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Research

India's $12 Billion Deep Tech Bet

A Legal and Strategic Guide to the Research, Development and Innovation Scheme

April 2026

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Acknowledgements

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Dhairya is a Member of the International Tax and Investment Funds Practice at Nishith Desai Associates. Dhairya assists in handling complex tax cases involving direct and indirect tax with a specialization in international tax. He has graduated from Hidayatullah National Law University with a BA.LLB (Hons.) degree. He advises clients on the taxation of inter alia cross-border transactions, ESOP taxation, treaty interpretation and cross-border financial compliance. Dhairya also regularly contributes to literature on international tax, investment funds framework and India's foreign investment landscape.

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Dr. Nishith Desai
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Dr. Nishith Desai is the founder of the research & strategy driven international law firm, Nishith Desai Associates ranked amongst the Asia-Pacific's Most Innovative Law Firms by Financial Times. Nishith's interest span a wide spectrum of law, society, and ethics. He is a renowned international lawyer, author, lecturer, researcher, innovator and thought leader. Nishith himself is regarded as the 'Father of International Tax' in India and is a 'true pioneer' in the field of International Tax Law. In the year 2023, for his contribution to the jurisprudence of international tax in India, Amity University awarded him the Honorary Doctorate degree. He was also a director on the board of the Singapore International Arbitration Centre (2011-2019).

The Financial Times, London has consistently ranked Mr. Nishith Desai as the most innovative lawyer and the firm, Nishith Desai Associates as the most innovative law firms in Asia. The firm has been consistently recognised amongst Tier 1 for multiple practice areas and received accolades from international legal directories including Chambers & Partners, Legal500, AsiaLaw, Benchmark Litigation, IFL1000, WorldTax, Who's Who Legal, Asia Legal Business, and Indian Business Law Journal. Nishith is also passionate about supporting social good, and under his guidance, NDA has remained at the forefront of the social sector in India. NDA is one of the founding members of the Impact Investment Council in India.

NDA's Strategic Advantage

Our Trans disciplinary team for Strategic Legal Advisory for the RDI Scheme. Our team sits at the intersection of law, strategy, and emerging technologies, comprising of authorities across the specturm.

1. **Dr. Chintan Vaishnav:** Futurist and Techno-Policy Strategist (Boston Office), Ph.D. in Engineering Systems and an M.S. in Technology and Policy from the Massachusetts Institute of Technology.
2. **Dr. Mihir Parikh:** Futurist and Strategic Thought Leader (PA, California Office), Ph.D. in Artificial Intelligence from Georgia State University.
3. **Vaibhav Parikh:** Lead - M&A and Technology Law Practice (New York Office), an engineer turned lawyer.
4. **Dr. Milind Antani:** Lead - Pharma, Healthcare, Medical Device and Digital Health Practice, a surgeon turned lawyer.
5. **Nishchal Joshipura:** Lead - M&A and Private Equity Practice, a ranked Chartered Accountant and MBA turned lawyer.
6. **Parul Jain:** Lead - International Tax and Investment Funds Practice, a ranked Chartered Accountant turned lawyer.
7. **Rahul Rishi:** Lead - Social Sector and Blended Finance Practice, a lawyer and social scientist.
8. **Ritika Patni:** Leader - Global Legal Strategy Consulting Practice (Singapore), a ranked lawyer with an MBA from Columbia Business School.
9. **Ipsita Agarwalla:** Leader - International Tax and Investment Funds Practice, a Chartered Accountant turned lawyer.
10. **Shiv Singhal:** Leader - International Tax and Investment Funds Practice, a lawyer with BSc. in Computer Science. from Indian Institute of Technology, Madras and MSc. in Financial Engineering from World-Quant University.

...and many other brilliant minds who continue to shape the future of law and policy with us.

Contents

Executive Summary

India's research output ranks among the world's best. Its research financing does not. The country occupies a top five global position across 45 of 64 critical technologies yet invests just 0.65% of GDP in R&D, a fraction of the 2.7% average spends by the OECD member countries. The private sector's share of that investment, at 36.4%, is roughly half the global norm. The result is a paradox: world-class science that struggles to cross the bridge from laboratory to market.

The Research, Development, and Innovation Scheme, launched on November 3rd, 2025, with an approximately $12 billion (INR 1 trillion) corpus, is the Government of India's most ambitious attempt to close this gap. Structured as a Special Purpose Fund under the Anusandhan National Research Foundation, the RDI Scheme channels patient, concessional capital through Second Level Fund Managers (SLFM), Alternative Investment Funds, Development Finance Institutions, Non-Banking Finance Companies, and Focused Research Organisations, to Eligible Technology Entities developing science-based innovations at Technology Readiness Level 4 and above.

This paper provides a comprehensive legal and strategic analysis of the RDI Scheme for its two principal constituencies: fund managers evaluating the SLFM opportunity and deep tech companies assessing SLFM-channelled RDIF funding.

The RDI Scheme is not merely a funding programme. It is an institutional reset, a deliberate attempt to build the financial infrastructure that bridges India's research excellence and its commercial innovation deficit. For those who engage with it early and thoughtfully, the opportunity is generational.

India's Deep Tech Landscape: Ambition vs. Reality

India presents one of the most compelling paradoxes in the global innovation economy. It has risen from 81st place on the WIPO Global Innovation Index (GII) in 2015 to 38th place in 2025, now leading all lower-middle-income economies on the index for the fifteenth consecutive year[1]. The Australian Strategic Policy Institute's 2024 Critical Technology Tracker places India in the global top five in 45 out of 64 critical technology domains[2], a figure that spans advanced materials, quantum technologies, artificial intelligence, and biotechnology[3]. India produces the fourth-largest number of science and engineering PhDs in the world, occupies a top-three position in scientific publications, files the sixth-highest number of resident patent applications globally,[4] and hosts four cities, Bengaluru (21st), Delhi (26th), Mumbai (46th), and Chennai (84th), among the world's top 100 science and technology clusters[5].

Against this backdrop, India's gross expenditure on research and development stands at approximately 0.65% of GDP, less than a quarter of the United States (3.4%), less than a third of China (2.6%), well below the OECD average of approximately 2.7%, and significantly behind South Korea (4.9%) and Israel (7%)[6] (as of 2024). The structure of this investment compounds the problem: the private sector accounts for only 36.4% of India's total R&D spending (as of 2020-21), in sharp contrast to 75% in the United States, 77% in China, and over 80% in South Korea[7]. The overwhelming majority of Indian R&D remains publicly funded, concentrated in strategic silos such as space, defence, and atomic energy, and institutionally siloed in government laboratories and academic institutions that maintain weak linkages to commercial markets and industrial applications.[8]

1 WIPO - Global Innovation Index 2015 https://www.wipo.int/edocs/pubdocs/en/wipo_gii_2015.pdf and Global Innovation Index 2025 https://www.wipo.int/web-publications/global-innovation-index-2025/en/gii-2025-results.html.

2 Australian Strategic Policy Institute, Critical Technology Tracker 2024. https://ad-aspi.s3.ap-southeast-2.amazonaws.com/2024-08/ASPIs%20two-decade%20Critical%20Technology%20Tracker_1.pdf?VersionId=1p.Rx9MIuZyK5A5w1SDKIpE2EGNB_H8r.

3 List of technologies tracked by Critical Technology Tracker. https://techtracker.aspi.org.au/list-of-technologies.

4 Press Information Bureau. Parliament Question: Gross Expenditure on Research and Development. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2198306&reg=3&lang=1.

5 WIPO - Global Innovation Index 2025 – Ranking of World's Top 100 Innovation Clusters. https://www.wipo.int/documents/d/global innovation-index/docs-en-2025-gii-2025-clusters-top100-ranking.pdf.

6 OECD Gross domestic spending on R&D. https://www.oecd.org/en/data/indicators/gross-domestic-spending-on-r-d.html.

7 Department of Science and Technology, Research & Development Statistics at a glance. https://dst.gov.in/sites/default/files/Updated%20RD%20Statistics%20at%20a%20Glance%202022-23.pdf.

8 CTIER Nesta Report - Understanding India's Innovation System, at p.20. https://ctier.org/wp-content/uploads/2025/06/CTIER-Nesta-India-Report.pdf.

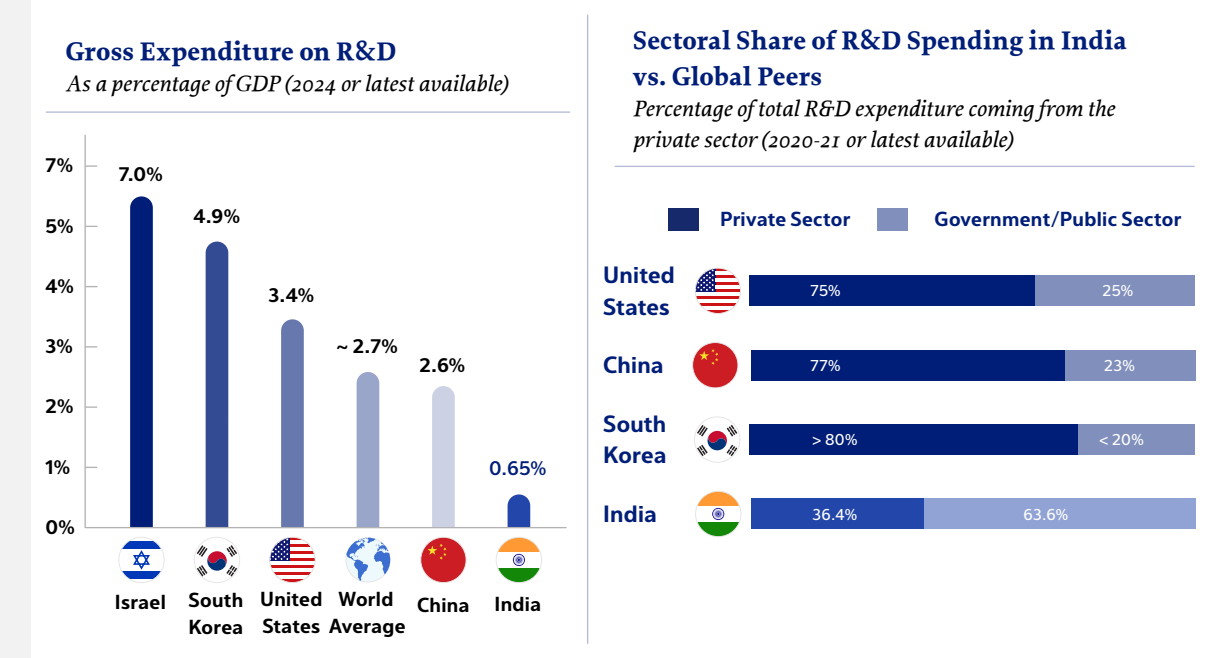

Figure 1: R&D Expenditure as % of GDP — India vs. Global Benchmarks

A. The Deep Tech Funding Gap

Recent data suggests that capital is beginning to flow, even if it remains a trickle relative to global benchmarks. According to the India Deep Tech Alliance's 2026 report, Indian deep tech ventures attracted approximately USD 5.1 billion across 381 deals in 2025 which has increased significantly over a decade from USD 0.5 Billion across 76 deals in 2016. AI-focused startups accounted for USD 2.5 billion across 164 deals as compared to USD 0.2 billion across 33 deals in 2016. Deep tech's share of total Indian VC-PE activity has risen from roughly 4% in 2016 to approximately 15% in 2025[9]. The country now hosts over 4,200 deep tech startups, with more than 550 incorporated in 2025 alone.[10]

The structural gap with leading innovation economies, however, remains acute. US deep tech ventures raised approximately USD 147 billion in 2025 and Chinese ventures approximately USD 81 billion, figures that place India's annual deep tech financing at less than 1.15% of the United States' deployment and under 2% of China's, notwithstanding India's comparable rankings in scientific output and critical technology development.[11]

9 India Deep tech Alliance – AI & Deep-tech Investment Landscape. https://idtalliance.org/files/AI-%26-Deep-Tech-Investments-Landscape-2026.pdf.

10 NASSCOM - Indian Tech Start-Up Report 2025. https://community.nasscom.in/communities/nasscom-insights/momentum-maturity-indias-tech-startup-ecosystem-strategic-inflection-point-India-tech-startup-report-2025.

11 TechCrunch. India has changed its startup rules for deep tech. https://techcrunch.com/2026/02/07/india-has-changed-its-startup-rules-for-deep-tech.

India Deep Tech Funding: The Shift (2022-2025)

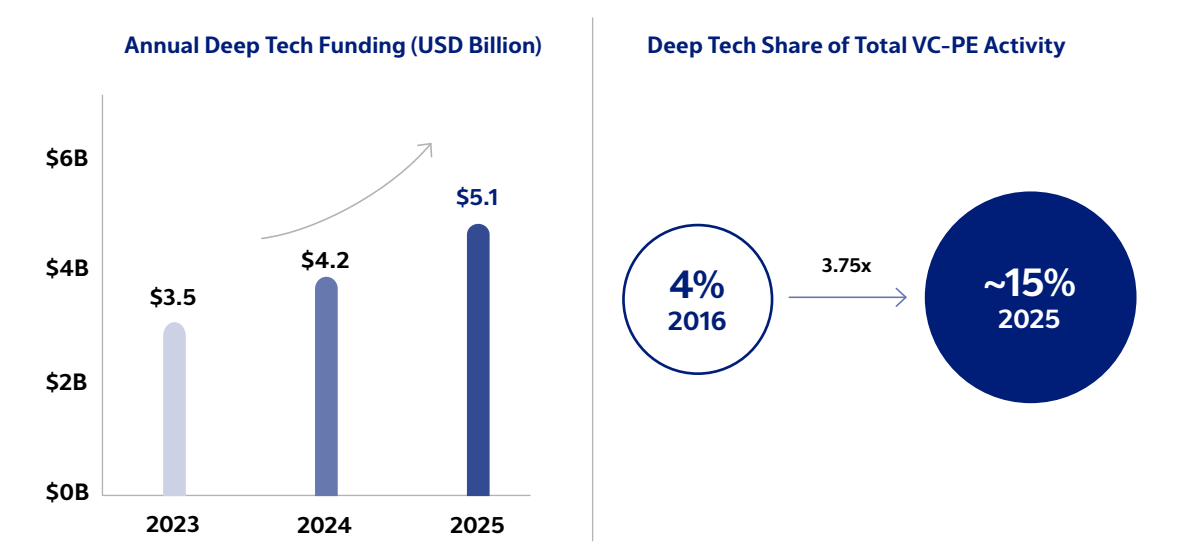

Figure 2: Indian Deep Tech Funding Trends and Market Share (2022–2025)

B. The Valley of Death

The gap is not simply about the volume of capital. It is about the kind of capital available. Technologies at Technology Readiness Levels 4 through 7 occupy the zone between laboratory validation and commercial deployment, what innovation economists call the "valley of death." At these stages, a technology has been proven in a controlled environment but has not yet generated revenue, established supply chains, or found its market. Every dimension of risk compounds: will the technology function at scale? Can it be manufactured? Will customers adopt it? Will regulatory standards accommodate it?

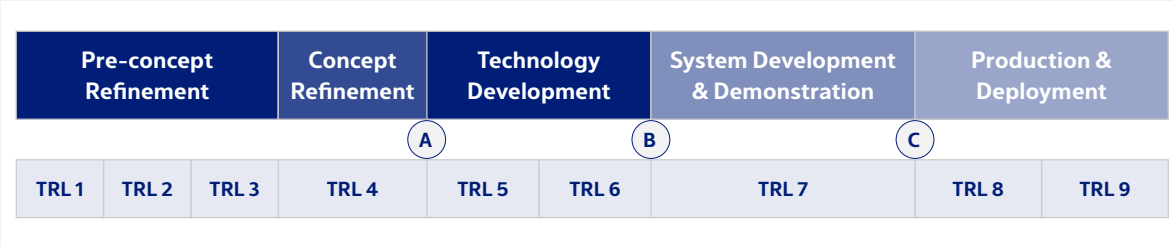

Figure 3: Technology Readiness Levels — Where RDIF Operates[12]

12 Office of the Principal Scientific Adviser - National Technology Readiness Assessment Framework. https://psa.gov.in/CMS/web/sites/default/files/publication/National%20Technology%20Readiness%20Assessment%20Framework_Final.pdf.

Private investors struggle at these stages not because they lack appetite, but because they lack tools. The valuation frameworks that work for software startups revenue multiples, comparable transactions, customer metrics are built on data that does not exist for pre-commercial science-based ventures. The Research Development and Innovation Fund's (**"RDIF"**) Implementation Guidelines (**"Implementation Guidelines"**) acknowledge this with unusual directness, noting that "the novelty and uncertainty of RDI limits the availability of conventional risk assessment frameworks."

Strategic Insight

What has been absent in India is not capital per se, but capital of the right shape. Deep tech demands patient money: long tenors to survive the years between prototype and production, moratorium periods matched to R&D timelines, interest rates that pre-revenue companies can sustain, and instruments flexible enough to convert from debt to equity as ventures mature. Equally missing have been investment vehicles structured for science-risk (as distinct from market-risk). The RDI Scheme attempts to address all three dimensions simultaneously.

For full version of this paper, kindly write us on rdi.concierge@nishithdesai.com

About NDA

At Nishith Desai Associates, we have earned the reputation of being Asia's most Innovative Law Firm — and the go-to specialists for companies around the world, looking to conduct businesses in India and for Indian companies considering business expansion abroad. In fact, we have conceptualized and created a state-of-the-art Blue Sky Thinking and Research Campus, Imaginarium Aligunjan, an international institution dedicated to designing a premeditated future with an embedded strategic foresight capability.

We are a research and strategy driven international law firm with Indian offices in Mumbai, New Delhi, Bangalore and GIFT City and foreign offices in New York, Palo Alto (Silicon Valley) and Singapore. Our team comprises of specialists who provide strategic advice on legal, regulatory, and tax related matters in an integrated manner basis key insights carefully culled from the allied industries.

As an active participant in shaping India's regulatory environment, we at NDA, have the expertise and more importantly — the VISION — to navigate its complexities. Our ongoing endeavors in conducting and facilitating original research in emerging areas of law has helped us develop unparalleled proficiency to anticipate legal obstacles, mitigate potential risks and identify new opportunities for our clients on a global scale. Simply put, for conglomerates looking to conduct business in the subcontinent, NDA takes the uncertainty out of new frontiers.

As a firm of doyens, we pride ourselves in working with select clients within select verticals on complex matters. Our forte lies in providing innovative and strategic advice in futuristic areas of law such as those relating to Blockchain and virtual currencies, Internet of Things (IOT), Aviation, Artificial Intelligence, Privatization of Outer Space, Drones, Robotics, Virtual Reality, Ed-Tech, Med-Tech and Medical Devices and Nanotechnology with our key clientele comprising of marquee Fortune 500 corporations.

The firm has been consistently ranked as one of the Most Innovative Law Firms, across the globe. In fact, NDA has been the proud recipient of the Financial Times–RSG award 4 times in a row, (2014-2017) as the Most Innovative Indian Law Firm.

We are a trust based, non-hierarchical, democratic organization that leverages research and knowledge to deliver extraordinary value to our clients. Datum, our unique employer proposition has been developed into a global case study, aptly titled '**Management by Trust in a Democratic Enterprise**,' published by John Wiley & Sons, USA.

Management by Trust in a Democratic Enterprise: A Law Firm Shapes Organizational Behavior to Create Competitive Advantage

NISHITH DESAI

The founder of Mumbai-based Nishith Desai Associates (NDA) built his law firm on a few powerful ideas: a trust-based, nonhierarchical, democratically managed organization that leverages research and knowledge to deliver premium services, high value, and a unique employer proposition that shatters many negative law-firm stereotypes. The author discusses the rationale behind NDA's business model and its organization and talent framework, and tracks the firm's philosophical genesis, which includes ideas from Mahatma Gandhi on democracy and from Charles Handy on trust in virtual organizations. He examines the implications of Handy's Rules of Trust for HR policies and practices, and then he describes NDA's approaches for creating challenge, growth, and rewards in a nonhierarchical structure; building behavioral competencies; balancing control with freedom; and other management practices that empower employees to act in the best interests of the firm and its clients. © 2009 Wiley Periodicals, Inc.

Think of a profession that, by its very nature and craft, tends to ingrain such attitudes as low trust, skepticism, and dispassion; where the personal interest and goals of individualistic, ambitious, self-driven, ego-led professionals supersede any commitment to the organization's goals. Chances are that the legal profession will be at the top of your list. If not, just think of a lawyer—and the description fits effortlessly. (As a lawyer, I have no qualms making this statement.)

Now, add to that the long-held fundamentals of running a competitive law firm. Profitability is driven by leverage (number of people) and hourly rate realization, which effectively means profitability is increased by working people more hours or hiring more people. Thus, what you tend to find is a sweatshop of overworked professionals with no work-life balance, high attrition, burnout, and indifferent loyalty. That apart, hierarchy, leverage, seniority bias, formality, and conservatism largely dominate a law firm environment. And what's more, this tends to typify law firms anywhere in the world.

Consequently, dodging the traditional law-firm constraints to create a very different organizational model, employer proposition, and culture is a tall order. But in our experience, it is a tremendous opportunity for value creation. It drove us to think "out of the box" and establish afresh a compelling culture, organization, and people strategy that would ultimately attract and retain the talent that we wanted for a longer-term competitive advantage.

For the two decades since its establishment in 1989 in Mumbai, India, our firm, Nishith Desai Associates (NDA), has been conceptualizing, implementing, and refining our approach to and practice of managing a democratic, trust-led enterprise that delivers high-value, premium-positioned legal services. That our approach has made some headway is indicated by NDA's growth—about 100 members and additional offices in India (Bangalore), the United States (Palo Alto, California), and Singapore—and

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Research@NDA

Research is the DNA of NDA. In early 1980s, our firm emerged from an extensive, and then pioneering, research by Nishith M. Desai on the taxation of cross-border transactions. The research book written by him provided the foundation for our international tax practice. Since then, we have relied upon research to be the cornerstone of our practice development. Today, research is fully ingrained in the firm's culture.

Over the years, we have produced some outstanding research papers, reports and articles. Almost on a daily basis, we analyze and offer our perspective on latest legal developments through our "Hotlines". These Hotlines provide immediate awareness and quick reference, and have been eagerly received. We also provide expanded commentary on issues through detailed articles for publication in newspapers and periodicals for dissemination to wider audience. Our NDA Labs dissect and analyze a published, distinctive legal transaction using multiple lenses and offer various perspectives, including some even overlooked by the executors of the transaction. We regularly write extensive research papers and disseminate them through our website. Our ThinkTank discourses on Taxation of eCommerce, Arbitration, and Direct Tax Code have been widely acknowledged.

As we continue to grow through our research-based approach, we now have established an exclusive four-acre, state-of-the-art research center, just a 45-minute ferry ride from Mumbai but in the middle of verdant hills of reclusive Alibaug-Raigadh district. Imaginarium AliGunjan is a platform for creative thinking; an apolitical ecosystem that connects multi-disciplinary threads of ideas, innovation and imagination. Designed to inspire 'blue sky' thinking, research, exploration and synthesis, reflections and communication, it aims to bring in wholeness — that leads to answers to the biggest challenges of our time and beyond. It seeks to be a bridge that connects the futuristic advancements of diverse disciplines. It offers a space, both virtually and literally, for integration and synthesis of knowhow and innovation from various streams and serves as a dais to internationally renowned professionals to share their expertise and experience with our associates and select clients.

We would love to hear from you about any suggestions you may have on our research publications.
Please feel free to contact us at **research@nishithdesai.com**.

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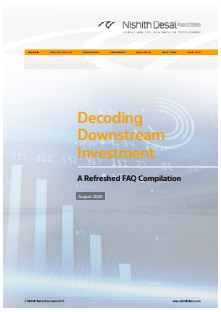

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