The Next Billion-dollar Leap

India's future unicorn bets are not on consumer apps, but on research-based, transformational products rooted in deep technologies.

PADMAJA RUPAREL
Co-founder, IAN Group

CONSUMER APPS HAVE scripted a unique success story in India: they are transforming the way we eat, shop, and make payments, thus helping us to embrace technology at an accelerated pace. As they expand geographically, these billion-dollar businesses have also inspired and enabled a new wave of entrepreneurs who keep deep technologies at the core to build research-based, transformational products in AI, semiconductors, spacetech, quantum computing, and robotics. They aren't just solving global problems; they are reshaping the future of Indian innovation.

They have also enhanced the value of the software industry built by the first wave of entrepreneurs by enabling them to better

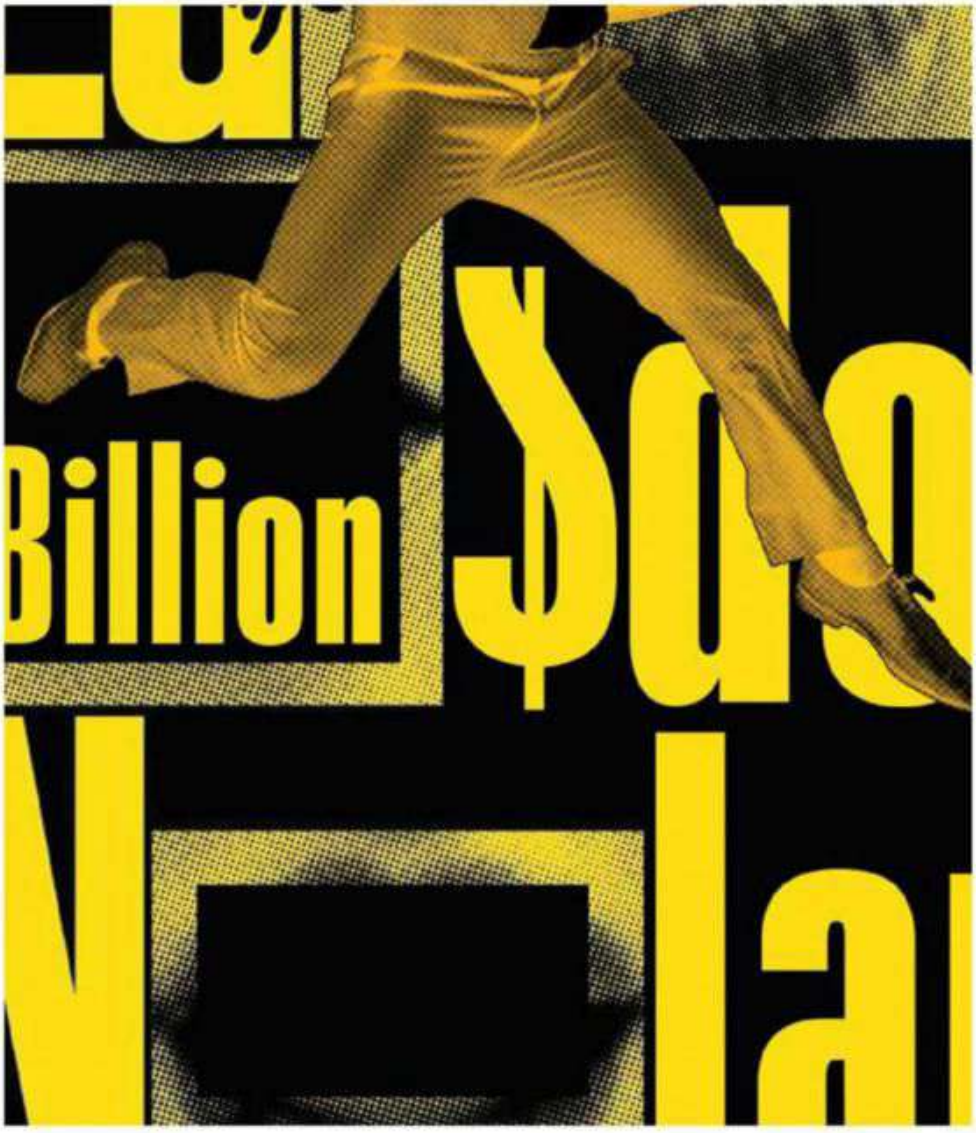

ILLUSTRATION BY ANIRBAN GHOSH

understand their customers, add enhanced features to their products, and scale for larger markets through new offerings.

Bucking the past, entrepreneurship is increasingly becoming the first choice of career for many. With a rising appetite for experimentation, the ecosystem has evolved to accept failures. As deeptech startups thrive in incubators, R&D labs, research parks, co-working spaces, and universities across the country, the infrastructure has also stepped out of the labs. Along with policy reforms, digitisation efforts, and a focus on protecting intellectual property (IP), well-equipped lab spaces with clean rooms, freezers, latest equipment, research access, etc., are being built today. As a result, between 2020 and 2024, India saw a 44% rise in IP filings.

Levers of acceleration

To truly position India as a global leader in deeptech, the ecosystem must rally around four core levers: research, regulation, risk capital, and talent.

Research: Extensive research, prototyping, and expert guidance are inevitable for deep tech IP/products. Public institutional infrastructure needs to be opened up to external researchers and students. Extensive collaboration between industry and academia will sharpen the solution focus.

Policy/regulations: Regulatory framework must keep pace with technology. Simplified protection mechanisms are critical for incentivising entrepreneurs as well as retaining Indian IP in the country. Government procurement is a huge opportunity. We have seen how the government can become an "anchor" customer as it already does in space, defence, and environmental innovation.

Catalytic capital: Deeptech has a long gestation and is capital-intensive. Startups need support through multiple stages:

- Early grant money: This is critical for experimenting and building Minimum Viable Products. Various funds and ministry grants reflect the government's vision of making India the epicentre of deeptech startup innovation.
- Angel investment: Creating an ideal environment for angels through incentives and eased regulations can further loosen the private purse strings. Despite being high-risk, angel investment can be risk-mitigated with handholding.
- Venture capital funds: Attracting VC money is imperative. While the model enables investors to take risks, these are patient capital that can stay invested for 8-10 years. The Sidbi-Department for Promotion of Industry and Internal Trade's Fund of Funds for Startups, SRI fund, BIRAC's AcE Fund, and others have started to fuel the VC funds. But we also need a catalytic fund for growth-stage startups.
- Non-dilutive funds: These are critical as companies start to scale. Later-stage grants (for IP-focussed companies), debt, and working capital are critical to grow and create value.
- Growth capital pools: Unlocking growth capital is key to retaining IP and value creation within India. Currently, many deeptech firms need to go overseas to access growth money.

Talent: India's future in deeptech revolves around its ability to churn out, retain and empower homegrown scientific talent. Skilling at school and university levels is non-negotiable. Our engineers have long powered and even led global tech giants. But this talent now needs to be harnessed in India. The bet is not on tech but on the people behind it: the scientist who has spent five years on a photonics breakthrough, the aerospace engineer working on reusable rocket stages, the chemist tackling hydrogen storage. These founders may not speak the language of pitch decks and viral traction, but they speak the language of science, precision, and grit.

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The time is now

With our proven track record in consumer apps, India's deeptech calling is here to build advanced materials, next-generation batteries, and launch-grade rockets. The early signs are promising. Dhruva Space has built a full-stack satellite solution. BrainSightAI uses AI to assist neurosurgeons in critical decision-making. Innovodigm's microneedle patch eliminates cold-chain dependence for drug delivery. Manastu Space has developed green propulsion fuel for rockets. Astrome is extending high-speed telecommunication to remote regions.

In 2023 alone, India added over 480 new deeptech startups—double the number in 2022—bringing the total to over 3,600.

No doubt, India is on the brink of becoming a global leader in deeptech. Its exceptional economic growth trajectory, the geopolitical scenario, the constant focus on startups and innovation, the aspirations of our entrepreneurs, domestic public and private funding, the improving "ease-of-doing-business" index, and research-focussed academic institutions all point towards the golden era for India to build for the world. The engine is running. What we now need is acceleration.

(Views are personal.)