate, contraction monitoring
3. **Funding Received:** Ashish Kacholia - pre-Series A funding
4. **Products Commercialised:** Momi, Navam baby monitor, Keyar DR Lite, Keyar Echo, Blood pressure monitor.
5. **Patent Count:** Granted = 13; Published = 5

Artelus

1. **Founding Year & Founders:** 2015; Pradeep Walia, Rajarajeshwari Kodhandapani, Vish Durga and Lalit Pant
2. **Core Technology / Focus Area:** Diabetic retinopathy screening device
3. **Funding Received:** Winner of Qualcomm Design in India Challenge 2018
4. **Products Commercialised:** DRISTi, Hansanet, NIMI, Fundus & OCT imaging devices, NFC600, NFC700, LHCP-40
5. **Patent Count:** Granted = 10; Published = 8

Xyma Analytics

1. **Founding Year & Founders:** 2019; Dr. Nishanth Raja, Prof. Krishnan Balasubramanian, and Prof. Prabhu Rajagopal
2. **Core Technology / Focus Area:** ultrasonic and waveguide-based sensing, real-time fluid and material property monitoring
3. **Funding Received:** Qualcomm QDIC 2021 finalist, GAIL, SHELL and venture capital funds such as 8x Venture, Sophonos and Venture Catalyst, besides a few angel investors, IIT Madras and TDB
4. **Products Commercialised:** µTMaps / µSTMaps, PoRTS, Ztar ultrasonic level sensors, I-PAMS
5. **Patent Count:** Granted = 7; Published = 9

Ubifly Technologies

1. **Founding Year & Founders:** 2019; Prof. Satyanarayanan Chakravarthy, Pranjal Mehta
2. **Core Technology / Focus Area:** Urban Aerial mobility taxi service
3. **Funding Received:** Antares Ventures and Speciale Invest, MOU with ICATT
4. **Products Commercialised:** e200X
5. **Patent Count:** Granted = 7; Published = 9

Innogle Technologies

1. **Founding Year & Founders:** 2019; Shobana U
2. **Core Technology / Focus Area:** Maritime AI for aquaculture, water quality
3. **Products Commercialised:** Kadalcompass, HydroAI, Life Safety Watch
4. **Patent Count:** Granted = 13; Published = 3

Blackfrog Technologies

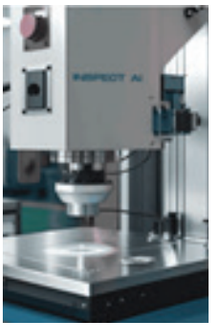
1. **Founding Year & Founders:** 2015; Mayur U. Shetty, Donson D Souza
2. **Core Technology / Focus Area:** Portable solid-state refrigeration for biologicals
3. **Funding Received:** Qualcomm QDIC 2019 Grand Prize Winner, BIRAC, Venture Centre Pune, Social Alpha, Selco Foundation, Global Innovation Fund, Rainmatter Capital, and Manipal Education and Medical Group
4. **Products Commercialised:** Emvólio
5. **Patent Count:** Granted = 11; Published = 4

Hachidori Robotics

1. **Founding Year & Founders:** 2019; Janakiram Annam, Ramanathan Venkataraman, Ravishankar Jayashankar
2. **Core Technology / Focus Area:** Autonomous industrial robots
3. **Funding Received:** Qualcomm QDIC 2020 cohort finalist,
4. **Products Commercialised:** Zippi, Sleek lifting, Dock & Convey, Unit load carrier, Tugger, Autonomous Pallet Jack, Carton Transfer Unit
5. **Patent Count:** Granted = 4; Published = 9

Myelin Foundry

1. **Founding Year & Founders:** 2019; Dr. Gopichand Katragadda, Ganesh Suryanarayanan, Aditi Olemann
2. **Core Technology / Focus Area:** Driver and occupant behaviour safety monitoring
3. **Funding Received:** QDIC 2021 finalist, Visteon Corporation, SIDBI Venture Capital with Endiya Partners, Pratithi Investment Trust, Subh Labh
4. **Products Commercialised:** XAIRA, P.I.E., PredictAI, Fovea Stream, Upscaler AI, Lip-sync AI, Fovea Edge
5. **Patent Count:** Granted = 1; Published = 12



Cradlewise

1. **Founding Year & Founders:** 2016; Radhika Patil, Bharath Patil
2. **Core Technology / Focus Area:** Smart Bassinet and Crib
3. **Funding Received:** QDIC 2018 finalist, CRV, SOSV, Better Capital, and angel investors including Stitch Fix founder Katrina Lake, Italic CEO Jeremy Cai, CTO of Molekule Dilip Goswami and ex-CEO of Misfit Wearables Sonny Vu
4. **Products Commercialised:** Cradlewise Smart Crib
5. **Patent Count:** Granted = 9; Published = 2

Startup IP Classification Matrix

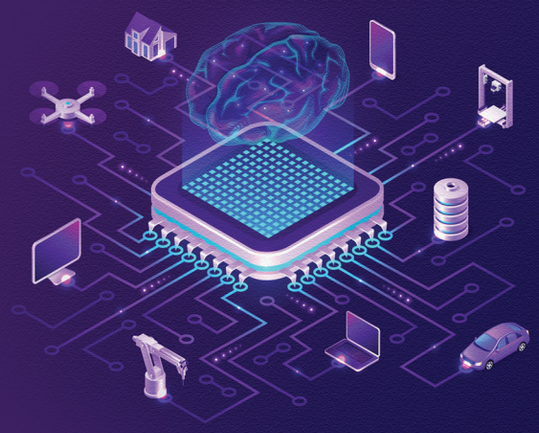


Table 3: This table contains the remaining 68 startups (out of 88 startups possessing patents), classified by their total patents and their domain.

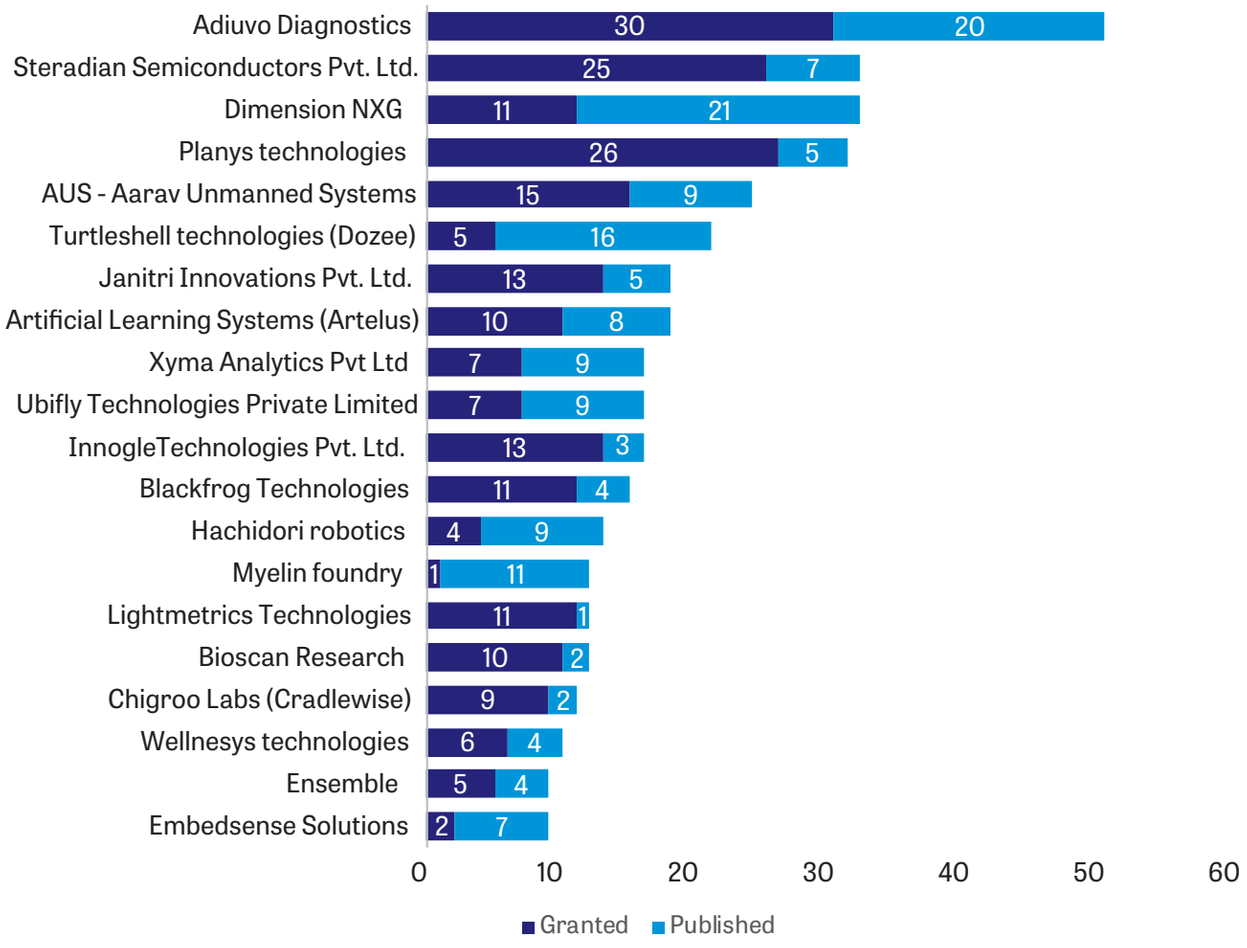
Patent Range (Granted + Published)	Domain	Startup Names
1-5	AI/Cognitive Systems	Citility, Sparcolife Digital Healthcare Technologies Pvt Ltd, Flo Mobility, GramworkX, Livnsense, Probus Smart Things, ProductDev Edge Pvt. Ltd
	Big Data Processing/Analytics	Augrade
	Chemical Compounds	Ossus Biorenewables
	Connectivity	Atoll, Emote Electric, Lensbricks Technology
	Data Storage	Nife Labs
	Healthcare	Anatomech, Ayati Devices Pvt Ltd
	Housing/Casing	Nimble vision, Shellios
	Human Interface	Ayasta Technologies, Hug Innovations
	Power	Marcn technologies
	Robotics/Drones	Coratia Technologies Private Limited
	Sensors And Actuators	iClimb Systems, Trebirth Private Ltd, Bagmo, KiksAR, Mobiusworks Pvt. Ltd. (Wagr), Perkant Tech Pvt. Ltd., Sensworx Systems, Teralumen Solutions
	Vehicle Systems	Adapt ideations, Tagbox, Watchy Technology Pvt. Ltd., Wickedride Adventure Services (Bounce), TechEagle Innovations, Uncanny Vision Solutions Pvt Ltd

Patent Range (Granted + Published)	Domain	Startup Names
5-10	AI/Cognitive Systems	Senselink technology, Ashva Wearable, Detect Technologies, Morphing Machines, Nemocare wellness
	Big Data Processing/ Analytics	Stellapps Technologies
	Connectivity	Elear Solutions, Grinntech Motors & Services (P) Ltd
	Electric/Electronic Components	Antariksh waste ventures
	Healthcare	Arcapsis Techno-Solutions Private Limited, Avantari Technologies Pvt Ltd, Briota Technologies Private Limited, mBreath Technologies, Testright Systems, Biodesign Innovation labs, Lazy Design Private Limited
	Housing/Casing	Irov technologies pvt ltd, Newndra innovations
	Human Interface	React Labs
	Power	Renkube, Vecros Technologies Pvt. Ltd.
	Process And Packaging	Canectar Foods Pvt Ltd
	Processing	Dhruva space
	Robotics/Drones	Zebu Intelligent Systems
	Vehicle Systems	Combat robotics, Carnot Technologies Private Limited
10-15	AI/Cognitive Systems	Ayur.ai
	Connectivity	PiOctave Solutions
	Healthcare	Health Arx Technologies Pvt Ltd (BeatO), Rymo Technologies Pvt Ltd, Brainalive research pvt ltd
	Robotics/Drones	Aubotz labs
15-20	Robotics/Drones	Peer Robotics

IP Insights - Details

Top Startups – Based on Total Patents

Fig. 3: Total Patents (Granted & Published - top 20 startups)



1. High-grant startups (mature IP portfolios)

- These top 20 startups stand out for their strong IP commitment and ability to navigate stringent patent examinations in India, reflecting a level of capability rarely seen in younger firms.

2. Patent-pipeline heavy startups (innovation wave, waiting for grants)

- Dimension NXG, Turtleshell/Dozee, Myelin Foundry, Hachidori Robotics, Ubifly, Xyma Analytics.
- These have more pending published applications than grants - they're building up portfolios, but grants haven't yet caught up. The data points to an impending surge of innovation within India's deep-tech landscape, reflecting growing maturity and technological depth.

3. Balanced portfolios

- Adiuvo Diagnostics, Ensemble, Wellnesys, Xyma Analytics, Ubifly Technologies, Artelus, Wellnesys Technologies.
- These startups are in the mid-stage of IP maturity. They've already converted some filings into assets but are actively adding to their pipeline. This is the "sweet spot" where IP-driven growth accelerates.

4. Sectoral hotspots

- Healthcare/Diagnostics: Adiuvo, Janitri, Dozee, Bioscan, Blackfrog, Wellnesys, Artelus - very strong grant-to-total ratios.
- Semiconductors & Electronics: Steradian, Innogle, Dimension NXG - consistent portfolio building in deep-tech hardware.
- Robotics/Drones: AUS, Ubifly, Hachidori, Planys - strong focus in autonomous systems.
- AI/Cognitive: Myelin Foundry, Artelus, Ensemble - pipeline-heavy, reflecting India's AI-driven innovation wave.

IP Type & Publication Type Insights

Fig. 4: IP Type

(Data from 602 patent and industrial design set shared by Qualcomm)

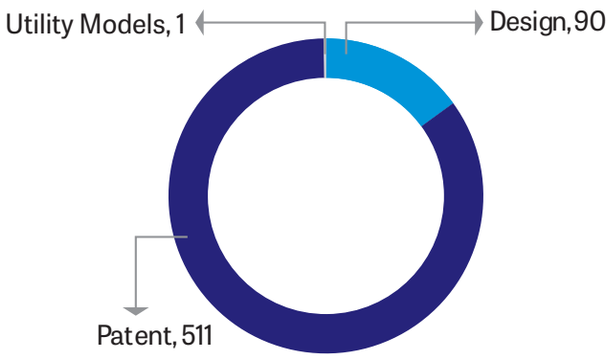


Fig. 5: Indian Publications - Type

Expanded Patent Data (all family members - 948 patents and industrial design) of the 602 patent set shared by Qualcomm

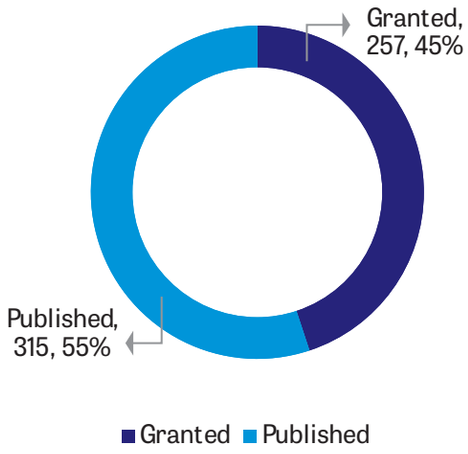
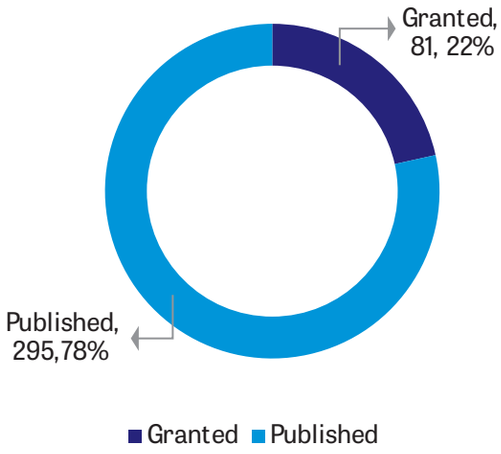


Fig 6: Foreign Publications - Type

Expanded Patent Data (all family members - 948 patents & industrial design) of the 602 patent set shared by Qualcomm



Observation:

Across both Indian and foreign jurisdictions (total 937 publications), the split is as follows:

- Indian publications: 257 granted, 315 published
- Foreign publications: 81 granted, 295 published

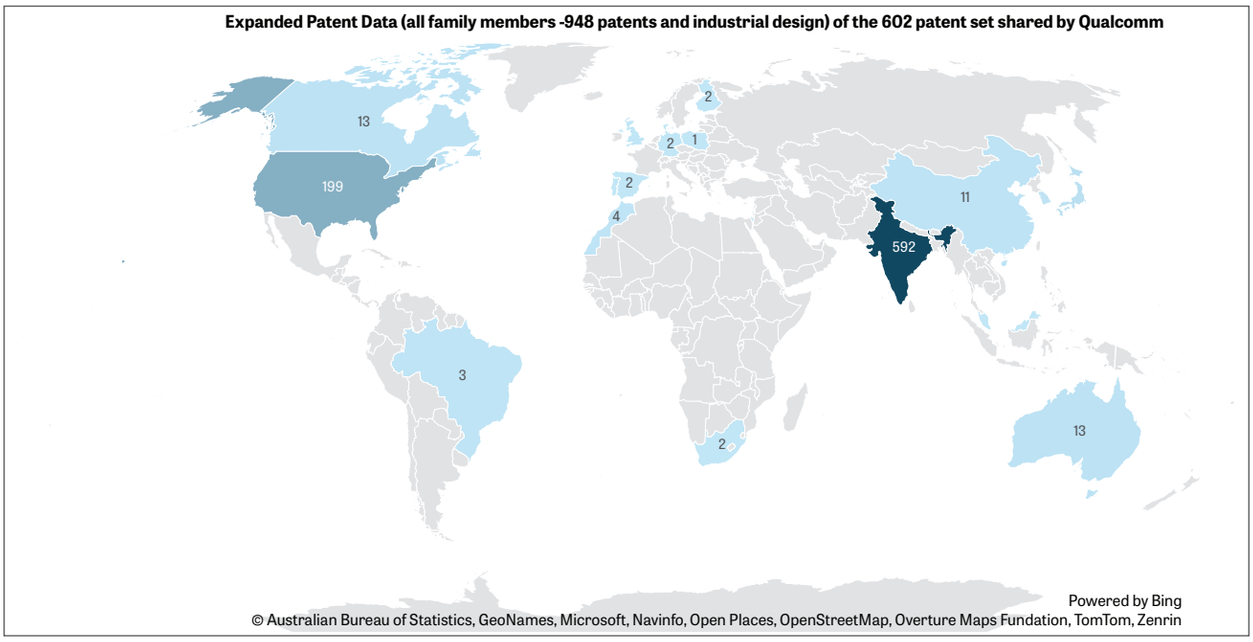
Insights:

- Patents remain the primary IP tool for deep-tech startups, with India showing a 45% grant rate (55% published) and foreign filings at 22% granted (78% published). The lower foreign grant share likely reflects the recency of filings and ongoing examination, especially as jurisdictions like the US and Europe often grant patents relatively quickly.

- The Indian grant count (257) continues to show strong traction with the Indian Patent Office, indicating both early filings and maturing portfolios.
- Survey data also reveals that startups are increasingly aware of and actively leveraging other forms of intellectual property such as trademarks and copyrights, alongside patents. This multi-layered approach reflects a growing sophistication in IP strategy, where brand identity, software assets, and aesthetic design are protected in tandem with core technological innovations.
- **Policy implication:** IP facilitation support should focus on helping startups transition foreign filings into grants (especially US, EP, JP), including PCT support, legal advisory, and cost assistance. (Data from survey) The earlier MeitY support scheme (SIP-EIT) for international patent filing saw limited uptake, suggesting the need to redesign such programs with better awareness, simplified access, and aligned incentives to match startup needs.[41]

Jurisdiction Analysis

Fig 7: Global Patent Filing Activity



Observation:

- Total patent filings globally (expanded patent family member data): 948
- India (IN): 572 filings (baseline, home country).
- United States (US): 133 is the largest single foreign jurisdiction in the updated set.
- WIPO PCT (WO): 100, EPO (EP): 43, Japan (JP): 15, Singapore (SG): 14, Korea (KR): 10, Great Britain (GB): 9, Australia (AU): 11, Canada (CA): 7, China (CN): 6, Israel (IL): 4, Brazil (BR): 4.
- Smaller counts appear across several European and regional jurisdictions (e.g., Denmark 2, Germany 2, Spain 1, Poland 1, Portugal 1).
- Several Indian deep-tech startups continue to show multi-country presence across Europe and Asia-Pacific.

- Several Indian deep-tech startups have established a notable patent presence across Europe, with filings spanning countries such as Spain, Denmark, Germany, Italy, Sweden, France, among others.

b) Strategic "gateway" filings

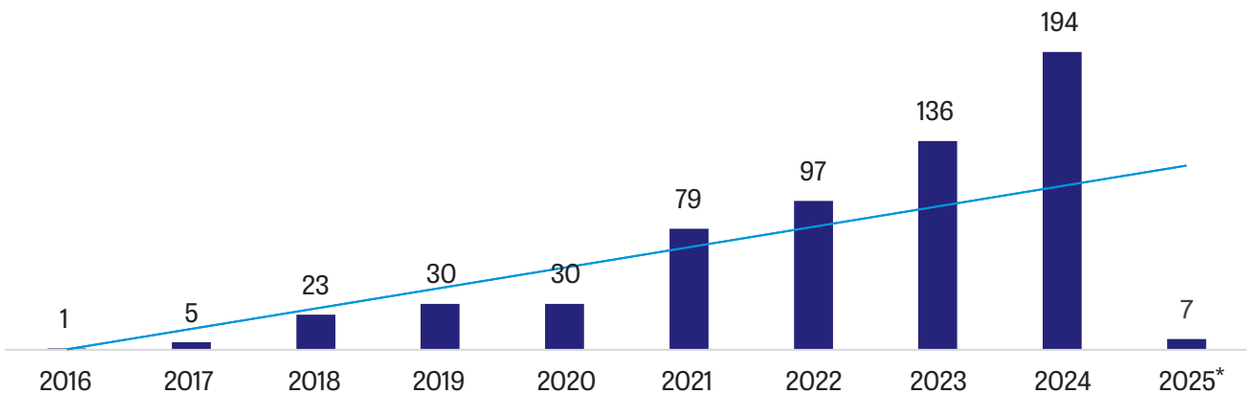
- **WIPO / PCT (100). US (133) is the clear primary foreign market –** this reflects India's deep-tech startups aiming for global commercialization and venture capital appeal, since US filings signal seriousness and technology maturity to investors.

Strategic Insight

- **Policy gap persists for emerging markets.** Low counts in regions such as Latin America, Africa and some parts of Eastern Europe suggest an opportunity for targeted policy/accelerator support to help startups protect IP where India's low-cost, high-impact solutions could find demand.

Publications Yearly Trend

Fig 8: Publications Per Year



1. Early trickle (2016–2018)

- This was the nascent phase of deep-tech patenting by startups in India. Filing was rare, likely limited to a handful of pioneers (early Qualcomm Design in India Program cohorts, or healthcare-focused startups).

2. Steady base (2019–2020)

- This marks the formation of a consistent filing culture. Startups had begun to see IP as important, but filings were still modest compared to later growth. This also reflects funding cycles (Series A/B level) - when startups secure resources, they begin formal IP filings.

3. Inflection point (2021–2022)

- Clear acceleration, almost 3x in two years: 2020 - 2022. Coincides with policy shifts: While patent fee rebates alone don't directly accelerate grant timelines, broader measures such as streamlined examination, reduced backlogs, and startup-prioritized fast-track routes (Rule 24C) under the National IPR Policy have contributed to faster grants for deep-tech filings in recent years.

4. Surge years (2023–2024)

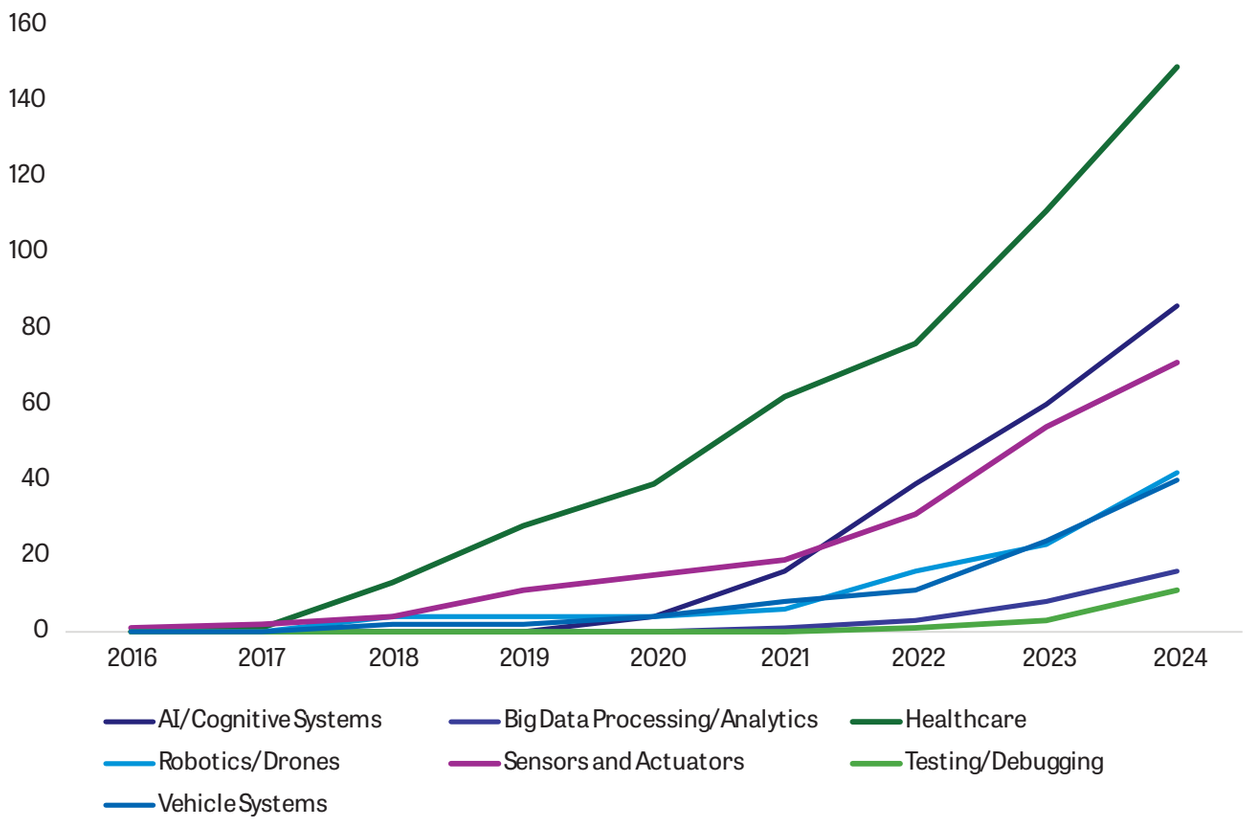
- This is a true IP boom phase for Indian deep-tech startups. Reflects both increased startup activity and cultural shift - IP as a strategic asset.
- Filing spike could also be linked to funding climate (2021–22 funding boom - patents appearing in 2023–24 publications, since filings take time to publish).

5. Observation: 2025

- **Insight:** Patent data for 2025 is largely unavailable due to the standard 18-month confidentiality period before publication. As a result, part of the 2024 filings and nearly all 2025 filings are not yet visible, so observable trends will lag actual activity. Expect 2025 to continue or exceed the 2024 trend by year-end.

Domain Focus per year

Fig 9: Patent Domain vs. Publication Year (Cumulative)



1. Healthcare - Early leader, then steady growth – 152 total patents

- Healthcare is the strongest innovation pillar for Indian deep-tech startups.
  - Startups are filing around diagnostics, biosensing, wearables, remote monitoring, and frugal health devices.

- Reflects India's unique strength in affordable, accessible med-tech, and rising IP consciousness among health startups supported by programs like QDIC and government initiatives from bodies like BIRAC.

- Startups like Adiuvo Diagnostics, Dozee, Janitri, and Artelus dominate the healthcare domain.
- Nearly half of the top 20 startups in the dataset have at least one healthcare-related patent signalling how healthcare remains the most defensible and IP-driven sector in Indian deep tech.

2. AI/Cognitive Systems - Rising star – 86 patents

- Indicates that Indian startups are not only consumers of AI but creators of AI-driven IP spanning vision systems, ML-based analytics, and predictive models.
- Trend: AI appears both as an independent vertical (AI companies) and an enabling layer in healthcare, drones, and mobility systems.
- Core contributors: Artelus, AUS, Dozee, Dimension NXG, Myelin Foundry.
- The data suggests that India's deep-tech startups increasingly build proprietary ML models and perception algorithms, indicating a move away from dependency on imported AI frameworks.
- Suggests a tech-stack shift: Indian startups are moving from hardware-only IP to AI-driven, software-integrated patents.

3. Sensors and Actuators - Continuous enabler – 71 patents

- These technologies power robotics, healthcare wearables, automotive autonomous systems, and industrial automation making this a cross-sector enabler cluster.
- Strongly represented in AUS (Robotics/Drones), Steradian (Radar + Sensors), Planys (Sensors/Robotics), and Innogle (Sensors).
- These startups exemplify India's capability to own "core" technologies, not just applications.

4. Robotics/Drones - Recent surge – 42 patents

- Drone/robotics startups are scaling after regulatory clarity (Drone Rules 2021). India is carving a niche in autonomous systems, unmanned aerial vehicles, and inspection robotics.

5. Vehicle Systems - Gradual rise – 41 patents

- Demonstrates India's rising innovation in EVs, mobility tech, and driver-assistance systems (ADAS).
    - Deep-tech players like Steradian Semiconductors and Myelin Foundry are contributing automotive radar and perception technologies, a sign of India entering core automotive IP domains.

6. Big Data Processing/Analytics - Small but visible – 17 patents

- Reflects backend IP for AI, cloud analytics, and IoT platforms. Not yet dominant, but could accelerate as AI pipelines depend on big-data innovation.

2016-2019:

Healthcare & sensors dominated early filings

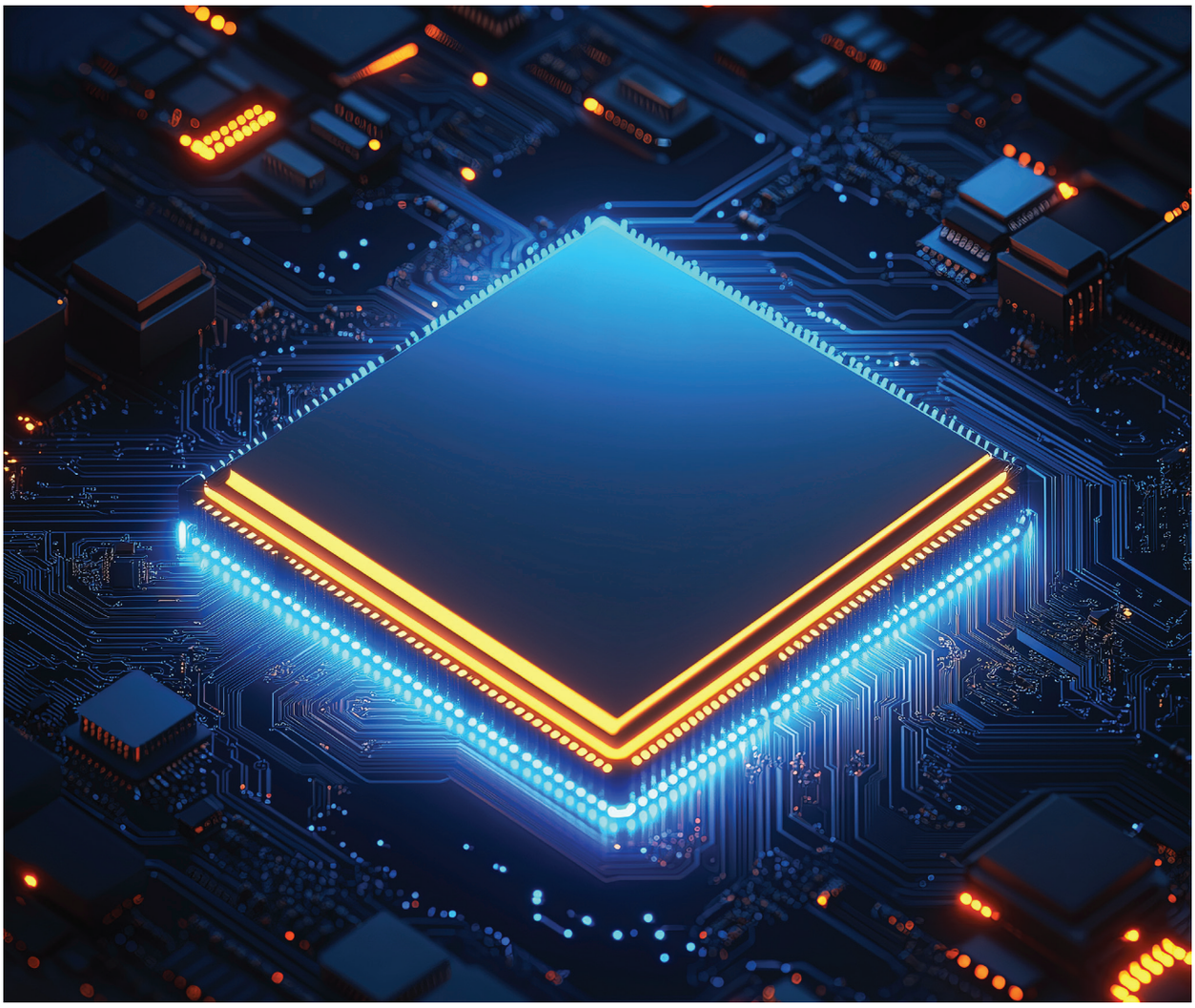
2020 - 2022:

AI and Robotics emerge as new growth pillars

2023 - 2024:

Multi-domain explosion -> AI, healthcare, robotics, and vehicle systems mature together

Innovation Clusters: Healthcare + AI, Robotics + Sensors, Vehicle Systems + AI - pointing to convergence-driven IP



Startups' Jurisdiction Spread

Table 4: Startup vs. Jurisdiction Spread of Patent Publications

Startups	AU	BR	CA	CN	DE	DK	EP	FI	GB	IL	IN	JP	KR	MA	PT	RU	SG	US	WO	ZA	MY
Adiuvo diagnostics	10	10	31	10		21	31	21		10	35	4					21	31	34		
Ubifly Technologies Private Limited	12	12	12	12			12			12	15	12	12	3		12		12	12	12	
Dimension NXG											30						5	3	7		
Hachidori robotics							8				2	10	8					5	10		
Blackfrog Technologies							5				9	5	5				5	6	5		
Steradian Semiconductors Pvt. Ltd.											13							21			
Planys technologies											31										
Janitri Innovations Pvt. Ltd.									3		15						3	3	3		
Bioscan Research											10							6	8		
AUS - Aarav Unmanned Systems											22								2		
Health Arx Technologies Pvt Ltd (BeatO)	4						4				1						4	4	4		1

Row Labels	AU	BR	CA	CN	DE	DK	EP	FI	GB	IL	IN	JP	KR	MA	PT	RU	SG	US	WO	ZA	MY
Turtleshell technologies (Dozee)							4				10							3	5		
Lightmetrics Technologies											8							8	5		
Artificial Learning Systems (Artelus)											17								3		
Xyma Analytics Pvt Ltd											13							3	4		
Chigroo Labs (Cradlewise)											9							6	4		
Renkube	4			4			4											2	4		
Ashva Wearable			3						3		4							3	3		
Carnot Technologies Private Limited			2	2			2				5	1						2	2		
Innogle Technologies Pvt. Ltd.											14								2		

Adiuvo Diagnostics – India's most globally active deep-tech filer

- Adiuvo shows filings across 21–35 families each in US, EP, WO, GB, IL, and IN: a rare breadth for an Indian startup.
- This pattern suggests Adiuvo is aggressively pursuing multi-jurisdictional protection for its medical imaging and diagnostics IP, likely targeting regulated global markets (EU, US, Israel, Japan).
- Strategic insight: Adiuvo represents a globally benchmarked med-tech IP strategy. An excellent example of scaling from India to OECD markets.

Ubifly Technologies – a case of full-spectrum international IP coverage

- Ubifly has near-uniform filings (12–15 each) across AU, BR, CA, CN, GB, JP, KR, MA, SG, US, WO, and even PT, ZA.
- **Interpretation:** Such a globally distributed portfolio is rare among Indian startups.
- **Likely reason:** Their domain (process, packaging, or UAV tech) could have dual-use industrial applications warranting broad market protection.
- **Insight:** Ubifly represents the global deployment model of Indian deep-tech. IP designed for international licensing and scale, not just domestic defence.

Table 5: Jurisdiction Spread Summary

Tier	Characteristic	Representative Startups	Target Markets
Global Filers	10+ foreign jurisdictions	Adiuvo, Ubifly	US, EP, JP, KR, WO
Regional Filers	2–5 foreign jurisdictions	Steradian, AUS, Dimension NXG, Janitri	US, WO, SG
Domestic Filers	India + few others	Blackfrog, Cradlewise, Wellnesys	IN, WO
Emergent Filers	Mostly India only	Renkube, Ashva, Carnot	India only

Time to Grant

Fig. 10: Time to Grant - Average in Months India

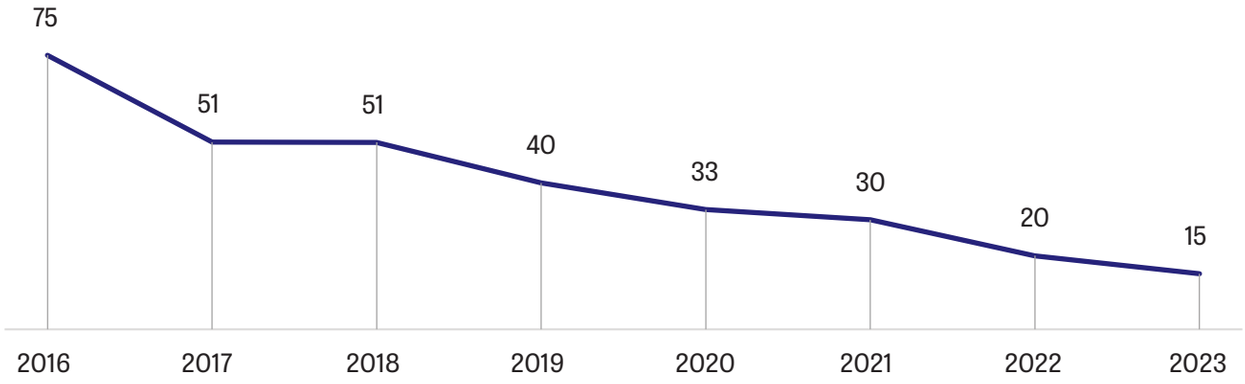


Fig. 11: Time to Grant - Average in Months USA

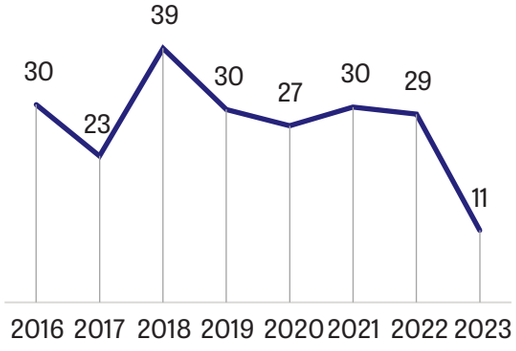
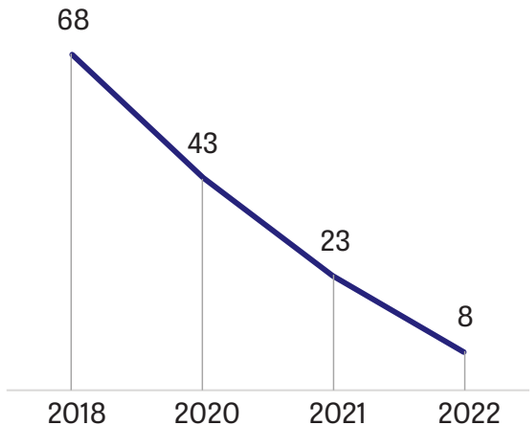


Fig. 12: Time to Grant - Average in Months - Other Countries



Please note that this data is derived from the Qualcomm supported startup patent dataset only.

This dataset reflects an India-first filing pattern, as expected from domestic startups. Most companies file initially in India, and only a subset of these patents that are typically the more commercially promising ones are extended to international jurisdictions. Since these foreign filings are often more recent or PCT-based extensions, they appear largely in the "published" phase, whereas the Indian filings have had more time to progress to grant.

There's been a dramatic acceleration in patent grant timelines in India, from over 6 years in 2016 to nearly 1 year by 2023.

This reflects a 5 times improvement in grant efficiency over seven years.

- Streamlining under the Patents (Amendment) Rules 2016, 2020, and 2021.
- Digitalization and expedited examinations (especially for startups and women inventors), along with improved examiner bandwidth and back-office reforms.

2. Acceleration trend aligns with India's pro-startup IP policies

- The years 2020–2023 coincide with the Startup India, IPR facilitation, and Fast-Track Examination initiatives.

3. Comparative Perspective: India Is Now at Global Speed

- In 2023, India's average time to grant is ~15 months, closely matching the U.S. (≈11 months).
- Other major offices (EP/JP/CN) have moved from long pendency (≈68 months in 2018) to 8–23 months in recent years; India's improvement curve is equally sharp and faster in convergence.
- India has effectively closed the gap with global IP systems, signalling maturity and competitiveness in patent examination efficiency.

Table 6: Time to Grant Summary

Region	Avg. Time to Grant (2023)	Trend Direction	Interpretation
India	**~15 months**	Sharp downward improvement	Now among competitive grant timelines globally
United States (USPTO)	**~11 months (2023)**	Moderate fluctuations over previous years	India is now within 1 month of U.S. grant speeds
Other Global Offices (JP/EP/CN etc.)	**~8–23 months (2021–22)**	Gradual efficiency increases	India's acceleration curve is steeper and catching up

University Collaborations

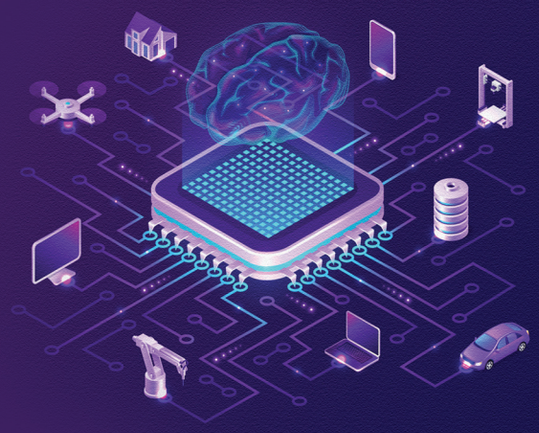


Table 7: University Collaborations

University / Associated Startup	AI/ Cognitive Systems	Healthcare	Housing/ Casing	Miscellaneous	Sensors and Actuators	Vehicle Systems	Grand Total
Indian Institute of Technology - Madras	1		4	1	5		12 (6 Granted)
Planys technologies	1		1			1	3
Xyma Analytics Pvt Ltd			3	1	5		9
Indian Institute of Technology - Bombay		1					1
Ayati Devices Pvt Ltd		1					1
Indian Institute of Technology - Kharagpur		1					1 - Granted
mBreath Technologies		1					1
Maharishi Markandeshwar (Deemed to be University)		1					1 (Granted Industrial design patent)
Ensemble		1					1
Ramrao Adik Institute of Technology Dy Patil (Deemed to be University)	1						1
Dimension NXG	1						1
Vels Institute of Science Technology & Advanced Studies	1						1
GramworkX	1						1

1. Inventor–Founder Overlap Drives Startup Ownership of IP

Across multiple cases (e.g., Ensemble, GramworkX, Ayati Devices, mBreath Technologies), inventors named in patents are also founders or key executives of the startups.

- This alignment allows for the transfer or attribution of the ownership of IP to the startup, not the university.
- This is a growing trend of university researchers becoming entrepreneurs, taking up institutional research as commercial ventures.

2. IITs as Major Catalysts for Spin-Off Innovation

IIT Madras and IIT Bombay prominently feature as sources of deep tech startups.

- Premier institutions such as IIT Madras have become the epicentres of deep-tech entrepreneurship, launching over 100 startups annually[13]. IIT Madras stands apart with several startups: the two latest, Planys Technologies and XYMA Analytics, have come out of its incubation ecosystem.
- The IIT Madras Incubation Cell has emerged as regular incubator of IP-backed deep tech startups, mainly in areas such as AI, sensors, and industrial technologies.

3. Deep Institutional Collaboration Networks Emerging

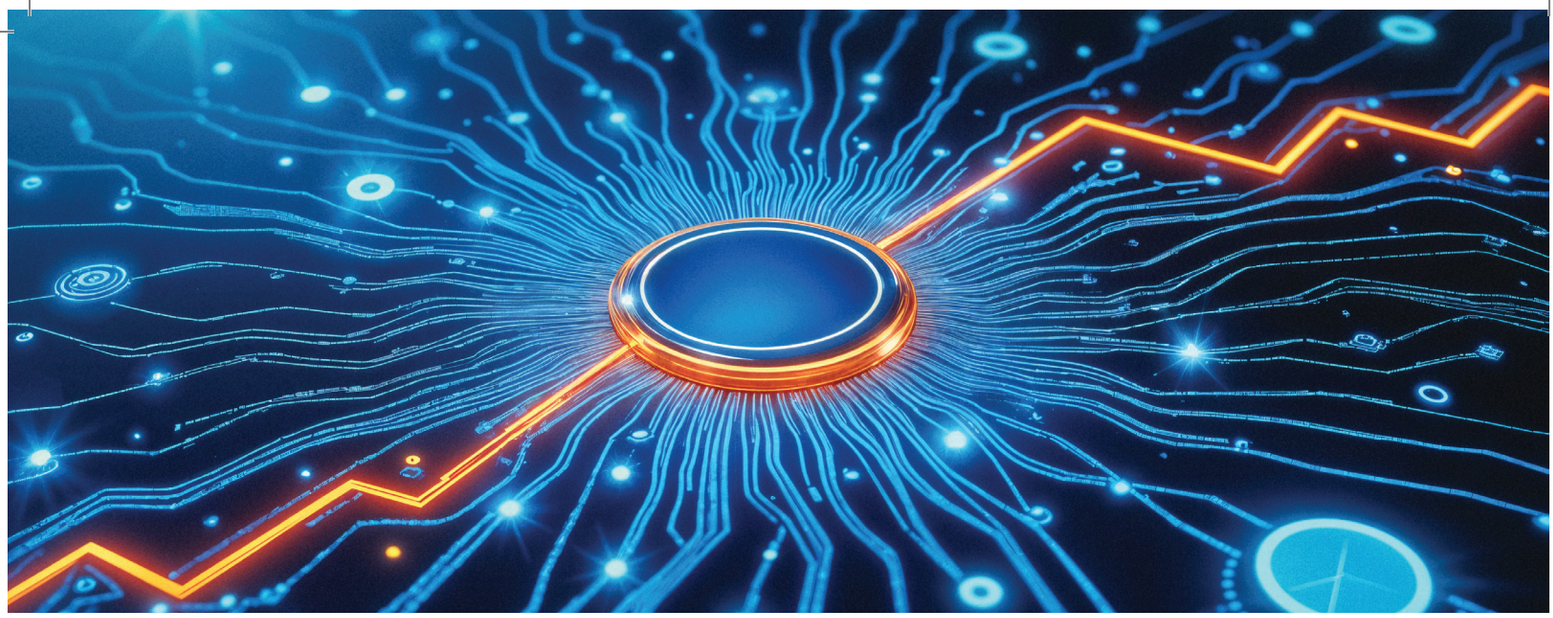
Universities such as Vels Institute and Sri Padmavati Mahila Visvavidyalayam feature in shared patents with GramworkX, suggesting cross-university partnerships contributing to startup innovation.

Insight and Recommendations:

This is a good indicator of a strong and maturing university-startup IP ecosystem in India, with colleges like IIT Madras and IIT Bombay leading the charge. The recurring theme is faculty and researcher entrepreneurship where inventors turn startup founders, ensuring smooth IP transfer and commercialization.

Segments such as Healthcare and AI/Cognitive Systems top, reflecting the deep tech focus areas of India. Nuanced IP assignment decisions also reflect university IP management practices developing sophistication that is aligned with global innovation commercialization trends.

However, there is an opportunity to strengthen the ecosystem further. Universities could enhance their technology transfer outcomes by improving licensing mechanisms. In several instances, patent ownership still resides solely with the university, rather than with the startup or in a co-ownership structure. Encouraging more startup-friendly licensing and co-ownership frameworks will help accelerate commercialization and investor confidence.



Top patents with High Inventor Count

Table 8: Top Patents with High Inventor Count

Patent Number	Title	Inventor Count	Assignee	Domain
IN-202021011865-A	A system for advanced surveillance and security using mixed reality head mounted device	12	Dimension NXG	Human Interface
IN-202241061015-A	Iot integrated fractional order control of doubly fed induction generator-based wind energy system powered by artificial intelligence	11	Probus Smart Things	AI/Cognitive Systems
IN-202241066836-A	Model for predicting solar energy to provide consistent power to massive iot system devices	11	Probus Smart Things	AI/Cognitive Systems
CN-114555392-A	Suspension system	10	Carnot Technologies Private Limited	Vehicle Systems
IN-202411010457-A	An iot-based intelligent traffic management system	10	Lensbricks Technology	Connectivity
IN-202211061763-A	A system and method for evaluating marketing intelligence and firm performance	10	AUS - Aarav Unmanned Systems	Big Data Processing/ Analytics
IN-202141024071-A	A wearable article with sensors and ml & ai modules for analysing behaviour of user	10	Ayasta Technologies	Human Interface
CN-114144350-B	Collision-proof device	9	Carnot Technologies Private Limited	Vehicle Systems
IN-342190-B	An arm mechanism for docking an unmanned aerial vehicle to a structure for non-destructive testing	8	Detect Technologies	Vehicle Systems
IN-202311007319-A	IoT based hospital management system	8	Brainalive research pvt ltd	Big Data Processing/ Analytics

1. High inventor counts reflect strong collaboration intensity

- Most of these patents involve 8–12 inventors, indicating multidisciplinary R&D teams in which hardware, AI, embedded systems, and data science are working together. Such complex patents typically represent systems-level innovations and not just incremental tweaks.
- Domains such as AI/Cognitive Systems, Human Interface, Vehicle Systems inherently require integration across software, hardware, and data, explaining the larger inventor teams.
- The most future-oriented areas (AR/VR, human-AI interaction) demand larger and more interdisciplinary inventor teams comprising of optics engineers, ML experts, ergonomics designers, etc.

2. Correlation between inventor count and R&D maturity

  - 8–12 inventors often mean a structured IP process, possibly involving dedicated in-house R&D + collaborations with academia.

- These patents likely sit at TRL 6–8 (Technology Readiness Levels), nearing pilot or commercial phase.

Patents with High Impact Factor

Table 9: Patents with High Impact Factor

Publication Number	Title	Final Assignee	New Classification	Forward Count Number
US-10447972-B2	Infant monitoring system	Chigroo Labs (Cradlewise)	Healthcare	58
IN-530684-B	Real-time distance estimation from a moving vehicle using a monocular camera	Lightmetrics Technologies	Vehicle Systems	35
US-10529083-B2	Methods and systems for estimating distance of an object from a moving vehicle	Lightmetrics Technologies	Sensors and Actuators	35
US-10275669-B2	System and method for detecting objects in an automotive environment	Lightmetrics Technologies	Sensors and Actuators	33
IN-485540-B	A wearable device for safety monitoring of a user	Hug Innovations	Human Interface	27
US-10249172-B2	Wearable device for safety monitoring of a user	Hug Innovations	Human Interface	27
IN-201821010444-A	Wearable communication device	Lazy Design Private Limited	Human Interface	23
ES-2968298-T3	Device and method for the detection and classification of pathogens	Adiuvo diagnostics	Healthcare	20

Publication Number	Title	Final Assignee	New Classification	Forward Count Number
DK-3602007-T3	Device and procedure for detection and classification of pathogens	Adiuvo diagnostics	Healthcare	20
IN-201721037853-A	A wearable electronic device	Lazy Design Private Limited	Human Interface	18
IN-474271-B	Localizing a smartphone in a moving vehicle	Lightmetrics Technologies	Vehicle Systems	17
IN-402296-B	Connected camera architecture for automotive vision applications	Lightmetrics Technologies	Sensors and Actuators	16
US-11389094-B2	Apparatus and methods for infant monitoring	Nemocare wellness	Healthcare	16
US-11041941-B2	Method and device for calibrating a radar object detection system	Steradian Semiconductors Pvt. Ltd.	Radar	13
US-11207481-B2	Electro-mechanical resuscitating apparatus	Biodesign Innovation labs	Healthcare	9
IN-355517-B	An electro-mechanical resuscitating apparatus	Biodesign Innovation labs	Healthcare	9
IN-329324-B	Apparatus for body support	Newndra innovations	Housing/casing	9
IN-498312-B	Method, system and device for radar based high resolution object detection	Steradian Semiconductors Pvt. Ltd.	Radar	8
IN-536600-B	Method, apparatus and device for doppler compensation in a time switched MIMO radar system	Steradian Semiconductors Pvt. Ltd.	Radar	7
US-11793426-B2	System and a method for determining breathing rate as a biofeedback	Turtleshell technologies (Dozee)	Healthcare	7

**Forward citation metrics may be less reliable at this small sample size, as citation patterns can take time to develop and may not yet reflect the long-term significance of recent filings.*

1. Forward Citations = "Innovation Impact Factor"

- In patent analytics, forward citations indicate how many later patents have built on or referenced a given invention, a metric for technological influence.
- Startups like Cradlewise (58) and Lightmetrics (35+) are showing citation levels typically seen in global-scale innovation portfolios.

2. Healthcare dominates the high-impact category

- 5 of the top 10 cited patents belong to healthcare or medtech startups: Cradlewise, Adiuvo Diagnostics, Biodesign, Dozee, Nemocare.
- These are largely AI + IoT + biosensor integrations. Areas where global patent families are dense and citations grow quickly.
- Indian medtech startups are innovative, remarkably combining affordability and innovation in infant health, remote monitoring, and diagnostics.

3. Automotive vision & radar startups (Lightmetrics, Steradian) shaping India's mobility IP

- Lightmetrics patents (35, 33, 17, 16 citations) are widely referenced in computer vision and ADAS (Advanced Driver Assistance Systems).
- Steradian Semiconductors radar patents are gaining traction, aligning with India's role as an automotive electronics R&D hub.

4. Human Interface and Wearables seeing sustained influence

- Hug Innovations and Lazy Design Pvt. Ltd. each have wearable patents with 18–27 citations suggesting early mover advantage in safety wearables and communication devices.
- The fact that both were cited across multiple jurisdictions (IN, US) shows IP exportability and domain maturity.

5. Geographical diversity indicates international recognition

- High-impact patents appear across US, IN, CN, DK, ES, indicating global filings and references.
- For instance, Cradlewise (US patent) and Adiuvo Diagnostics (DK/ES) both have strong European forward citation footprints.

6. Citations Concentrate in AI, Sensors, and Healthcare - Core Deep-Tech Triad

Table 10: Top impact factor domains

Domain	Avg. Citation Count (Top)	Example Startups
Healthcare	22.6	Cradlewise, Adiuvo, Biodesign, Dozee
Vehicle Systems / Sensors	27.2	Lightmetrics, Steradian
Human Interface	22.6	Hug Innovations, Lazy Design

Observation:

- The convergence of AI + Sensor + Health systems is driving the highest technological influence from India which is consistent with the Deep Tech-Health-Mobility trend.

Table 11: Impact Factor Summary

Rank	Assignee	Domain	Top Patent Example	Forward Citations
1	Chigroo Labs (Cradlewise)	Healthcare	Infant monitoring system	58
2	Lightmetrics Technologies	Vehicle Systems / Sensors	Multiple automotive vision patents	35–33–17–16
3	Hug Innovations	Human Interface	Wearable safety monitoring system	27
4	Lazy Design Pvt. Ltd.	Human Interface	Wearable communication device	23–18
5	Adiuvo Diagnostics	Healthcare	Pathogen detection device	20
6	Steradian Semiconductors	Radar	Radar calibration and MIMO radar systems	13–8–7
7	Biodesign Innovation Labs	Healthcare	Electromechanical resuscitating apparatus	9
8	Newndra Innovations	Mechanical / Healthcare Devices	Body support apparatus	9
9	Turtleshell Technologies (Dozee)	Healthcare	Breathing rate biofeedback system	7

Summary Insight

The emergence of 50+ forward citations per patent among Indian startups signifies global recognition of indigenous R&D depth. Healthcare, AI-driven mobility, and wearables are India's most internationally relevant innovation fronts, signalling a clear shift from "make in India" to "invent in India."

Patent Classification Analysis

Table 12: Top 10 CPC Codes

Class	Patent Count	Definition
A61B	100	Diagnosis; surgery; identification (usefulness limited to only animals A61D)
G06F	68	Electric digital data processing (computer systems based on specific computational models G06N)
G16H	62	Healthcare informatics, i.e. information and communication technology [ict] specially adapted for the handling or processing of medical or healthcare data

Class	Patent Count	Definition
G06N	55	Computing arrangements based on specific computational models
G01N	55	Investigating or analysing materials by determining their chemical or physical properties (measuring or testing apparatus or processes other than immunoassay, involving enzymes or microorganisms C12M, C12Q)
G06V	51	Image or video recognition or understanding
G06T	46	Image data processing or generation, in general
G06K	32	Graphical data reading (image or video recognition or understanding g06v); presentation of data; record carriers; handling record carriers
G01S	31	Radio direction-finding; radio navigation; determining distance or velocity by use of radio waves; locating or presence-detecting by use of the reflection or reradiation of radio waves; analogous arrangements using other waves
G06Q	26	Information and communication technology [ict] specially adapted for administrative, commercial, financial, managerial or supervisory purposes; systems or methods specially adapted for administrative, commercial, financial, managerial or supervisory purposes, not otherwise provided for

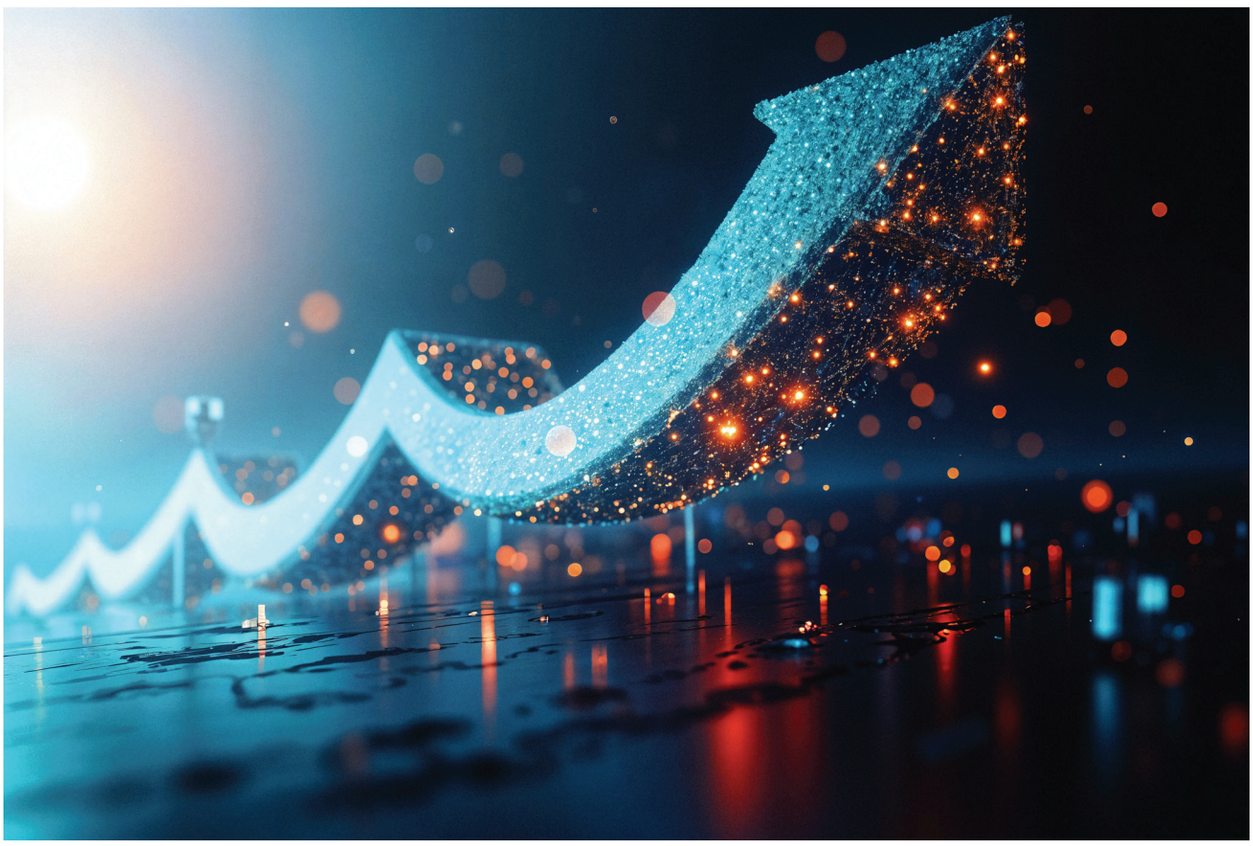
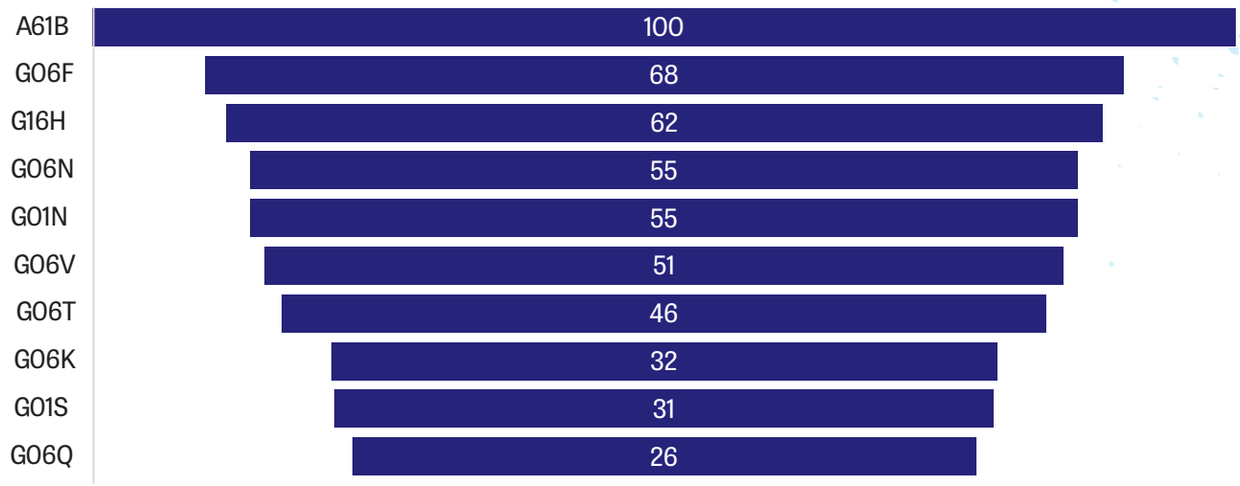


Fig. 13: Top 10 CPC Codes



Key Thematic Insights

1. Dominance of Healthcare + AI Integration

- A61B (Diagnostics) and G16H (Healthcare Informatics) together account for ~162 patents (≈32%) of the total set.
- This shows a strong concentration of startups at the intersection of medical devices, AI diagnostics, and digital health platforms.

Interpretation:

- India's deep-tech startups are AI-first healthcare innovators moving from traditional medtech hardware toward data-driven health intelligence *(e.g., Dozee, Cradlewise, Adiuvo Diagnostics, Janitri, Biodesign Labs).*

2. Artificial Intelligence (G06N, G06V, G06T) is foundational

- Combined, G06N (AI models), G06V (vision), and G06T (image processing) = 152 patents (~30%).
- Indicates deep adoption of AI + Computer Vision across multiple domains (healthcare, mobility, robotics, agriculture).

3. Sensing and Radar Systems (G01N, G01S) gaining strength

- G01N (sensing, materials testing) and G01S (radar/navigation) show 55 + 31 = 86 filings.
- Directly reflects work by startups like Steradian Semiconductors, Lightmetrics, Planys, Aarav Unmanned Systems, and Xyma Analytics.

- Indicates a growing hardware-software convergence in India focused on precision sensing, radar imaging, and navigation for autonomous systems, industrial monitoring, and medtech.

4. Digital Infrastructure Layer (G06F, G06Q, G06K)

- G06F (data processing) = 68 patents - backbone for most deep-tech platforms.
- G06Q (ICT for business) and G06K (data capture) show administrative & operational AI, e.g., predictive analytics, hospital management, logistics optimization.

5. Cross-domain patenting trend

- Several startups appear across multiple top IPC codes, e.g., a single patent might have A61B (diagnostic), G06N (AI model), and G06V (vision).
- This multi-classification overlap is typical of deep-tech convergence which is a sign of sophistication and interdisciplinary IP creation.

Founding Team Composition

Fig. 14: Founders Composition

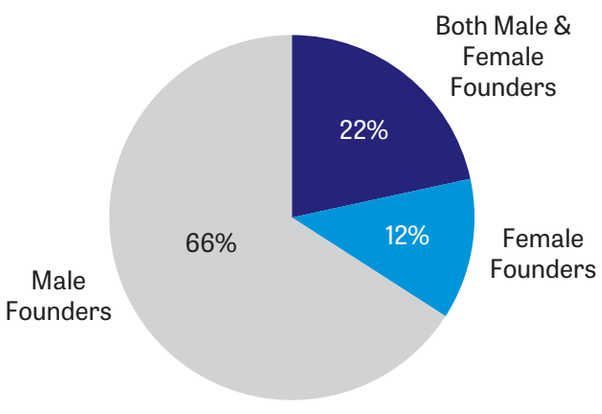
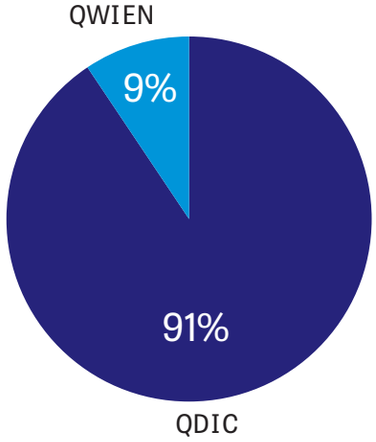


Fig 15: Qualcomm Startup Programs



1. Representation and diversity

- Women-only founders are around ~12% of the startups, while mixed-gender teams ("Both") are ~22%.
- This shows women are not excluded, but still underrepresented in fully women-led deep-tech IP startups. Mixed teams are doing better in participating at IP level.

2. IP intensity among women/mixed teams

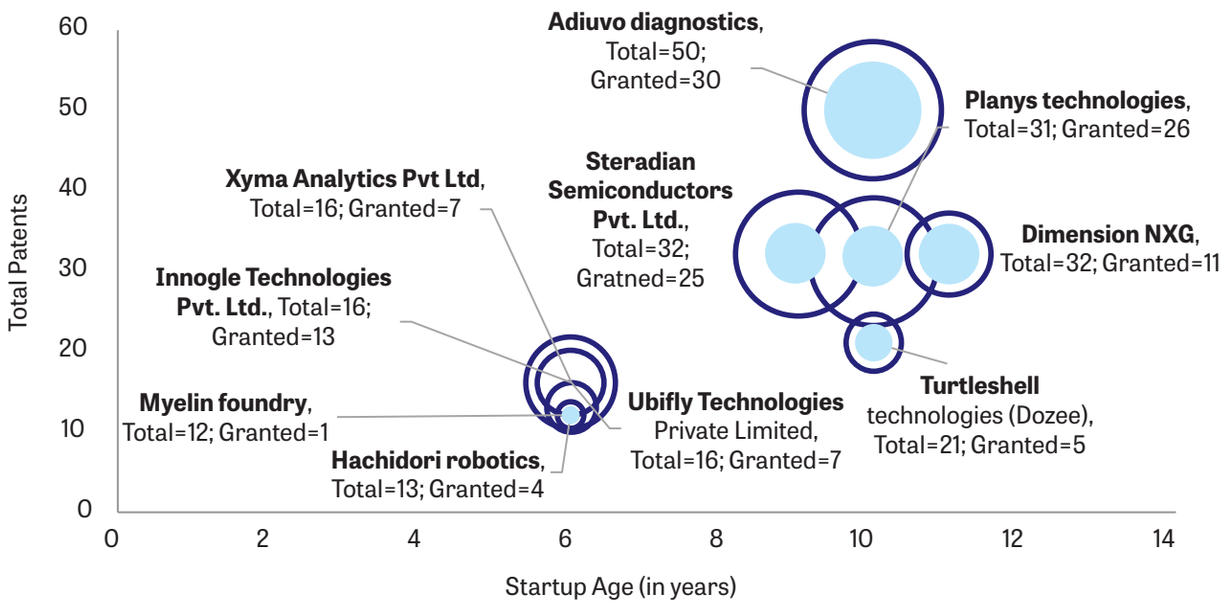
- Many women-led or mixed-gender teams are indeed appearing in IP-rich categories and with substantial patent counts, meaning they're active, not merely present.
- E.g., Adiuvo Diagnostics (Female founder) shows strong patents, Bioscan Research (Both), Chigroo Labs (Both) etc. So, when women are at the helm (alone or in teams), innovation is material.

3. Qualcomm Women Entrepreneurs India Network (QWEIN)

- The QWEIN program, launched by Qualcomm India in July 2020, is an equity-free, six-month mentorship and incubation initiative that supports women-led deep-tech startups in sectors like IoT, robotics, clean tech, and healthcare, offering guidance in finance, IP, product management, and leadership. This program has since mentored over 30 early-stage entrepreneurs, strengthening India's deep-tech innovation ecosystem.

Startup Innovation Intensity

Fig 16: Average Patents Per Year vs. Startup Age



The size of the bubble indicates the total patents of a startup: Published + Granted

Insights: Startups with High Innovation Intensity and Rapid IP Growth

1. Adiuvo Diagnostics

Over the past 10 years, Adiuvo has built a portfolio of 50 patents, averaging 5 patents per year, the startup is still among the highest in healthcare diagnostics.

- *This sustained IP growth reflects a strong R&D-driven business model, deep domain focus in diagnostic imaging and AI, and effective engagement with innovation programs like QDIC and QWEIN.*

2. Steradian Semiconductors Pvt. Ltd.

With 32 patents in 9 years (~3.5 patents/year), Steradian demonstrates sustained innovation in high-technology domains such as radar and chip design.

- The company's patent maturity shows deep internal R&D strength and consistent technology evolution which are traits vital for India's semiconductor ecosystem.
- This level of IP consistency highlights the transition from early innovation to scalable deep-tech leadership.

3. Planys Technologies

Planys has accumulated 31 patents over 10 years (~3.1 per year), positioning itself as a key innovator in robotics and inspection systems.

- Their consistent IP development indicates strong research integration and domain leadership in industrial automation and non-destructive testing.

4. Dimension NXG

Founded in 2014, Dimension NXG has 32 patents in 11 years (~2.9 per year), emphasizing its sustained investment in mixed reality and human–machine interface technologies.

- The company's ability to maintain a high filing rate reflects a long-term innovation pipeline and global outlook.

5. Innogle, Ubifly, and Xyma Analytics – Agile Innovators with Scalable IP Momentum

Each of these startups were founded around 2019 and already holds 16 patents in 6 years (~2.7 per year), demonstrating remarkable innovation velocity for young firms.

- Their early and aggressive patent strategies suggest strong IP awareness, especially in AI, sensors, and IoT domains.
- These companies are transitioning rapidly from early research to applied product innovation, a sign of maturing R&D ecosystems in India's startup sector.

6. Hachidori Robotics

In just 6 years, Hachidori Robotics has secured 13 patents (~2.2 per year), showing steady innovation in automation and robotics design.

- The startup's growing IP base reflects increasing technological sophistication and focus on scalable robotics solutions.

7. Turtleshell Technologies (Dozee)

With 21 patents in 10 years (~2.1 per year), Dozee has built one of the strongest IP portfolios in remote healthcare monitoring.

- Its continued patenting over a decade reflects long-term R&D continuity and strong alignment with India's Digital Health Mission.

8. Myelin Foundry

Myelin Foundry, founded in 2019, holds 12 patents (~2 per year), highlighting its focus on AI-based edge processing and video intelligence.

- The startup's steady patent growth underscores its capability to translate AI research into protected commercial IP.

Overall Trend: India's Deep-Tech Startups are Building Global IP Competitiveness

- These startups combine high IP intensity (patents per year) with sustained R&D commitment, showing that India's deep-tech ecosystem is maturing from early innovation enthusiasm to consistent innovation depth.
- The strong patenting behaviour among younger startups indicates early adoption of IP strategy as a core business enabler, not merely a compliance practice.

SURVEY 1

This survey focused on understanding the registration status, IP utilization, and funding patterns of startups. It aimed to assess how startups protect and leverage their intellectual property and the role of government or private funding in their innovation and business growth.

Fig. 17: Use of Other Forms of IPR Protection by Startups Use of Other Forms of IPR Protection by Startups (Apart from patents)

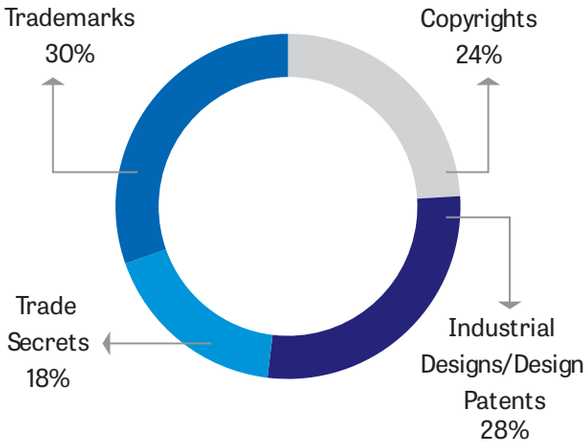
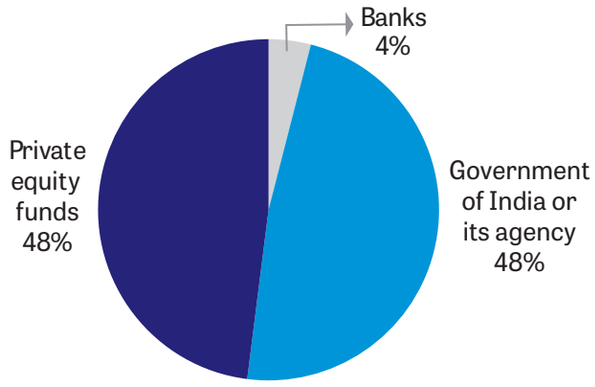


Fig. 18: External Funding Support for Startups



Out of 88 deep-tech startups surveyed, 33 provided responses in survey 1. All analyses presented in this section are based on these 33 responses to survey 1.

Key Findings

1. High formalization

- 100% of respondents are registered with the Government of India's Startup India portal, and all except one are also registered under the Registrar of Companies (RoC).
- This suggests that the surveyed startups are formally recognized entities, often required to qualify for government incentives, incubation programs, and IPR facilitation schemes.
- The ecosystem reflects a maturing compliance culture, where formal registration is seen as a first step toward attracting funding or participating in national programs.

2. Strong IP integration into business strategy

- Nearly two-thirds (≈65%) report that all their patents are being actively utilized in business, through products, licensing, or partnerships.
- Another 30% report some utilization, indicating that while a few patents may be exploratory, most are strategically aligned with their business goals.

- This is a clear indicator that patents are not just defensive assets, but are being used as commercial and market differentiation tools which is a sign of IP maturity among Indian deep-tech startups.

3. Forward-looking IP behaviour: almost universal intention to use patents in future products

- An overwhelming >95% of respondents intend to use all or most of their patents in future business plans.
- This reflects long-term R&D alignment, showing that patent filing is not incidental but part of a planned product pipeline or market expansion strategy.
- Such forward intent aligns well with India's National IPR Policy (2016), which encourages startups to see IP as a core business asset.

4. Diverse IP protection mix: A comprehensive approach to innovation safeguarding

- Every respondent protects their innovation through multiple IP types, showing growing IP literacy.
- The most common forms include (apart from patents):
    - Trademarks (30%)
    - Copyrights (24%)
    - Industrial Designs (28%)
    - Trade Secrets (18%)
- This combination suggests that Indian startups are developing full-spectrum IP portfolios, which is rare among early-stage firms globally.

5. Funding and IP literacy are positively correlated

- Nearly all respondents (96%) have received external funding, primarily from:
    - Government agencies (Startup India Seed Fund, BIRAC, DST, MeitY, etc.)
    - Private equity and venture funds
    - A few through banks or financial institutions
- Interestingly, startups with diversified IP portfolios (patents + designs + trademarks) are also those with multiple funding sources, indicating that investors are rewarding IP strategy.
- Government-backed fundings play a dual role: enabling early IP filings and encouraging formal R&D culture.

6. Government ecosystem has a direct impact

- The recurring appearance of Government of India agencies as funders highlights the effectiveness of public innovation schemes, such as:
    - Startup India and DPIIT recognition (which offers patent fee rebates and expedited examination for startups)

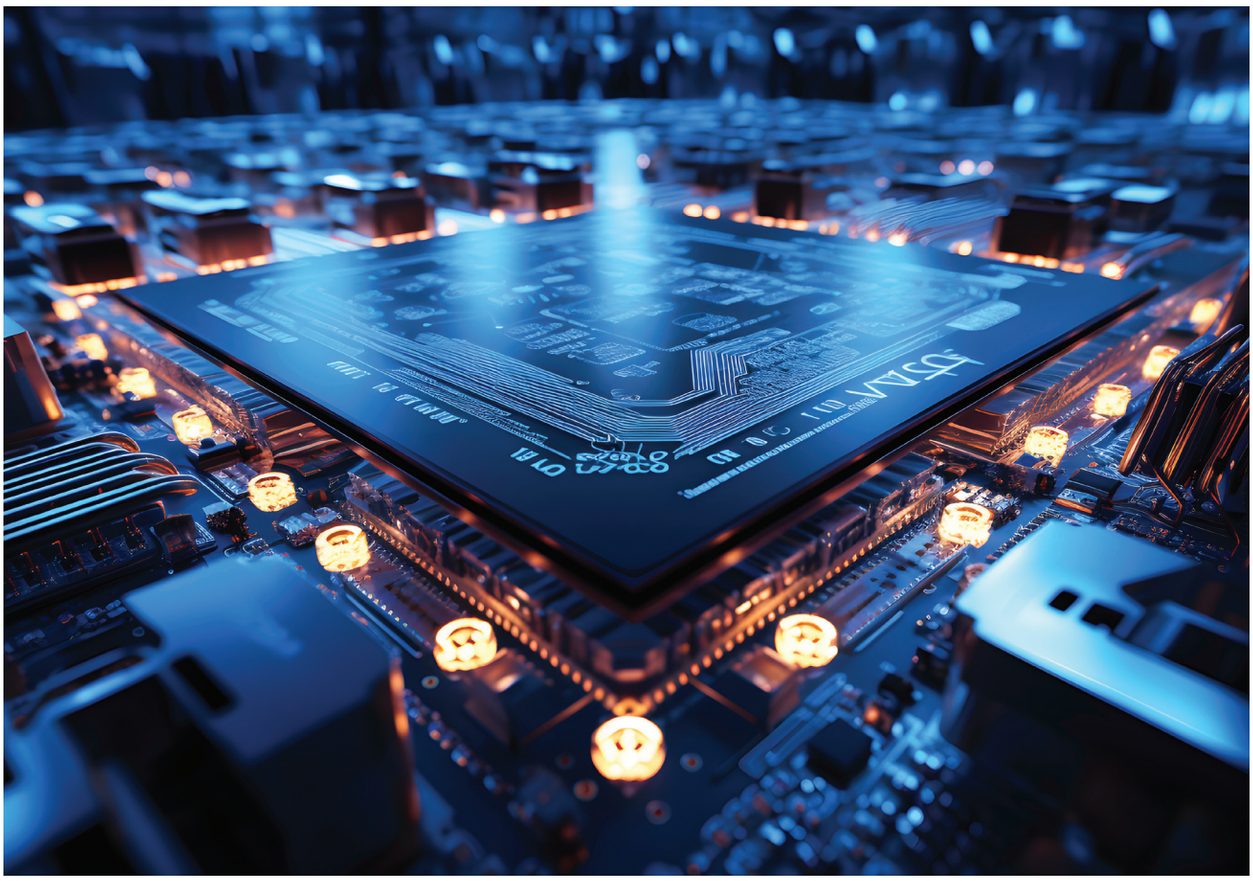
- BIRAC's Biotechnology Ignition Grant (BIG) and Seed Fund schemes
- MeitY TIDE 2.0 and DST NIDHI-EIR for tech innovation

- These programs are lowering barriers to IP filing, especially for hardware and healthcare startups, which traditionally face higher patenting costs.

7. Strategic takeaway

- The survey reveals a maturing IP-conscious startup ecosystem, well-supported by policy and funding frameworks.

- However, there's room for:
  - Greater licensing activity (many patents are still used internally)
  - Stronger collaborations between academia and startups
  - Facilitating international IP protection: Simplify and support access to global patent filing systems such as the Patent Cooperation Treaty (PCT), enabling startups to secure and commercialize their innovations in international markets with reduced procedural and financial barriers.



SURVEY 2

This survey explored the impact of patents on startup growth, funding access, and market expansion. It sought to capture how intellectual property contributes to commercialization, investment attraction, and strategic collaborations, while also identifying key challenges faced by startups in their innovation journey.

Fig. 19: In what ways has patenting your invention contributed to your company's growth and success?

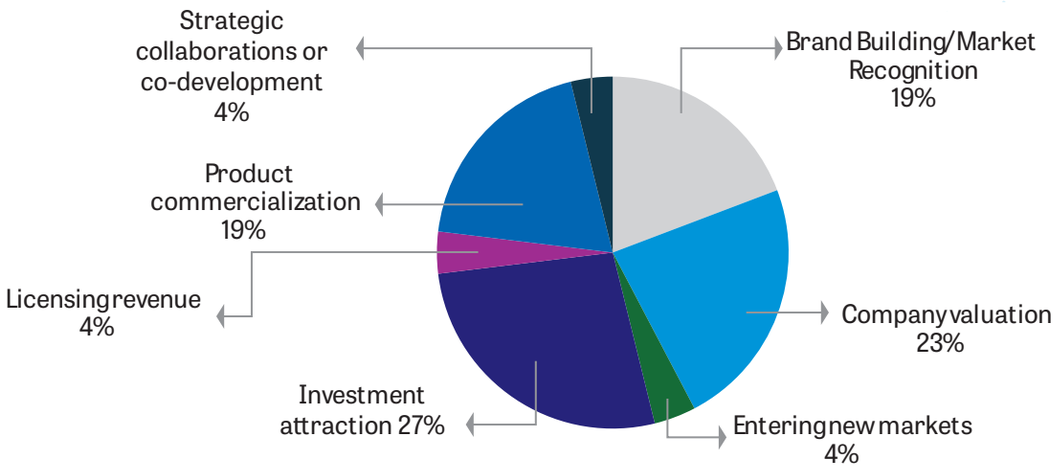


Fig. 20: Is AI integral to the inventions which have been patented or for which a patent application has been filed?

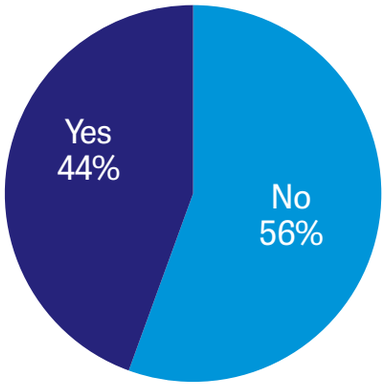


Fig. 21: Funding received from family and friends during startup journey?

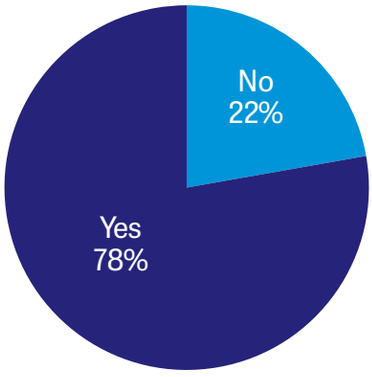


Fig. 22: Did patent applications filed / granted patents help in receiving funds from VC, Government or banks?

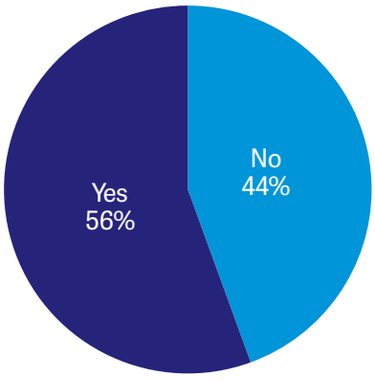
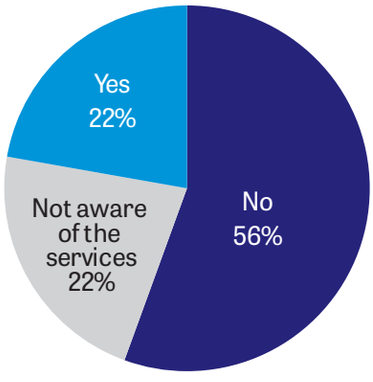


Fig. 23: Awareness and Use of Patent Facilitator Services



Out of 88 deep-tech startups surveyed, 9 provided responses to survey 2. All analyses for survey 2 presented in this section are based on these 9 responses.

Key Findings

Insights from Survey 2: The Impact of Patenting on Startup Growth and Funding

1. Patents are strong enablers of business growth and credibility

- Nearly every respondent reported that patenting directly contributed to their company valuation, investment attraction, and product commercialization.
- Many also linked patents to brand building and market recognition, suggesting that IP is now viewed as a trust signal for investors, customers, and collaborators.
- A few companies cited patents as key to entering new markets or forming strategic co-development partnerships, especially in deep-tech and clean-tech sectors.

2. Funding influence: IP is a visible catalyst for investment

- About 56% of the startups said their patents helped them secure fundings, either from government programs, venture capital, or banks.
- Startups that actively used patents in commercial products also tended to have diversified funding sources by combining grants, equity, and private capital.

3. Patent utilization remains high: Linking IP to actual market offerings

- Most startups indicated that their patented technologies are already integrated into market products, or are part of their immediate roadmap.
- This reflects an ecosystem where R&D leads directly to commercialization, shortening the gap between lab innovation and market deployment.

4. Government Patent Facilitators under-used: The awareness gap remains

- Most respondents were either unaware of or did not use the Government-appointed Patent Facilitators, despite being eligible.
- This shows a need to strengthen outreach and awareness of support services under the Startup India IP Support scheme, which reimburses and subsidizes patent filing costs.

5. AI is emerging as a strong innovation theme

- Over 40% of respondents stated that AI is integral to their patented inventions.
- These include applications in healthcare, industrial automation, enterprise AI, and clean-tech optimization.

6. Founders continue to rely on personal networks: Family and friends are a key bridge capital source

- Around two-thirds of respondents acknowledged receiving family or friend funding during the early stages.
- Even IP-rich startups depend on informal funding before qualifying for formal grants or VC investment, thus highlighting the need for early-stage bridge mechanisms.

7. Common challenges faced by IP-driven startups

Recurring themes in the open responses include:

- Access to capital for deep-tech and hardware-based innovations
- Limited manufacturing infrastructure and regulatory bottlenecks (especially for clean-tech and med-tech)
- Investor mindset gaps: limited understanding of IP-driven business models
- Talent scarcity in technical and cross-functional domains
- High cost and complexity of patent drafting and filing

- *Insight:* These highlight that while India's IP ecosystem is maturing, startups still need policy and ecosystem support to translate patents into scalable production and exports.

Table 13: Combined Insights (from both surveys)

Theme	Insight	Implication
IP Awareness & Registration	Nearly all startups are DPIIT-recognized and RoC-registered	Indicates strong compliance and formal participation in the national innovation ecosystem
IP Integration	Majority actively use patents in products	IP is being commercialized, not just protected
Funding Linkages	IP strength correlates with higher chances of government & VC funding	Supports policy focus on IP-based funding readiness
AI & Emerging Tech	AI integral to nearly half the patented inventions	India's startup IP landscape is shifting toward frontier technologies
Gender Inclusion & Policy Programs	Strong alignment with QWEIN, Startup India, and NIDHI programs	Demonstrates policy-backed progress in women-led and inclusive innovation
Challenges & Support Needs	Capital intensity, manufacturing access, regulatory hurdles, talent quality. Need for better awareness in Government Patent Facilitators	Opportunity for targeted Government Patent Facilitators awareness and IP-linked funding incentives

Annexure I
Top 15 Startups - Details

1. Adiuvo Diagnostics

Company Overview: Adiuvo Diagnostics is a Chennai-based women-led medtech social enterprise founded in 2015, pioneering affordable multispectral autofluorescence imaging devices for rapid, non-invasive pathogen and disease detection in low-resource settings. The flagship product, Illuminate, detects and classifies wound infections in under 2 minutes using machine learning, with applications extending to cancer margin detection, skin diagnostics, and bacterial/fungal identification. Won Qualcomm Design in India Challenge 2020 as the top award winner.[42]

1. **Founder(s) & founding year:** Geethanjali Radhakrishnan - 2015.[43]

2. **Domain:** Medical device technology - opto-electronics, multispectral imaging, autofluorescence diagnostics, machine learning-driven pathogen detection, wound care, label-free point-of-care diagnostics, and emerging applications in cancer margin detection using terahertz and fluorescence multimodal techniques.

3. **Inception & ideation:** Conceived after Radhakrishnan learned of preventable misdiagnosis cases in rural areas due to lack of affordable diagnostic tools. Developed Illuminate using non-invasive multispectral imaging and proprietary machine learning to enable rapid, accurate infection detection at primary care centres, eliminating dependency on culture tests or specialized pathology labs. Technology achieves 5-7x cost advantage over existing multispectral devices.

4. **Funding, Mentorship & Strategic Support:** QDIC 2020 Winner: Awarded ₹65 lakh prize; received mentoring, access to Qualcomm Innovation Lab for advanced testing equipment, and patent filing support. Supported by BIRAC (₹1 crore grant), Villgro Innovation Foundation (early support), Venture Centre Pune (early support), and social impact investors Menterra and Artha Limited.[44] [45] [46] [47]

5. **Product commercialisation status:** Commercial (India) - Illuminate: The startup reports product deployment in clinical settings and is pursuing US FDA and EU MDR approvals.

    a) Adiuvo Diagnostics and TeraLumen Solutions jointly patented a multispectral imaging system (US20240122493A1 / IN538853B - granted April 2024) that combines terahertz and autofluorescence imaging technologies for real-time breast cancer margin detection during surgery using AI, eliminating delays from traditional frozen section analysis. The integrated platform, branded as TeraMargin™, achieves approximately 90% accuracy and enables surgeons to identify cancer boundaries intraoperatively, reducing repeat surgeries and improving patient outcomes. This collaboration represents a strategic convergence of complementary deep-tech approaches, with Adiuvo bringing multispectral autofluorescence expertise and TeraLumen contributing advanced terahertz imaging capabilities.[48]

    b) Adiuvo Diagnostics and CisGen Biotech Discoveries collaborated to develop a camera-assisted artificial insemination (AI) diagnostic gun for cattle breeding programmes (IN202041028136A / IND345240001S), enabling real-time visualization of the reproductive tract during insemination procedures. The innovative device called CowVuw allows accurate assessment of reproductive health status, cervical positioning, and estrus confirmation before semen deposition, significantly improving breeding efficiency and reproductive outcomes that are particularly benefiting resource-limited settings and women farmers in backyard dairy operations.[49]

6. **IP strengths:**

   a) **Total patents** = 50; Granted = 30; Published = 20

   b) **Core claim areas**: wound-infection detection, multispectral imaging diagnostics, AI for pathogen classification.

7. **Scaling & Market Expansion Strategy:** Scaling commercialization across government hospitals, multi-specialty institutions, and clinics with flexible pay-per-test models. Expanding Illuminate applications from wound care to oncology (real-time cancer margin detection) and systemic disease screening. Developing digital AI-assistant for wound triaging and treatment recommendations. Product adoption growing in rural areas where diagnostic labs are inaccessible, with strong traction against culture tests as cost-effective alternative. Pursuing regulatory certifications and international market entry while leveraging QDIC mentoring and Qualcomm chip integration for next-generation portable diagnostic platforms.

2. Steradian Semiconductors

Company Overview: Steradian Semiconductors is a Bengaluru-based fabless semiconductor startup founded in 2016, pioneering high-resolution 4D mmWave imaging radar chips for autonomous vehicles, drones, industrial IoT, and traffic management. The company developed the world's most compact 28nm CMOS millimetre-wave imaging radar chips (SVR4410 and SVR4414) designed for mass-market adoption. Acquired by Renesas Electronics in October 2022 for strategic expansion into automotive radar markets.[50]

1. **Founder(s) & founding year:** Founded in January 2016 by Gireesh Rajendran (Co-founder & CEO, with 13 years at Texas Instruments and 2.75 years at Qualcomm as Chip Lead for LTE-A transceiver), Apu Sivadas (Co-founder & CTO), Alok Joshi, Ashish Lachhwani, and Rakesh Kumar. The core team collectively held 50+ patents in RF/RFIC design before founding Steradian.[51]

2. **Domain:** Automotive radar semiconductors, 4D imaging radar, CMOS mmWave transceivers, automotive driver-assistance systems (ADAS), industrial sensing, drone and surveillance applications, and high-resolution signal processing algorithms. All-weather radar sensing for autonomous vehicle perception stacks.

3. **Inception & ideation:** Founded to transform radar from simple obstacle detection into an all-weather 4D mapping device, enabling autonomous vehicles to operate reliably in adverse weather and low-light conditions which are the primary causes of road accidents. Steradian's modular, flexible IC architecture supports 4–16+ pixels customizable per application while using simplified computing techniques for algorithm execution on shared processors like Snapdragon, enabling real-time over-the-air algorithm updates and AI enhancement.

4. **Funding, Mentorship & Strategic Support:** QDIC II Cycle 1 winner (2017); received Qualcomm mentorship for antenna design and algorithm optimization. Strategic partnership with Integrated Device Technology (Renesas/IDT) in August 2018 to co-develop ultra-high resolution 4D mmWave imaging RADAR, resulting in IDT SenseVerse SVR4410 and SVR4414 ICs deployed across automotive OEMs and industrial customers. Funded by Endiya Partners, Karnataka Startup Cell, Qualcomm Ventures, and Inflexor Technology Fund-Pre Series A (SIDBI/Survam Partners) representing India's deep-tech investment backing. [52] [53] [54]

5. **Product commercialisation status:** Steradian Semiconductors has successfully transitioned from R&D to commercial production following its acquisition by Renesas Electronics in 2022, integrating its 4D mmWave imaging radar technology into Renesas' automotive and industrial product portfolio. The company's flagship radar ICs: SVR4410 and SVR4414 are in active deployment with Tier 1 automotive suppliers and OEMs, powering advanced driver-assistance systems (ADAS) with all-weather, high-resolution imaging capabilities critical for autonomous and semi-autonomous vehicles. Steradian's technology is also expanding into industrial sensing, smart traffic management, and infrastructure safety applications with several pilot and scale deployments underway globally.

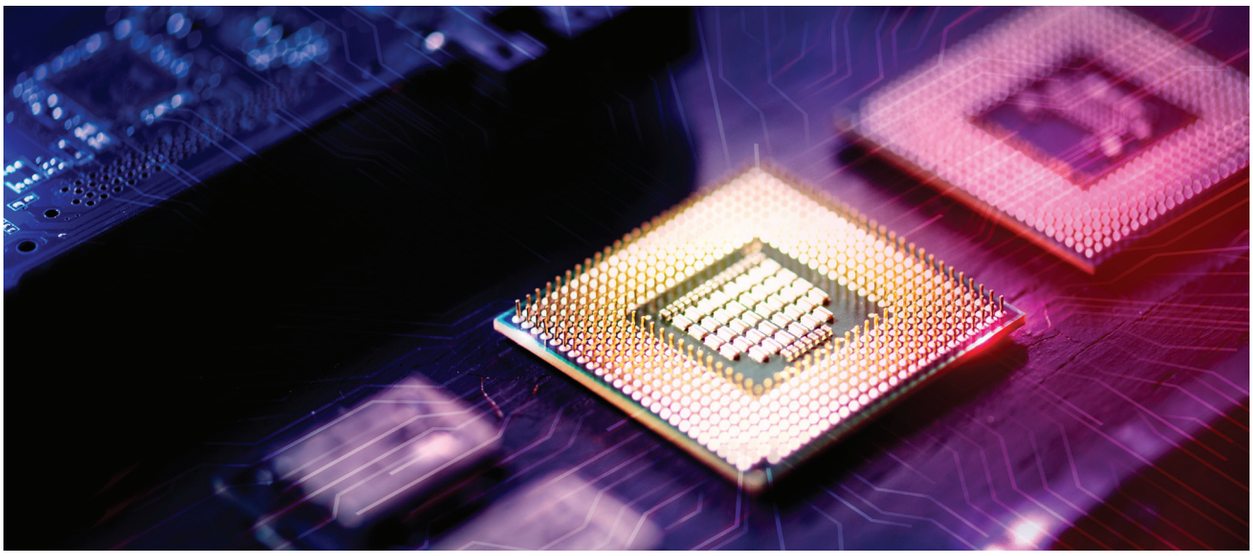
   Visteon Corporation, a global mobility technology leader, has partnered with Steradian Semiconductors to advance next-generation ADAS solutions for the automotive industry. Under their joint development agreement, Steradian will share its cutting-edge 4D imaging radar hardware and perception software with Visteon. These imaging radars are vital for Level 2+ autonomous driving, supporting AI-driven perception, sensor fusion, and enhanced vehicle safety applications. 27

6. **IP strengths:**

   a) **Total Patents** = 32; Granted = 25; Published = 7

   b) **Core claim areas:** radar object-detection, high-resolution imaging radar in vehicle and industrial sensing domains, transceiver design, power management, temperature sensing, and radar signal processing.

7. **Scaling & Market Expansion Strategy:** Acquisition by Renesas Electronics (October 2022) integrated Steradian into a Fortune 500 semiconductor manufacturer with global automotive OEM relationships, accelerating commercialization from startup phase to scale production. Within Renesas, Steradian's radar technology combined with ADAS SoCs, PMICs, timing products, and object recognition software creates end-to-end automotive radar solutions for ADAS systems. Expanding applications beyond automotive (ADAS/autonomous vehicles) into industrial sensing, infrastructure (smart traffic monitoring, precision parking/docking in ports/airports), and surveillance. Market expansion includes European and Asian automotive suppliers leveraging Steradian's compact, power-efficient radar architecture for next-generation Level 3+ autonomous driving platforms.



3. Dimension NXG

Company Overview: Dimension NXG is a Thane-based mixed reality (MR) startup founded in 2014, pioneering India's first indigenous holographic computer headset AjnaLens. The device uses edge-to-edge 90+ degree field-of-view holographic display technology to blend digital and physical worlds, enabling enterprise applications in training, maintenance, surgical guidance, and data visualization. QDIC 2018 finalist; backed by PayTM founder Vijay Shekhar Sharma and other notable investors.[55]

1. **Founder(s) & founding year:** Founded in November 2014 by Pankaj Raut (CEO, Mechatronics Engineering from London South Bank University), Abhijit Patil (COO, Mechanical Engineer from IIT Bombay), Abhishek Tomar (CTO, Computer Science from Jabalpur University), and Gaurav Godbole (CIO, MBA Finance from Pune University). The team originated from a Google Startup Weekend at IIT Bombay where they won first prize for a 3D computer vision solution.

2. **Domain:** Mixed Reality (MR)/Augmented Reality (AR); AI/Cognitive Systems; Human Interface.

3. **Inception & ideation:** Founded on the belief that digital and physical worlds can seamlessly integrate to transform industries like healthcare, education, aerospace, and construction. The name "Ajna" derives from Vedic tradition denoting the third-eye chakra symbolizing intuition and clairvoyance. AjnaLens enables holographic teleportation, XR vision, and immersive data visualization through air-tap gestures and voice commands, positioning holographic computers as the next evolutionary step beyond mainframes, desktops, and laptops.

4. **Funding, Mentorship & Strategic Support:** QDIC 2018 finalist;[56] leveraged Qualcomm Snapdragon 845 chipset for performance optimization on compact computing hardware. Angel-backed by PayTM founder Vijay Shekhar Sharma, Sixth Sense Ventures partner Japan Vyas, Khimji Ramdas Group owner Nailesh Khimji, and Kajaria Ceramics Joint MD Chetan Kajaria, among others. Early-stage deployments in training, operations, and maintenance applications with strategic interest in defence and medical sectors.[57]

5. **Product commercialisation status:** Dimension NXG (AjnaLens) has achieved full commercialisation with multiple active product lines deployed across defence, enterprise, education, and smart eyewear sectors. Its flagship extended reality hardware AjnaXR Pro and AjnaVidya platforms are commercially deployed in skill and vocational training institutes across 500+ Industrial Training Institutes (ITIs), training over 72,000 individuals annually[58] in partnership with government bodies in Karnataka, Tamil Nadu, Bihar, Uttar Pradesh, Assam, and Chhattisgarh, and Siemens, Nvidia and Unreal Engine. Additionally, AjnaLens has expanded into consumer-focused products through its 2025 collaboration with Lenskart to co-develop AI-powered smart glasses, integrating its XR capabilities with Lenskart's product design and global distribution network. Defence deployments include AR systems for the Indian Army, Navy, and DRDO, providing simulation environments and mission rehearsal modules.[59]

6. **IP strengths:**

    a) **Total patents** = 32; Granted = 11; Published = 21

    b) **Core claim areas:** AR / MR headset hardware, AI-enabled vision and gesture interfaces.

7. **Scaling & Market Expansion Strategy:** Pursuing pre-Series A funding to scale product development and market expansion. Target use cases include surgical guidance (X-ray vision during operations), immersive training modules for aerospace and defence, construction site visualization, and remote expert collaboration. Competing in nascent MR headset market against Microsoft HoloLens, Magic Leap, and Meta; positioning AjnaLens as India-made alternative with custom enterprise workflow capabilities. Growth strategy focuses on defence, healthcare, and industrial sectors where holographic visualization offers significant operational efficiency gains.

4. Planys Technologies

Company Overview: Planys Technologies is a Chennai-based deep-tech robotics startup founded in 2015 by IIT Madras alumni and faculty, pioneering autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs) combined with advanced non-destructive testing (NDT) and AI analytics for infrastructure inspection. Operating across maritime ports, dams, bridges, oil & gas facilities, and power plants, Planys has executed 300+ inspection projects across 3 countries, inspected critical assets worth billions of dollars, and delivered data-driven insights that enable predictive maintenance strategies. QDIC 2020 First Runner-Up winner.[60]

1. **Founder(s) & founding year:** Founded in March 2015 by Tanuj Jhunjhunwala (Co-founder & CEO, IIT Madras 2014-batch alumnus, Forbes 30 Under 30 Asia 2021), Vineet Upadhyay (Co-founder & CTO), Rakesh Sirikonda, and professors Krishnan Balasubramanian and Prabhu Rajagopal (Faculty advisors). The founding inspiration emerged from a 2012 research project addressing the critical gap in safe, data-driven underwater asset inspection.[61]

2. **Domain:** Marine robotics, underwater inspection, non-destructive testing (NDT), underwater autonomous vehicles, remotely operated vehicles (ROVs), AI-powered data analytics, structural health monitoring, infrastructure maintenance, and defence autonomous systems. Sectors: maritime (ports, terminals), infrastructure (dams, bridges), energy (oil & gas, petrochemical, power, hydro, nuclear).

3. **Inception & ideation:** Founded to replace manual, hazardous diver-based underwater inspections with unmanned, data-driven robotic solutions. Planys developed proprietary underwater NDT methods (ultrasonic thickness gauging, magnetic particle inspection, SONAR imaging) combined with HD videography, laser defect quantification, turbid water enhancement, and corrosion monitoring, delivering comprehensive asset health intelligence without requiring shutdowns. Vision: transition industries from time-based to risk-based maintenance protocols.

4. **Funding, Mentorship & Strategic Support:** QDIC 2020 First Runner-Up. Expanded into defence sector with support from India's IDEX (Innovations for Defence Excellence) programme designing autonomous underwater vehicles for mine countermeasures, ISR (Intelligence, Surveillance, Reconnaissance), and port security. Partnerships with maritime authorities, energy sector operators. Planys Technologies has secured a ₹43 crore equity infusion led by renowned investor Ashish Kacholia. The funding round also saw participation from Samarthya Advisors, Golden Birch Investments, Cogniphy Angel Fund, Krishna Defence, and Impact India Investment Partners LLC.[62] [63] [64] [65]

5. **Product commercialisation status:** Planys Technologies has fully commercialized its underwater robotic inspection systems, deploying advanced AUVs and ROVs across ports, dams, bridges, and offshore energy sites in India and abroad. Its patented AI-enabled platforms like Svaayatt and Jal Avlokini deliver high-precision NDT and real-time analytics, used by leading clients such as L&T, IOCL, and BPCL. Backed by $7.5 million funding and partnerships with IIT Madras[66] and Qualcomm, the company operates globally across the Middle East, Europe, and Southeast Asia, driving asset integrity management through smart marine robotics.

6. **IP strengths:**

   a) **Total patents** = 31; Granted = 26; Published 5

   b) **Core claim areas:** underwater robotic inspection, sensor fusion for NDT, digital reporting dashboards.

7. **Scaling & Market Expansion Strategy:** Scaling commercialization through expansion into subsea cable monitoring, offshore wind farm inspections, and next-generation autonomous inspection systems. Defence AUV products targeting India's navy and coast guard modernization under Atmanirbhar Bharat initiatives. AI-enabled predictive maintenance dashboards expanding to multi-asset monitoring for large industrial complexes. International market penetration in Southeast Asia, Middle East, and Europe (Netherlands) targeting ports, energy facilities, and bridge/dam infrastructure. Targeting ₹100+ crore revenue run-rate through product scaling, managed services, and IP licensing to global marine robotics companies.

5. Aereo

Company Overview: Aereo (formerly Aarav Unmanned Systems, founded 2013) is a Bengaluru-based enterprise drone solutions provider, pioneering autonomous survey-grade UAVs for industrial applications including mining, agriculture, infrastructure, and urban planning. The company became India's first to achieve DGCA certification for a small-category drone and was among the inaugural recipients of the government's PLI scheme for drones. Aereo has mapped over 40,000 villages under India's SVAMITVA scheme and 25,000+ sq. km in Haryana, establishing itself as one of India's largest commercial drone operators.[67]

1. **Founder(s) & founding year:** Founded in 2013 at IIT Kanpur by Vipul Singh (Co-founder & CEO, aerospace engineer with systems engineering and business strategy expertise) and Suhas Banshiwala (Co-founder & CTO, specializing in navigation, control systems, and embedded technology). Additional co-founders include Nikhil Upadhye (image processing, software development, former Google Summer of Code developer) and Yartha Yeswanth Reddy (M. Tech Aerospace, IIT Bombay).[35]

2. **Domain:** Enterprise drone solutions, autonomous aerial vehicles (AAVs), precision agriculture, industrial surveying, 3D mapping, GIS (geographic information systems), thermal inspection, NDVI-based crop health analysis, infrastructure monitoring, disaster impact assessment, and government land surveying programs. Proprietary technologies include PPK GPS, terrain-following capabilities, and vision-based navigation (Nayan platform).[68]

3. **Inception & ideation:** Conceived by IIT Kanpur researchers to transition UAV technology from recreational aero-modelling to industrial-grade engineering applications for 3D mapping and land surveys. The founding team identified that conventional surveying methods were slow and expensive, creating opportunities for 10X faster data collection with million-times richer analytics. The Nayan platform emerged to enable GPS-denied autonomous flight using vision-based navigation for hostile environments like nuclear plants and disaster zones.

4. **Funding, Mentorship & Strategic Support:** QDIC 2016 finalist (among 10 shortlisted from 400+ applicants); received $10,000 initial prize and incubation at Qualcomm Innovation Lab, Bengaluru, with engineering support and development kits. Funding raised from StartupXseed Ventures, 3ONE4 Capital (Mohandas Pai family fund), The Phoenix Fund, JSW Ventures, and angel investors including Ashok Atluri and Sanjay Jesrani, among others. First Indian company to receive PLI scheme incentives (April 2023) from Ministry of Civil Aviation. Government partnerships include SVAMITVA (40,000+ village mapping), Haryana state mapping (25,000 sq. km), and DGCA-certified deployments for mining, power, and survey sectors.[69] [70]

5. **Product commercialisation status:** Aereo (formerly Aarav Unmanned Systems) has achieved full commercialisation, with its DGCA-certified drones actively deployed for government and enterprise projects. As of 2025, Aereo is a leading supplier under the Government of India's SVAMITVA land mapping scheme[71] (40,000+ villages mapped), and has type-certified models like the Aereo ZFR for nationwide deployment. Benefiting from incentives under the Ministry of Civil Aviation's PLI scheme, Aereo is scaling manufacturing and R&D, supporting customers across mining, agriculture, infrastructure, and state-led drone missions.

6. **IP strengths:**

    a) **Total patents** = 24; Granted = 15; Published = 9

    b) **Core claim areas:** Unmanned aerial vehicles (UAV) for asset inspection, AI-driven analytics, connectivity-enabled drone systems.

7. **Scaling & Market Expansion Strategy:** Scaling PLI-backed manufacturing capacity to meet government and enterprise demand for survey-grade drones. Expanding SVAMITVA program deployment nationwide while targeting export opportunities leveraging DGCA-certified platforms. Developing next-generation autonomous swarm technology and advanced AI-powered analytics for real-time decision-making. Diversifying into defence, border surveillance, and smart-city infrastructure monitoring under Make in India initiatives. Strategic focus on transitioning from project-based services to product-led recurring revenue models through drone-as-a-service (DaaS) platforms and SaaS analytics subscriptions.

6. Turtleshell Technologies (Dozee)

Company Overview: Turtleshell Technologies, operating as Dozee, is a Bengaluru-based health tech startup founded in 2015, pioneering India's first contactless Remote Patient Monitoring (RPM) and Early Warning System (EWS) using proprietary ballistocardiography (BCG) technology. Dozee's under-mattress sensor captures micro-vibrations from heartbeats and respiration, delivering 98.4% accurate vital signs (heart rate, respiratory rate, sleep stages, apnea detection) without wearables or physical contact. Backed by Bill & Melinda Gates Foundation, Qualcomm, and totalling 307+ crore in funding, Dozee has received US FDA 510(k) clearance and CE Mark, with deployments across 380+ hospitals in 50 Indian districts and international expansion underway.[72]

1. **Founder(s) & founding year:** Founded in 2015 by Mudit Dandwate (CEO, IIT-Bombay alumnus, former Altair software developer) and Gaurav Parchani (CTO, IIT-Indore graduate, former Altair technologist). The pair envisioned simplifying healthcare through technology, partnering with premier research institutions like NIMHANS and Sri Jayadeva Institute to validate the technology.[73]

2. **Domain:** Founded in 2015 by Mudit Dandwate (CEO, IIT-Bombay alumnus, former Altair software developer) and Gaurav Parchani (CTO, IIT-Indore graduate, former Altair technologist). The pair envisioned simplifying healthcare through technology, partnering with premier research institutions like NIMHANS and Sri Jayadeva Institute to validate the technology. 40

3. **Inception & ideation:** Conceived to address India's acute shortage of nursing staff (needs 4.3 million additional nurses per WHO standards) by automating patient monitoring through contactless sensors placed under mattresses. BCG technology captures cardiac and respiratory signals 100+ times per second, converting micro-vibrations into clinical-grade vital parameters. The vision: reduce nursing workload, enable timely detection of patient deterioration, and democratize critical care access across primary, secondary, and tertiary hospitals.

4. **Funding, Mentorship & Strategic Support:** QDIC-supported startup (per QDIC 2023 health tech cohort); collaborations with NIMHANS, Sri Jayadeva Institute, AIIMS Jodhpur, Indira Gandhi Medical College Nagpur, and Sparsh Hospital for clinical validation. Series A2 ($6M, April 2023) led by Prime Venture Partners, YourNest VC, 3one4 Capital, with new investors State Bank of India, J&A Partners family office, and Dinesh Mody Ventures. Supported by Bill & Melinda Gates Foundation, Government of India (CAWACH COVID-19 support), Qualcomm, and British International Investment (BII) for scaling public hospital deployments.[74] [75] [76]

5. **Product commercialisation status:** Dozee, developed by Turtleshell Technologies, is fully commercialized and widely adopted as a contactless remote patient monitoring and early warning system. Its under-mattress sensor provides accurate vital sign monitoring (heart rate, respiratory rate, sleep stages) without wearables, deployed in over 380 hospitals across 50+ Indian districts and expanding internationally. Dozee holds US FDA 510(k) clearance[77] and CE certification[78], supporting ICU, HDU, and general ward monitoring with AI-driven alerts to reduce nurse burden and improve patient outcomes. Backed by significant funding including Bill & Melinda Gates Foundation[79] and Qualcomm, Dozee is scaling through government and private hospital partnerships with expanding home healthcare deployments.

6. **IP strengths:**

   a) **Total patents** = 21; Granted = 5; Published = 16

   b) **Core claim areas:** contactless physiological monitoring, micro-vibration–based vital sign analysis, acoustic sensing for health diagnostics, non-intrusive biofeedback and early warning systems, and AI-driven biometric identification.

7. **Scaling & Market Expansion Strategy:** Scaling rollout through strategic partnership with British International Investment to connect 6,000 beds across 140+ public hospitals in India and emerging markets. US market expansion post-FDA clearance (2022)[80] and international deployment in Africa and Southeast Asia. Product roadmap includes enhanced multi-parameter integration with ECG, SpO2, temperature sensors; advanced AI algorithms for predictive deterioration; and DaaS (Device-as-a-Service) models for hospitals.

7. Janitri Innovations Pvt. Ltd.

Company Overview: Janitri Innovations, founded in 2016 by Arun Agarwal in Bengaluru, is a MedTech startup focused on IoT-enabled maternal and neonatal monitoring solutions. The company's AI-powered wireless foetal and maternal health devices provide real-time vital sign monitoring for hospitals and home care, aimed at reducing maternal and neonatal mortality in underserved areas. Raised $1.4 million in pre-Series A funding in 2025, Janitri has deployed solutions across 800+ hospitals and exports to 11 countries. Collaborates with Vellore Institute of Technology for R&D and continues expanding product offerings, targeting global scale and AI-enabled postnatal care devices.[81]

1. **Founder(s) & founding year:** Founded in 2016 by Arun Agarwal, a biomedical engineer from VIT and former patent analyst. Field visits to 100+ hospitals revealed fatal gaps in foetal-maternal monitoring, driving his mission to make every pregnancy safer. Prior BIRAC SIIP fellowship in 2015 catalysed early R&D and clinical validations.[82]

2. **Domain:** Deep-tech MedTech - IoT-enabled foetal, maternal, and neonatal monitoring devices (Keyar, Daksh, Navam) backed by AI/ML analytics. Solutions span hospital CTG patches to home-use dopplers, giving real-time vitals and predictive alerts. Focus on affordable, connected hardware plus cloud software for low-resource settings. Patented sensing architecture underpins the product line.

3. **Inception & ideation:** Agarwal witnessed preventable maternal deaths in his hometown Alwar, prompting the search for scalable tech fixes. BIRAC's SIIP[83] fellowship in 2015 catalysed early R&D and clinical validations. Iterative pilots across rural labour wards confirmed the need for belt-less, portable monitors. The company's vision emerged around covering the "1000-day journey" from conception to age two.

4. **Funding, Mentorship & Strategic Support:** Closed $1.4M pre-Series A round in June 2025 led by investor Ashish Kacholia to fund consumer-market push. Signed R&D pact with Vellore Institute of Technology to co-develop affordable maternal devices. Products already used by 800+ hospitals, monitoring 200k+ mothers and exported to 11 countries.[84] [85]

5. **Product commercialisation status:** Fully commercialized with Keyar deployed in 800+ hospitals for continuous wireless CTG monitoring and Daksh targeting home healthcare for high-risk pregnancies. Products exported to 11 countries with active sales and distribution channels. Navam neonatal monitor recently launched for NICU applications. ISO 13485 certified with ongoing regulatory approvals for international markets. Products also includes smart postpartum smart ring and neonatal wearables.

6. **IP strengths:**

   a) **Total Patens** = 18; Granted = 13; Published = 5

   b) **Core claim areas:** foetal and maternal vital sign monitoring, uterine and abdominal signal sensing, wearable and patch-based pregnancy monitoring systems, and secure smart labelling for medical device integration.

7. **Scaling & Market Expansion Strategy:** Targeting Series A and FDA/CE clearances to expand international footprint.[86] Pipeline includes smart postpartum ring and neonatal wearables. Strategic focus on consumer healthcare market penetration alongside institutional deployments.

8. Artelus

Company Overview: Artelus is a Bengaluru-based AI-powered health tech startup founded in 2015, pioneering affordable diagnostic solutions for preventable diseases affecting underserved populations globally. The company's flagship DRISTi platform leverages deep learning algorithms to screen diabetic retinopathy in under 15 seconds with 93%+ accuracy, eliminating the need for specialized ophthalmologists at primary care centres. Winner of Qualcomm Design in India Challenge 2018, Artelus has deployed its CE-marked solutions across 286+ locations, screening thousands of patients and saving 5,000+ eyes within its first commercial year.[87]

1. **Founder(s) & founding year:** Founded in October 2015 by Pradeep Walia (Carnegie Mellon alumnus with 20+ years IT industry experience and serial entrepreneur), Rajarajeshwari Kodhandapani, Vish Durga and Lalit Pant.[88] [89]

2. **Domain:** AI-driven medical imaging for ophthalmic and other disease diagnostics, offering deep learning-powered screening tools for diabetic retinopathy, TB, breast cancer, and lung cancer. Devices include Fundus cameras and portable OCTs with offline AI capabilities.

3. **Inception & ideation:** Born to democratize healthcare and tackle India's diabetic population challenge (~69 million) with accessible AI-based retinal diagnostics that operate offline, supporting early disease detection in remote settings.

4. **Funding, Mentorship & Strategic Support:** Winner of Qualcomm Design in India Challenge 2018, leveraging Snapdragon chipsets to enable portable AI imaging. CE marked in 2019 for global markets, pursuing FDA clearance.[90] Over 50 Indian centres deployed, screening thousands and saving thousands of eyes. Patents filed with key granted patents on AI retinal analysis and disease detection.[91] [92]

5. **IP strengths:**

   a) **Total Patents** = 18; Granted = 10; Published = 8

   b) **Core claim areas:** AI-driven medical image analysis, retinal and fundus disease detection, skin and oral condition classification, remote patient monitoring, and predictive analytics for healthcare data management.

6. **Scaling & Market Expansion Strategy:** With CE Mark enabling European and Asian market penetration and ongoing FDA submission, Artelus is positioned for international scaling beyond current 50+ Indian deployment sites. The company's pipeline expansion into TB, breast cancer, and lung cancer screening tools backed by its proven deep-learning infrastructure offers diversification beyond ophthalmology. Targeting FDA clearance, expanding to UK/Middle East/Malaysia/Australia markets, and scaling from 50 to 200+ deployment centres while raising Series A funding. Focus on self-supervised learning methodologies (DINO, BYOL) and GANs for synthetic medical image generation positions it at the forefront of next-gen diagnostic AI.

9. Xyma Analytics Pvt Ltd

Company Overview: Xyma Analytics, founded in 2019 in Chennai and incubated at IIT Madras, delivers patented Industrial IoT sensors for high-temperature and harsh industrial environments. Their multi-parameter ultrasonic waveguide tech enables real-time monitoring of temperature, viscosity, density, and fluid levels, bringing advanced process analytics to manufacturing, oil & gas, and energy industries.[93] [94]

1. **Founder(s) & founding year:** Founded by Dr. Nishanth Raja (CEO), Prof. Krishnan Balasubramanian, and Prof. Prabhu Rajagopal in 2019, all with deep research pedigrees from IIT Madras' Centre for Non-Destructive Evaluation.[95]

2. **Domain:** Deep-tech Industrial IoT, advanced sensors, ultrasonic waveguide monitoring, process automation, structural health for harsh industrial sectors like energy, petrochemical, and aerospace.

3. **Inception & ideation:** Originated from two decades of CNDE technology at IIT Madras, with research-led validation in oil, gas, and heavy industries. Built to bridge persistent gaps in remote, multipoint, accurate sensing for tough process conditions.

4. **Funding, Mentorship & Strategic Support:** Qualcomm QDIC 2021 finalist,[96] leveraging Qualcomm SoCs to smarten sensor platforms for Industry 4.0; field trials and pilots with major MNCs, and part of NASSCOM DeepTech Club. Xyma had raised around $1 million or 6. 85 crores from a clutch of investors including GAIL, SHELL and venture capital funds such as 8x Venture, Sophonos and Venture Catalyst, besides a few angel investors. The company also benefited from incubation and grant support from IIT Madras and TDB, along with strategic debt facilities from Indian banks in 2025.[97] [98] [99] [100]

5. **IP strengths:**

   a) **Total Patents** = 16; Granted = 7; Published = 9

   b) **Core Claim Areas:** ultrasonic and waveguide-based sensing, real-time fluid and material property monitoring, IoT-enabled industrial diagnostics, super-resolution imaging and transducer design, and metamaterial structures for vibration and seismic protection.

6. **Scaling & Market Expansion Strategy:** Targeting global expansion from 15+ MNC customers, with plug-and-play sensor products for sectors like aluminium smelting, metals, and chemicals. Aims to double commercial deployments and advance export of indigenous Industry 4.0 solutions with support from deep-tech industry partnerships and successful pilot outcomes.

10. Ubifly Technologies

Company Overview: Ubifly Technologies, operating as The ePlane Company, is a Chennai-based IIT Madras-incubated Urban Air Mobility startup developing electric vertical take-off and landing (eVTOL) aircraft for passenger and cargo transport. Founded in 2019 with $20 million raised to date, the company holds India's first DGCA Design Organisation Approval for electric aircraft and targets commercial air taxi operations by 2026.[101]

1. **Founder(s) & founding year**: Founded in 2019 by Prof. Satyanarayanan Chakravarthy (IIT Madras Aerospace Professor and Head of National Centre for Combustion Research) and Pranjal Mehta (IIT Madras alumnus). Prof. Satya Chakravarthy has been at IIT Madras since 1998 and developed a widely accessible NPTEL course on electric aircraft propulsion, which he has referred to as the "first-of-its-kind-in-the-world semester-long course" focusing on the academic and engineering aspects of the technology.[102] [103] [104]

2. **Domain**: Urban air mobility (UAM), electric vertical take-off and landing (eVTOL), hybrid drone technology, autonomous aerial logistics, air ambulance services, and agricultural drones. Proprietary "Aerodynamic Synergy" technology combines rotor and wing efficiency for compact, sustainable aircraft.

3. **Inception & ideation**: Conceived in 2017 when Prof. Chakravarthy recognized automotive electrification trends and envisioned applying them to aerospace, launching research at IIT Madras' National Centre for Combustion Research. Incorporated as Ubifly in 2019 to ease urban traffic congestion through sustainable electric aviation solutions.

4. **Funding, Mentorship & Strategic Support**: Raised $14 million Series B (November 2024) from Antares Ventures and Speciale Invest. Secured $1 billion for 788 air ambulances (February 2025). Sister company Amber Wings received DGCA Type Certification for ATVA-1 hybrid cargo drone (July 2025). Filed multiple patents on hybrid aerial vehicle systems including wing-rotor synergy technology.[105] [106] [107] [108]

5. **IP Strengths**:

   a) Total Patents = 16; Granted = 7; Published = 9

   b) Core Claim Areas: aerodynamic lift enhancement for fixed-wing aircraft, hybrid aerial vehicle design, vertical rotor integration, and structural assemblies for improved flight performance and stability.

6. **Scaling & Market Expansion Strategy:** Developing certifiable manned e200x eVTOL prototype by April 2025 with manned flight testing mid-2025; targeting full DGCA and EASA certifications by end-2026. The $1 billion ICATT contract positions deployment of 788 eVTOLs across India for emergency air ambulance services. Scaling 2-6 kg payload drones commercially with Amber Wings expanding ATVA-1 cargo drone and Vihaa agricultural drone operations.

11. Innogle Technologies Pvt. Ltd.

Company Overview: Innogle Technologies is a women-led, Chennai-based ocean tech deep-tech startup founded in 2019 with 6+ years of prior research. The company pioneered India's first 5G deployment on ocean and developed the award-winning Kadalcompass device for real-time fishing safety, profitability optimization, and digital ocean infrastructure. Recognized as a Best 5G use case by Department of Telecommunications (DoT) and MeitY Innovative Startup of the Year 2019.[109]

1. **Founder(s) & founding year:** Founded in January 2019 by Shobana U (Founder and CEO), a 9+ year ocean tech domain expert with extensive global experience in IoT, AI/ML, embedded systems, and ocean research across India, Europe, Malaysia, Hong Kong, UAE, and China. Member of TSDSI and VoICE (Voice of Indian Communication Technology Enterprises).[110] [111]

2. **Domain:** Ocean tech, 5G-enabled IoUT (Internet of Underwater Things), AI vision systems, marine IoT wearables, underwater communications, fisheries tech, digital ocean infrastructure, coastal security, and underwater inspection services. HydroAI aquaculture platform for fish health management, disease detection, feed efficiency monitoring, and real-time water quality analytics.

3. **Inception & ideation:** Conceived to create a "Digital Ocean" enabling two-way communication between fishing vessels using 5G/LoRa/4G as a private network switch. Kadalcompass device addresses 21.7 million ocean78 workers by providing life safety monitoring, profitable fishing zone (PFZ) identification, granular ocean data collection for researchers, and doctor-on-call connectivity even in deep sea. HydroAI extends this vision to aquaculture, automating fish behaviour monitoring, disease prediction, and feed optimization for sustainable farming operations.

4. **Funding, Mentorship & Strategic Support:** Won Best 5G Use Case at DoT 5G Hackathon; MeitY Innovative Startup Award 2019; Most Innovative Enterprise 5G Use Case at Indian Mobile Congress 2022; NITI AAYOG WTI Awards 2019; NASSCOM DESIGN4INDIA finalist; TieNCR Manufacturing Spirit Award; finalist National Startup Award 2020. MOC letters signed with Railways Minister Ashwini Vaishnaw and Fisheries Minister Rupala for pan-state deployment pilots. 50+ field pilots; partnership agreements with Asia's leading telecom group; collaboration discussion with Victoria government (Australia).[112] [113] [114]

5. **IP Strengths:**

   a. **Total Patents** = 16; Granted = 13; Published = 3

   b. **Core Claim Areas:** autonomous and remotely operated navigation systems, aerial and marine imaging for object identification, wearable surveillance and tracking devices, and unmanned platforms for environmental monitoring and safety applications.

6. **Scaling & Market Expansion Strategy:** Tamil Nadu government has requested 500 device sets for large-scale deployment; conversations underway for pilot programs across states. Development of world's first ocean floating telecom tower and underwater cable monitoring system. Pursuing international expansion with enquiries from global countries and collaboration with Victoria, Australia for ocean research. Scaling Kadalcompass commercialization with pilots expanding beyond fishing to include coast guard, ocean research, and aquaculture IoT solutions. Targeting integration of next-gen AI/ML models for predictive analytics on vessel operations and ocean conditions.

12. Blackfrog Technologies

Company Overview: Blackfrog Technologies is a Manipal, Karnataka-based medtech startup founded in 2015, pioneering active cooling solutions for last-mile cold chain management of vaccines and biologicals. The flagship product Emvolio, a portable battery-powered medical-grade refrigerator, maintains 2–8°C for 12+ hours and has achieved WHO PQS prequalification (E003/134), ISO 13485 certification, and deployment across 800+ rural health centres in 16 Indian states plus international markets.[115]

1. **Founder(s) & founding year:** Founded in November 2015 by three school friends: Mayur U. Shetty (CEO, Cambridge Fellow from Manipal University), Donson D Souza (COO, B. Tech from Mangalore Institute of Technology), and a third co-founder. Conceived to address preventable vaccine wastage in remote areas where Anganwadi workers used thermoses for vaccine transport.

2. **Domain:** Medical device manufacturing, precision cold-chain systems, temperature-controlled logistics, portable thermoelectric refrigeration, IoT-enabled vaccine traceability, and emerging applications in pharma, diagnostics, and clinical research. Solid-state cooling with PID controller technology eliminates refrigerant risks and freezing hazards.

3. **Inception & ideation:** Founded on the mission of creating locally replicable technology with global impact through domestic manufacturing and rural employment generation. Emvolio emerged to solve a critical gap: 50% of vaccines waste due to cold-chain disruption during last-mile delivery.[116] The patented rapid cooling system (96% faster than ice-based technology) maintains precision temperature without freeze-thaw cycles, achieving TRL-9 (Technology Readiness Level 9).

4. **Funding, Mentorship & Strategic Support:** Qualcomm QDIC 2019 Grand Prize Winner (₹65 lakh cash + 3.2 lakh patent filing support). Supported by BIRAC (DBT), Venture Centre Pune, Social Alpha, Selco Foundation (first customer for vaccine deployment). Pre-Series A funding of $1.7 million (July 2025) from Global Innovation Fund (Thrive climate-health fund), Rainmatter Capital, and Manipal Education and Medical Group.[117] [118] [119] [120]

5. **IP Strengths:**

    a. **Total Patents** = 15; Granted = 11; Published = 4

    b. **Core Claim Areas**: portable and medical-grade refrigeration systems, temperature-controlled storage for vaccines and pharmaceuticals, smart traceability and delivery management, and specialized vial holding and transport mechanisms.

6. **Scaling & Market Expansion Strategy:** Accelerating three new cold-chain products for diagnostics, pharma logistics, and clinical research to capture India's 34.1 billion vaccine wastage cost opportunity. Scaling global footprint from Kenya and Nigeria to Sub-Saharan Africa, Latin America, and Asia. IoT and remote monitoring integration for real-time tracking. Targeting Series A funding and market leadership in medical refrigeration by 2030. Expanding solar-powered Emvolio variants for off-grid deployment in underserved regions where 2.3 million children die annually from lack of vaccine access.

13. Hachidori Robotics

Company Overview: Hachidori Robotics is a Bengaluru-based Autonomous Mobile Robot (AMR) startup founded in 2019, pioneering Industry 4.0 material handling automation with patented wireless indoor navigation technology. The company's robots operate at one-third the cost of imported alternatives without requiring floor modifications, magnetic strips, or QR codes. Deployed across automotive, pharmaceutical, FMCG, and warehousing sectors, Hachidori was a QDIC 2020 finalist and currently scales from 6 offices across 4 states with 100+ employees.[121]

1. **Founder(s) & founding year:** Founded in August 2019 by Janakiram Annam (Founder & CEO, former Director at NXP Semiconductors with 21+ years in IoT product development), Ramanathan Venkataraman (Founder & CTO), and Ravishankar Jayashankar (Founder & COO). Bootstrapped from inception, the team's deep semiconductor and IoT expertise enabled rapid technology development.

2. **Domain:** Autonomous mobile robotics, Industry 4.0, material handling automation, warehouse automation, stereo vision-based obstacle detection, indoor navigation systems, IoT integration, fleet management, and factory logistics optimization using AI/machine learning.

3. **Inception & ideation:** Founded to address India's low AMR penetration by developing affordable, easily deployable robots for smart factories and warehouses. The mission was to revolutionize material movement by eliminating expensive infrastructure requirements while delivering robots at one-third imported cost. Proprietary "Wireless Natural Navigation" using indoor GPS technology provides ±10mm accuracy without floor modifications, enabling live deployment in active factories.

4. **Funding, Mentorship & Strategic Support:** Qualcomm QDIC 2020 cohort finalist; leveraged Qualcomm SDM660 System-on-Chip for stereo vision and obstacle avoidance. Deployed in automotive factories (Craftsman - partner), pharmaceutical plants, FMCG facilities, and warehouses across southern India with expansion to northern and eastern regions.[122] [123]

5. **IP Strengths:**

   a. **Total Patents** = 13; Granted = 4; Published = 9

   b. **Core Claim Areas:** real-time navigation and localization of autonomous entities, absolute position and orientation determination, spatial mapping for robotic movement, and automated battery exchange systems for mobile robots.

6. **Scaling & Market Expansion Strategy:** Scaling commercial deployment from initial units (Q4 2022) to multi-city presence across four states with expansion to pan-India and international markets. Targeting 2x deployment growth through LogiMAT India 2024[124] and India Warehousing Show[125] presence. Expanding product line with sanitization and inspection robot variants. Fleet management platform integration for OT (operational technology) ecosystem, predictive maintenance AI, and emerging applications in workplace safety and disinfection.

14. Myelin Foundry

Company Overview: Myelin Foundry is a Bengaluru-based deep-tech AI startup founded in January 2019, pioneering edge AI solutions for real-time processing of video, voice, and sensor data on consumer and industrial devices. The company has raised $9.36 million to date and operates across automotive, media & entertainment, and industrial manufacturing sectors. Recognized as QDIC 2021 finalist and backed by Infosys co-founder Kris Gopalakrishnan's Pratithi Investment Trust.[126]

1. **Founder(s) & founding year:** Founded in January 2019 by Dr. Gopichand Katragadda (Founder & CEO, former Group CTO at Tata Sons with 20+ years in embedded systems and AI), Ganesh Suryanarayanan (Co-founder, tech entrepreneur from Silicon Valley), and Aditi Olemann (Co-founder, IIT Guwahati & London Business School alumna specializing in global tech innovation).

2. **Domain:** Edge AI, multimodal AI (video, voice, sensor data), real-time analytics, computer vision, industrial surface inspection, automotive cockpit AI, OTT video streaming optimization, and agentic AI assistants. Proprietary algorithms optimized for low-data, low-latency edge deployment.[127]

3. **Inception & ideation:** Founded to deploy AI at the edge, directly on devices rather than cloud, enabling real-time decision-making for unstructured data. Initial focus on OTT streaming (Fovea Stream)[128] evolved to automotive cockpit experiences, industrial quality control, and emerging agentic AI (XAIRA) for conversational AI. Vision: global-first AI products from India leveraging edge computing and complex data processing.

4. **Funding, Mentorship & Strategic Support:** QDIC 2021 finalist. Series A led by Visteon Corporation (global automotive electronics), Series A-II ($4M, May 2024) led by SIDBI Venture Capital with Endiya Partners, Pratithi Investment Trust and Subh Labh. Mahindra & Mahindra for M-Lens automotive cockpit AI in XUV-700; global automotive and OTT platform deployments.[129] [130] [131]

5. **IP Strengths:**

    a. **Total Patents** = 12; Granted = 1; Published = 12

    b. **Core Claim Areas:** AI-based multimedia and audio-visual processing on edge devices, wellness and health monitoring for humans and livestock, predictive analytics for wellness metrics, and interactive music-driven or ambient control systems.

6. **Scaling & Market Expansion Strategy:** Expanding product suite: P.I.E (in-car Protection, Information, Entertainment), INSPECT AI and PREDICT AI for smart factories, UPSCALER AI for 40% streaming cost reduction. International expansion with co-founder Ganesh relocating to US to scale US customer base;[132] targeting AsiaPac and European markets. Industrial automation focusses through Fovea EDGE product line (ECV+, ECV, HAND-i) for automotive, aerospace, pharma, F&B, and electronics manufacturing. Agentic AI (XAIRA) expansion for contextual conversational support.

15. Cradlewise (Chigroo Labs)

Company Overview: Cradlewise is a Bengaluru-founded, US-based smart baby tech startup established in 2016 as Chigroo Labs, pioneering AI-powered convertible cribs for infant sleep management. The flagship product combines autonomous rocking, integrated baby monitoring, sound/light therapy, and cloud learning to detect early wake-up cues and adapt to each baby's sleep patterns. Awarded TIME's Best Inventions 2020; currently shipping to US markets with plans to expand globally.[133] [134]

1. **Founder(s) & founding year:** Founded in 2016 by Radhika Patil (Founder & CEO, formerly Senior Engineer at Qualcomm with embedded systems expertise) and Bharath Patil (Co-founder). The couple conceived the product after their first child's birth when struggling to improve infant sleep patterns. Radhika led 200+ parent interviews validating the problem before product development.[101]

2. **Domain:** Baby tech, IoT smart nursery products, infant sleep fitness, AI/machine learning for health monitoring, embedded systems, cloud connectivity, mobile app ecosystems, and integrated health and wellness monitoring for infants. Technology combines computer vision, motion sensors, audio processing, and predictive algorithms.[135]

3. **Inception & ideation:** Inspired by parenting challenges during Radhika and Bharath's first child's infancy. Traditional smart sleepers only respond after the baby fully woke up; Cradlewise uniquely detects early wake-up signs and proactively sooths the baby before full wakefulness. Initial prototype was a hammock-based cradle, evolved into a sensor-integrated convertible crib with bouncing motion (simulating parental soothing on yoga balls) instead of traditional rocking.

4. **Funding, Mentorship & Strategic Support:** QDIC 2018 finalist; leveraged Snapdragon APQ8016 chipset from Qualcomm for computing core of smart cradle. Series A funding ($7M, 2021) led by Footwork with participation from CRV, SOSV, Better Capital, and angel investors including Stitch Fix founder Katrina Lake, Italic CEO Jeremy Cai, CTO of Molekule Dilip Goswami and ex-CEO of Misfit Wearables Sonny Vu. Current investor backing: OpenAI CEO Sam Altman (July 2025 endorsement sent Cradlewise website traffic up 30% and sales spike). Product claims: AI learns sleep patterns, detects breathing/movement, adapts rocking intensity, offers soothing music/white noise.[136] [137] [138] [139]

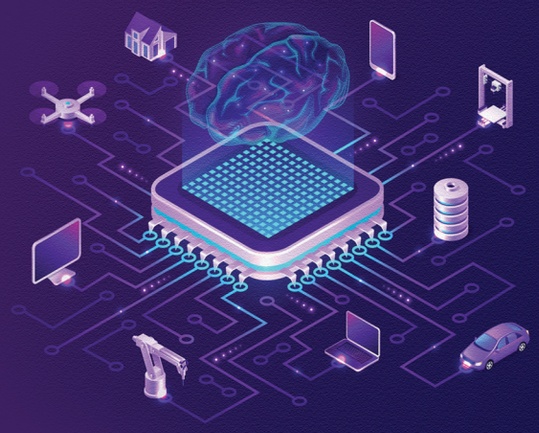
5. **IP Strengths:**

   a. **Total Patents** = 11; Granted = 9; Published = 2

   b. **Core Claim Areas:** infant cradles with rocking or oscillation mechanisms, infant monitoring systems, and automated or assisted soothing and motion control for infants.

6. **Scaling & Market Expansion Strategy:** Expanding US retail presence through partnerships (Babylist retail partnership in Beverly Hills, LA, 2023)102; e-commerce scaling via Amazon and other marketplaces planned. Offices in Bengaluru and San Francisco to accelerate product innovation and team growth. Sam Altman's public endorsement (July 2025)107 signals high-profile demand and credibility boost for mass market penetration. International expansion planned post-US market consolidation. Feature roadmap includes advanced health and safety monitoring capabilities leveraging embedded sensors and cloud ML analytics.

Annexure II
Qualcomm Initiatives

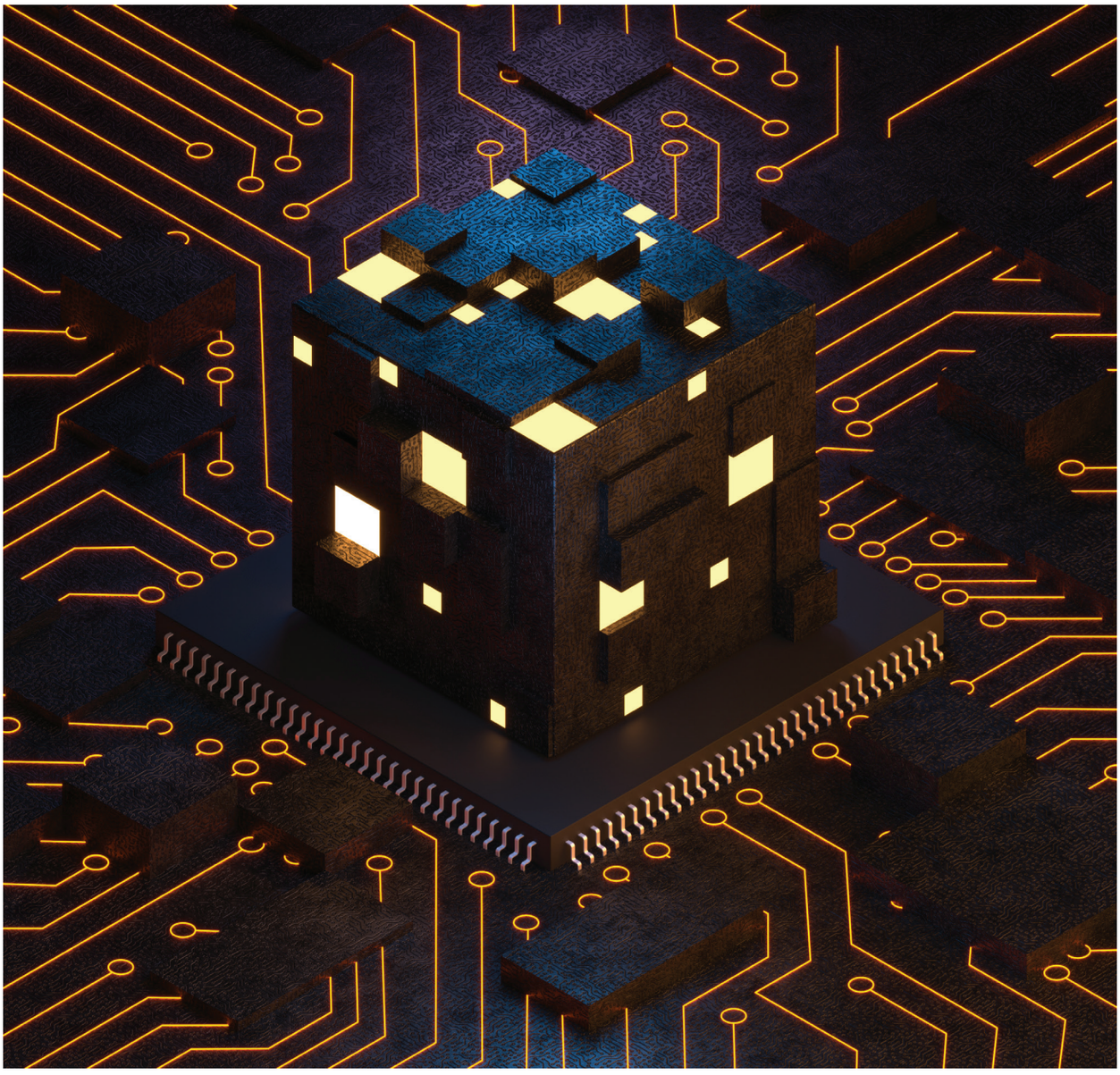


1	2	3	4	5		7
QDIC Make-in-India Startup Incubation	**QIL** Innovation Labs	**QIF** Innovation Fellowships	**QWEIN** Women Startup Mentorship	**L2ProIndia** Online IPR Training	**QSMP** Semiconductor Startup Mentorship	**100 5G UCL** Support for DoT's 5G Use Cases Labs
2016	2016	2016	2020	2021	2022	2024

Qualcomm Design in India Challenge: The initiative, which began in 2016, is among the most successful hardware startup incubation programs in India, supporting innovations in smart devices and embedded systems related to medical technology, smart infrastructure, agriculture technology, industrial automation, robotics, drones, and rural IoT, among others. Since its inception, QDIC has incubated more than 150 deep-tech startups that have collectively filed over 600 patents, launched more than 28 commercial products, and raised over $248 million in capital at various levels of funding, including 12 Series A and 4 Series B funding rounds, with 7 successful exits through mergers and acquisitions. Each year, the cohort selects 12 finalists out of 140-160 applications through a rigorous jury process in association with NASSCOM CoE-IoT and Startup India, providing comprehensive support that enables early-stage hardware concepts to become market-ready solutions. All shortlisted startups receive access to state-of-the-art Qualcomm Innovation Labs equipped with advanced testing equipment, software and hardware design tools, and technical support from dedicated engineering teams. The program offers intellectual property generation incentives of up to ₹1.6 lakh covering US and India patent applications, incubation grants ranging from ₹3.2 lakh for finalists to ₹65 lakh for top winners with opportunities to win up to ₹1 crore in total prize money and access to an Innovation Commercialisation Fund, mentorship workshops that equip founders with domain expertise and best practices for scaling hardware businesses, and opportunities for government interactions and participation in industry events. The more recent editions of this program have added several focus areas, such as 5G applications, NavIC use cases, and mobile edge computing, highlighting India's evolving technology landscape and the government's vision to position India as a global manufacturing and design hub.[140]

Qualcomm Women Entrepreneurs India Network (QWEIN), launched in July 2020 by Qualcomm India and Qualcomm Ventures, addresses the critical underrepresentation of women in STEM entrepreneurship by providing dedicated mentorship and resources to early-stage women-founded deep-tech startups. Operating as a six-month equity-free program, QWEIN has mentored 33+ women-led startups across diverse verticals including healthcare, IoT, robotics, cleantech, agriculture

technology, extended reality (XR), and logistics, with cohorts in 2020-21 (14 startups), 2021-22 (11 startups), and subsequent editions continuing through 2024. The program offers individualized one-on-one mentorship sessions with senior Qualcomm leaders, masterclasses covering intellectual property strategy, product management, fundraising, sales, marketing, finance, leadership, and organizational scaling, alongside valuable networking opportunities with potential system integrators, customers, and venture capitalists. Both QDIC and QWEIN startups benefit from access to Qualcomm Innovation Labs equipped with advanced testing equipment, software and hardware design tools, technical support from dedicated engineering teams, intellectual property generation incentives of up to ₹1.6 lakh for (covering US and India patent applications), cash grants ranging from ₹3.2 lakh for finalists to ₹50 lakh for top winners, and mentorship workshops that equip founders with domain expertise and best practices for scaling hardware businesses in competitive global markets.[141]



Conclusion

India's deep-tech startups are reshaping the frontier of innovation, built on robust intellectual property portfolios, international IP strategies, and growing sectoral strengths in healthcare, AI, sensing technologies, and autonomous systems. The data show startups not only filing patents but weaving them into product development and commercialization, signalling a shift from idea-led growth to IP-led scalability. With diversified IP strategies, faster grant timelines, and more foreign filings, India is transitioning into a globally competitive innovation economy.

As this momentum continues, certain structural and operational challenges remain. Deep-tech startups often navigate constraints such as limited funding avenues for hardware-intensive R&D, the high costs associated with IP prosecution, and evolving manufacturing support systems. Regulatory complexities and varying levels of IP awareness also influence the pace of innovation. Additionally, while university-linked startups contribute significantly to the ecosystem, differences in licensing approaches and ownership frameworks may impact the ease of commercialization. Continued progress will benefit from expanded IP education, streamlined tech transfer mechanisms, and stronger institutional collaboration.

Sustained progress relies on deeper outreach, targeted funding, and better policy uptake. Strengthening India's IP backbone-with PCT support, cost subsidies, IP advisory networks, and inclusive mentorship-will help more startups build, protect, and scale breakthrough innovations. Programs like QDIC and QWEIN offer a replicable blueprint to unlock the next wave of deep-tech growth rooted in invention and inclusion.

References

1. https://en.wikipedia.org/wiki/Deep_tech
2. https://www.undp.org/policy-centre/singapore/deep-tech-and-innovations#:~:text=Deep%20tech%20refers%20to%20the,industries%2C%20economies%2C%20and%20lives.
3. https://reap.mit.edu/assets/What_is_Deep_Tech_MIT_2023.pdf
4. https://tracxn.com/d/explore/deep-tech-startups-in-india/__19jXouKIL6z_ravPPBisAubLk2oME0HPqpYpMIOFlnw#about
5. https://www.financialexpress.com/opinion/indias-march-towards-deep-tech/3607463/
6. https://timesofindia.indiatimes.com/business/india-business/desi-deeptech-funding-up-78-in-2024-report/articleshow/120463987.cms
7. https://www.moneycontrol.com/news/business/indias-deep-tech-startups-grew-at-a-cagr-of-53-over-10-years-nasscom-9069861.html
8. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2185694
9. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2194203#:~:text=Highlighting%20that%20the%20Budget%202025,product%20development%20and%20global%20competitiveness.
10. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2178092#:~:text=Guided%20by%20the%20vision%20of,global%20leader%20in%20Artificial%20Intelligence.
11. https://dst.gov.in/budget-2020-announces-rs-8000-cr-national-mission-quantum-technologies-applications
12. https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=155082&ModuleId=3#:~:text=PLI%20Scheme%20has%20encouraged%20major,major%20mobile%20phone%20manufacturing%20country.&text=Under%20the%20PLI%20scheme%2C%20India,investments%20worth%20%E2%82%B967%2C690%20crore.
13. https://www.iitm.ac.in/happenings/press-releases-and-coverages/iit-madras-incubates-100-deep-tech-startups-single#:~:text=A%20Historic%20First-,IIT%20Madras%20Incubates%20100%2B%20Deep%20Tech%20Startups%20in%20a,Financial%20Year%20%E2%80%94%20A%20Historic%20First&text=Indian%20Institute%20of%20Technology%20Madras%20(IIT%20Madras)%2C%20for%20the,ups%20in%20one%20financial%20year.
14. https://www.drishtiias.com/pdf/1753601276.pdf
15. https://eitbt.karnataka.gov.in/153/chief-executive-officer---tech-museum%28mist%29-and-innoverse/en#:~:text=About%20INNOVERSE&text=Built%20on%20a%20public%2Dprivate,organizations%2C%20and%20venture%20capital%20networks.
16. https://www.startupindia.gov.in/content/sih/en/startup-scheme.html
17. https://www.ilovephd.com/patent-funding-in-india-2025/#:~:text=Benefits%3A%20Government,pay%20only%20reduced%20statutory%20fees
18. https://schemes.vikaspedia.in/viewcontent/schemesall/schemes-for-entrepreneurs/technology-up-gradation/msme-innovative-scheme?lgn=en
19. https://dst.gov.in/patent-facilitation-programme-pfp#:~:text=are%20drafted%20and%20filed%20through,invention%20disclosure%20received%20by%20it
20. https://www.syncipr.com/government-scheme/kapila-program#:~:text=%2A%20KAPILA%20reimburses%2050,filing%20fees%20and%20examination%20fees

21. https://www.dsir.gov.in/sites/default/files/2022-07/pace_guide_may2022e.pdf#:~:text=total%20DSIR%20support%20,the%20proposal%20will%20be%20evaluated
22. https://www.csir.res.in/en/intellectual-property-directorate-ipd#:~:text=The%20functions%20of%20the%20Innovation,IPU%29%20inter%20alia%20include
23. https://tdb.gov.in/sites/default/files/2024-12/funding_guidelines_march_23_revised.pdf#:~:text=for%20obtaining%20necessary%20patents%20in,the%20technology%20provider%20and%20the
24. https://itic.iith.ac.in/nidhi-prayas.html
25. https://www.khuranaandkhurana.com/2025/01/22/patent-reimbursement-schemes-in-india-a-complete-guide-to-boost-innovation/#:~:text=Startup%20Karnataka%20provides%20financial%20incentives,for%20patent%20filing
26. https://startinup.up.gov.in/patent-support/#:~:text=The%20cost%20of%20filing%20of,10%20Lakhs%20for%20International%20Patents
27. https://startup.telangana.gov.in/funding-incentives/#:~:text=Eligible%20startups%20should%20have%20already,Lakhs%20for%20Indian%20patent%20awarded
28. https://www.bullit.in/schemes/scheme-of-assistance-for-patent-registration#:~:text=Reimbursement%20of%20expense%20for%20patent,registration
29. https://goaonline.gov.in/Downloads/ITPolicySchemes2018.pdf#:~:text=5,be%20granted%20to%20the%20unit%2Finstitution
30. https://www.startupindia.gov.in/content/sih/en/state-startup-policies/Odisha-state-policy.html#:~:text=Startups%20will%20be%20reimbursed%20100,the%20Odisha%20Industrial%20Policy%202015.&text=Any%20entity%20incorporated%2Fregistered%20not,in%20any%20preceeding%20financial%20year.
31. https://www.spab.ac.in/itcu/Madhya%20Pradesh%20Startup%20Policy_Year%202019.pdf
32. https://www.startupindia.gov.in/content/sih/en/state-startup-policies/Haryana-state-policy.html
33. https://apit.ap.gov.in/assets/files/2025ITC_36424_MS9_E.pdf
34. https://www.startupindia.gov.in/content/sih/en/state-startup-policies/Maharashtra-state-policy.html
35. https://industries.cg.gov.in/startupcg/pdf/policy2024_30/Startup_Package.pdf
36. https://istart.rajasthan.gov.in/public/Policies/2024/rips-2024.pdf
37. https://pbindustries.gov.in/static/why_punjab;Key=Fiscal_Incentives_MSME_units
38. https://www.qualcomm.com/company/locations/india/design-in-india-program/design-in-india-challenge
39. https://www.startupindia.gov.in/content/sih/en/Prabhaav.html
40. https://www.visteon.com/investors/investor-news/news-details/2022/Visteon-and-Steradian-Announce-ADAS-Focused-Joint-Development-Agreement/default.aspx
41. https://www.khuranaandkhurana.com/2010/12/16/international-patent-protection-in-electronics-it-sip-eit-scheme-by-dit?utm_source=chatgpt.com
42. https://www.f6s.com/company/adiuvodiagnostics
43. https://www.forbesindia.com/article/2019-wpower-trailblazers/geethanjali-radhakrishnan-spot-checks/52729/1
44. https://www.vccircle.com/impact-investor-menterra-invests-in-omix-labs-three-other-companies
45. https://birac.nic.in/webcontent/BIRAC_Annual_Report_2020_21_English.pdf
46. https://www.qualcomm.com/news/releases/2021/03/qualcomm-announces-winners-qualcomm-design-india-challenge-2020

47. https://www.crunchbase.com/organization/adiuvo-diagnostics
48. https://www.big.venturecenter.co.in/wp-content/uploads/2024/05/Adiuvo-Diagnostics-Pvt.-Ltd.-and-TeraLumen-Solutions-patent.pdf
49. https://birac.nic.in/product-detail.php?product=227
50. https://www.renesas.com/en/products/svr4414?srsltid=AfmBOorwKl2nMEVQNvr1--qZD11zKCK6V8Af9j1tUUpbuQxDqODpVO4g
51. https://yourstory.com/2017/10/steradian-makes-smart-cars-safer
52. https://investor.qualcomm.com/news-events/press-releases/news-details/2017/Qualcomm-Announces-Top-Eight-Finalists-for-Cycle-I-of-Qualcomm-Design-in-India-Challenge-II-04-26-2017/default.aspx
53. https://www.renesas.com/en/about/newsroom/idt-and-steradian-semiconductors-announce-strategic-partnership-deliver-ultra-high-resolution-4d
54. https://www.visteon.com/investors/investor-news/news-details/2022/Visteon-and-Steradian-Announce-ADAS-Focused-Joint-Development-Agreement/default.aspx
55. https://www.ajnalens.com/
56. https://yourstory.com/2018/06/sensara-lightmetrics-win-cycle-2-qdic-2017
57. https://yourstory.com/companies/ajnalens
58. https://www.businesstoday.in/technology/news/story/mumbai-based-ajnalens-launches-high-performance-spatial-computing-for-next-gen-gaming-all-you-need-to-know-422615-2024-03-22
59. https://yourstory.com/2025/07/lenskart-makes-a-strategic-investment-in-ajna-lens
60. https://planystech.com/
61. https://yourstory.com/2025/05/planys-redefining-underwater-inspection-and-mariti
62. https://planystech.com/in-the-news-02/
63. https://planystech.com/collaborations/
64. https://timesofindia.indiatimes.com/business/india-business/planys-technologies-secures-rs-43crore-funding/articleshow/109139169.cms
65. https://www.qualcomm.com/news/releases/2021/03/qualcomm-announces-winners-qualcomm-design-india-challenge-2020
66. https://www.leadsontrees.com/news/planys-technologies-secures-75-million-to-propel-next-gen-marine-robotics-immersed-structure-inspection-innovations
67. https://aereo.io/about/
68. https://thekredible.com/company/aereo/overview
69. https://www.industrialautomationindia.in/news/aereo-indias-leading-commercial-drone-solutions-startup-secures-15-million-in-series-b-funding-round
70. https://platform.tracxn.com/a/d/company/4hi0kzCikcuvYw06KngH9CaSkvsJvjNfAftE3rbrLtg/aereo.io
71. https://www.linkedin.com/posts/aereo-next-is-now_aereo-drones-svamitva-activity-7114923572841627650-t83k/
72. https://www.dozeehealth.ai/about-us
73. https://www.entrepreneurindia.com/ai/2025/gaurav.php
74. https://www.vccircle.com/health-tech-startup-dozee-raises-funding-from-prime-venture-partners-3one4-others
75. https://yourstory.com/companies/dozee

76. https://thekredible.com/company/dozee/people
77. https://www.expresshealthcare.in/news/dozees-contactless-vs-measurement-system-receives-usfda-510k-clearance/437392/
78. https://www.mobihealthnews.com/news/asia/dozee-obtains-ce-mark-ai-powered-vitals-monitoring-system-and-more-briefs
79. https://www.primevp.in/news-and-announcement/dozee-raises-inr-44-croreusd-6-million-series-set-transform-critical-care-infrastructure-across-india-through-contactless-remote-patient-monitoring-platform
80. https://www.financialexpress.com/business/healthcare-dozee-receives-usfda-approval-for-its-vital-sign-measurement-technology-2922995/
81. https://www.businessremedies.com/arun-agarwal-janitri-innovations-a-mission-to-save-mothers-and-newborns/
82. https://www.sankalpforum.com/making-pregnancy-and-childbirth-safer-through-accessible-affordable-technology-driven-solutions-sankalpchangemakers-features-arun-agarwal-founder-and-ceo-janitri-innovations/
83. https://tbi.ms-mf.org/?ae_global_templates=janitri-innovations
84. https://www.tal64.com/p/janitri-raises-preseries-a
85. https://platform.tracxn.com/a/d/company/_xEuwTBicGvKeHybNVrMSdfBJtDhcL8MYoPs8VrNToO/janitri.in
86. https://www.janitri.in/blog/vaarta-for-hospitals/importance-of-janitris-medical-grade-maternal-monitoring-solutions
87. https://artelus.com/
88. https://healthtechdirectory.in/ventures/artelus
89. https://www.linkedin.com/pulse/dristi-ai-revolutionizing-diabetic-retinopathy-zpydf/
90. https://artelus.com/interviews/artelus-is-using-ai-to-help-people-from-going-blind
91. https://platform.tracxn.com/a/d/company/NT97DES1pD-noVjPrwe8YqEY7ztILsbDpPSY7v3ywRO/artelus.com
92. https://yourstory.com/companies/artelus
93. https://www.xyma.in/about
94. https://xyma.in/
95. https://www.linkedin.com/in/nishanthraja/?originalSubdomain=in
96. https://yourstory.com/2021/07/qualcomm-design-challenge-finalists-announced-dpiit-secretary-interact
97. https://www.ynos.in/startup/xyma-analytics-326319
98. https://www.8xventures.co/portfolio/xyma-analytics
99. https://platform.tracxn.com/a/d/company/5cf60d3402369c15fec60993/xyma.in#a:funding-and-investors
100. https://yourstory.com/companies/xyma-analytics
101. https://www.eplane.ai/about
102. https://www.ut-ec.co.jp/english/our_companies/eplane/
103. https://thekredible.com/company/the-eplane-company/people
104. https://www.linkedin.com/in/satya-chakravarthy-51326241/?originalSubdomain=in
105. https://yourstory.com/2023/11/this-deeptech-startup-aims-to-make-travel-10x-faster
106. https://platform.tracxn.com/a/d/company/j1Tx8SVLL75_Ov6EVWI7eVcmCxkbZdHqAgNqfn6CpoU/eplane.ai

107. https://yourstory.com/2024/11/eplane-company-bags-14-million-series-b-funding-speciale-invest-antares-ventures
108. https://inc42.com/buzz/eplane-icatt-ink-1-bn-deal-for-788-evtol-air-ambulances/
109. https://www.innogle.com/about-innogle/
110. https://dcis.dot.gov.in/page/template2/17?template=17
111. https://www.bharatdigicom.in/wp-content/uploads/2023/04/pdf/Innogle_5G_Profile.pdf
112. https://yourstory.com/companies/innogle
113. https://www.crunchbase.com/organization/innogle-technologies-pvt-ltd
114. https://platform.tracxn.com/a/d/company/577f6a33e4b0a33a70ad50fc/innogle.com#a:key-metrics
115. https://www.blackfrog.in/products
116. https://psa.gov.in/CMS/web/sites/default/files/psa_custom_files/CCAMP_ColdChain_Proposal%20for%20Vaccination%20Drive_Blackfrog_JAN2021.pdf
117. https://blackfrog.in/investments#:~:text=Redefining%20the%20Cold%20Chain%20Standard,diagnostics%2C%20and%20clinical%20research%20sectors.
118. https://platform.tracxn.com/a/d/company/580dd297e4b05491a6f85faa/blackfrog.in#a:funding-and-investors
119. https://yourstory.com/2020/04/blackfrog-detect-grinntech-qualcomm
120. https://yourstory.com/2020/10/tech30-cold-supply-chain-startup-blackfrog-technologies-vaccines
121. https://hachidorirobotics.com/about-us/
122. https://yourstory.com/2020/07/12-startups-qdic-raising-innovation
123. https://platform.tracxn.com/a/d/company/cQ1gFoiV0wvR0v1ohPffnGwczZBGVFFpCPbHPOP1R3g/hachidorirobotics.com#a:funding-and-investors
124. https://themachinemaker.com/logimat-india/hachidori-robotics-ready-for-logimat-india-2024-showcasing-amr-solutions/
125. https://www.linkedin.com/posts/hachidori-robotics-private-limited_day-1-at-the-india-warehousing-show-2024-activity-7217403432834408448-Cy6Q/
126. https://www.myelinfoundry.com/company/
127. https://www.myelinfoundry.com/product/
128. https://www.myelinfoundry.com/technology/
129. https://platform.tracxn.com/a/d/company/5c278f378f08ccf79296fd6d/myelinfoundry.com#a:funding-and-investors
130. https://economictimes.indiatimes.com/tech/funding/deeptech-startup-myelin-foundry-raises-4-million-led-by-sidbi-venture-capital/articleshow/109945359.cms?from=mdr
131. https://www.qualcomm.com/news/releases/2021/07/qualcomm-announces-finalists-6th-edition-qualcomm-design-india-challenge
132. https://www.cnbctv18.com/business/startup/myelin-foundry-outlines-global-expansion-strategy-amid-funding-round-19409984.htm
133. https://www.founderoo.co/playbooks/radhika-patil-bharath-cradlewise
134. https://www.cradlewise.com/en-IN/about-us/
135. https://www.cradlewise.com/en-IN/smart-crib-bassinet-baby-monitor-how-it-works-tech/
136. https://platform.tracxn.com/a/d/company/58c17d99e4b0c77caa0ea4bb/cradlewise.com#a:funding-and-investors

137. https://economictimes.indiatimes.com/tech/funding/silicon-valley-based-cradlewise-gets-7-million-funding-for-india-push/articleshow/87644424.cms?from=mdr

138. https://www.crunchbase.com/organization/cradlewise-inc

139. https://yourstory.com/herstory/2025/04/yourstory-tech30-company-cradlewise-smart-crin-sam-altman

140. https://www.qualcomm.com/company/locations/india/design-in-india-program/design-in-india-challenge

141. https://www.qualcomm.com/company/locations/india/design-in-india-program/qualcomm-women-entrepreneurship-india-network

NOTES

NOTES

Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society through advisory and consultative processes.

For 130 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. With its extensive network across the country and the world, CII serves as a reference point for Indian industry and the international business community.

In the journey of India's economic resurgence, CII facilitates the multifaceted contributions of the Indian Industry, charting a path towards a prosperous and sustainable future. With this backdrop, CII has identified "Accelerating Competitiveness: Globalisation, Inclusivity, Sustainability, Trust" as its theme for 2025-26, prioritising five key pillars. During the year, CII will align its initiatives to drive strategic action aimed at enhancing India's competitiveness by promoting global engagement, inclusive growth, sustainable practices, and a foundation of trust.

Qualcomm

Qualcomm relentlessly innovates to deliver intelligent computing everywhere, helping the world tackle some of its most important challenges. Building on our 40 years of technology leadership in creating era-defining breakthroughs, we deliver a broad portfolio of solutions built with our leading-edge AI, high-performance, low-power computing, and unrivalled connectivity. Our Snapdragon® platforms power extraordinary consumer experiences, and our Qualcomm Dragonwing™ products empower businesses and industries to scale to new heights. Together with our ecosystem partners, we enable next-generation digital transformation to enrich lives, improve businesses, and advance societies. At Qualcomm, we are engineering human progress.

Qualcomm Incorporated includes our licensing business, QTL, and the vast majority of our patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, substantially all of our engineering and research and development functions and substantially all of our products and services businesses, including our QCT semiconductor business. Snapdragon and Qualcomm branded products are products of Qualcomm Technologies, Inc. and/or its subsidiaries. Qualcomm patents are licensed by Qualcomm Incorporated.