

IN BRIEF

- The number of incubators in India grew 15 times between 2000 and 2020.
- Non-metro cities, which account for more than 60 per cent of incubators in India, are gearing up to become future start-up capitals.
- The highest density of incubators in the south and west of India and within academic institutions highlights the common assumptions around start-ups as entities founded by young graduates commercialising technology developed in labs.
- There has been vigorous incubation policy activism in India between 2008 and 2020. Most of the current policies and schemes recognise technology commercialisation as the primary goal of incubators.
- To remain effective, incubators must define their performance measures around the goals of building founders, start-ups, ecosystems as well as themselves as organisations.
- In the past, many services of incubators, such as co-working spaces, were disaggregated and commercialised.

In a post-COVID-19 world, incubators must explore novel offerings to remain effective and impactful.



The Past, Present and Future of Start-up Incubation in India

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Prolific, expansive and promising – these are some common adjectives used to describe India's start-up ecosystem. Incubators are a prominent part of and contributor to this ecosystem. In 2017, NASSCOM found over 140 incubators in India and placed the country third in the world for the number of incubators, behind USA and China.¹ By October 2020, this number had multiplied, while the number of incubators is believed to be much higher, we have listed and verified over 326 incubators in India. This translates roughly to one incubator per 150 start-ups in India.²

As the start-up ecosystem is emerging from COVID-19, we pause to reflect upon the future pathways for incubation. We examine the history and current landscape of incubation in India. We analyse the incubation policy landscape to highlight gaps and opportunities for sharper regulatory or schematic interventions. Finally, we critically examine the design and operation of incubators. We conclude with suggestions and questions for incubators to consider, so as to remain relevant and impactful.

The Past and Present of Incubation

Incubation in India can be analysed in three ways – temporal or growth of incubators over time and the evolution of the policy landscape; spatial or geographic spread of incubators; and affiliation and focus of incubators.

Temporal – Incubators' Growth and Evolution of the Policy Landscape

Until 2000, India had just about 20 incubators. In a decade, this number had increased four times, with over 60 incubators being founded between 2000 and 2010. The growth curve became steeper in the next decade (2010–2020), with over 200 incubators being established. We listed 326 incubators by October 2020.

We predominantly find incubators housed within academic institutions (such as IITs, IIMs, universities) or as part of industry bodies and organisations (such as NASSCOM) and research agencies (such as C-CAMP). The steep rise in incubators – over 15 times in the last two decades – can be largely attributed to the growth in incubators affiliated to academic institutions (Exhibit 6.1). The jump during 2015–2019 in academic institution-based incubators could also be a result of the push from the central government towards evangelising entrepreneurship and making India “a nation of job-creators”.³

Setting up incubators within academic institutions is often seen as creating infrastructure to support and inspire young graduates to start up. Most successful

founders stress upon starting up after a few years of working with other organisations. Family businesses also adopt an informal apprenticeship so as to ensure that the incoming generations learn the ropes before being inducted formally. Incubators based in academic institutions may be better placed at creating apprenticeship opportunities for young graduates to train them for entrepreneurship.⁵ Additionally, the incubators may also consider creating programmes and support structures for alumni who may wish to venture out after a few years in the industry.

The institutionalisation of incubation policies in India dates back to 1955, with the setting up of the National Small Industries Corporation (NSIC) by the Ministry of Micro, Small and Medium Enterprises (MoMSME). While NSIC focussed on evangelising small businesses, technology entrepreneurship received a significant boost with the setting up of the National Science and Technology Development Board (NSTEDB) by the Department of Science and Technology (DST) in 1982. The Incubation Policy of the MoMSME and Technology Incubation and Development of Entrepreneurs (TIDE) scheme by the Ministry of Electronics and Information Technology (MeitY) followed the setting up of NSTEDB; both these initiatives adopted ‘commercialisation of

Exhibit 6.1: Growth in incubators in India⁴

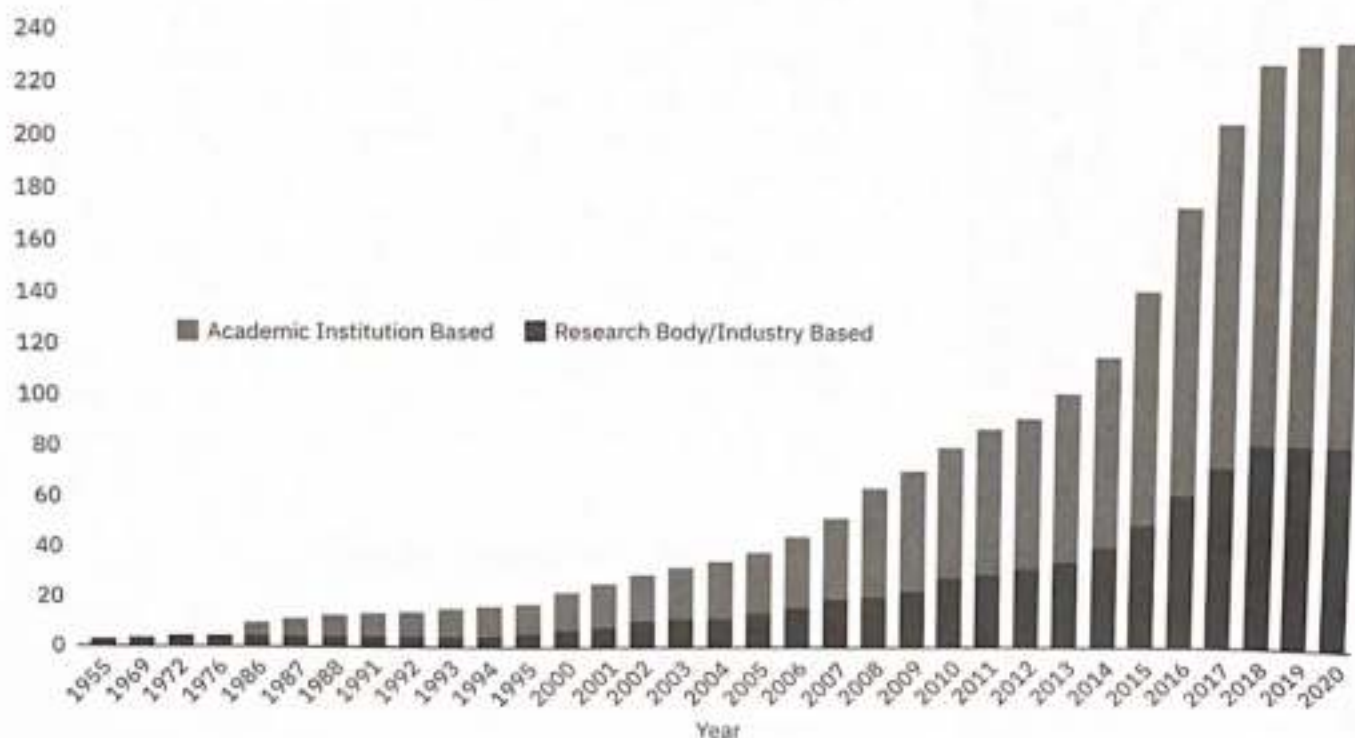
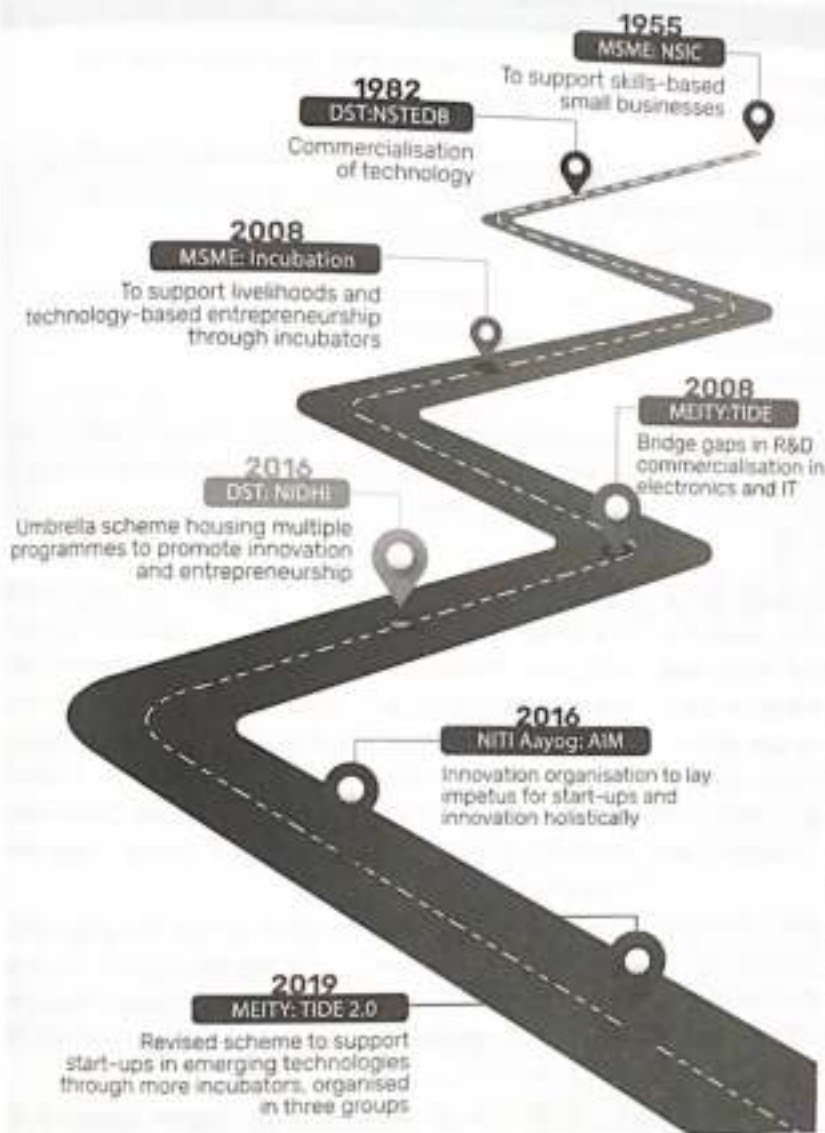


Exhibit 6.2: Evolution in incubation policies of the central government

Source: Adapted from Sharma and Vohra (2020)⁶

research and technology entrepreneurship' as the goal for incubation (Exhibit 6.2).

Two of the most recent incubation policy interventions – NITI Aayog's Atal Innovation Mission (AIM; through Atal Incubation Centres) and the revised scheme from 2008, TIDE 2.0, from the Ministry of Electronics and Information Technology (MeiTY) – present a somewhat novel approach of incubation. By virtue of being the implementing body of the Startup India Initiative, AIM takes a more holistic view of entrepreneurship as against the entrepreneurship-as-technology-commercialisation stance of the older policies and schemes. The

mandates of incubators affiliated to AIM encapsulate a variety of goals including training entrepreneurs and building start-up business models.⁷

MeiTY's recent scheme, TIDE 2.0, recognises the differences among incubators and classifies them into three levels: G1, G2, G3, which are organised into a funnel. G3 incubators are expected to undertake entrepreneurship evangelising activities in unexplored regions; this group primarily includes recently established incubators in academic institutions. G2 incubation centres are expected to undertake entrepreneurship training and acceleration programmes at scale. In addition, G2 incubators are also expected to mentor G3 centres. Finally, G1 centres are more matured incubators that are mandated with capacity building and post-investment support to start-ups. These centres are also expected to supervise and mentor G2 and G3 incubators.⁸ This acknowledgement of the differences between incubators and structuring them as a system holds promise. Such a systemic view will help in consolidation of efforts, knowledge sharing and breaking silos between incubators, thereby unlocking significant value for the whole ecosystem.

The schemes have varied expectations from their supported incubators. Amongst the incubation schemes currently in force, we compare the four most prominent ones. Exhibit 6.3 highlights how the incubation schemes of MoMSME and DST underscore the commercialisation of technology for their supported incubators, while AIM's Atal Innovation Incubators (AIC) are expected to enable start-ups to survive and scale by providing them the necessary inputs.

The period between 2008 and 2020 witnessed vigorous incubation policy activism in India. In this time, new policies and schemes were launched in addition to existing ones being fine-tuned. It is important to

Exhibit 6.3: Objectives of incubators

Ministry	Primary incubation objective
Ministry of Micro, Small and Medium Enterprises ⁹	Promote speedy commercialisation of technology developed in the host institute, predominantly in the agriculture sector.
NSTEDB, Department of Science and Technology ¹⁰	Provide a platform for speedy commercialisation of technologies developed by the host institution or by any academic, technical, R&D institution or individual in areas of national importance.
TIDE 2.0, Ministry of Electronics and Information Technology (MeitY Startup Hub)	Support ICT start-ups primarily engaged in using emerging technologies such as IoT, AI, blockchain, robotics, and so on, in pre-identified areas of societal relevance.
Atal Innovation Mission, NITI Aayog (Atal Innovation Mission)	Provide start-ups with necessary guidance, tech support, infrastructure, access to investors, networking, and facilitating a host of other resources that may be required for start-ups to survive and scale.

note that this was also a period of sharp growth in the number of start-ups being founded.¹¹ The growth in the number of start-ups between 2005 and 2008 may have created a 'pull effect', that is, motivated incubation policy interventions. However, towards the late 2010s, this expanded incubation ecosystem may have, in turn, stoked the growth in new start-ups being founded. In other words, this was a 'push effect' of incubators on start-ups.

It is important to note that the widest reaching schemes and policies (such as those by NSTEDB, MeitY) are oriented towards technology commercialisation. While this may impel more technologies developed in labs reaching the market, it may limit other forms of starting up, such as innovative adaptation of existing technology to novel problems (such as blockchain for medical teleconsultation) or exploiting market asymmetries with limited play of technology (such as web aggregators for insurance). Furthermore, technology commercialisation as an objective may be more suited to incubators established within technical, science or medical institutions. Policymakers must consider incubators in non-engineering schools and make relevant adjustments to the schemes.

Spatial – Geographic Spread of Incubators in India

The growth in the number of incubators comes predominantly from the southern states (Tamil Nadu,

Karnataka, Telangana, Andhra Pradesh and Kerala) and the western states (Maharashtra, Gujarat, Rajasthan and Goa). There can be several reasons driving this skewed regional growth, including blossoming business activity. As an after-effect of COVID-19, incubation may move to virtual platforms as well. Hence, the location of incubation centres may perhaps also be determined by the availability of affordable and quality talent and infrastructure.

At present we find incubators across the geographic landscape of the country, including the regions that have even remained physically or socio-politically difficult to reach (such as the states of Assam, Manipur, and Jammu and Kashmir).

We find a disproportionately higher presence of incubators in the southern and western regions. Tamil Nadu (46), Maharashtra (38) and Karnataka (34) have the most number of incubators (Exhibits 6.4 and 6.5). The National Capital Region (NCR) has the highest physical density, with one incubator every 138 sq. km.

While the high number of incubators in Maharashtra and NCR can be linked to these being centres of economic activity, in Tamil Nadu, the high density of incubators is linked to that of academic institutions. Eighty-four per cent of incubators (about 39 in number) in Tamil Nadu have been hosted by academic institutions. As expected, this high density of academic institution-based incubators matches the concentration of higher education institutions in the state.¹²

Exhibit 6.4: Regional growth in incubators in India

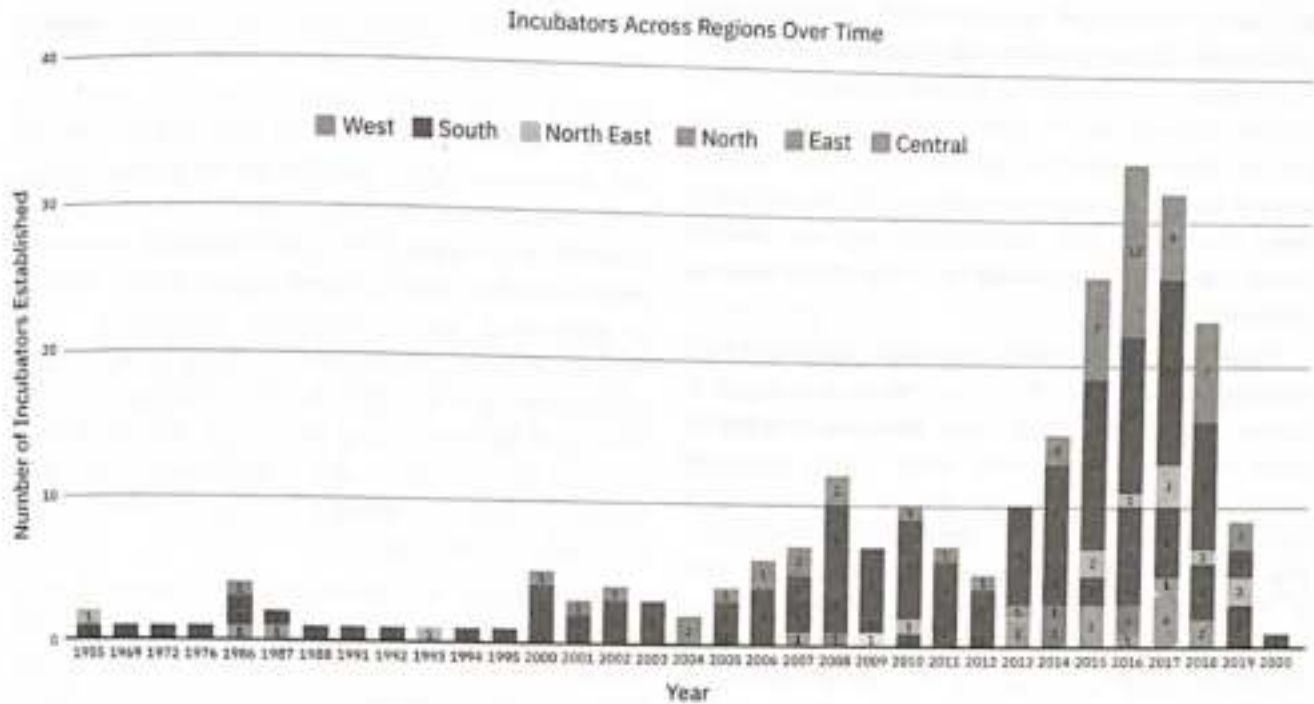
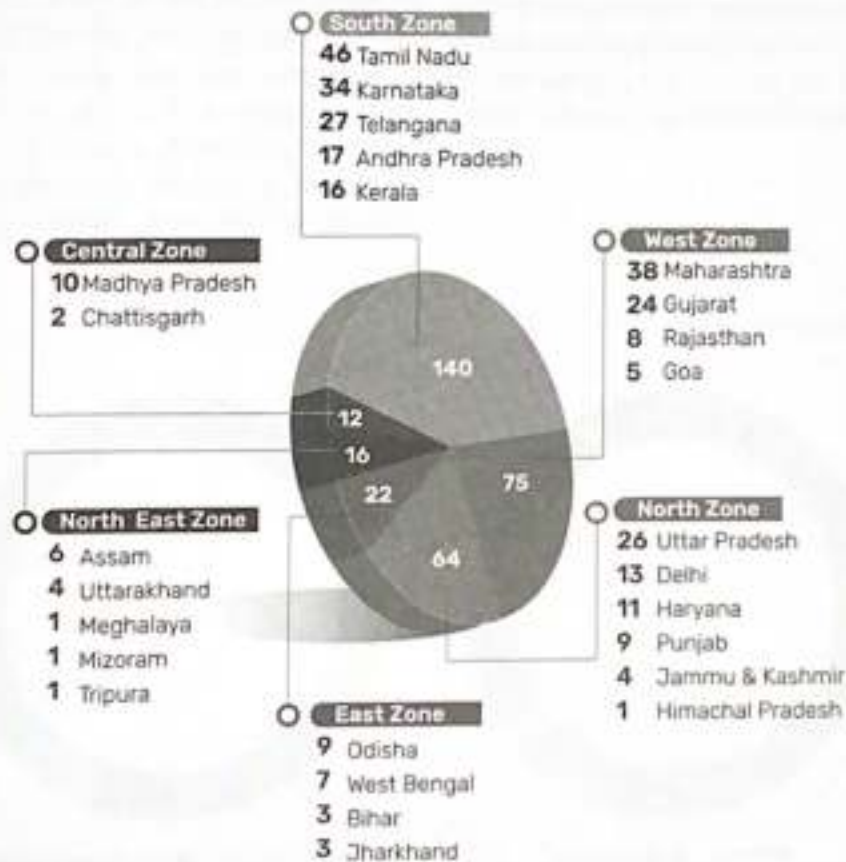


Exhibit 6.5: Geographic spread of incubators



If we were to zoom in further from the states into the locations of incubators, we would find some promising trends. Over 60 per cent of the 326 incubators are located in non-metro cities;¹³ of these, over 70 per cent (about 160 incubators) are located in cities and towns that are not state capitals (Exhibit 6.6). This trend foretells a more balanced future for the start-up ecosystem in India. To reiterate, the location of incubators in smaller towns may also be impacted by a movement towards virtual incubation.

Incubators are also found in smaller cities and towns with populations of less than 6,00,000, such as Bagalkot, Karnal, Koovapally, Ajmer and Berhampur. Most of these incubators are housed within higher education institutions, and it is imperative for them to expand their remit of activities beyond technology commercialisation. Many of these smaller towns and non-metros have a thriving ecosystem of family businesses. While business communities in these cities may be thriving in limited pockets, the start-up ecosystem would be in its infantile stages. Incubation centres set up in these cities and towns must consider engaging with the local family business ecosystems to create market linkages, investment and other support mechanisms for the incubated start-ups. The incubators could then become the germination bed, not just for start-ups, but also for the entire start-up ecosystems in the respective towns, cities and regions.

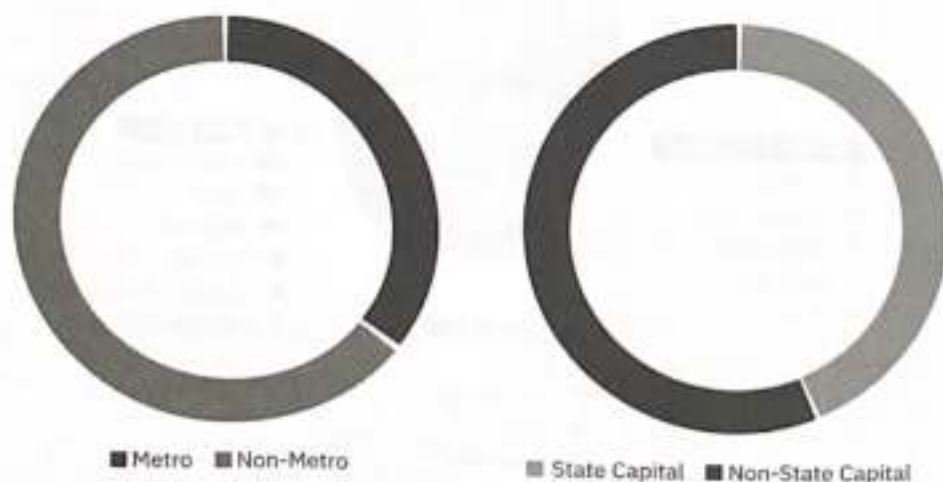
Affiliations and Focus Areas

Almost half the incubators in our dataset are affiliated to DST. Other ministries and departments that have active incubator programmes include AIM: Atal Innovation Mission; DARE: Department of Agricultural Research and Education; DBT: Department of Biotechnology; DoS: Department of Space; DSIR: Department of Scientific and Industrial Research; MDoNER: Ministry of Development of North Eastern Region; MeitY: Ministry of Electronics and Information Technology; MoE: Ministry of Education; MoAFW: Ministry of Agriculture and Farmers' Welfare; MoD: Ministry of Defense; MoFPI: Ministry of Food Processing Industries; MoSDE: Ministry of Skill Development and Entrepreneurship; MoT: Ministry of Tourism; MoMSME: Ministry of Micro, Small and Medium Enterprises.

The affiliation of incubators over a period of time indicates a pattern related to their age – some of the oldest incubators have been affiliated predominantly with either DST or MoMSME. In the last 10 years, MeitY and AIM have scouted and onboarded incubators with fervour, under their schemes (TIDE, launched in 2008 by MeitY and the Startup India Initiative, launched in 2016, being operationalised by AIM).

More often than not, an incubator is affiliated to multiple agencies. This may be due to reasons of financial sustainability or a quest for the incubator to better use its available resources (such as talent and physical infrastructure). However, this multiplicity of

Exhibit 6.6: Locations of incubators



affiliation may also add to the pressure on the incubator to deliver upon the mandates of all the schemes as well as report progress to multiple agencies.

The Future of Incubation: Challenges and Questions to Reflect Upon

Do incubators create entrepreneurs, enterprises or ecosystems?

What do incubators do? Many scholars have debated and are continuing to do so about defining the function of an incubator. Several have attempted to resolve this by proposing typologies and classifications that are more accepting of the differences between incubators and their goals and processes. The most common and widely applied primary functions of an incubator – infrastructure, business support and mediation (networking) – revolve around the fundamental needs of a young enterprise.¹⁴ Broadly, incubators enable nascent enterprises to overcome their liabilities of newness and smallness.¹⁵ We believe that incubators legitimise start-ups by sharing their brand with the incubated ventures and entrepreneurs. By doing this, they enable the start-ups to obtain access to various resources (such as funding, talent, and so on) from the ecosystem.

Amongst all the functions of an incubator, the most difficult one is that of supporting the person behind the enterprise; this often goes unmentioned as any incubator's stated goal. It is critical to support the person (the entrepreneur) to deal with internal and business-related struggles (many of which continue even after the enterprise graduates from an incubator). Many incubators often undertake business and attitudinal training for entrepreneurs.¹⁶ However, attitudinal training may be insufficient in preparing the entrepreneur to navigate the technical, adaptive and personal challenges that are often characteristic of start-up life. The development of strong cognitive and emotional abilities needed by entrepreneurs¹⁷ must be taken up by incubators on a sustained basis.

The current trend of disaggregation of incubation into 'services' such as co-working spaces and accelerators throws up an existential dilemma for incubators. As physical entities, incubators are different from co-working spaces and accelerators. The latter are primarily concerned with providing good

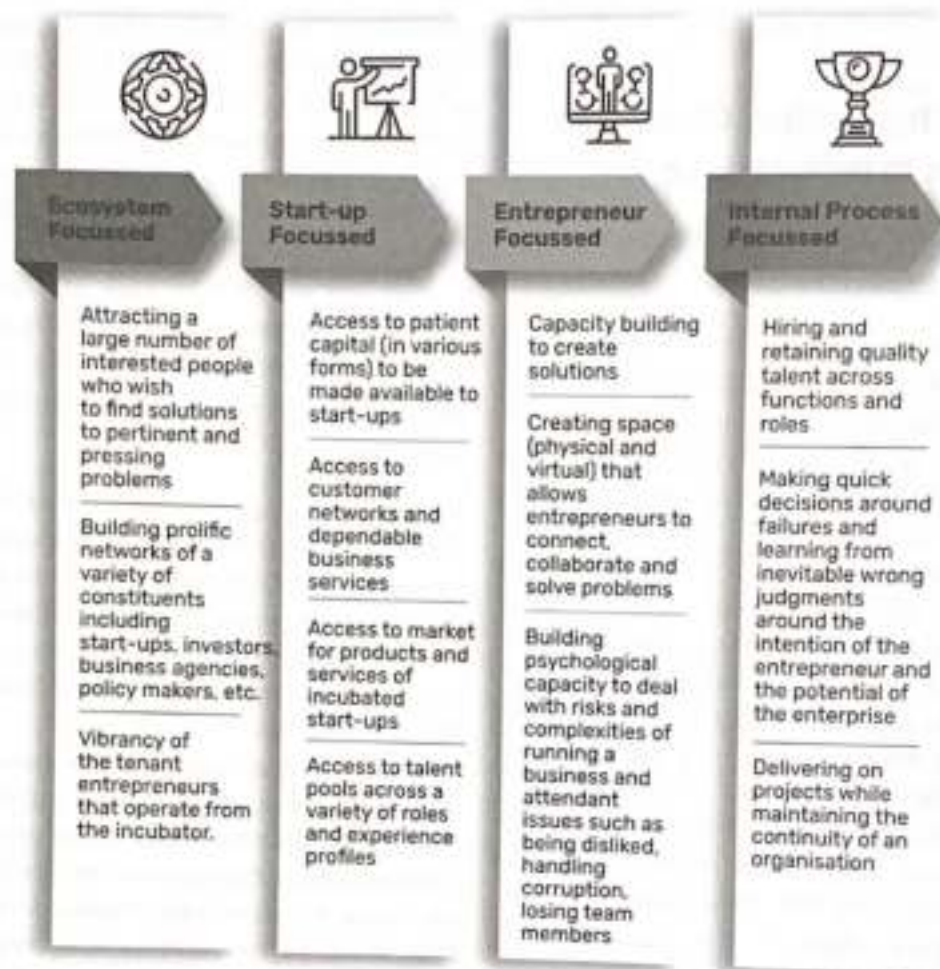
physical infrastructure and, to some extent, curated networking. The high-intensity, short-duration form of accelerators may perhaps not be suited to sustainably build entrepreneurial skills and aptitudes. In contrast, an incubator as a model has affordances for capacity building for an entrepreneur, enterprise and perhaps an ecosystem too. A question for each incubator to answer is – what are we building? This reflective question may help incubator managers identify the most aligned policies and schemes to seek affiliation under and, therefore, design their operations more effectively.

What are valid measures of incubators' performance?

The popular saying – what gets measured, gets done – needs to be thoroughly applied to incubation in India. Research suggests that the performance of incubators that focus on commercialisation of technology must also be measured on their management policies and the impact of value-added services made available to the tenant enterprises.¹⁸

Given the evolution in the Indian start-up ecosystem, the role and forms of incubators, and the proliferation of disaggregated alternatives such as co-working spaces and accelerators, there is a need for incubators to identify and adopt more relevant measures of performance. What would be valid metrics to assess the impact of an incubator on diverse objectives such as building entrepreneurs vis-a-vis enterprises? There are four predominant focus areas for incubators: ecosystems, start-ups, entrepreneurs and internal processes. To make the performance assessment less onerous and more thorough, incubators must identify relevant metrics under each of these pillars. Exhibit 6.7 presents some of the aspects or goals on which incubators' performance can be measured under the respective focus areas.

At present, incubators' performance measurement is also linked to their affiliations. The supporting agencies may define the focus areas for the incubators, which could be specific sectors (for example, MoAFW supports incubators to focus on agriculture) or technologies (for example, MeitY supports incubators to help start-ups using emerging technologies such as IoT and blockchain) or perhaps even regions (for example, incubators supported by state governments may be mandated to help start-ups and develop ecosystems within the respective states).

Exhibit 6.7: Suggested performance measures for different focus areas of an incubator

Multiple affiliations may entail variety in the performance measures that incubators need to track. Misalignment in the goals of the supporting schemes may unleash inefficiencies, on account of designing and implementing initiatives as well as reporting of impact and performance to multiple agencies in a variety of formats. This may even lead to vision dilution for the incubator. Thus, it is important for incubators to identify affiliating agencies with care, so as to align all their functions more efficiently. Policymakers may want to consider adopting performance measurement systems that are not loaded only on metric, but instead aim at gauging the performance of the incubator more comprehensively, such as by the four-pillar model suggested below.

How might incubators become well-functioning and effective organisations?

An aspect of incubators that often gets missed, both in research and in practice, is that it is an organisation. As a result, issues related to talent management, organisation structure, strategy and identity are often not explored. Delivering on ambitious goals such as making India a nation of job creators would need incubators to build themselves as effective organisations as well.

The diverse functions of the incubator would require a variety of roles, including liaising with various agencies and sourcing funds for start-ups; scouting for and selecting the start-ups to support; curating and maintaining the physical infrastructure; engaging with the community for access to expensive, hard-to-find resources; nurturing and managing relationships with

start-ups and taking informed decisions about the length of their tenancy; maintaining books of accounts; and time-bound reporting to supporting agencies, among others. Given the scale of operations, an incubator must also dwell upon structuring these roles so as to remain agile and effective.¹⁹ However, not much attention has been paid towards equipping incubators to build themselves as effective organisations.

Incubators need to explicitly manage the expectations of the growth and development of its employees to attract and retain good talent. While attracting and selecting motivated and talented people and designing a relevant organisational structure may be critical to managing incubator personnel, the incubators' ability to pay for the high-quality talent would mainly ensure continuity of personnel within the incubator. Also, the possibility of upward mobility is often not clear or stated, which may lead to a higher churn rate. To overcome high attrition and retain quality talent, it is important for incubators to craft career growth paths for their employees. It is also critical for incubators to not remain project organisations so that there is greater continuity in the operations of the organisation as well as the talent.

How can incubators remain steadfast in their mission?

Often, incubation support and start-up policies (and funds) may not reasonably factor in the cost of running incubators. In the case of incubators housed within academic institutions, the host institution provides the space at no or nominal cost. In some cases, we also find faculty of the institute deputed as incubator managers. However, the cost of the personnel may not be provided for by the host institutions. Incubators, thus, necessarily depend on the funding received from the affiliating agencies for their financial sustenance. To some extent, excessive dependence on government support may lead to mission drift for incubators.²⁰

Some incubators in India have tried to fund the cost of their personnel in a variety of ways, including by setting up investment funds, raising grants from multilateral agencies and providing consultancy services. We believe that while some of these solutions ensure that the personnel are competitively paid and thus retained,

taking on such projects leads to mission dilution of the incubator. The attention to actual incubation of start-ups may be much lower than required. Thus, as they mature, incubators must pay close attention to their structure so as to ensure that they continue to remain steadfast in their mission to support and incubate fledgling start-ups, while growing as an organisation. The case of CIIE.CO (Exhibit 6.8) serves as a reference for growing incubators.

Incubators can be permanent physical spaces, with the people occupying its space changing frequently. As is true in any frequently changing occupancy establishment (such as hotel rooms and hostel rooms), the cost of maintenance is high and the need to focus attention on the occupants' well-being is primary. If we hope to succeed in handholding entrepreneurs and nurturing fledgling enterprises, the policies of the state have to realistically provide for the support of the personnel and the maintenance of the premises.

Conclusion

Incubators in India are typically involved in the full spectrum of incubation functions, ranging from evangelising entrepreneurship, providing initial capital in the form of grants, a physical space (at no or low cost) and an environment where everyone has the same purpose. To be able to persist in their mission and deliver impact on scale, incubators need to sharpen their focus and configure their functioning and services around it.

The policies of the government around start-ups and incubators need to make allowances for the human-resource needs and high maintenance costs of the incubator. This is particularly necessary to train and equip entrepreneurs so as to make them immune to the shocks that they may encounter as they scale operations.

Post COVID-19, incubators have the challenge of creating virtual locations that mimic the physical environments. However, they need to clearly delineate what cannot be replaced physically and what can be. Incubation is not just a platform. In the changing world order, incubators must revisit their thinking about start-ups, incubation and their own organisations, pause to align themselves better and then power on to their missions.

Exhibit 6.8: CIIE.CO: A model for a scaled-up incubator

CIIE.CO, as it is known today, was set up as an academic centre (called the Centre for Innovation Incubation and Entrepreneurship) at the Indian Institute of Management Ahmedabad in 2002. In 2008, as the Indian start-up ecosystem began to open up, a not-for-profit entity called CIIE Initiatives was registered.

Between 2008 and 2020, CIIE Initiatives designed and undertook a variety of interventions to fill the multiple, emerging gaps in the Indian entrepreneurship ecosystem. In 2008, it launched India's first accelerator programme – iAccelerator – to support ICT start-ups. In the same year, it published the book *Stay Hungry Stay Foolish* to inspire more youngsters towards the entrepreneurial path. To evangelise entrepreneurship at scale, between 2010 and 2018, it ran a large-scale training and acceleration programme called The Power of Ideas. Aiming to fill a variety of gaps in acceleration, it offered accelerators in difficult sectors, including water, food and agri businesses, green energy, healthcare and mobility, among others.

In 2013, CIIE Initiatives laid the foundation for catalysing entrepreneurship in unexplored regions with the setting up of its incubation arm, Start-up Oasis, in Jaipur. In 2017, a virtual incubation programme – Innocuity – was started to reach and equip entrepreneurs across regions.

Realising a critical gap in funding available to start-ups in the clean technology space, CIIE.CO instituted a public-private-academia partnership to set up a fund – INFUSE Ventures. To catalyse innovation-driven start-ups at scale, in 2015 it launched a \$100 million fund – the Bharat Innovation Fund. Realising the limited funding and support available to start-ups in the domain of livelihoods and financial inclusion, it instituted the Bharat Inclusion Seed Fund in 2018. These funds were in addition to the seed investments made by CIIE.CO.

Recognising the growth of incubators and the lack of trained personnel in incubation in 2013, extensive training of incubators was undertaken and a Handbook for Not-for-Profit Incubator Managers was published. In 2016, a research function, which went on to publish research and learning resources relevant to the Indian start-up ecosystem, was set up.

By the end of 2019, CIIE.CO had its interventions spread across the continuum of training and incubation, acceleration, seed and pre-series A investing and research.

Over its journey, CIIE.CO has inspired over 1 million with its publications, accelerated over 1,000 start-ups and invested in over 150 start-ups. It has received profitable exits from about 30 of these investments.

Endnotes

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