

Comments on Draft National Deep Tech Startup Policy (NDTSP) 2023

A. Introduction

2. Definition and Attributes

2.1.2 The parameter of 'early-stage technologies' may not always define deep tech startups well as the term 'early-stage technology' needs more clarity. Also, the parameter of 'yet to be developed for any commercial applications' is too restrictive and will leave out many deep tech startups.

2.1.4 The parameter of 'Intellectual Property' may not always be a distinguishing factor from non deep tech startups. Software focused startups may not have IP for algorithms, as algorithms are not patentable, however that does not necessarily mean that they are not deep tech startups.

C. Policy Priorities and Interventions

1. Nurturing Research, Development & Innovation

1.2 While it is essential to calibrate existing research assessment practices, care should be taken to do so in a manner that creates an enabling environment for a researcher to engage in entrepreneurial activities but does not penalize those that choose to not engage in entrepreneurial activities.

1.5 The implementation of a SPOC model for technology transfer offices in universities may put strain on the limited resources of universities. Thus, another model that may be beneficial can be setting up centralized regional technology transfer offices that can use the database proposed in **2.1.6** to identify high potential patents and enhance commercialization.

2. Strengthening Intellectual Property Regime

2.2 Building in-house capabilities in every premier institute while possible may not be the most efficient use of resources. Thus, either centrally hiring select agencies or delegating this work to the proposed CDT may be beneficial.

3. Facilitating Access to Funding

3.2 To enable sprawling hubs for deep technologies, funding should not be restricted to only research institutes. Making funding competitive across Higher Education Institutions (HEIs) and research institutes and linking this funding to the National Research Foundation may better enhance and create deep tech hubs.

As research institutes already receive high amounts of research funding through their core grants, CSR funds may be better utilized by providing them to HEIs. This will also help create a talent pipeline for deep tech while also promoting R&D.

3.14 While expert commercial validation can play a crucial role in securing funding, a committee may not be scalable for every application.

4. Enabling Infrastructure Access and Resource Sharing

4.2 While ensuring access to equipment within academic institutions to startups is a welcome move, using and strengthening existing platforms like I-STEM may be beneficial for this goal.

5. Creating Conducive Regulations, Standards and Certifications

5.2 Regulatory Sandboxes have been shown to be great tools for ensuring evidence-based regulatory frameworks and certainty. This step is greatly appreciated.

6. Attracting Human Resources & Initiate Capacity Building

6.2 Ensuring real representation of women in the deep tech startup ecosystem is crucial. However, mandates on investments may incentivize token representation of women rather than an actual representation.

6.4 Tenured exchange programs have been shown to provide real opportunities for growth and mentorship. However, to increase exposure to world-class research, the exchange program should not be limited to only Tier 1 cities but should be expanded to international opportunities. This can also be achieved by routing CSR funds for these exchange programs.

6.6 Ensuring recognition and visibility of women founders in the deep tech ecosystem is extremely important. However, awards and recognition programs may not be the ideal way to achieve this. The lack of

acknowledgement of women is an institutional issue that must be addressed using targeted interventions.

6.7 The lack of transparency regarding diversity and equal opportunity practices in the deep tech ecosystem is a critical issue. Since there are currently no regulations regarding the reporting of such data, deep tech startups may be encouraged to disclose this data in order to be eligible to receive government funding support. This will not only provide an incentive for startups to start reporting on their diversity and equal opportunity practices, but also help the government to make evidence and data-based targeted interventions to improve diversity in deep tech startups.

6.10 Capacity can be a severe bottleneck on the promotion programs for deep tech startups. However, in light of the current lack of capacity, the building of in-house capacity in every government department may result in the spreading of capacity too thinly. Thus, this capacity may be better utilized by assigning the role of the in-house unit to the proposed CDT.

6.11 Industry's engagement with students and academia is crucial in creating the talent pipeline required for promoting the deep tech ecosystem in India. However, long term research problems can be too time intensive to be completed in the limited time period of a master's dissertation. Thus, such engagements may be encouraged to be with faculty members. This will enable faculty members in HEIs to tackle these problems while also meaningfully engaging both master's and doctoral students.

6.15 Culture plays a significant role in attracting human capital to deep tech startups. Thus, a shift in cultural notions can be deeply beneficial. However, the goal of attracting human capital may be better achieved through building a culture of research. This can be achieved through providing more research funding to HEIs of India.

7. Promoting Procurement & Adoption

Chapter as a whole - The public procurement of innovation through startups can help deep tech startups immensely. As pointed out, public procurement can act as a first market for deep tech innovations and boost them towards success. However, public procurement is currently hampered by the clauses of the General Financial Rules (GFR). Under the current clauses, there are no distinctions between product procurement and functional procurement.

This makes effective procurement of deep tech solutions extremely difficult. Thus, the GFR need to be amended suitably to ensure effective procurement.

7.1 Deep tech startups face market uncertainties that definitely contribute to funding issues. The government can induce large positive multiplier effects through the procurement of innovation from deep tech startups. However, the government's approach should be creating the market for such innovations'. Thus, the procurement must show to investors the applications of the deep tech solutions. This method has been preferred by other nations like the United Kingdom and state governments in India like the Maharashtra Startup Week Programme. This approach should be combined with a portfolio approach to procurement due to the uncertainties associated with innovation itself. Care must be taken to get some returns on this public investment in startups, so as to make this a viable approach to public procurement, without affecting the IP of the startup which may make future investors hesitant to invest in these startups. This would also require capacity at the grassroots level of the government.

8. Enhancing Policy & Program Interlinkages

8.2 An analytical study would help with understanding the effects of the tariff rates. However, any changes to the tariff rates must be done in a structured, long-term manner with a transparent long-term plan. This will help startups plan their activities accordingly and bring them stability.

8.7 The reduction of import dependence for critical minerals is essential to promoting deep tech startups in India. This may be achieved by targeted funding of research in the fields like smart mining. This funding may be provided to HEIs and industry to ensure efficient and sustainable mining of minerals.

Overall Recommendation

- **Regional offices of the CDT may be built which will identify and aid in translation of IPs, aid universities in the filing and management of deep tech IP, and provide inputs to government departments in their efforts for deep tech promotion programmes.**