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Deep tech startups taking brave risks

PREMIUM

Deep tech entrepreneurship is creating new avenues for science and technology discoveries in the public sector labs to reach the market

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The Great Indian Startup Boom of the last decade, led by young entrepreneurs and catalysed by the government's Startup India movement, created an environment of entrepreneurship in India. The Startup movement is not limited to metro cities, but has successfully captured the imagination of suburban and rural entrepreneurs.

Today, there are more than one lakh startups recognised by the government, with about half of them coming from Tier 2 and Tier 3 cities. It has created a sense of agency among India's youth, and a sense of freedom of being able to determine their own destiny.

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The Startup movement is moving beyond the consumer Internet and e-commerce to genuine deep technology areas, such as space and remote sensing, artificial intelligence and robotics, biotech and pharma, electric vehicles, drones, defence, telecommunications, semiconductors, and many more. These real sectors go beyond digital marketplaces, seller discovery, and exchange of information, and impact many more sectors of the economy, which will bring deeper industrialisation in newer areas and more jobs.

Deep tech entrepreneurship is also creating new avenues for science and technology (S&T) discoveries in the public sector labs to reach the market.

The successes at IIT Madras's Research Park, which has incubated over 200 deep tech companies cumulatively valued at over ₹50,000 crore including those in space and aviation; the C-CAMP, which has in its portfolio seven deep biotech startups that have raised more than ₹550 crores; and the National Chemical Laboratory's Venture Centre support to file and commercialise high-quality patents, are some of the evidence of how science in public-funded institutions can reach citizens and consumers, through startups.

The authors' conversations with technology leaders in academia and industry have shown that faculty members find it easier to spin out their discoveries through startups founded by themselves or their alumni, instead of licensing or patent re-assignments. This evolution provides a unique opportunity for leveraging our deep historical investments in S&T in its public labs and institutions.

In a way, it can be said that deep tech startups are the main route through which India is taking technology risks, a crucial element of any country's process to build new capabilities. Traditional risk-taking sectors such as government departments and legacy corporates seem frozen in comparison, perhaps due to the intense scrutiny of risky initiatives by their respective stakeholders, voters and public markets investors.

Many mission-driven programs of the government have not yielded the expected innovation results, other than a few bright spots in sectors such as space and defence. India's industrial investment in research and development (R&D) is also lamentably low in most sectors other than pharma.

Successful model

The industry has mostly preferred investing in deep-tech startups and buying successful scaled technologies. This observation is corroborated by the number of deep tech startups being acquired by Indian legacy corporates, such as the Tatas buying Saankhya and Tejas Networks, Reliance acquiring Faradion and Hero Motors buying equity in Ather Motors etc.

The most important reason why the startup ecosystem has retained its risk appetite is because of a system-wide shared approach to measuring risk and progress during frequent rounds of funding negotiations. A common vocabulary of rounds, stages, and product-market-fit is employed here, while retaining independent decision-making across multiple venture funds and investors. Thus, a model has been identified to scale innovation, one which has eluded India for long. Government and Industry must magnify this new model multifold to create enterprises commensurate to India's scale. Let us discuss some possible ways.

Startup India 2.0

It is an opportune time for the government to support this second phase of entrepreneurship, a Startup India 2.0, focused on the real sectors listed above. This support must come through two routes.

First, the availability of much larger risk capital for deeptech startups. The government must lay much more emphasis on the aforementioned sectors in the existing SIDBI Fund of Funds. Industry must increase and channel their research funds towards financing deeptech startups.

Second, we need to enable mass procurement of indigenously developed technologies. This latter step has started to happen in fits and starts, across Ministries such as Defence, Smart Cities and Health; however, a concerted push across the government is still desirable. Industry and industry bodies have a role to play in aggregating demand in their sector, to kickstart locally-made technologies. This can be achieved through the co-creation of products and solutions at incubators, rapid testing and certification, and support to procurement of innovative goods at scale, as the government has done in some sectors.

The first iteration of Startup India and Fund of Funds kindled the Startup India movement; Startup India 2.0 should direct the energies of India's entrepreneurs towards building Indian industrial and public capabilities, to support Indian economic growth, job creation, national security, and other national capabilities.

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