Deeptech Fund Of Funds

Table of Contents

Executive Summary

1. **The Indian Government initiated the 2025 Deeptech Fund of Funds Scheme to support startups on technologies such as AI, Quantum Computing, Biotechnology** to leverage India's scientific research prowess and enhance India's competitiveness at a global level in these fields.
2. This scheme splits its share into two principal sectors, firstly **₹10,000 crore in startups, secondly ₹20,000 crore** to make India an innovation leader in the world and stimulate economic growth.
3. Nevertheless, these deep-tech startups encounter significant **challenges such as high R&D cost, market competition, regulatory hurdles, operational issues** etc. These aspects hinder new ventures from scaling and thriving.
4. Implementing best practices of the successful models of the **US (DARPA, SBIR), Israel (Yozma), the EU (Horizon Europe, EIC Accelerator), and China (state-led venture funds)** can enhance the impact of the FOF through hybrid funding, innovation clusters, talent pipelines, and global outreach.
5. The application of targeted support, including **seed and growth stage capital, a patient capital window, co-investment models, sectoral focus, robust governance, incentives for fund managers, and international collaborations** is critical to unlock the FOF's potential contribution to India's deep tech ecosystem.

I. Introduction

On 1st February, 2025, the Finance Minister Smt Nirmala Sitharaman Ji announced, in the Union Budget of India , the launch of the Fund of Funds Scheme (FOF), a sequel to the original Fund of Funds Scheme for Startups (FFS) introduced in 2016. The original FFS scheme had a corpus of ₹10,000 crore intended to promote the growth of startups in India through SEBI-registered Alternative Investment Funds (AIFs). Even though the FFS scheme successfully mobilized an investment of over ₹90,000 crore[1], the government is launching this new FOF scheme to address some specific gaps not covered in earlier schemes. **The new FOF scheme targets emerging technology, transitioning from consumerization to innovation and raising new investment towards research and development.** This strategic focus brings us to the concept of deep tech. **Deeptech primarily refers to the startups and companies working on advanced and emerging technologies such as Artificial Intelligence, Quantum Computing, Robotics and Biotechnology** . According to a BCG report, Deeptech primarily focuses on technologies and major global issues related to climate change, food security, and disease[2]. The investment in deep tech has an unanticipated impact on society through its intervention in technology, demography, climate, sustainability, and security. They hold great potential to disrupt markets. Countries are increasingly investing in deep tech; for example, the **US currently possesses more than 60% of global shares in deep tech, followed by China with 12% and Europe with 14%.** Other countries like Israel, Singapore, and Sweden are strongly supporting deep tech. However, several questions arise: Why is the government investing so much in deep technology? How much revenue will this investment generate for the government? What will be the cost to the Government

[1] MSN India, February 2025

[2] BCG, November 2023

of India's treasury? And given the volatility in this sector, is the government prepared to bear the potential failure of this scheme?

II. Fund of Funds for Startups

In an assessment report by CRISIL, India's premier analytics company and pioneer of AIF(Alternative Investment Fund)

benchmarking, India has transformed into the world's 3rd largest startup ecosystem[3]. According to this report, a total of ₹17,534 crores was invested in 938 startups around the country from 129 AIFs and this resulted in another effect that catalyzed almost 4x investment for these startups from other sources too. This scheme also covered investments in startups, beyond tier 1 cities, which focused on the agriculture sector, health tech, financial services, and sustainability. **Around ₹1,590 crore worth of investment has been channelized into 129 startups in tier 2 and 3 cities**. In a survey conducted by CRISIL, 89% of respondents confirmed that due to the support of FFS, they were able to raise capital for their startups. Also, more than 75% of respondents claimed they were able to raise funds for their startups beyond the SIDBI's support through FFS.

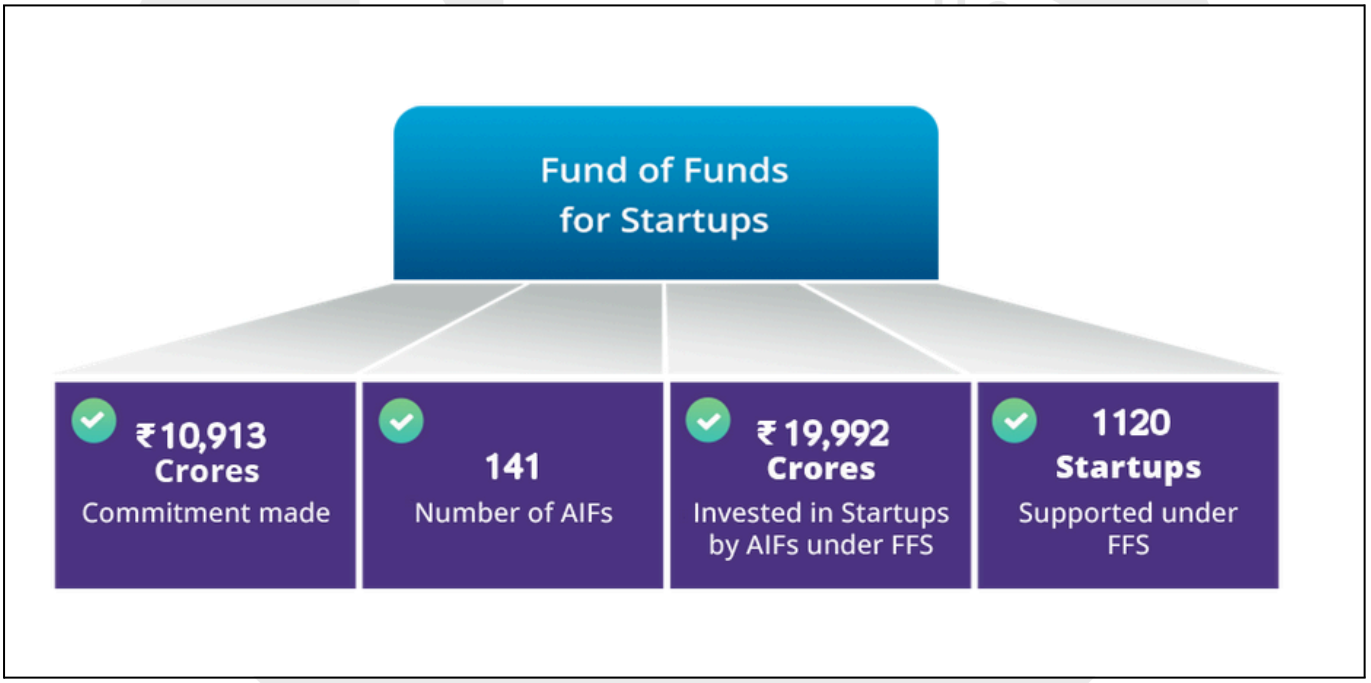
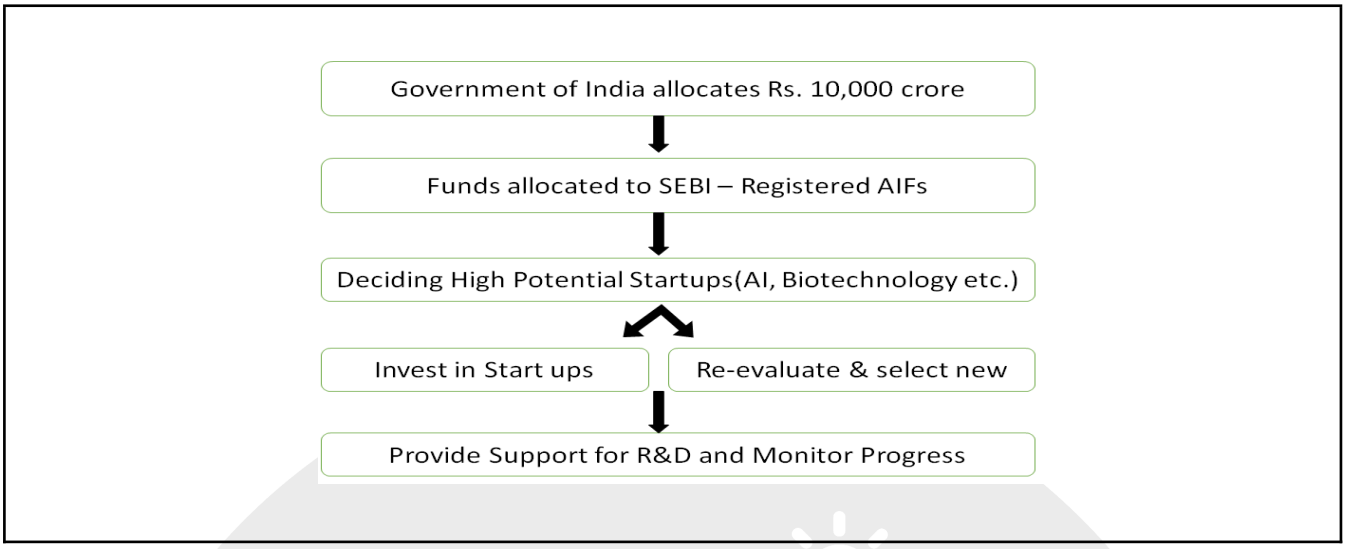


Image 1 : Status of FFS as on September 13, 2024[4]

[3] Press Release,8th February 2024,SIDBI
[4] FFS

III. Breakdown of FOF Scheme



Through this plan, the government aims to revolutionize the Indian startup ecosystem with a significant breakthrough in India's technological landscape. **The primary reasons for the government investing a substantial amount of money into this technology are to drive innovation, raise domestic standards to a global scale, and most importantly, stimulate economic growth.** These innovations are capable of driving new-age job growth, solving complex problems of life, and positioning India as one of the world's leading tech giants, thus contributing significantly to India's economic prowess. **The Union Budget 2025 allocates ₹10,000 crore for the Fund of Funds for startups, about 0.25% of the total budget, and an additional ₹20,000 crore for deep tech R&D to ensure the effective management of this scheme**. The Small Industries Development Bank of India (SIDBI) is entrusted with overseeing and allocating the funds to selected AIFs. While this initial investment is quite high, it is believed that its long-term costs will depend on the success of these startups, which remains quite unpredictable as of now.

IV. Demands and Needs of AI and Tech founders in India

A. **Access to Patient Capital** :Deeptech startups in AI require funding on a long-term basis due to prolonged R&D research cycles, thus seeking more flexible repayment frameworks and regulatory approvals. The new venture capital startups that are leveraging technologies in AI, blockchain, the Internet of Things, and robotics require at least 10 to 15 years to mature. According to a VC report by Sequoia and Accel, it's recommended to have a market segment analysis for venture capitals in these sectors.

1. The **first-time investments are those startups that are receiving funding for the first time.** It's recommended that **new platforms such as crowdfunding measures improve the access of capital to these new ventures.** Secondly, these ventures boast a greater potential in the market to flourish and generate higher CAGR.

2. Hence, **it's recommended that the FOF Scheme incorporate a dedicated "patient capital," allowing startups to receive capital with a flexible payment schedule**. Secondly, **repayment terms should be bifurcated based upon the technical or commercial milestones achieved by the ventures**, for example, patient fillings, first commercial deployments, etc.To reduce the "valley of

death" risk, it's suggested to develop an option for investors to possess equity stakes and revenue-sharing agreements with other firms so that they aren't forced into premature commercialization.

B. **R&D Infrastructure and Compute Resources**: AI Founders also need access to high-performance computing (HPC) resources to train large-scale AI models, and the cost of GPUs (graphics processing units) often exceeds ₹10 crore per year for advanced AI startups, which is quite not feasible for a startup to raise such a huge amount of funds at an early stage. Thereby, it's recommended to operate this disbursal of funds in a **public-private cloud partnership model, which will help these startups to acquire new technology at a subsidized rate.** Also, **collaboration with C-DAC (Centre for Development of Advanced Computing) to establish a National AI Compute Grid, similar to the EU's Gaia-X initiative.**

C. **Talent Development and Retention :** India faces a severe problem of brain drain whereby, on average every year, around 2.5 million Indians migrate to foreign countries. It thereby reduces the availability of researchers and workforce for the Deeptech Startups. Therefore, **it's suggested to create a Deep Tech Talent Track under the PM Fellowships, which will offer an average stipend of ₹10-15 lakh annually under the FOF Scheme** to retain talents in India. The models of DARPA and NSF grants in the U.S. have made provisions for providing sufficient financial resources for their researchers, thus creating a strong deep tech R&D workforce.

D. **Regulatory Clarity And IP Protection** : AI startups face strong AI ethical dilemmas, data privacy issues, and the lack of an IP enforcement mechanism discourages investment in AI-driven innovations. Hence, it's suggested to **introduce regulatory sandboxes so that these new businesses can test their models under a controlled policy environment as set by the government.** FOF should also allocate a substantial amount of ₹500 crore to subsidize patient filing costs and provide legal support; it would allow Indian AI startups to retain their IP ownership and responsible, clear governance frameworks.

E. **Global Market Access** : Indian deep tech startups have limited access to global markets, which restricts the scaling-up opportunities of the startups. **Partnerships with global venture capitals like Sequoia, SoftBank, Tiger Global, and government support for these new venture product launches in other countries** would facilitate their scale-up. The government can ensure bilateral AI corporations to further facilitate these collaboration programs.

V. Challenges

A. **High Cost of R&D** : According to a report from Fastercapital [5], developing a new mobile application that gives personal recommendations using AI costs $250,000. Given that India's GDP per capita as of 2025 is approximately $11,940, it becomes quite challenging and risky for people in India to shift to startups.

B. **Market competition** : The current market is heavily competitive with various inflows and outflows of capital, goods, services, technology, and ideas. Given this competitive market, it becomes quite difficult for new startups to enter and compete globally with these established businesses. For example, **The Deepseek**

[5] FasterCapital

Controversy is a prime example of market and commercialization risks wherein Deepseek, a Chinese AI claims to be developed at half the cost of open AI. It reflects multiple challenges of bringing innovative solutions to the market.

C. **Regulatory Restrictions** : There are **complex rules and regulations in India** that make it difficult to initiate a startup, particularly related to deep tech, which needs to comply with various data protection and security laws, environmental laws, intellectual property protection, compliance with international standards, and financial and cybersecurity regulations.

D. **Operational Challenges**:There are distinct stages involved in managing these projects, such as research, development, manufacturing (goods), and transportation. Any disruption in the supply chain can impact the success of these startups especially when there is limited access to a particular technology, for example, **NVIDIA, a US company produces a unique chip NVIDIA A100 Tensor Core GPU which is specifically designed for AI and is not made by any other company in the world**. So, if there is any startup focusing on AI-related services and needing these chips, it will become too difficult for this startup to flourish as only a limited supply of the chips is permitted by the US government to India.

E. **Financial Limitations** : Additionally, **the success of start-ups is also limited by the requirement of large investments and long gestation periods straining the availability of monetary resources.** But these investments are not only required for the development of technology but also for commercial success, further impacting the success of these startups.

VI. Key Takeaways for India's Deeptech Growth

A. **United States: DARPA Model and SBIR Grants : The U.S. Defense Advanced Research Projects Agency (DARPA) and Small Business Innovation Research (SBIR) programs are the largest sources of early-stage investment in technological innovations.** They aim to provide non-diluting funding for high-risk R&D and provide funding in phases, focusing on the scientific merit and feasibility of the ideas and the continuation of efforts in the same direction. This kind of structure helps new ventures to bridge the gap between extensive R&D and commercialization. India, likewise, can implement any such **Deeptech Grant Framework alongside FOF, which will provide funding of around ₹2-5 crore per startup for proof of concept (PoC) and prototyping**, which will be monitored by some national agency established for this purpose. This reduces the reliance on equity funding for early-stage deep tech ventures.

B. **Israel: Government-VC Collaboration** : **Israel's Yozma (initiative in Hebrew) Program of the 1990s was introduced by the Israeli government to break through the triple-digit inflation and bankruptcy faced in the 1980s**. Its idea was to kickstart new industries by investing in new ventures, technologies, and ideas. It offered insurance coverage of 80% and promised to double any investment with investment from the government, thus attracting foreign investors. Under this initiative, Israel aimed to catalyze its startup ecosystem by collaborating with private venture capitals. In India's scenario, encouraging private capital inflows in deeptech and providing several risk-free insurance mechanisms can help to boost up a robust deeptech sector.

C. **European Union : Horizon Europe and EIC Accelerator : The EIC (European Innovation Council) Accelerator is a funding program under Horizon Europe (the European Union's (EU) research and innovation program)** that offers support to startups that show the potential to either create new markets or disrupt existing ones, which are looking for substantial funding but are highly risky for private investors to invest in alone due to long time periods and possess the capacity to scale up. **Under this program, it offers a combined grant of €1-2.5 million with equity investment up to €0.5-15 million via EIC Accelerator**.India's FOF also has the potential to integrate the grants for R&D and equity for scaling into a hybrid model satisfying the needs of the Deeptech Sector in India.

D. **China: State-Led Venture Funds : China's model of state-led venture funds follows the model of combining private funding alongside government funds in strategic sectors of the economy such as semiconductors, AI,** and many more. It focuses upon investment in such firms that exhibit a higher potential for greater growth rates following investment, thus blending public capital with market-driven outcomes. Likewise, India can also allocate a division of FOF funding strategically in specific sectors of semiconductors and AI, combining the policy with national schemes like the India Semiconductor Mission and thus boosting private sector agility.

VII. Recommendations

A. **Seed Stage Support:** The model of venture capital firms like Deep Tech XL, which invests in the deep tech sector ranging from pre-seed stage to advanced stages, helps new startups to flourish in this sector**.** A kind of similar structural plan can be adopted by the government to support startups. Other than this, the **initial allocation of 30-40% of the corpus (₹6,000-8,000 crore) as early-stage investments will help in developing proof of concept and prototypes without diluting equity** and thus help venture capital to retain their ownership.

B. **Growth Stage Funding:** It's a crucial stage where the firms are ready to scale up, and thus channeling 50% (₹10,000 crore) of the capital at this stage will support the commercialization of these startups, ensuring that they expand their operations and reach larger markets.

C. **Patient Capital Window:** Deeptech startups use complex technology to develop their products, which often require longer development cycles, this window will allow allocation of 10-20% of the corpus (₹2,000-4,000 crore) with flexible exit timelines, and it helps startups to develop fully without the pressure of short-term returns.[6]

D. **Co Investment Model** : Sharing the financial burden of government by entering into public-private partnership models, private capital venture firms can reduce the risks associated with these deep tech investments. The leading example of this kind of firm is **the SEEDS Capital Co-Investment Model**; it helps to provide a platform for potential startups to garner funds from many private firms. They suggest a **model of 2:1 up to the first S$1 million from SEEDS Capital; 1:1 thereafter, up to S$4 million; 1:2**

[6] Inc42,July 2024

thereafter, up to S$8 million; and 1:3 thereafter, up to $12m[7]. For Indian startups, the investment funds in a ratio of 1:2 with the greater weightage given to the government will be impactful.

E. **Sectoral Focus And Innovation Clusters** : Focusing on high-impact sectors such as clean energy and healthcare drives significant growth potential and societal benefits. Promoting innovation hubs in major cities like Pune, Hyderabad, and Bengaluru creates a supportive ecosystem for these startups. Example: **Uravu Labs is generating atmospheric water generators that extract water from the air, and they are currently operating their sales business in Bengaluru to over 80 restaurants**.[8]

F. **Governance and Oversight** :Creation of an independent Deep Tech Investment Council, which will oversee the allocation of funds on a merit-based and transparent process, streamlining the approval process within a 60-90-day span of time, thus avoiding bureaucratic delays.

G. **Incentives for Fund Managers** : Offering performance-based incentives to AIF Managers with high interest in IP creation motivates fund managers to support startups to achieve milestones, and thus both the startups and fund managers benefit. **Pramod Gummaraj, founder and CEO of Aprecomm, also expressed this new scheme as a significant tool to boost the entrepreneurial ecosystem.**

H. **Targeted Support Approach** : Currently, deep tech startups work with advanced technologies that require specialized knowledge and infrastructure, a continuous flow of investment for R&D over a long period. These pose greater challenges as the current FOF schemes don't cater to deep tech-specific sector-wise support. For example, the **Startup SG Initiative under the YOZMA[9](initiative in Hebrew language) Program of Singapore** provides sector-specific funding and incubation programs and collaborates with academic institutions. Thus, targeted funding, access to deep tech-related infrastructure, and collaboration with further academic institutions can help to contribute to this scheme.

I. **Establishing global collaborations** :Establishing cross-border connections with research institutes involving the support of the government in managing the discussions and flow of resources, ideas, and capital would help in better channelization of funds and efficient use of capital employed. For example, **Deeptech Alliance[10] founded by the Danish Industry Foundation in collaboration with DTU Science Park and other European partners,** aims to leverage resources throughout the continent of Europe and build a collaborative startup ecosystem.

J. **Additional Financial Support** : Due to high potential risks in this sector, the implementation of risk mitigation funds in the form of insurance programs can help the government minimize its losses and increase its turnover on funding through the FOF scheme. This approach will boost investor confidence in the economy, leading to increased capital inflow into the country and more effective commercialization of products and services. For example, **the Startup SG Loan scheme offers loan insurance schemes to startups, thereby reducing financial risks.**

---

[7] SEEDS Capital
[8] BW Disrupt, January 2025
[9] YOZMA Program
[10] Deeptech Alliance

Four models can integrate all the above recommendations under FOF:

A. **Hybrid Funding: For example, a startup like QNu Labs (quantum cryptography), which receives ₹3 crore in R&D grants and ₹15 crore in equity from FOF for scaling, follows the EU's EIC Accelerator Model.** India can implement this model in three stages: formation of a selection committee in the identification of potential startups, disbursal of allocated funds, and then implementation of a periodical review report to ensure optimum utilization of provided resources.
B. **Innovation Cluster: For example, establishing innovation centers in Bengaluru with funds from FOF allocations, integrating resources from IISc, startups, and corporates, similar to Israel's Cybertech Cluster in Beersheba.** It can also be implemented in three stages: first, forming strategic partnerships with academic institutions and corporates; then, allocating significant funding for research; and finally, launching incubator programs to nurture these startups and promote innovation.
C. **Talent Pipeline**: **Funding PhDs at prominent institutions like IITs, ISIs, and others via FOF, which will help create a pipeline of highly skilled researchers** and then ensure collaborative research projects between academia and startups, fostering innovation in AI healthcare. It can be implemented in the following steps: first, find critical areas of research, such as AI and healthcare, then fund a significant number of PhD candidates (approx. 50) at IIT Delhi, and then pair these candidates with startups like Niramai to work on these joint research works.
D. **Global Outreach**: **Sponsor a considerable number of startups (say 20) at prestigious tech conferences like NeurIPS (Annual Conference on Neural Information Processing Systems) to showcase India's innovation on a global stage**, which is quite similar to China's state-backed tech expos model. It can be implemented in the following steps: first, identify the promising number of startups, say 20 here, and disburse funds to cover the travel, accommodations, and other exhibition costs, backed by pre-event training and mentorship to these startups to prepare for the expo.

VIII. Conclusion

The Deeptech Fund of Funds Startup is a strategic initiative by the government of India to address the investment gap in the startup ecosystem, thus catering to the expansion of the market and various job creation opportunities with it. Although there are many challenges in the development of this kind of ecosystem, leveraging the resources through global unified efforts, targeted funding, and insurance policies can help to overcome these challenges. Besides, this initiative is also in line with India's vision of becoming a technological leader in the world, giving a platform for accelerating innovation in areas such as artificial intelligence, biotechnology, and clean energy. By building a culture of innovation and resilience, it is leading the way to a resilient and future-proof economy.

IX. References

1. *Deep Tech market 2025-2034 | Size,Share, Growth*. (n.d.). MarkWide Research https://markwideresearch.com/deep-tech-market/?form=MG0AV3

2. BW Disrupt. (2025, January 15). *Deeptech in India: Trends and outlook for 2025*. https://www.bwdisrupt.com/article/deeptech-in-india-trends-and-outlook-for-2025-544995?form=MG0AV3

3. Boston Consulting Group. (2023, November). *An investor's guide to deep tech*. https://web-assets.bcg.com/a8/e4/d3f2698b436aa0f23aed168cd2ef/bcg-an-investors-guide-to-deep-tech-nov-2023-1.pdf

4. Press Trust of India. (2025, January 13). *Sector-specific funds sought from Union government for investments in deep-tech start-ups*. *The Telegraph*. https://www.telegraphindia.com/business/sector-specific-funds-sought-from-union-government-for-investments-in-deep-tech-start-ups/cid/2077201

5. Tripathi, N. (2025, February 1). Union Budget 2025: Major boost for startups, deeptech, and AI innovation in India. Forbes India. https://www.forbesindia.com/article/news/union-budget-2025-major-boost-for-startups-deeptech-and-ai-innovation-in-india/95206/1?form=MG0AV3

6. Deeptechalliance. (2024, July 25). *DeepTech Alliance: a model of European collaboration for a better future*. Deeptech Alliance. https://www.deeptechalliance.org/2024/07/05/deeptech-alliance-a-model-of-european-collaboration-for-a-better-future/?form=MG0AV3

7. *Startup SG - the Singapore Startup Ecosystem*. (n.d.). https://www.startupsg.gov.sg/programmes

8. *MSN*. (n.d.). https://www.msn.com/en-in/money/markets/rs-10000-crore-fund-of-funds-scheme-to-focus-on-manufacturing-high-tech-startups-dpiit-secy/ar-AA1yof0Q?ocid=BingNewsSerp

9. Nagar, A. (2024, March 18). Deep-tech policy in final stages, says DPIIT secretary. *Financial Express*. https://www.financialexpress.com/business/industry-deep-tech-policy-in-final-stages-says-dpiit-secretary-3429332/

10. *Research and Development Costs: From Idea to Market: How research and development costs drive startup growth - FasterCapital*. (n.d.). FasterCapital.

https://fastercapital.com/content/Research-and-Development-Costs--From-Idea-to-Market--How-Research-and-Development-Costs-Drive-Startup-Growth.html

11. Markets, R. A. (2024, May 8). Venture Capital Investment Market Report 2024, featuring Sequoia Capital, Greylock, Andreessen Horowitz, Accel, Index Ventures, Union Square Ventures, Founders Fund and First Round Capital. *GlobeNewswire News Room*. https://www.globenewswire.com/news-release/2024/05/08/2877504/0/en/Venture-Capital-Investment-Market-Report-2024-Featuring-Sequoia-Capital-Greylock-Andreessen-Horowitz-Accel-Index-Ventures-Union-Square-Ventures-Founders-Fund-and-First-Round-Capita.html

12. Sheykin, H. (2024, November 22). *How to budget for startup expenses to launch your AI business*. https://finmodelslab.com/blogs/startup-costs/artificial-intelligence-development-company-startup-costs#:~:text=

13. Kumar, R. (2023, December 2). *Indian migration trend: Moving to foreign countries*. Moving Solutions. https://www.movingsolutions.in/guide/indian-migration-trend-moving-to-foreign-countries/?form=MG0AV3

14. *Proposer instructions: Grants/Cooperative agreements | DARPA*. (n.d.). https://www.darpa.mil/about/offices/contracts-management/proposer-grants?form=MG0AV3

15. *SBIR & STTR Programs Overview | DARPA*. (n.d.). https://www.darpa.mil/work-with-us/communities/small-business/sbir-sttr-overview?form=MG0AV3

16. Adi. (2024, December 4). *SDG 8- Israel Took the Initiative in Innovation with Project Yozma-By Dr. Eitan Eliram Lead Innovation Strategist*. Social Impact Israel. https://socialimpactil.com/sdg8-israel-took-the-initiative-in-innovation-with-project-yozma/?form=MG0AV3

17. *EIC Accelerator*. (2025, February 28). European Innovation Council. https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en?form=MG0AV3

18. *EIC Accelerator | Horizon Europe*. (n.d.). https://horizoneurope.ie/innovative-europe-european-innovation-council/eic-accelerator?form=MG0AV3

19. *Government venture capital and AI development in China*. (n.d.). FSI. https://sccei.fsi.stanford.edu/china-briefs/government-venture-capital-and-ai-development-china?form=MG0AV3

20. *DeepTechXL | Funding*. (n.d.). https://www.deeptechxl.com/funding?form=MG0AV3

21. Inc, T. (2024, February 1). Budget 2024: Startups make merry as Govt readies patient capital for deeptechs. *Inc42 Media*. https://inc42.com/buzz/budget-2024-startups-make-merry-as-govt-readies-patient-capital-for-deeptechs/?form=MG0AV3

22. *Our Co-Investment model*. (n.d.). https://www.seedscapital.sg/about-us/our-co-investment-model/?form=MG0AV3

23. Mehta, R. (2025, February 28). Deeptech in India: Trends and outlook for 2025. BW Disrupt. https://www.bwdisrupt.com/article/deeptech-in-india-trends-and-outlook-for-2025-544995?form=MG0AV3

24. *2025 Conference*. (n.d.). https://neurips.cc/?form=MG0AV3

25. Jain, C. (2025, January 21). Union Budget 2025: India's rise as a global innovation leader with deep tech in focus. *Grant Thornton Bharat*. https://www.grantthornton.in/insights/articles/union-budget-2025-indias-rise-as-a-global-innovation-leader-with-deep-tech-in-focus/?form=MG0AV3