INDIA INCUBATOR KALEIDOSCOPE 2024

DEMOCRATISING ENTREPRENEURIAL DREAMS

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EXECUTIVE SUMMARY

India's startup ecosystem is completing a decade of remarkable growth. As the third largest startup ecosystem in the world, and among the fastest growing ones, we are truly living through the golden era of Indian entrepreneurship. This has been possible only with the concerted efforts of the central government, state governments and various actors in the private sector. As we look forward to another decade of extraordinary growth, it is also time to look back at some of the key elements of our ecosystem, analyse their efficacy and effectiveness, and make necessary course corrections. A notable feature seen in the recent decadal growth of startups as compared to the previous one has been the contribution of incubators. The incubator network had grown substantially in recent years to catalyse and nurture the startup development process. This publication aspires to understand the contribution of incubators to the Indian startup landscape.

The findings are based on the analysis of over 1,110 incubators and 1,77,000 startups spread across the country. The key findings and implications are presented below:

Incubator landscape

The number of incubators in the Indian ecosystem has grown steadily, with more than 1,100 active incubators dotting the Indian startup ecosystem. The Southern region leads the pack, housing 45 percent of all incubators and having the highest density of incubators.

Tier I cities house almost half of all incubators (48 percent). However, the mix of incubators, viz., those hosted by academic institutions, industry, and public sector, shows significant variation across cities. Chennai has a high proportion of academic incubators (82 percent), whereas Bengaluru and Gurugram have a high proportion of industry incubators at 71 percent and 84 percent respectively.

The incubator density is 0.8 incubators per million population, whereas countries like the US, UK and China range between 8 and 10 incubators per million population. This indicates the need for setting up more incubators in the country.

Incubators have spread into Tier II and III cities of the country, becoming a vehicle for the democratization of entrepreneurship. Incubators located in academic institutions have been instrumental in enabling this. At the same time, there is unmet demand for incubation in Tier II and III locations, which needs to be addressed.

Incubator coverage

Only 8.2 percent of all startups undergo incubation. Further, 20 percent of the incubators support 98 percent of these startups that are incubated. Taken together, this highlights an urgent need to improve the performance of incubators that are underutilized and to actively engage in outreach efforts to raise awareness about the benefits of incubation.

The correlation coefficient between the presence of incubators and startups was found to be 0.84, which indicates a strong positive correlation. A higher presence of startups is associated with a higher presence of incubators.

Incubation is sought after by students, young professionals, women founders, and those with modest financial resources. This is a positive trend that indicates that the support system is working for those who need it.

The rate of incubation is high among deep tech sectors such as AI/ML, Data Analytics, Biotech and Defence Tech. All of them have an incubation rate upward of 12 percent, while the average incubation rate is 8.2 percent.

Incubator outcomes

Higher proportion of incubated startups have been able to attract external funding as compared to non-incubated startups. While the overall funding ratio for startups has been 7.1 percent, for the incubated startups, the funding ratio has been 17.5 percent.

Incubated startups have been able to secure their first round of funding earlier than the non-incubated. While 27.1 percent of the incubated startups received their first round funding within one year of incorporation, the corresponding percentage for the non-incubated was 15.4 percent.

Despite being smaller in number, incubated startups have won more awards in all the leading startup awards. Incubated startups have also been engaged more actively in creation of intellectual property – the percentage of incubated startups that have published patents is about 5 times more than that of the non-incubated.

For the startups that ceased to operate, the average age at which operations ceased was about 15 percent higher for incubated startups, indicating that incubators could provide a nurturing ecosystem that provides more time for the ideas to flourish.

Contribution of the incubated startups to the economy has also been significant. The annual average revenues in the initial years for every 100 incubated startups has been about ₹1,590 crores. The average value of assets for every 100 incubated startups by the 9th year of incorporation has been estimated at ₹10,627 crore. However, the revenue performance of startups associated with industry incubators is 50 percent higher as compared to those supported by academic incubators.

Implications

While the number of incubators at 1100+ looks impressive, for a country of India's population, there is headroom for further growth. On average, developed countries have an incubator density of 8-10 per million people, while for India, the number is significantly lower at 0.8 incubators per million. Governments should continue the support for setting up new incubators as well strengthen the existing ones.

Founders with limited financial means could seek incubation for their startups, which will give them access to a range of financial and knowledge resources, as opposed to waiting for years to accumulate the wealth needed to make the startup dream a reality.

Startup ventures seeking to get funded should consider making incubators as a pit stop. Incubation increases the chances of getting funded, among several other benefits. Especially, the chance of getting government funding brightens with incubation.

Startups associated with industry incubators have demonstrated superior performance than those of startups in academic incubators. Managers of incubators in academic institutions could analyse the factors leading to the superior performance of startups in industry incubators, so that similar conditions that can enhance the performance of startups can be created in academic incubators.

Overall, this study suggests that India has taken giant strides in creating an incubation support system for entrepreneurs across the country. It also shows that incubation has helped startups with both short-term and long-term outcomes. At the same, there is a need to enhance the number of incubators as well as strengthen their capabilities in order to serve the ecosystem better. ■

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1. INTRODUCTION

> We haven't come this far, to come only this far.
>
> - Unknown

India has emerged as the third largest entrepreneurial ecosystem in the world. As of June 2024, the ecosystem boasted of over 140,000 startups[1] and more than 100 unicorns. Supporting these startups in their early stages were 1,100 incubators.

Incubators are Entrepreneurial Support Organizations (ESO) that create a conducive environment for fledgling companies to survive and thrive[2]. They differ from accelerators, which are also ESOs but work with more mature companies. Incubators add value by providing a one-stop access to a range of services sought by startups. These may include - physical infrastructure such as labs and office space, shared support services, knowledge inputs required for venture development, access to funding, and networking opportunities. Of course, there are substantial variations in the bouquet of services offered by different incubators.

[1] Startups registered with the Department for Promotion of Industry and Internal Trade (DPIIT); https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2043805

[2] Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. Technovation, 28(1-2), 20-28.

The rapid rise of entrepreneurship over the past decade, and the associated support system of incubation, has been due to the concerted efforts by the central government, state governments and various actors in the private sector. The catalyst for this movement was 'Startup India', the flagship initiative of the Government of India that was launched in 2016 with the goal of creating a startup culture in the country and building a strong and inclusive ecosystem for innovation and entrepreneurship. This initiative brought focus to the importance of entrepreneurship as a key lever for India's economic growth and set the tone for supporting startups. Since then, several efforts have been undertaken by a number of stakeholders to support entrepreneurs and their young startups. Notable among these efforts have been the establishment of 69 Atal Incubation Centres by the Atal Innovation Mission (AIM), and 100 technology business incubators that have been supported by the Department of Science and Technology (DST). These have been complemented by the efforts of various state governments and other private entities. One of the prominent private sector initiatives has been the Parivartan program of the HDFC Bank, under which they have supported 99 incubators during 2021-24, and funded 347 startups.[3]

Incubators have become the fulcrum of the startup landscape as they act as the glue between prominent stakeholders, viz., startups, investors, universities, and government. Since the incubators are predominantly hosted in universities, they play an important role in evangelizing entrepreneurship within institutes of higher learning, while helping startups to benefit from the rich expertise that exists in these institutions. Incubators are also seen as a gateway to startups by the investors. Guidance, institutional oversight, and handholding by incubators instils a sense of confidence to the investors. Incubators also form the eyes and ears on the ground for various government agencies that seek to invest in startups. They have become the last mile delivery mechanism for the government to direct their investment and monitor the progress of the startups. Finally, as an ESO, startups are the reason for incubators to exist. As new age entrepreneurship characterized by high levels of uncertainty demands new knowledge, business models and financing instruments that go beyond what worked for traditional SMEs, incubators play a key role by enabling access to these resources for startups.

As we move towards completing a decade of the remarkable journey of the Indian entrepreneurial ecosystem, it is important to take stock of the support system we have put in place. In this report, we seek to get a better understanding of the role incubators are playing in supporting startup activity. This exploration will have important implications for future policy making, the practice of incubation, and for aspiring and new entrepreneurs.

This publication has three major chapters following this. Chapter 2 explores the macro incubator landscape, reporting on the growth of incubators over time, their geographical spread across the different regions of the country, their presence in less developed and far flung areas, their diversity, and their activity levels. Chapter 3 goes on to understand the incubator activity in greater detail. It reports on the startup coverage of incubators, founder demographics of incubated startups, and the sectoral and geographical focus of incubation activity. Chapter 4 explores the impact of incubation. Comparing incubated startups with those that did not go through incubation, it reports how they fared with respect to raising external funding including risk capital. The chapter also outlines the second degree impact of the incubators as measured by the revenues earned, assets created and employment generated by the startups supported by the incubators. ■

[3] Data provided by HDFC Bank, 06 Sep 2024

2. INCUBATOR LANDSCAPE

> You don't build a business, you build people, then people build the business.
>
> - Zig Ziglar

Incubators are an important part of the entrepreneurial ecosystem. Much like their counterparts from the healthcare space, they provide critical support to young startups early on in their life. They act as an aggregator of resources and lend a helping hand, as startups figure out the ropes of venture development. Their presence signals support for innovation and entrepreneurship.

In recent years, entrepreneurship has become a key lever of economic growth for India. There is much buzz about entrepreneurship, and several policy interventions have sought to increase the entrepreneurial activity in the country. Since incubators play a key role in supporting entrepreneurship, it is important to study how the incubator landscape has evolved. In this section, we will explore the following questions – What has been the growth trajectory of incubators over time? Where are the incubators located? Are they evenly distributed across the length and breadth of the country? How are they supporting startup activity? The findings from this section will answer these critical questions and help chalk out the future strategy on where and how incubation activity should be enabled.

KEY THEMES IN THIS SECTION

- The growth and regional distribution of incubators
- Democratization of incubators
- Diversity of incubators
- Incubator capacity utilization
- Implications

2.1 THE GROWTH AND REGIONAL DISTRIBUTION OF INCUBATORS

The geographical distribution of incubators in the country is characterized by wide variation. Significant concentration of incubators has been seen in a few cities, whereas there are large areas where the presence of incubators has been sparse.

Incubators have now become part of the business lexicon in India. They have steadily increased in number over the years. However, they are not evenly distributed across regions. The spatial distribution of these incubators is influenced by a range of factors, including economic development, infrastructure, government policies, and regional entrepreneurship ecosystems. Typically, regions with more developed physical infrastructure and higher levels of economic activity see a higher concentration of incubators. We are beginning to see the emergence of incubators beyond the traditional economic clusters, but this is an area where there is scope for improvement.

The number of incubators in the Indian ecosystem has grown steadily, with 1,100 incubators dotting the Indian startup ecosystem[4]

> Since 2000, the number of incubators has risen from 5 to 1100 and counting. The 200x growth in incubators is a testimony to the increasing importance given to supporting entrepreneurship in the country.

2000-2005 was a defining period, when the early incubators were established. The Department of Science and Technology (DST) launched the first nationwide incubation program under the aegis of the National Science and Technology Entrepreneurship Development Board (NSTDEB) in 2000. This laid the foundation for establishing more incubators in the years to come.

The period between 2010 and 2020 has seen a dramatic rise in the number of incubators from 170 to 731 (Figure 2.1). This is reflective of the increasing startup activity in the ecosystem, and the key role of incubators in supporting that activity.

Even in recent times, we see that the growth of incubators continues to increase. While the number of incubators breaching the 1000 mark looks impressive, for a country of India's population, there is headroom for further growth. We are likely to see this trend continue in the coming years, especially if we consider the trends in China, another leading startup ecosystem. As of 2022, there were about 13,000 designated incubation facilities in China.[5]

[4] The line graph shows founding year of incubators till 2020. For incubators whose direct founding year is unavaiable, the founding year of the earliest incubated startup is taken as a proxy for the founding year of the incubator.

[5] Ali and Lu (2023), Performance management challenges at Chinese business incubators: A systematic literature review, Technological Forecasting and Social Change, Vol. 190. https://doi.org/10.1016/j.techfore.2023.122414

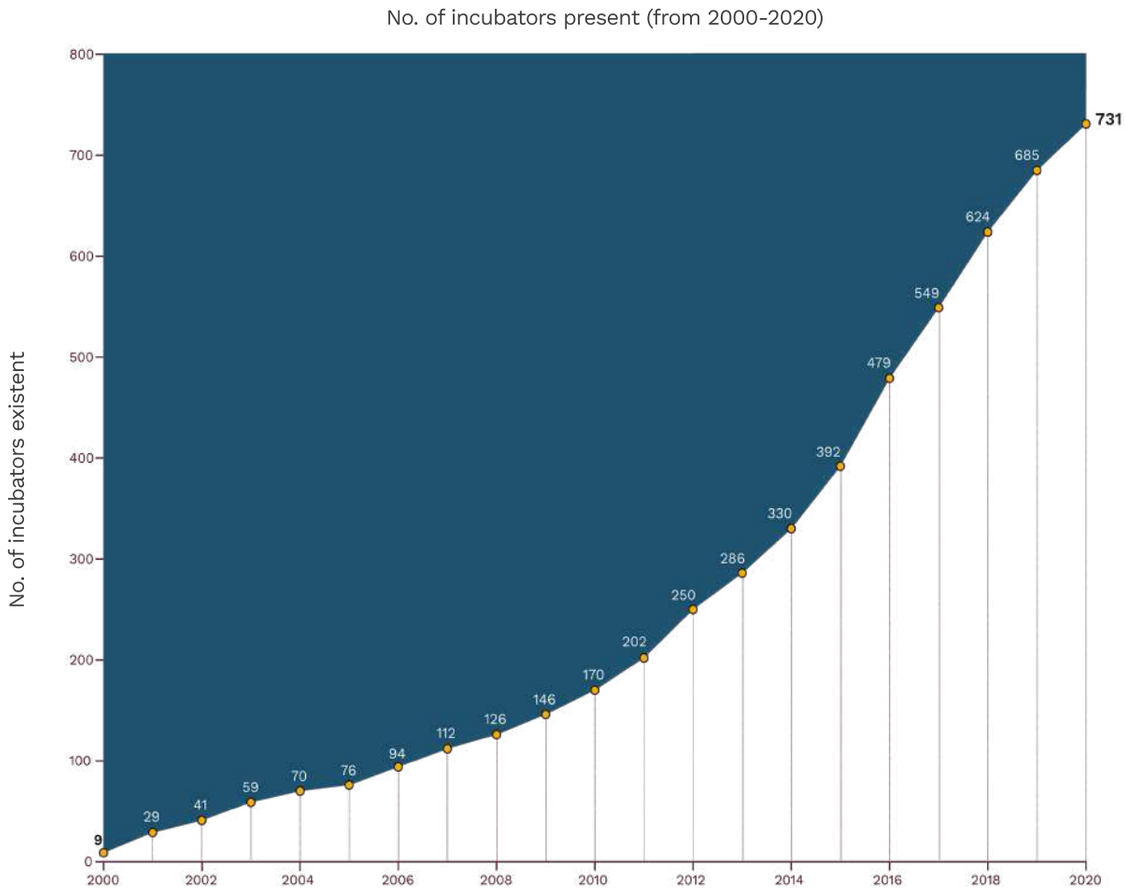


Figure 2.1: Growth of incubators from 2000-2020

45 percent of all incubators are present in the Southern region of the country. The Northern and Western regions follow with 20 percent and 19 percent of incubators respectively[6]

Southern India boasts a remarkable concentration of incubators compared to other regions (Figure 2.2). In Tamil Nadu, cities like Chennai and Coimbatore are bustling with incubation activity. Karnataka stands out with its technology and innovation incubators, especially in Bengaluru, which is a major Information Technology (IT) powerhouse. Telangana mirrors this trend with a vibrant incubator ecosystem, while Kerala is rapidly developing its support for startups across its key towns. The southern states have a strong research infrastructure and a highly skilled talent pool, making them a thriving hub for creativity and innovation.

A significant percentage of incubators has also been observed in the Delhi NCR, with Noida and Gurugram being growing tech-hubs.

Western Indian states like Maharashtra and Gujarat also have several incubation hubs. This region is particularly strong in finance and manufacturing sectors, and their long-standing reputation as investor-friendly environments adds to their appeal.

The Eastern part of the country has the least number of incubators.

These indicate that incubators tend to be situated in those areas that already have significant economic activity and conditions that favour startup activity, rather than hinterland regions where there is a need for interventions to boost the economy.

[6] Regional classification based on administrative criteria and Sharma & Vohra (2021).

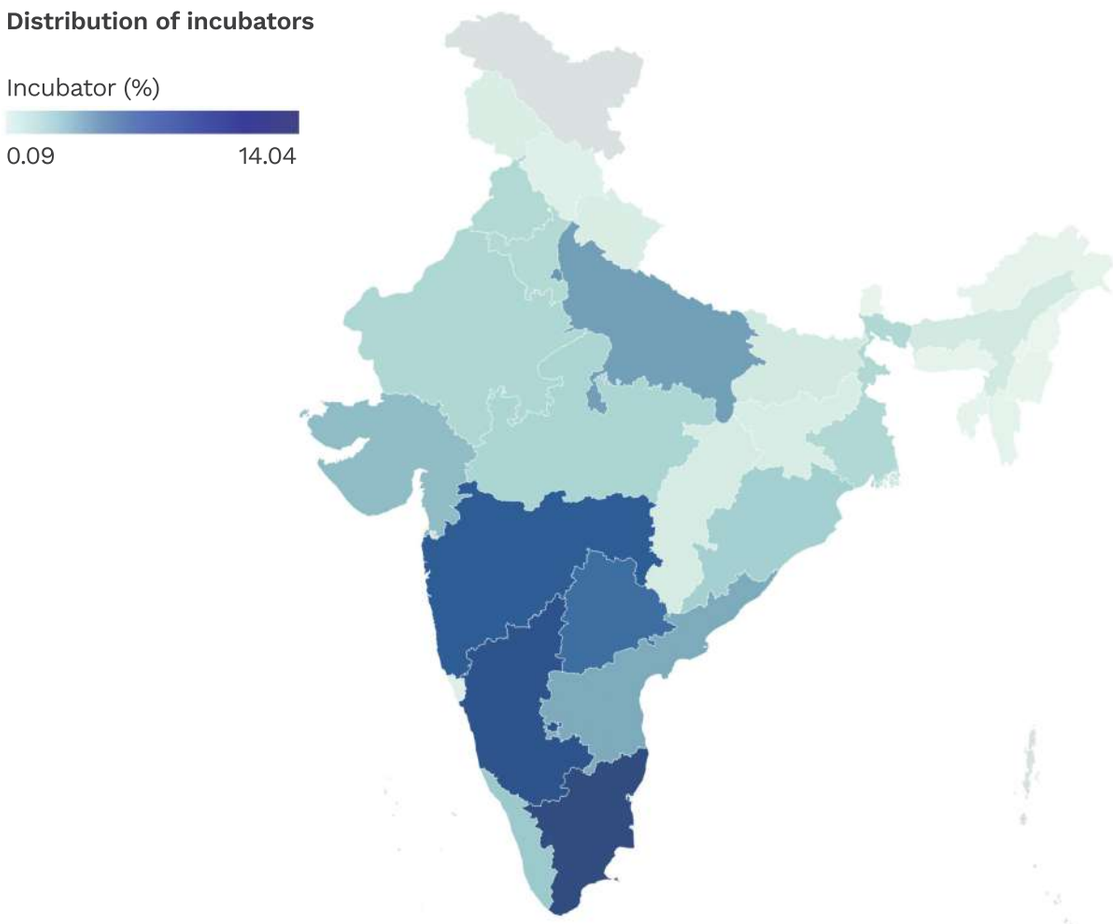


Figure 2.2: Concentration of incubators across India (Created with Datawrapper)

Incubator density (incubators per million) is found to be the highest in South. Some Himalayan and North-eastern states also fare well

Incubators per million population is a good measure of access to incubation services.

Nine states have more than 2 incubators available per million population. This is still much less than the average incubator density of countries like US, which has 8.5 incubators per million, the UK, which has ~10 incubators per million and China, which has 8.4 incubators per million[7].

The density of incubators in India is notably higher in Southern states like Karnataka, Tamil Nadu, and Telangana, where cities like Bengaluru, Hyderabad and Chennai have robust startup ecosystems. Northern region around Delhi also has a higher concentration (Figure 2.3).

There are sixteen states in total that have less than one incubator per million population. This indicates limited access to incubator services and needs attention.

Some Himalayan and North-eastern states have a higher density of incubators, on par with the Southern states. However, given the mountainous terrain and challenges to mobility, there may be a need to increase the numbers further.

Since a majority of the incubators are set up through host organizations like universities, research laboratories and so on, the incubator density indicates the need to identify and nurture suitable host organizations, which can then go on to set up their incubator.

[7] Based on data from Tracxn and China Business Incubation Development Report 2019.

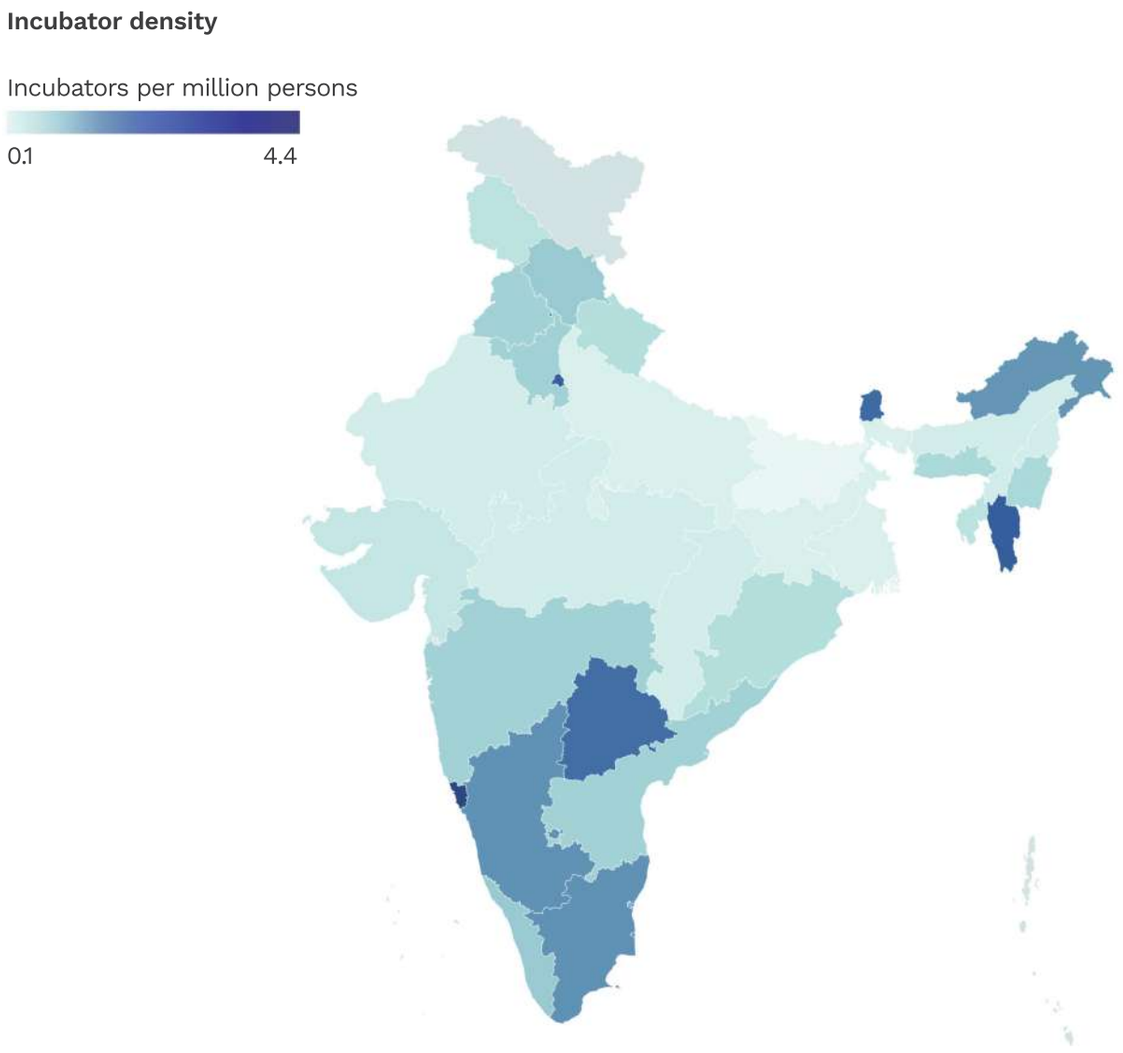


Figure 2.3: Incubator density across India (Created with Datawrapper)

2.2 DEMOCRATIZATION OF INCUBATORS

Expanding the network of incubators across the country would provide essential support for entrepreneurs, enabling the establishment of startups on a larger scale. This could spark a significant startup boom, benefiting hundreds of thousands of aspiring entrepreneurs.

The location of business incubators significantly impacts the range and quality of services available to startups. Cities like Bengaluru, Hyderabad, and Delhi-NCR stand out as innovation powerhouses, thanks to their dense network of research institutions, technology firms, and skilled professionals. Incubators in these bustling hubs enjoy proximity to advanced infrastructure, venture capital, and a rich network of mentors and industry experts. Conversely, smaller towns and rural areas often grapple with challenges such as limited local expertise, fewer networking opportunities, and less access to cutting-edge technology and funding. This geographical disparity can shape the startup ecosystem's effectiveness and reach.

Nearly half (48 percent) of the incubators are in Tier I cities

Tier I cities dominate the incubator landscape, with nearly half the incubators located in the nine Tier I cities of the country (Figure 2.4). We also find that 58 percent of all startups are located in Tier I cities. This is not particularly surprising since Tier I cities are hubs of economic activity.

The positive correlation between incubators and startups in Tier I cities is important to note. It is difficult to unravel whether incubators lead to more startups being set up, or if startup activity leads to more incubators getting established. However, the co-occurrence of incubators and startups indicates a virtuous cycle that can unlock economic growth.

Some states have democratized the incubator support system, establishing incubators outside of Tier I cities. In Tamil Nadu, Maharashtra, Haryana, West Bengal, and Uttar Pradesh, a noteworthy portion of incubators can also be found in smaller and medium-sized towns (Figure 2.5). By contrast, in the state of Telangana, Hyderabad alone accounts for more than 85 percent of the total incubators in the state. In Karnataka, we find that 80 percent of the incubators are located in the capital city Bengaluru.

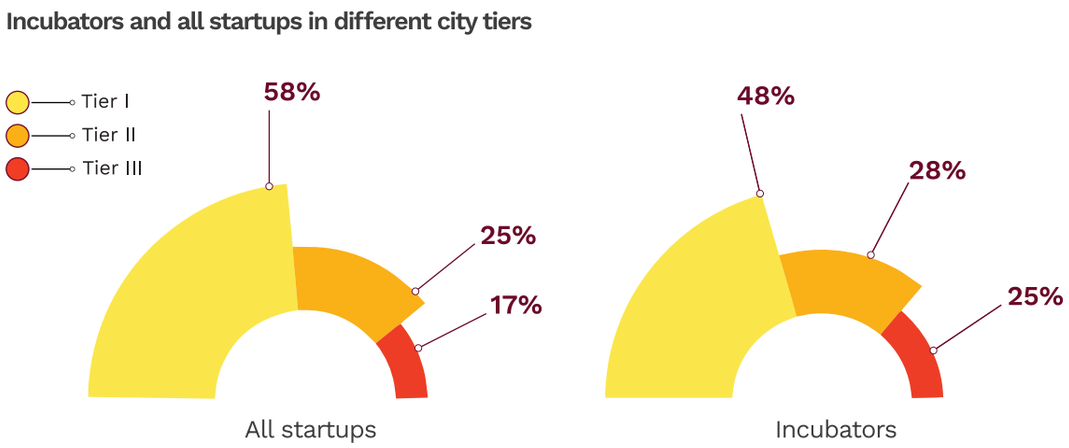


Figure 2.4: Distribution of incubators and startups across Tier I, II and III cities

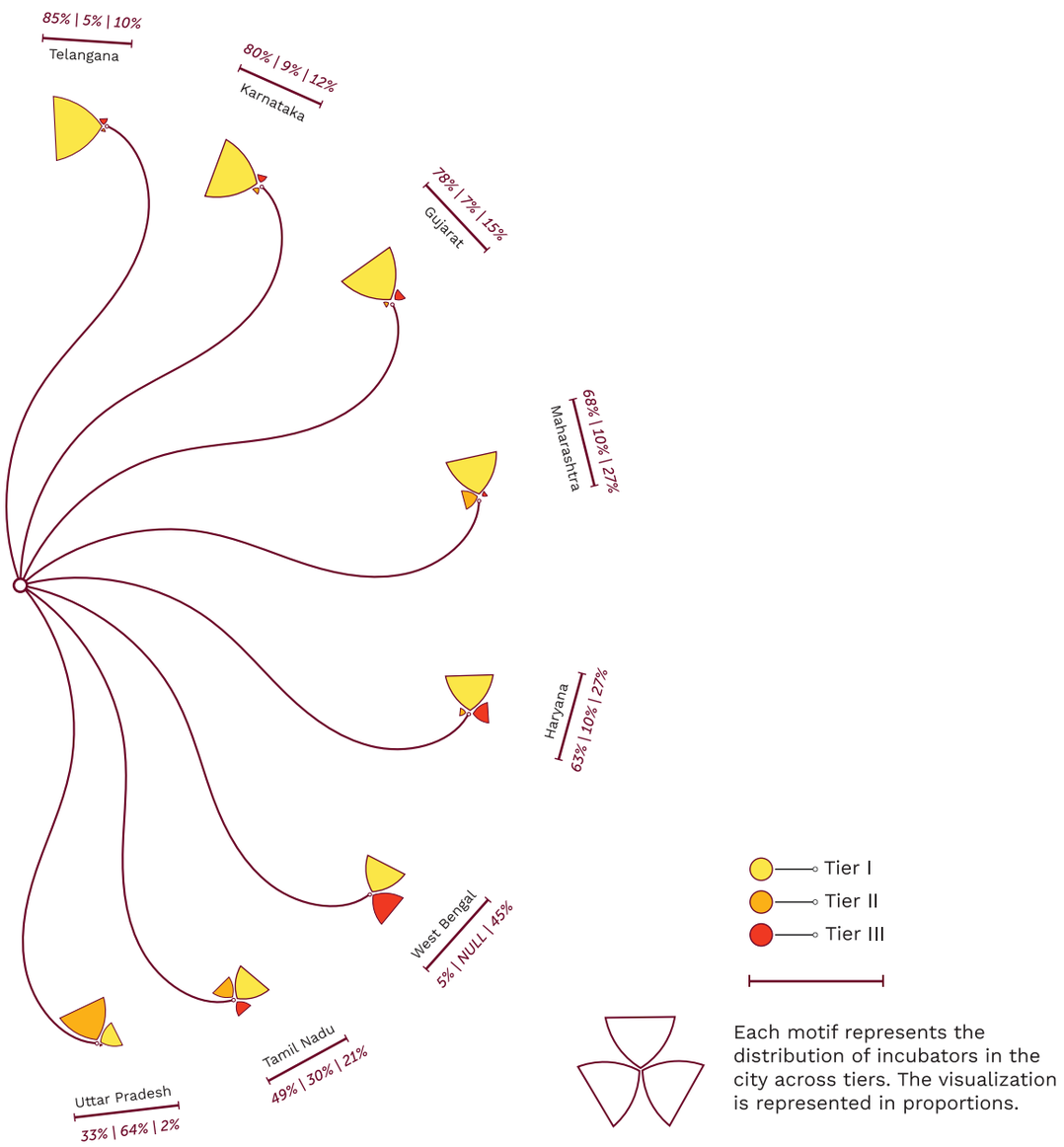


Figure 2.5: Distribution of incubators across city tiers in states with Tier I cities

While there has been a healthy penetration of incubators in Tier II and III cities, when we take into account the increased demand for incubation support, the gap between demand and supply is vast

We find 28 percent and 25 percent incubators have been located in Tier II and Tier III cities respectively (Figure 2.4). This is a welcome trend.

At the same time, 64 percent of all incubated startups are from Tier II and Tier III cities (Figure 2.6). This means that there has been a greater demand for incubation among startups from these locations.

We also find that around 35 percent of startups from Tier II cities seek incubation with Tier 1 incubators. 64 percent of startups from Tier III cities are seeking incubation from incubators in Tier I and II cities (Figure 2.7)[8]. This could mean one of two things. First, that they do not have access to incubation in their location and are seeking this support from incubators in Tier I cities. Second, the incubators in their location may lack the capability to provide meaningful support to startups. Whatever the explanation, there is a need to build incubator capacity and capability in Tier II and Tier III cities.

Several initiatives have been undertaken to increase the penetration of incubators into Tier II and Tier III cities. For instance, the Department of Industrial Policy and Promotion of Trade (DPIIT) is actively trying to set up at least one incubator in every district. There is a need for more such initiatives to cater to the growing demands of entrepreneurship at the grassroot level.

At the same time, it is worth noting that several startups from Tier I locations are also seeking incubation from incubators in Tier II and III locations. The percentage is small, at 21 percent, but it does indicate that some of the incubators in Tier II and III locations are emerging as strong hubs, perhaps in specific sectors.

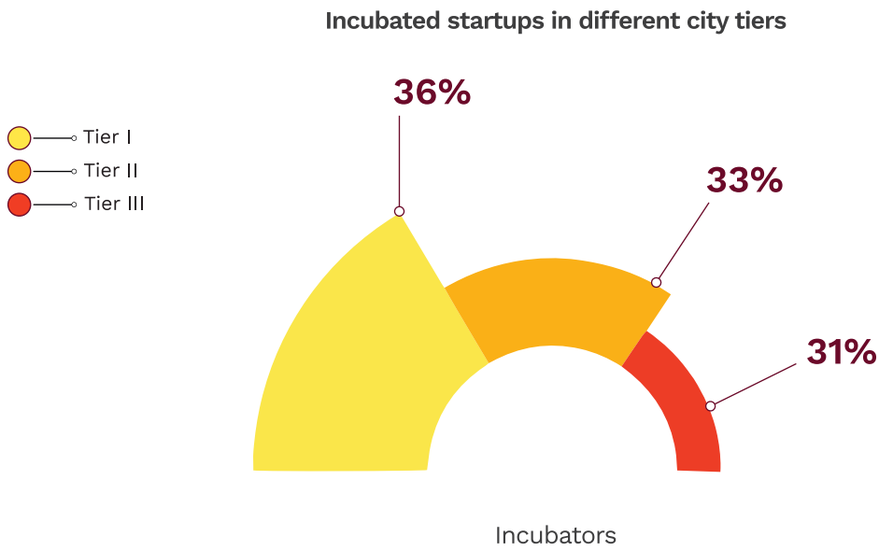


Figure 2.6: Percentage of incubated startups from Tier I, II and III cities

[8] Pls note that startups often incubate with multiple incubators. Therefore, it is possible that some of them are incubating with incubators in different city tiers

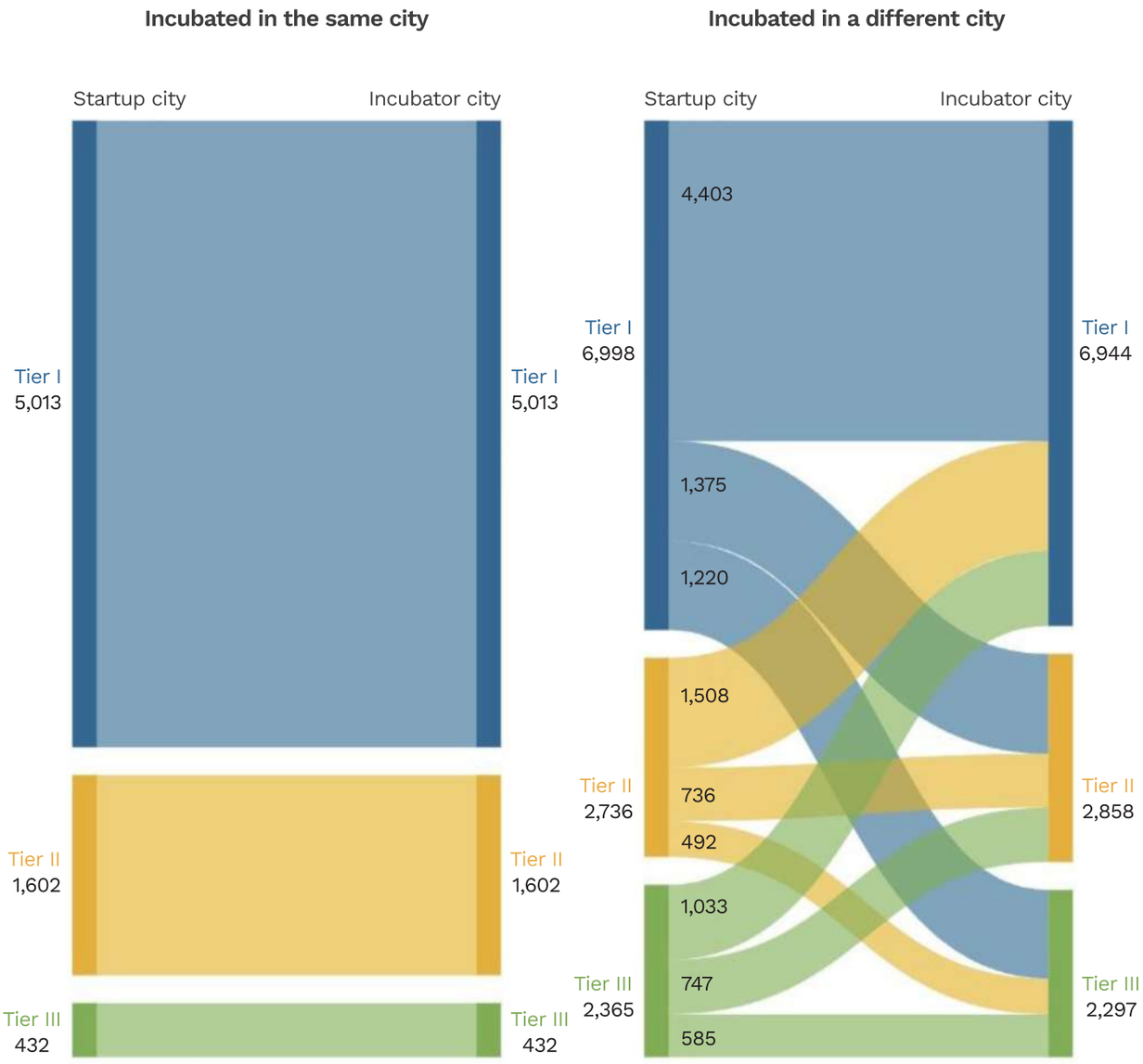


Figure 2.7: Locations where startups are seeking incubation

2.3 DIVERSITY OF INCUBATORS

Just as the apple doesn't fall far from the tree, the environment of incubators often reflects the culture of their host organizations. Universities, where most incubators are located, are known for their diversity. This has led to a unique incubation ecosystem in the country, where incubators don't merely replicate one another but instead offer complementary strengths.

Incubators are usually housed within a diverse set of entities such as academic institutions, large companies and government agencies. The host organization's size, domain of operation, resources and capabilities has a bearing on what the incubator can provide to startups. For instance, an incubator situated within a large academic institution will have access to a wide variety of technological knowledge. Similarly, an incubator situated within a corporate will have access to the customers of the company, which may be leveraged to provide market access to the startups it incubates. In sum, the host organization provides a platform on which the incubator operates, unlocking a wide variety of resources for the incubator and the startups it incubates. These include knowledge, networks, funding, market access and other tangible and intangible resources.

Host organizations also have different priorities. For example, private organizations have a more growth or profit-oriented approach, while government and academic institutions are focused on national and development priorities. These priorities will determine the incubation thesis, which will include the sectors in focus, the age and the maturity of startups accepted for incubation, the duration of incubation and the type of support provided. Each type of incubator has its unique strengths and serves a specific purpose. Therefore, co-location of different types of incubators fosters knowledge flows and collaboration, and plays a crucial role in enhancing the outcomes for participant ventures. In other words, a good mix of incubator types is essential for a healthy ecosystem[9].

Academic institutions house two-thirds of the incubators

Academic institutions house more than 65 percent of the total incubators. 29 percent are managed by industrial organizations, including large corporations, industry associations, and independent incubators. The rest are housed in government entities (Figure 2.8).

The fact that a majority of incubators are housed in academic institutions has a positive impact on the youth of the country. These incubators are promoting an entrepreneurial mindset on campuses, encouraging the youth to become job creators as opposed to job seekers. This is in alignment with the National Education Policy 2020 that advocates for entrepreneurial studies among students in Higher Educational Institutes (HEIs) to create a robust business ecosystem.

[9] Brown, R. & Mason, C. (2017). "Looking inside the spiky world of business incubators: A typology of incubators." Regional Studies.

Academic institutions are also centers of research and innovation, providing a rich source of cutting-edge knowledge and technological advancements. Incubators housed in these institutions support the commercialization of technology that originates in the labs, playing a key role in the translation of new science and technology into economic growth. Access to a pool of faculty members and researchers with specialized expertise can significantly benefit startups, offering them mentorship and technical guidance.

On the flip side, the predominance of academic incubators could mean that the startups attached to these incubators are mostly technology-driven and may lack business know-how. A report on the role of universities in the innovation ecosystem by Ghani (2018)[10] also discusses how academic incubators often emphasize technological innovation while potentially lacking in practical business training and market-oriented approaches. It then becomes important to bridge this gap by connecting them to industrial incubators and other entities in the broader ecosystem.

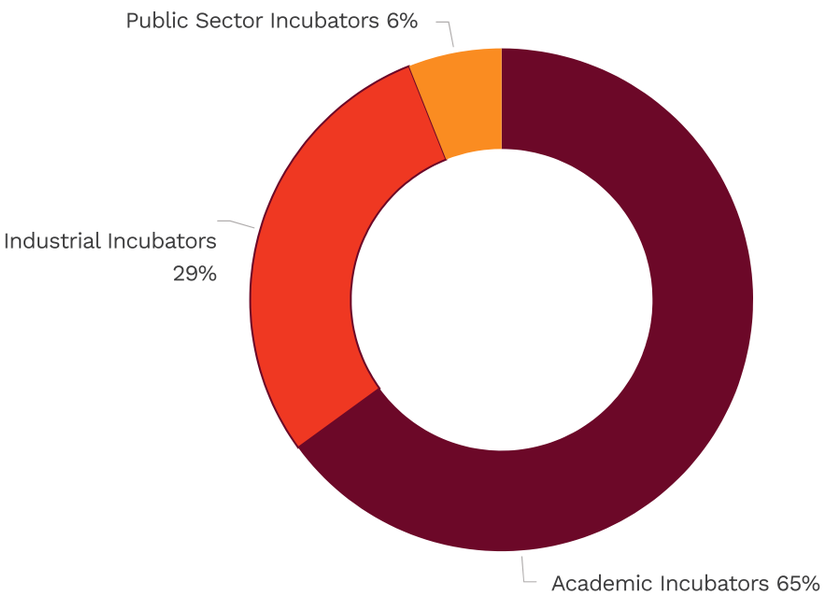


Figure 2.8: Distribution of different types of incubators

Academic incubators have been instrumental in taking entrepreneurial support system to Tier II and Tier III cities

74 percent of incubators in Tier II cities are housed in academic institutions. The number is higher at 83 percent for Tier III and other cities (Figure 2.9).

Many of these have been funded by government programs with the goal of supporting entrepreneurs in Tier II and other cities. For example, the Atal Innovation Mission has established over 69 incubators called “Atal Incubation Centers” in academic institutions across the country, most of them in Tier II and other cities. According to latest data, these AICs have incubated more than 2900 startups till date and have also been able to create over 32,000 jobs.

[10] Ghani, E. (2018). “The Role of Universities in the Innovation Ecosystem: Evidence from the U.S.” The World Bank.

Overall, academic institutions have been supporting startup activity in Tier II and other cities and acting as a vehicle of democratization of entrepreneurship.

However, the weak presence of other types of incubators in Tier II and other cities is a matter of concern since academic incubators need to be aligned to the broader ecosystem including other types of incubators to effectively support startups.

State-wise analysis of the presence of different types of incubators in Tier II and III locations reveals that the Southern states have an edge

Tier I cities have a good mix of academic and industrial incubators (Figure 2.10). This co-location is helpful for startups since it provides access to a wide variety of resources that are available through different incubators. This is not surprising since Tier I cities are hubs of economic activity and are often home to large corporates.

When we consider the presence of different types of incubators in Tier II and III locations, by state, we find that several have made a concentrated effort to move beyond academic incubators.

There are a few states that have no industrial incubators in Tier II cities (Figure 2.11). This list is longer when we consider industrial incubators in the context of Tier III cities (Figure 2.12).

The Southern states of Karnataka, Tamil Nadu, Telangana, Kerala and Andhra Pradesh have a mix of academic and industrial incubators in Tier II and III locations. This reflects a broader strategy to leverage the strengths of different incubator models and foster a more integrated and dynamic innovation ecosystem. Other states can leverage this model to strengthen their startup support systems.

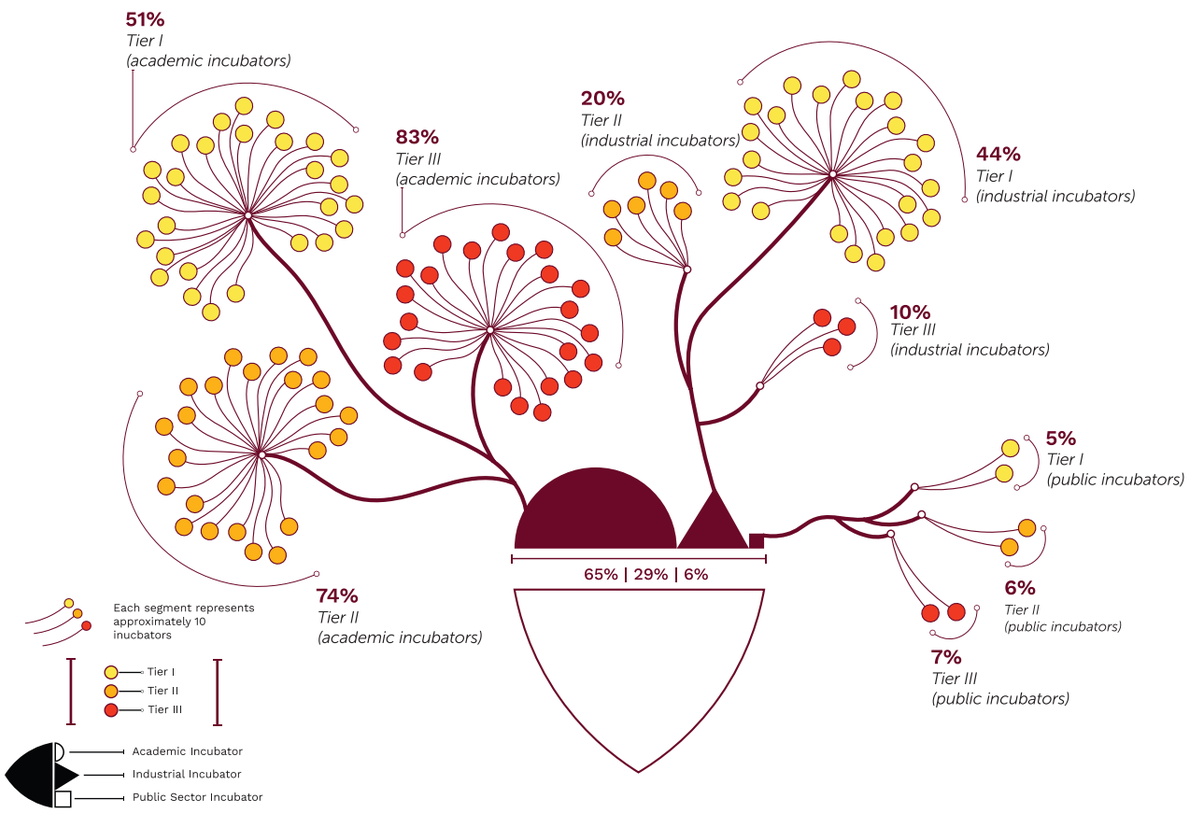


Figure 2.9: Types of incubators across city tiers

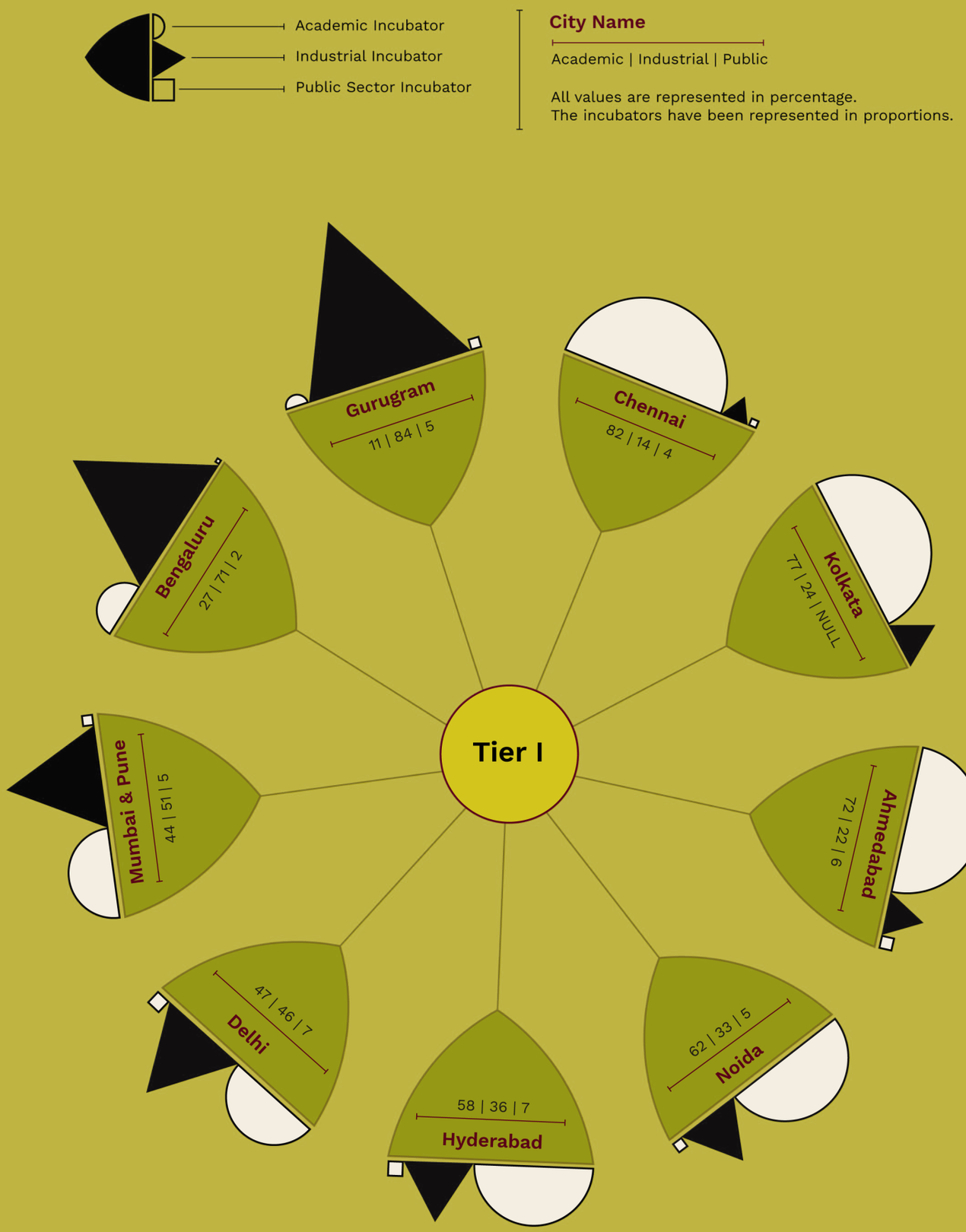


Figure 2.10: Mix of incubators in Tier 1 cities

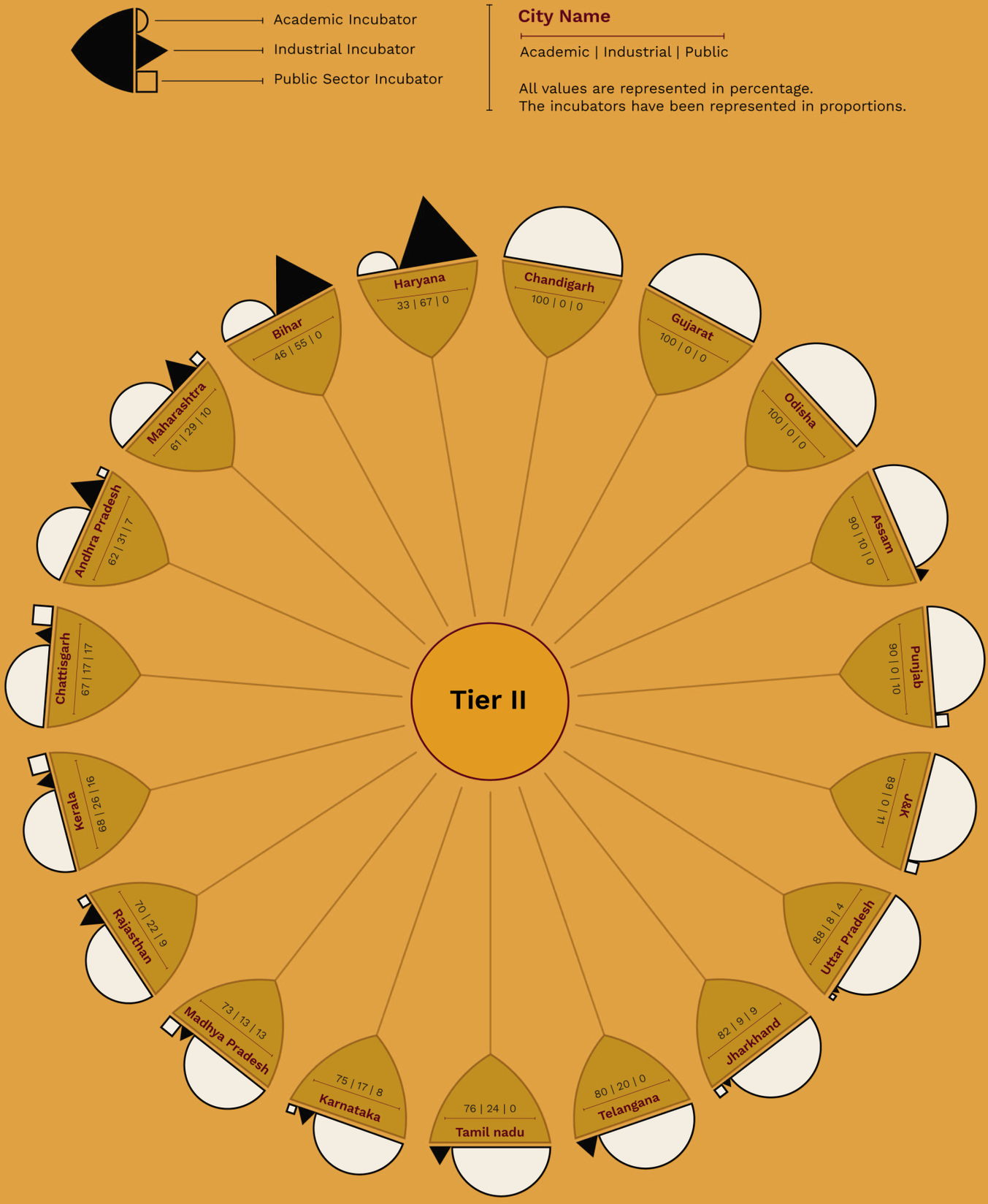
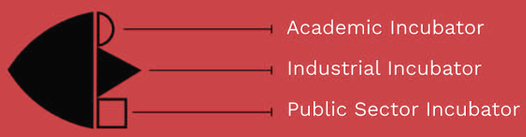


Figure 2.11: State-wise incubator mix in Tier II cities



City Name

Academic | Industrial | Public

All values are represented in percentage.
The incubators have been represented in proportions.

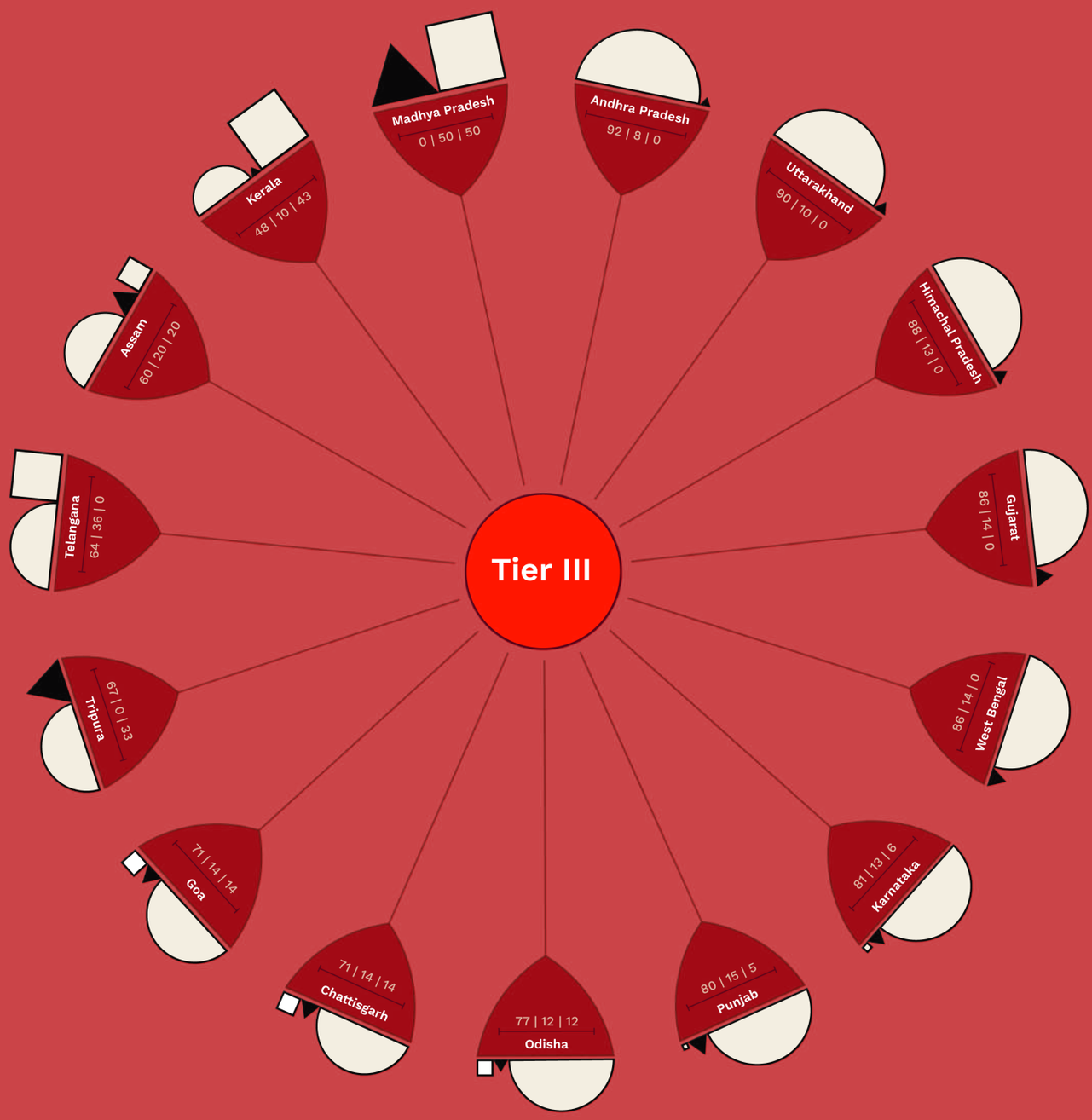


Figure 2.12: State-wise incubator mix in Tier III cities

2.4 INCUBATOR CAPACITY UTILIZATION

There is a significant imbalance in the utilization of existing incubation capacity. Strengthening the institutional capabilities of underutilized incubators would allow more startups to benefit from incubation services. This *de jure* capacity expansion can be achieved at a fraction of the cost required for *de facto* capacity expansion.

The presence of incubators across the length and breadth of the country creates infrastructure and capacity that can be leveraged in a number of ways. The most important use of this capacity is by aspiring and existing entrepreneurs in different parts of the country. This is the *raison d'etre* of incubators. Secondly, this capacity can be leveraged by the government to implement startup related schemes. Finally, this incubator infrastructure, and the ventures incubated with them, can also serve as a funnel for venture capital firms, banks and large corporations.

While incubators have proliferated quite widely in India, how effectively have their capacity been utilized is an important line of inquiry. Early findings on these are as follows.

20 percent of incubators support 98 percent of startups in the country

The pareto principle seems to be in play among the incubators. We find that 20 percent of incubators have supported a large proportion of the startups in the ecosystem.

This may be happening due to one or more of the following reasons.

- Many incubators have been operating in areas where the entrepreneurial activity is nascent. As a consequence, demand for incubation may be weak.
- Many incubators do not have the capacity and capability to support startups effectively. As a result, startups may prefer to go to well-established incubators for support.

Whatever the reasons, the fact is that incubator capacity has been underutilized. Incubators need to engage in awareness building activities to spur entrepreneurship as well as plug capability gaps to effectively provide support to startups. At the same time, funding agencies should undertake capacity strengthening programs for the weaker incubators, to optimize their utilization.

20 percent of the incubators are acting as an implementing arm for government schemes targeted at startups

Several government departments, both at the central and state level, such as Department of Biotechnology (DBT), Department of Science and Technology (DST), Ministry of Electronics and Information Technology (MeitY) have designed schemes to support startups.

226 incubators (out of a total of 1,110) are acting as an implementing arm of one or more of these government schemes (Table 2.1). A majority of these implementing incubators are located in Tier I cities.

This begs the question of why government agencies are not leveraging the existing incubator capacity. This could be because many of the incubators are new, and lack the capability to act as implementing arms. They may also not have the scale of operations to meaningfully implement these schemes. This ties back to the previous finding of a small number of incubators doing all the heavy lifting.

If we are to maximize the investment made in setting up incubators, there is an urgent need to enhance the capability of incubators and the scale of their operations. We believe policy makers also realize that some of the incubators may not be as strong, and would need strengthening. Many of the incubators have also been set up not solely from the perspective of economic criteria, but also from social criteria. Having created these incubators, we urge the policy makers to invest equally in strengthening the existing ecosystem in addition to expanding the network.

MAJOR GOVERMENT PROGRAMS IMPLEMENTED

Leading schemes implemented by incubators	No. of incubators
STARTUP INDIA SEED FUND SCHEME (SISFS)	102
NIDHI - PRAYAS, DST	88
NIDHI-ENTREPRENEUR-IN-RESIDENCE (NIDHI-EIR), DEPARTMENT OF SCIENCE AND TECHNOLOGY	54
NIDHI SEED SUPPORT PROGRAM (NIDHI-SSP), DEPARTMENT OF SCIENCE AND TECHNOLOGY	24
BIRAC SUSTAINABLE ENTREPRENEURSHIP AND ENTERPRISE DEVELOPMENT FUND (SEED FUND)	22
BIRAC SMALL BUSINESS INNOVATION RESEARCH INITIATIVE (SBIRI) FUND	18

Table 2.1: Key government programs implemented through incubators

2.5 IMPLICATIONS

For policy makers

While the number of incubators at 1,100+ looks impressive, for a country of India's population, there is headroom for further growth. On average, developed countries have an incubator density of 8-10 per million people. In India, the number is significantly lower at 0.8 incubators per million. So, we need to continue to establish more incubators.

There is a regional imbalance in incubator presence. The Eastern states lag other parts of the country. A concerted effort is needed to increase incubation activity in these states.

Incubators have proliferated into several Tier II and III cities of India. This is a welcome trend. However, the demand for incubation in these cities is higher. This indicates a need to make further inroads into Tier II and III cities.

In addition to establishing incubators in Tier II and III cities, government must also look at building capability in these incubators to effectively support startup activity. Currently, a lot of startups in Tier II and III cities are seeking incubation support in Tier I cities. This could be for lack of capability in local incubators or because Tier I city incubators present greater opportunities for startups. Along with building capability in incubators in Tier II and III cities, it will be beneficial to link them to incubators in Tier I cities to provide a strong support ecosystem for startups. In other words, a hub and spoke model where Tier I incubators are connected to Tier II and III incubators may be considered.

For industry actors and incubator managers

The high percentage of academic incubators reflects a strong focus on technology transfer and research commercialization. However, one challenge faced by tech-focused incubators has been to bridge the gap between academic research and commercial viability. Startups may struggle with translating complex research into market-ready products. Forging connections with industrial clusters and partnering with business incubators can help tremendously with the translation of academic research into commercially viable products and services.

Physical co-location of different types of incubators and related entities significantly enhances the effectiveness and outcomes of the innovation process. Co-location supports collaborative Research & Development (R&D) efforts between academic institutions and industry players. There is a need for concerted effort from industry as well government to facilitate co-location of academic and industrial incubators. The Southern states are leading the charge, and other states can follow their model.

A small number of incubators are undertaking the majority of incubation activity. This means, there are many incubators that are operating at sub scale. There is an imperative for incubation managers to create awareness about entrepreneurship and incubation in their local context to drive demand, and to upgrade their capability to effectively support entrepreneurs. Managers of mature incubators may hand hold younger incubators to help build capability. ■

3. INCUBATOR COVERAGE

> The reason King Saul is skeptical of David's chances is that David is small and Goliath is large. Saul thinks of power in terms of physical might. He doesn't appreciate that power can come in other forms as well - in breaking rules, in substituting speed and surprise for strength.
>
> - Malcolm Gladwell

Incubators are Entrepreneurial Support Organizations (ESO), which means, their raison d'etre is to support and nurture entrepreneurs and their young ventures. Their function extends beyond providing physical space; they offer a range of services and support, tailored to the specific needs of startups at different stages of their growth. This includes access to a variety of financial instruments, mentoring from industry and domain experts, networking opportunities, operational support, market access and help with fine tuning business models. While seeking incubator support seems like an attractive opportunity for startups to survive and thrive, we know little about how startups are availing incubator support. In this section, we explore questions along these lines – How widely is incubation sought? What are the characteristics of founders who are seeking incubation? What are the characteristics of startups that are seeking incubation? Do startups in certain geographies seek more incubation support while those in others seek less?

KEY THEMES IN THIS SECTION

- Rate of incubation
- Characteristics of founders seeking incubation
- Characteristics of sectors being incubated
- Implications

3.1 RATE OF INCUBATION

There is a strong correlation between the presence of incubators and startup formation. However, there is significant scope to increase the incubator coverage, i.e., the number of startups getting incubated in the country. Best practices from top performing states such as Tamil Nadu, Karnataka, Telangana and Andhra Pradesh can be used to improve the incubation coverage in those states that lag.

In the previous section, we delved into how incubators are spread across the country, providing support for entrepreneurial activity. In other words, we explored the supply side of incubation. We now turn our attention to the demand side. As the number of startups in the ecosystem has witnessed a steep increase, what is the level of incubation activity? How many startups are seeking incubation? What explains the patterns observed? We also go on to explore the relation between incubation support and startup activity across different geographies.

Only 8.2 percent of the total startups in the ecosystem get incubated, even though the number of startups incubated year-on-year has been rising steadily

The number of incubated startups in the ecosystem has been growing steadily year-on-year (Figure 3.1). This is following the trajectory of the overall growth of startups in the ecosystem.

However, the total number of startups in the ecosystem is a staggering 1,77,658. Of these, only 14,681 startups were incubated, which constitutes 8.2 percent of the total startups in the ecosystem (Figure 3.2).

The low rate of incubation, which we define as the percentage of total startups that take incubation support, implies that a large portion of startups in the ecosystem are not availing incubator support. We evaluate the possible reasons for this:

- Lack of awareness about incubation support – Startup founders may not have been aware about incubators or the incubation facilities that they can access, leading to low demand. This implies that incubators need to expand their outreach activities and the channels through which they communicate to entrepreneurs.
- The second reason for low uptake of incubation support could be due to stringent selection criteria adopted by the incubators. However, observation and interaction with the various incubator managers shows that incubators tend to be more inclusive rather than exclusive in supporting startups. Therefore, it is unlikely that the selection criteria adopted by the incubators would be a reason for the modest incubation coverage.
- The supply aspect, i.e., availability of adequate incubation facilities could be a third reason. However, as we report later in this chapter, most incubators seem to have significant spare capacity to support more startups.

3. INCUBATOR COVERAGE

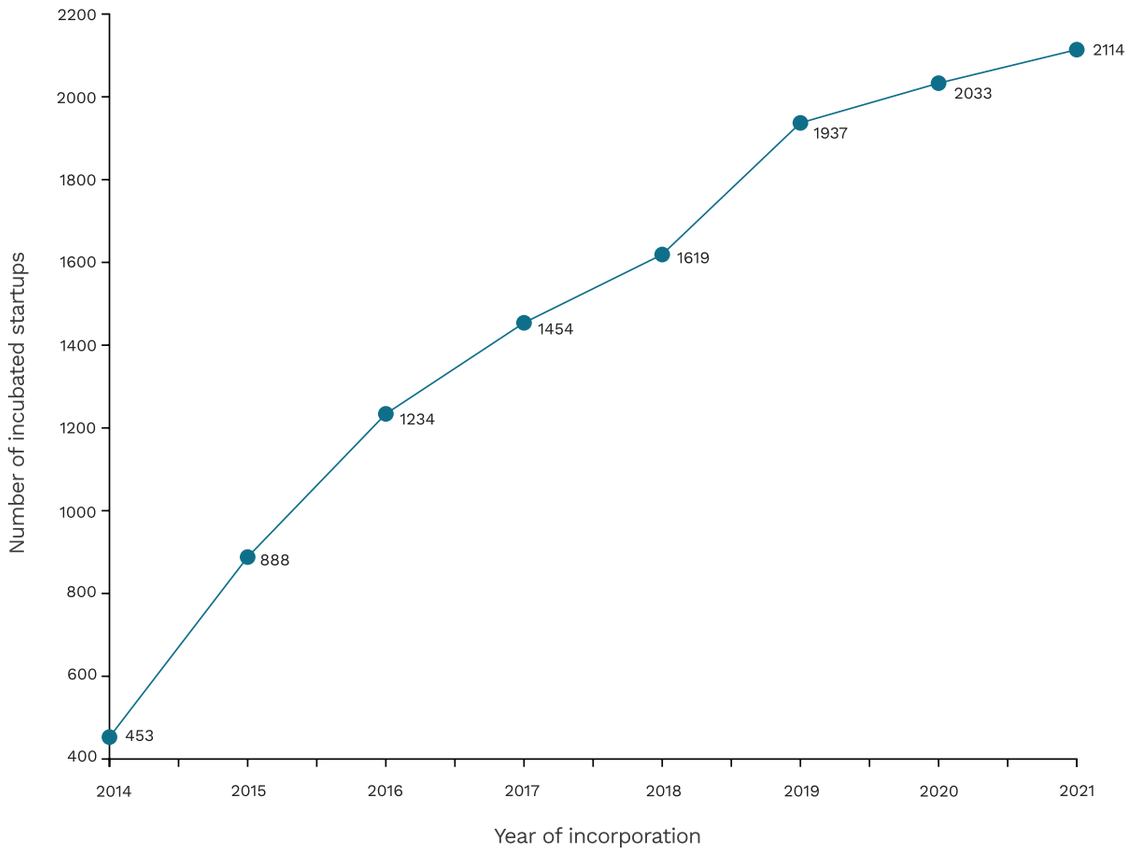


Figure 3.1: Number of startups incubated in India

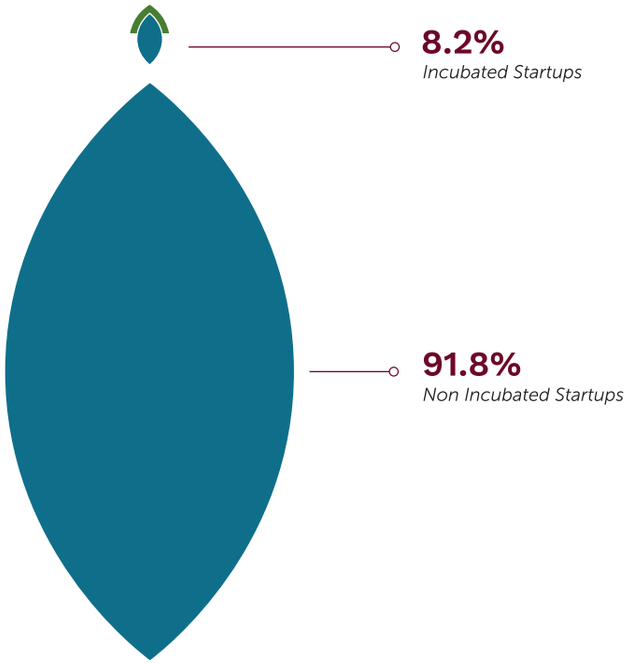


Figure 3.2: Percentage of startups incubated

- Fourth, as seen in Chapter 2, 65 percent of incubators have been hosted in academic institutions. While a majority of these academic incubators were not restricted to support startups by founders outside of their institutes, their main focus may have been on supporting startups founded by their students and faculty. Their outreach therefore might be limited to their target segment, and founders at large would have to discover the incubator on their own while seeking support.

- Fifth pertains to incubator capability– Many incubators may lack the capability to provide a robust support system to entrepreneurs, and therefore, may not be sought out by them. As we have observed in Chapter 2, bulk of incubation activity has been concentrated in just 10 percent of the country's incubators. Simply establishing an incubator with a physical space is the easier part. The bigger challenge for an incubator is to develop the ability to give access to a wide variety of tangible and intangible resources to the startups in a timely manner. This takes time and effort to build. A lot of incubators in India are very young and may lack this ability. They need to work with mature incubators to rapidly move up the learning curve and add value to startups.

The rate of incubation is higher in the southern states

The incubation coverage is not uniformly arid across the country, and pockets of oasis do exist. The states of Karnataka, Tamil Nadu, Telangana and Andhra Pradesh have a much higher incubation rate than the national average of 8.2 percent. This is across the Tier I, II and III locations of these states. Goa also has a high rate of incubation. Rajasthan does well with an incubation rate of 18 percent in Tier II cities and 12 percent in Tier III cities (Figure 3.3).

The double-digit incubation rate in these states, across city tiers, indicates that there may be considerable room to increase the incubation coverage in other states, thereby improving the national average. Best practices from these top performing states could be identified and adapted to suit the local milieu of the states that lag on incubation coverage.

Interestingly, poor incubation rate does not always mean low startup activity. An example is the state of Gujarat, which has a reputation as the land of entrepreneurs and is a top-performing state in terms of the number of startups. However, it has a lower incubation rate than the national average. We might attribute this to the possibility that the knowledge of starting a business is so pervasive that the need for incubation may be low.

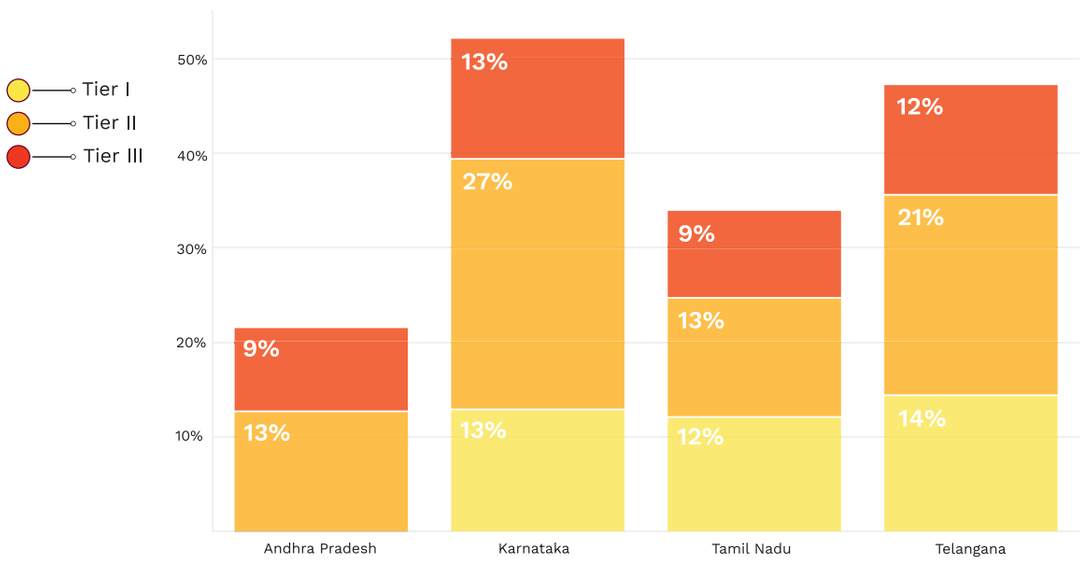


Figure 3.3: Incubation rate by city tier in select southern states

While the overall incubation rate is low, we find that there is high degree of correlation between the presence of incubators and startups

Across states, incubator and startup presence are highly correlated (Figure 3.4 and Figure 3.5). The correlation coefficient between the two has been estimated at 0.84, which indicates a strong positive correlation.

This suggests that a higher number of incubators is associated with a higher number of startups. While we do not endeavor to predict the direction of causality, i.e., whether the presence of startups is leading to more incubators, or vice versa, the strong correlation vindicates the perceived link between incubators and startup formation.

Establishment of incubators can lead to more startup activity through the following mechanisms – creating awareness about startup activity in the local ecosystem; providing confidence, validation and legitimacy to aspiring founders who are unsure about the entrepreneurial journey; and supporting startups that can become role models to others in that region. Even if startups don't seek incubation, the presence of incubators can have a positive collateral impact on startup activity. At the same time, startup activity in a region can create a demand for incubation, prompting the establishment of more incubators. Over time, it can lead to a virtuous cycle.

Setting up incubators can have both a direct and indirect positive impact on startup creation. Therefore, this reinforces our recommendation from Chapter 2 to set up more incubators in the country.

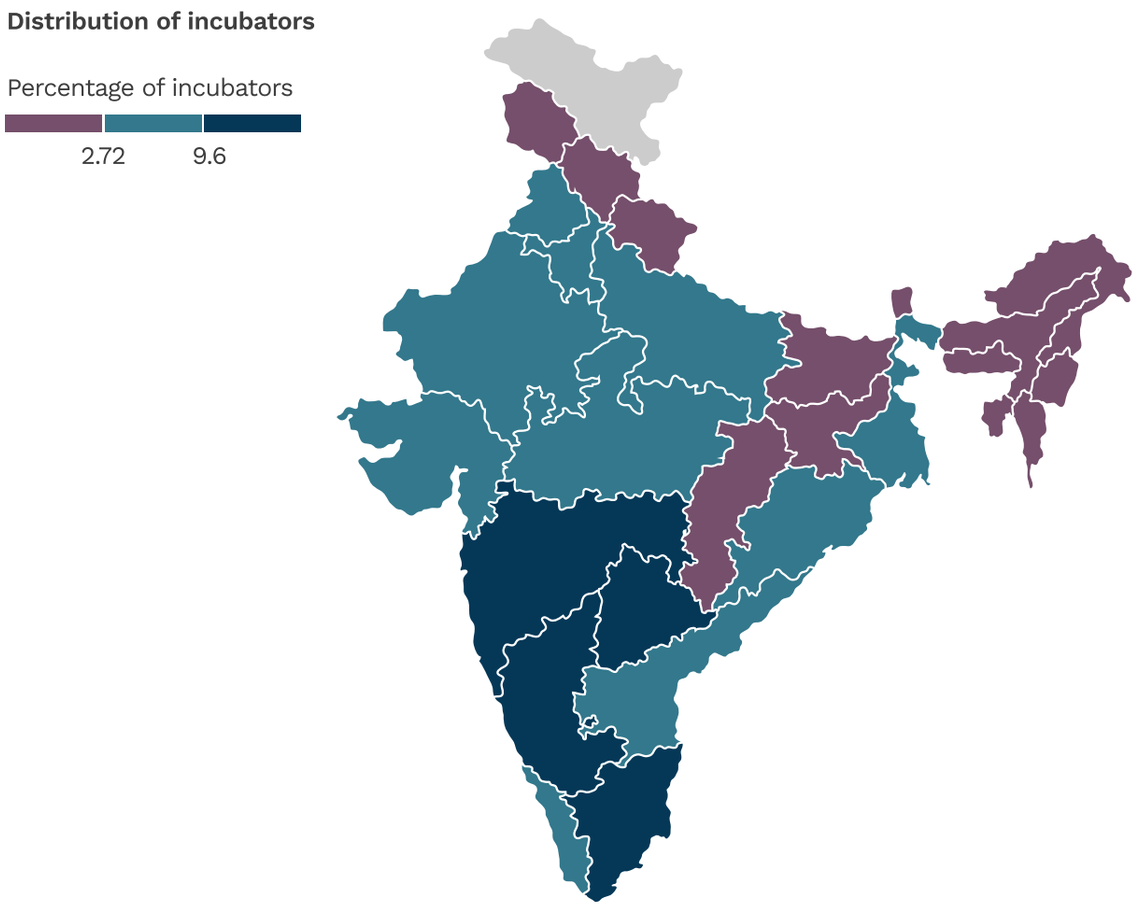


Figure 3.4: Distribution of incubators (created with datawrapper)

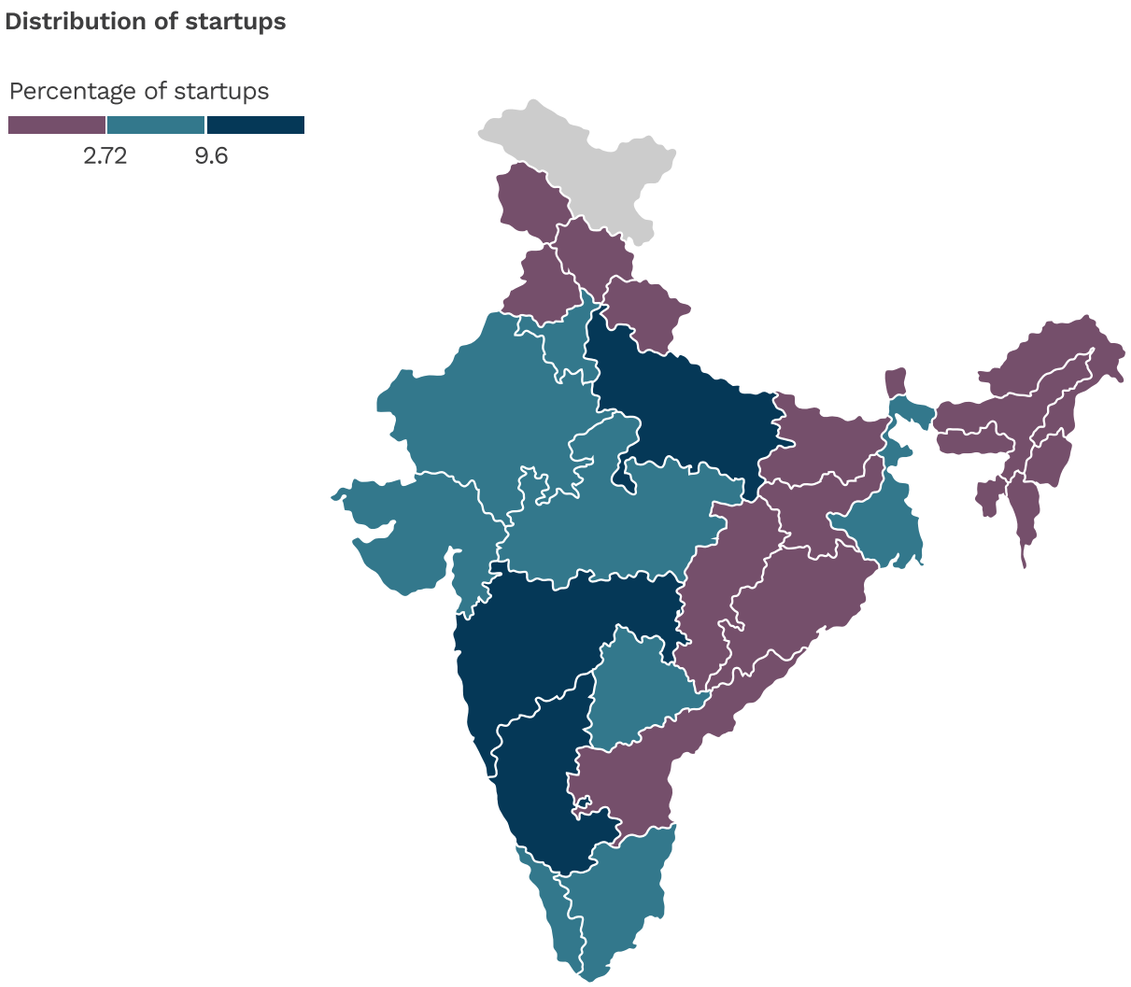


Figure 3.5: Incubator density across India (Created with Datawrapper)

3.2 CHARACTERISTICS OF FOUNDERS SEEKING INCUBATION

Incubators support startups having younger founders and do not discriminate against women-founded startups. The paid-up capital of incubated startups is approximately 50 percent lower than the non-incubated at the time of incorporation, indicating that founders of incubated startups have limited financial resources. These findings suggest that the support system is indeed working for those who need it.

In the initial years, a startup is nothing but a reflection of its founders, their value systems and personalities. It is their vision that provides direction and purpose to the venture. In the initial stages, a startup comprises just the founding team, and they are typically engaged in all aspects of venture development. This includes product development, sales and marketing, customer interfacing, hiring and fund raising. Juggling these multiple responsibilities is no mean task and requires the founders to be proficient across a variety of functions.

Incubators provide the support that founders need as they build their venture. They help entrepreneurs upgrade their skills in various functional areas and provide the mentorship to build and run a business organization. They also provide them access to a wide array of networks that can unlock important resources such as funding. We hypothesize that the propensity of the founders to get incubated depends on their background and the knowledge, capability, and access to networks that are needed to successfully build a venture. Since there may be a cost associated with incubation, founders who already have access to the type of resources that incubators provide are unlikely to seek incubation support.

Students and young professionals seek more incubation support

More than one-third of the incubated startups have been started by founders aged 30 years and under[11]. These are typically students and young professionals. While this founder segment accounts for 23 percent of startups overall, they form 32 percent of startups that are incubated (Figure 3.6). This is quite expected because:

- Students and young professionals have minimum work experience and may not have exposure to the various functional aspects of running a business. They may require substantial guidance regarding basics of business operations such as marketing, financial management, planning, product development, and so on. They may also lack domain expertise and therefore may look to incubators to provide exposure on a range of subjects that are necessary for running a venture.

[11] For startups with multiple founders, the average age of the founders at the time of incorporation is estimated and then classified into different age groups.

- Students and young professionals also have limited access to investor and professional networks. It is well established that professional networks unlock key resources for the venture and are crucial for its growth[12]. Incubators act as brokers of critical network resources that the startup founders can leverage. They can provide them access to grants, seed funding, expert advice and an array of products and services that the startups can use to build their venture.

Startup founders from Tier II and III cities may face similar challenges as students and young founders, and would rely on incubators to provide the knowledge and access to networks.

It is possible that the predominance of students and young professionals can be attributed to the fact that a majority of incubators are situated in academic institutions. The incubators are easily accessible to students and hence there is a natural affinity among this segment to get incubated. However, as emphasized in 3.1, the larger issue is to increase the penetration of incubation in the startup ecosystem. This will require incubators of all kinds to rethink their outreach activity and the portfolio of support services they offer, so that it becomes attractive to all founder segments.

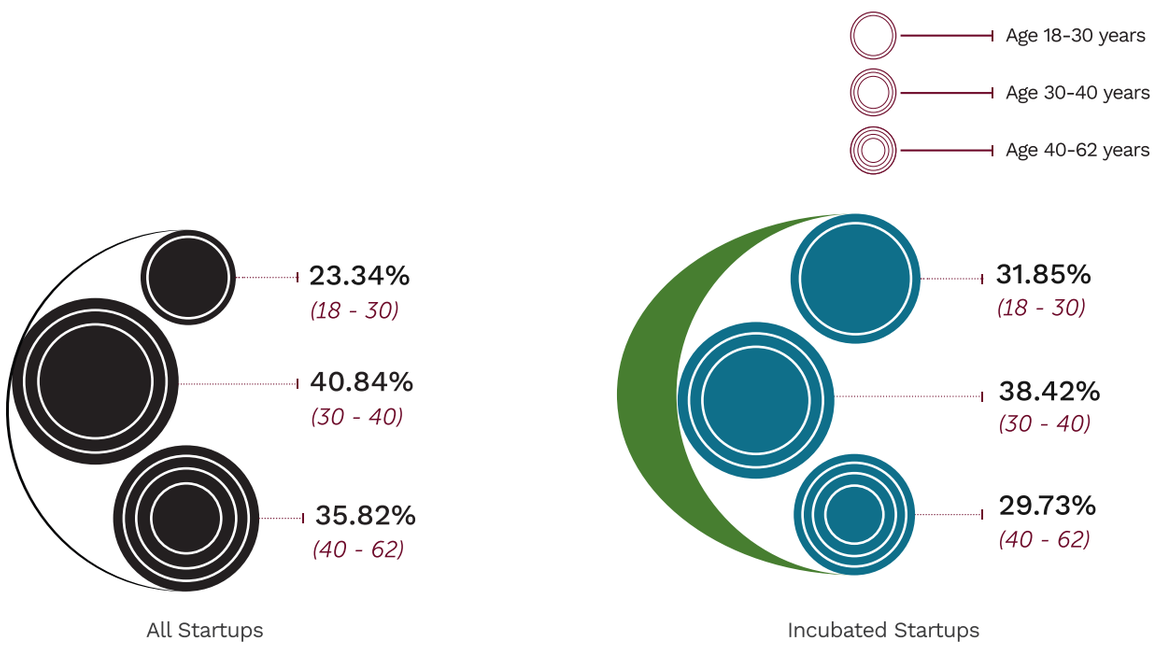


Figure 3.6: Proportion of founder age in startups

Incubation helps founders with less paid-up capital. Incubated startups see a more rapid escalation in their average paid-up capital than those that do not get incubated.

Paid-up capital is part of the capital invested by the shareholders in the company. At the time of incorporation, the entire amount invested by the founders would form the paid up capital. Subsequent fund raising happens at a valuation, and therefore part of the investment would be reflected in the share premium account.

At Year 0, at the time of company incorporation, it was seen that the paid up capital of incubated startups was lower than that of the non-incubated. This indicates that founders of the incubated companies had probably limited financial capacity to invest in their ventures.

[12] Pettersen, I. B., Aarstad, J., Høvig, Ø. S., &Tobiassen, A. E. (2015). Business incubation and the network resources of start-ups. Journal of Innovation and Entrepreneurship, 5, 1-17.

Our analysis suggests that, while the incubated startups start off from a base of low paid-up capital, they significantly outpace their non-incubated counterparts in terms of average paid-up capital growth (Figure 3.7). This supports the finding of Chapter 4 that incubated startups have been associated with a higher probability of getting funded.[13] The trend line clearly shows the sustained increase in average paid-up capital for incubated startups, indicating not only initial success but also a potential for long-term sustainability. The crossover point comes between year 4 and 5 of the startup operation.

A basic premise supporting our analysis is that incubators cultivate a culture of innovation and collaboration. Though the incubators closely work with the ventures during their initial years, the impact of incubation persists for a longer time because of the strong foundational support that they receive from incubators.

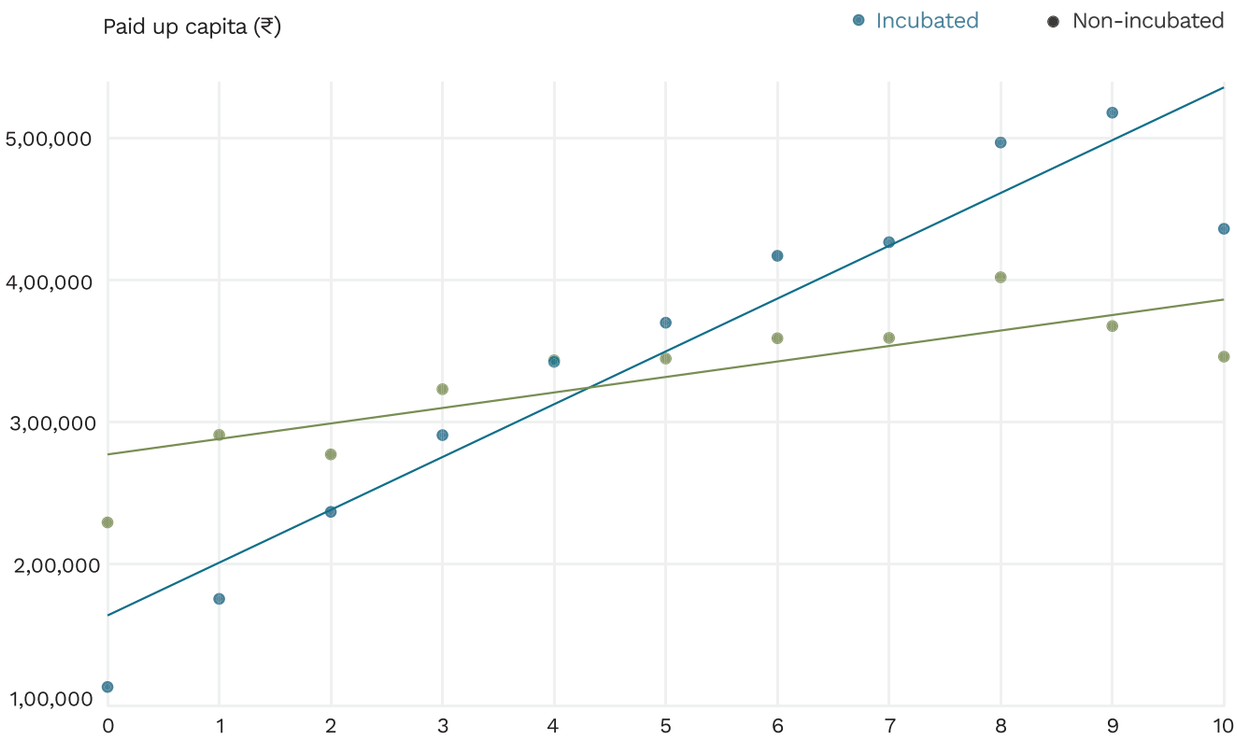


Figure 3.7: Average paid up capital: incubated against non-incubated startups

Incubators provide equal opportunities, if not more, for women-founded startups.

Incubation rate among women-founded startups, i.e., startups where all founders are women, is 8.55 percent, marginally higher than the overall incubation rate of 8.2 percent (Figure 3.8). The percentage is similar for women-founded startups across all city tiers.

This implies that women are not any more or less likely to seek incubation than their male counterparts. This contradicts the general perception that women might need more support in setting up a venture, and therefore are more likely to seek incubation support than men. Our analysis indicates this is not the case.

[13] The data presented above consists of 23,944 incubated startups and 24,051 non-incubated startups within the age range of 0 to 9 years.

Further, our analysis also indicates that here is no bias against women founders. Incubators seem to be supporting women entrepreneurs as much as they are supporting male entrepreneurs, if not more. This is a welcome sign and indicates that women-founded startups are receiving good support from the ecosystem. This is perhaps a consequence of many government, CSR and other programs to support women entrepreneurship.

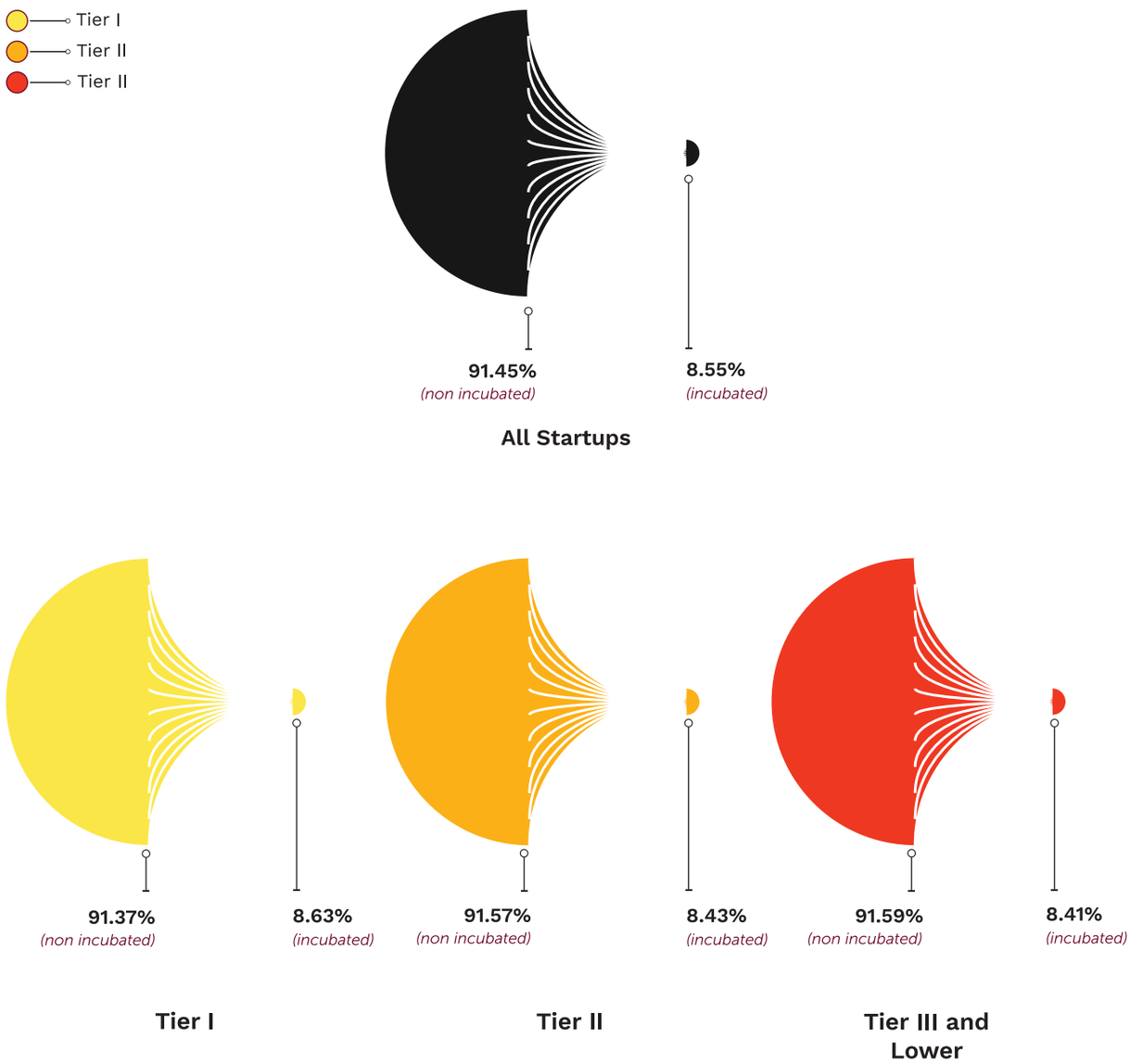


Figure 3.8: Incubation rate of women-founded startups

3.3 CHARACTERISTICS OF SECTORS GETTING INCUBATED

The incidence of incubation varies across sectors. Unlike investors, incubators have the proclivity to support startups that are more risky. A higher percentage of startups in deep tech sectors have been incubated as compared to those in more conventional sectors.

Startups face different types of opportunities and challenges, depending on the industrial sectors or technology domains in which they operate. In some cases, such as biotech, there is a long gestation period before the startup can go to market. Others such as direct-to-consumer (D2C) startups may take much less time. The runway needed by a startup before it starts clocking revenues is variable, and depends on the complexity of the technology, the regulatory requirements and other supply and demand side idiosyncrasies. It is therefore fair to assume that the need for incubation varies, depending on the sectoral characteristics of startups. Those with a longer timeline to generate revenue are more likely to seek incubation.

From an incubator's perspective, one might consider the criteria that incubators use to select startups for incubation. In other words, what drives the incubation thesis of incubators? The first is that incubators may lean towards supporting startups that need the support. This means, they would support startups that have a long pathway to market or those operating in underdeveloped sectoral ecosystems. A second possibility is that incubators may choose to support startups with more promise. This is particularly true for incubators that take an equity stake in the startups they incubate. They are then incentivized to "bet on the winning horse". Finally, incubators may also support startups that operate in an area that aligns with their own area of expertise. For instance, an incubator in an academic institution with a strong electrical and electronics department might choose to support semiconductor or medical device startups. Of course, incubators may apply more than one of the above criteria to decide who they support.

In sum, the sectoral composition of incubation activity will be driven both by the demand side (type of startups seeking incubation) and the supply side (incubation thesis of incubators). We try to understand this by asking – what kind of startups are incubators supporting? Are there certain sectors that are getting incubated more than others? Are there differences in the type of startups supported across different city tiers?

Incubators support innovative, technology based startups

The sectoral distribution of all the startups is given in Figure 3.9. Unsurprisingly, we find that the share of software sector is the highest with 14 percent of startups. However, when we consider startups from the top ten sectors, non-tech startups comprise roughly 60 percent and tech startups comprise 40 percent.[14]

When we consider incubated startups, we see a different sectoral pattern (Figure 3.10). We find that startups from sectors like Health-Tech, Hardware and Technology and Software come up on top. Other sectors like Biotech and Edu-tech also have a strong presence in the incubated top ten.

We also see that capital intensive startups from Real Estate sector and lifestyle-oriented startups such as Professional Services are not in the top ten sectors supported by incubators.

These findings tell us that the overall sectoral distribution of startups in the ecosystem is different from the sectoral pattern of incubation. Incubators are supporting technology-based, innovative startups that have growth potential. This is along expected lines since startups are different from traditional SMEs, typically have an innovation at their core, and the potential to scale rapidly. It is such companies that can contribute to the country's economic growth.

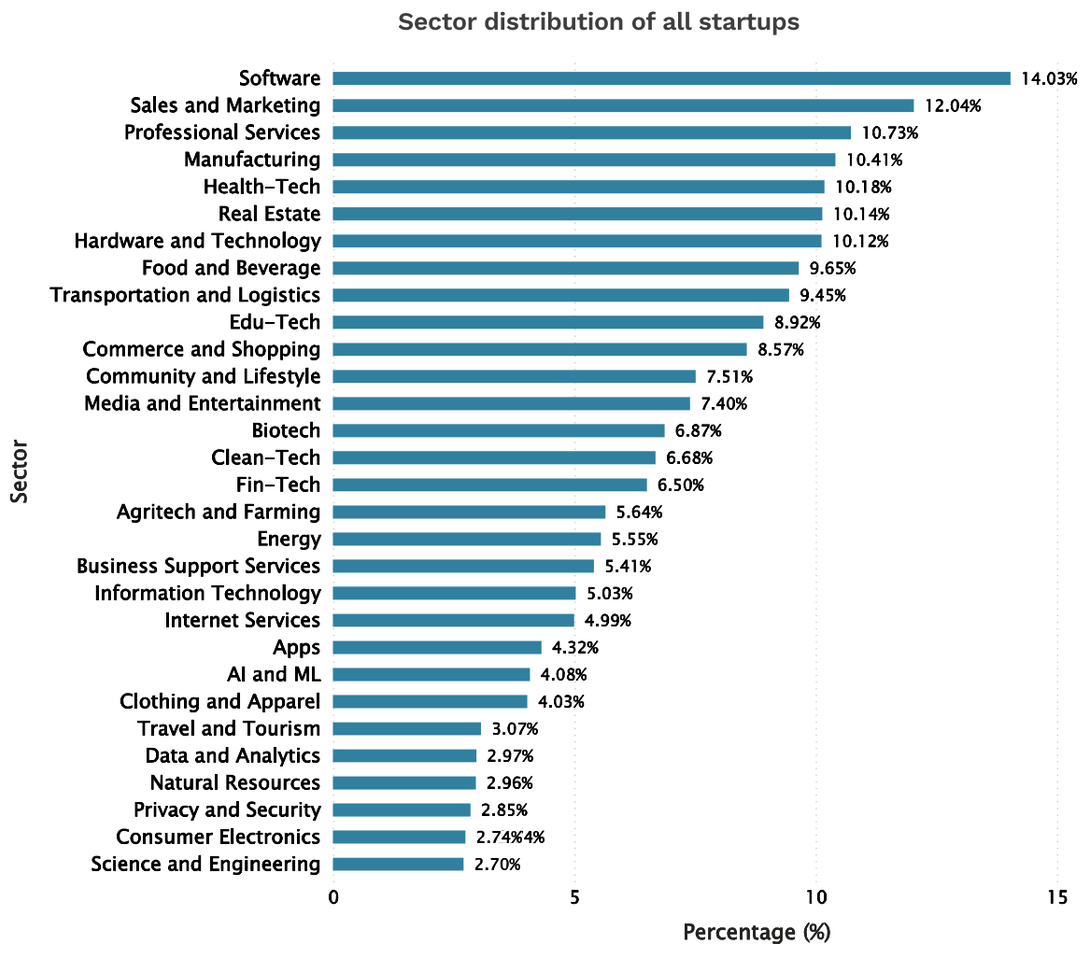


Figure 3.9: Sectoral distribution (Top 30 sectors) of all startups

[14] The percentages in Figure 3.8 do not add up to 100 percent. Some startups would be counted against multiple sectors

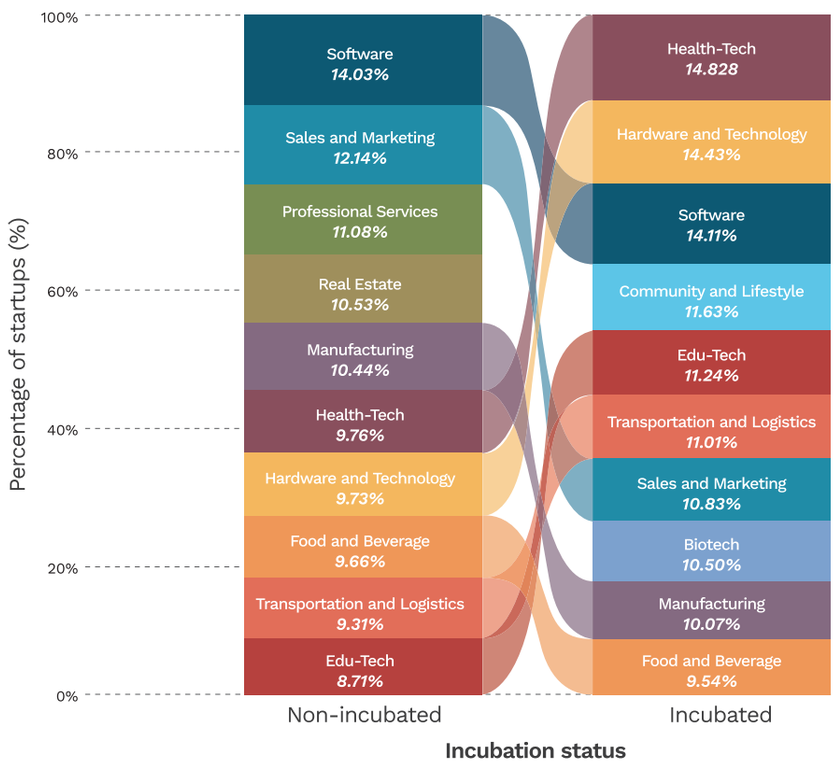


Figure 3.10: Sectoral distribution of incubated and non-incubated startups (Top 10 sectors)

The rate of incubation is high among deep tech sectors

We find that the rate of incubation is high among startups from deep tech sectors (Figure 3.11). Some examples are AI and ML, Data and Analytics, Biotech and other sectors. All of them have an incubation rate upward of 12 percent, while the average incubation rate is 8.2 percent.

Deep tech sectors are those where the core technology is nascent or complex. This implies that deep tech startups need a longer runway to take their products and services to market. Therefore, it is a positive trend to see startups from these sectors seeking and receiving more incubation support.

There could be an alternate explanation here, which is that incubators are giving preferential treatment to startups that are working in areas that are garnering a lot of attention in the business circles and in media (e.g. AI and ML). However, we can't conclude this is the case. Incubators should exercise caution not to focus too heavily on popular sectors, but rather to support startups with strong fundamentals across a variety of sectors.

Incubators in Tier I locations do the bulk of incubation across sectors. Tier II and III locations have a relatively higher share in traditional sectors

Incubators in Tier I locations do the majority of incubation. Following the results presented in Chapter 2, across sectors, Tier I locations incubate the highest percentage of startups.

Considering the top 10 sectors where incubation is happening, we find that Tier II and III locations have a higher share of incubated startups in traditional sectors such as Manufacturing, Food and Beverage, and Sales and Marketing (Figure 3.12). This is probably because these sectors require substantial real estate for their production facilities, which is more easily available in Tier II and III locations. As a result, they are likely to seek incubation in an incubator that is close to their manufacturing operations, in a Tier II or III location.

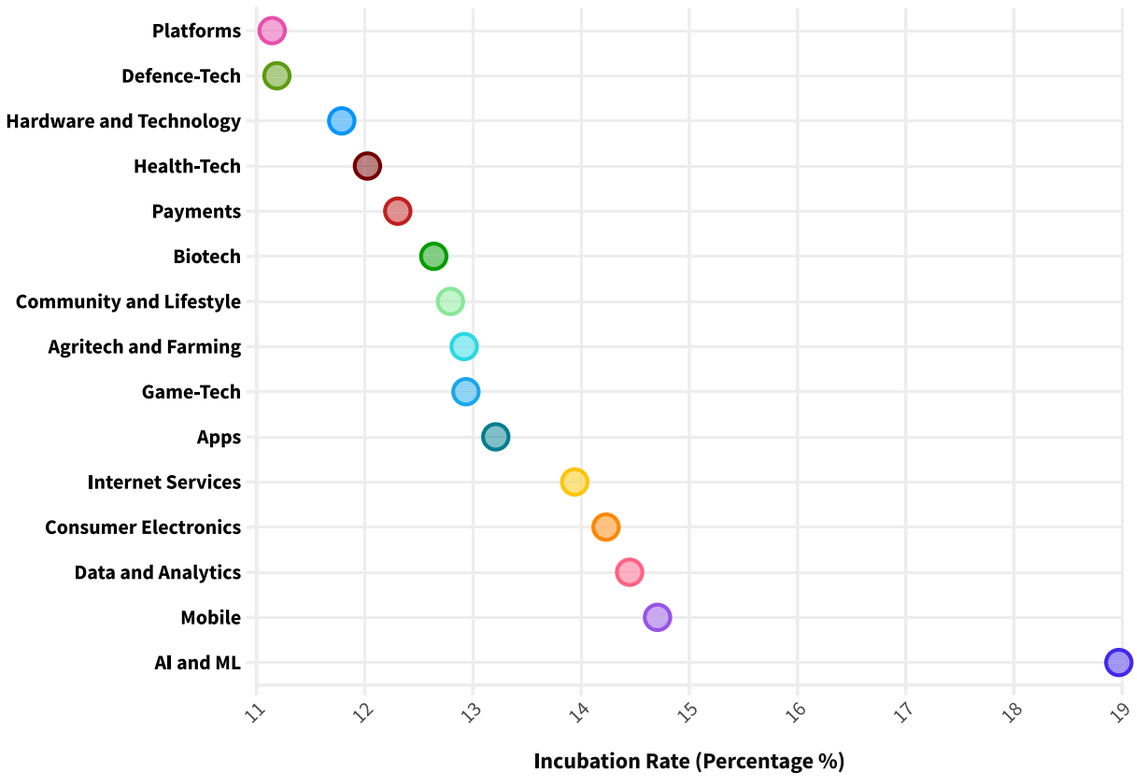


Figure 3.11: Top 15 sectors for startup incubation and their incubation rates

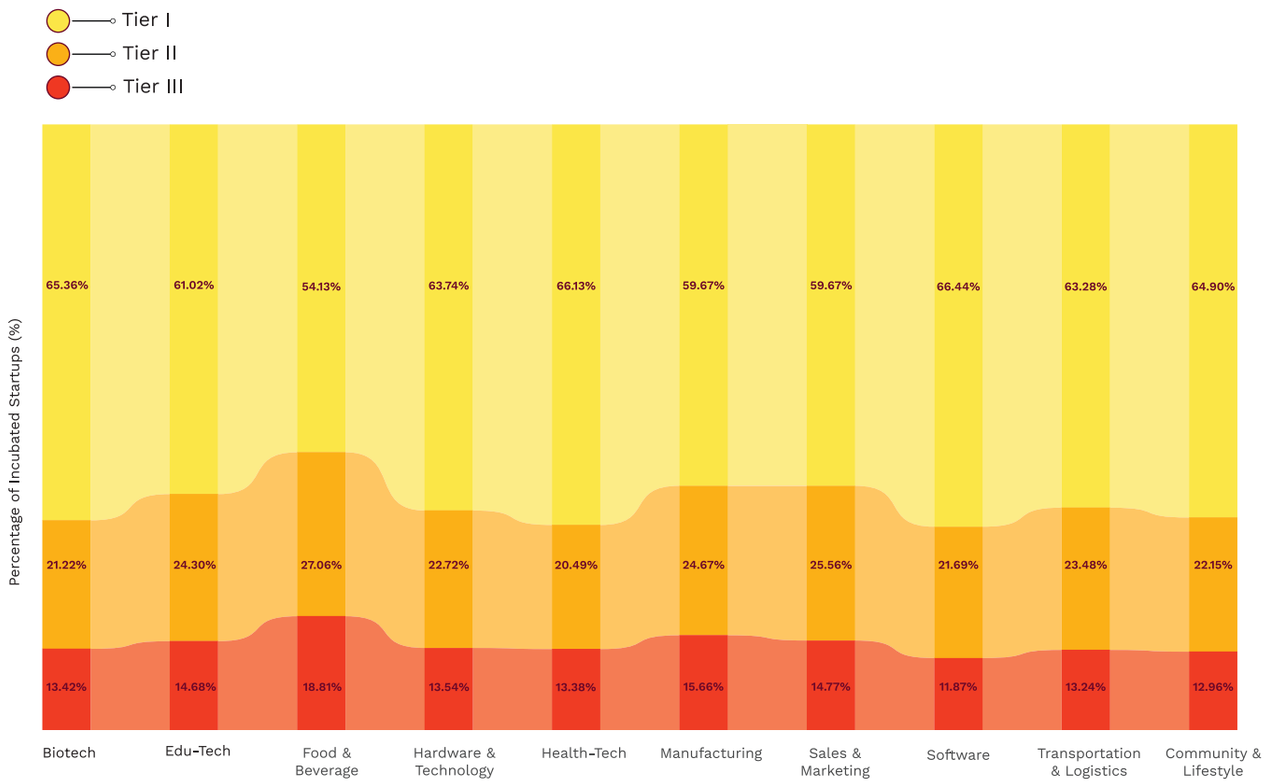


Figure 3.12: Percentage of incubated startups across Tier I, II and III cities

3.4 IMPLICATIONS

For policy makers

The incubation rate in the ecosystem is 8.2 percent, which indicates that a majority of startups are not leveraging incubation support. This could be for lack of awareness, lack of capability in incubators, or a combination of the two. Policy makers should incentivize incubators to focus on driving awareness about incubation support in their local context, and also encourage them to network with leading incubators to rapidly upgrade their capability.

Incubation helps founders with limited financial strength. Grants and convertible loans could further expedite their growth. Therefore, policy makers should increase the quantum of grants routed through incubators.

For incubator managers

Incubation is sought more by young and inexperienced founders. Incubator managers can consider how best to address the specific needs of this demographic.

Academic incubators need to evaluate their reach outside of their own organizations. If lacking in that area, they need to focus on building capability that will make them attractive for different founder demographics.

Incubators support innovative, technology startups. This is a positive trend since technology startups have the potential to scale rapidly and contribute to the country's growth. However, incubators should also exercise caution to not veer excessively towards the trending sectors and support startups with good fundamentals across a variety of sectors.

For startup founders

Founders with limited financial means could seek incubation for their startups, which will give them access to a range of financial and knowledge resources, as opposed to waiting for years to create a venture using their accumulated wealth.

Founders of deep tech startups should consider incubation to insulate their startups from the long and inhospitable journey to commercial success. Many are doing this, but there is an opportunity for more founders to avail this support, especially since incubators are keen on supporting innovative technology startups. ■

4. INCUBATOR OUTCOMES

> **Gregory (Scotland Yard detective):** Is there any other point to which you would wish to draw my attention?
>
> **Holmes:** To the curious incident of the dog in the night-time.
>
> **Gregory:** The dog did nothing in the night-time.
>
> **Holmes:** That was the curious incident.

There has been substantial growth in the number of incubators set up in India in recent years. So have the number of startups that have been incubated. At this point, we focus our attention to the question that is probably lingering in everybody's minds. How exactly have the incubators contributed? What has been the first order impact, viz., benefits to the startups that they have incubated? How large have been the second order impacts, viz., how have the incubated startups contributed to the economy? While the role of founders and investors have garnered significant attention in the Indian startup narrative, the important role that incubators have played, much like the curious incident of the dog in the night time, seem to have escaped the initial attention. This section presents key findings that highlights the impact of incubators on the startups they support as well as the overall economy.

KEY THEMES IN THIS SECTION

Startup funding

Risk capital for startups

Startup awards, patents, and mortality

Revenues, asset creation, and employment

Implications

4.1 STARTUP FUNDING

Higher proportion of incubated startups have been able to attract external funding as compared to that of non-incubated startups

Funding plays an important role in reducing mortality in the initial stages of the startup lifecycle. A majority of the startups need substantial investment in product development and achieving product market fit, before they can start generating cash flows to support their operations and future expansion goals. However, a large proportion of the startup founders in India are from middle class families without any formal business background. Consequently, the extent of investment that the founders can make on their own in their ventures is limited. Attracting external capital, therefore, becomes important to meet the investment and operational requirements of startups during the initial years.

As important enablers of the startup ecosystem, the raison d'etre for incubators has been to provide a very supportive environment for startups during their initial years when they are most vulnerable. A common perception among founders has been that the process of getting incubated would help in their fund-raising journey. Our findings are as follows.

The proportion of startups that have been funded is about 250 percent higher for incubated startups as compared to non-incubated startups

Despite the growth in the number of investors and the quantum of investment in startup funding in the last few years, the ratio of funded startups continues to be very low. For 177,658 startups that have been formed since 2000, only 12,714 have been able to get some form of external funding, resulting in a funding ratio of just 7.1 percent (Figure 4.1).

However, for the pool of incubated startups, the funding ratio works out to 17.5 percent, i.e., 2,571 of the 14,681 incubated startups have been successful in getting funded. Thus, incubators contribute to about 250 percent increase in the likelihood of startups getting funded.

Among the total startups that are formed, the incubated ratio is 8.2 percent. But, of the total startups that have been funded, the incubated ratio is 20.2 percent. We thus identify a strong correlation between being incubated and getting funded.

This finding becomes even more significant, if we juxtapose the findings of the previous section, viz., incubators support startups that are more risky – in terms of technology, founder profile (the average age of founders of incubated startups are lower), and limited financing capacity from the founders. The incubators are not only contributing to the increase in funding probability, but they have been able to do it for a pool of startups that could be considered more risky.

We attribute this finding to the following:

Investors expect a certain level of maturity in startups before they can consider investing. The ecosystem in an incubator help the startups not only to reach the level of maturity that the investor expects, but also reach it much quicker.

Monitoring of portfolio companies, particularly early stage startups is a big challenge for investors, given the numerous constraints – such as lack of bandwidth, geographical distance between start-up and investor location, and so on. Since incubators closely work with the startups that they support, investors get the comfort of an institutional monitoring of their investment, contributing to the increase in the likelihood of getting funded.

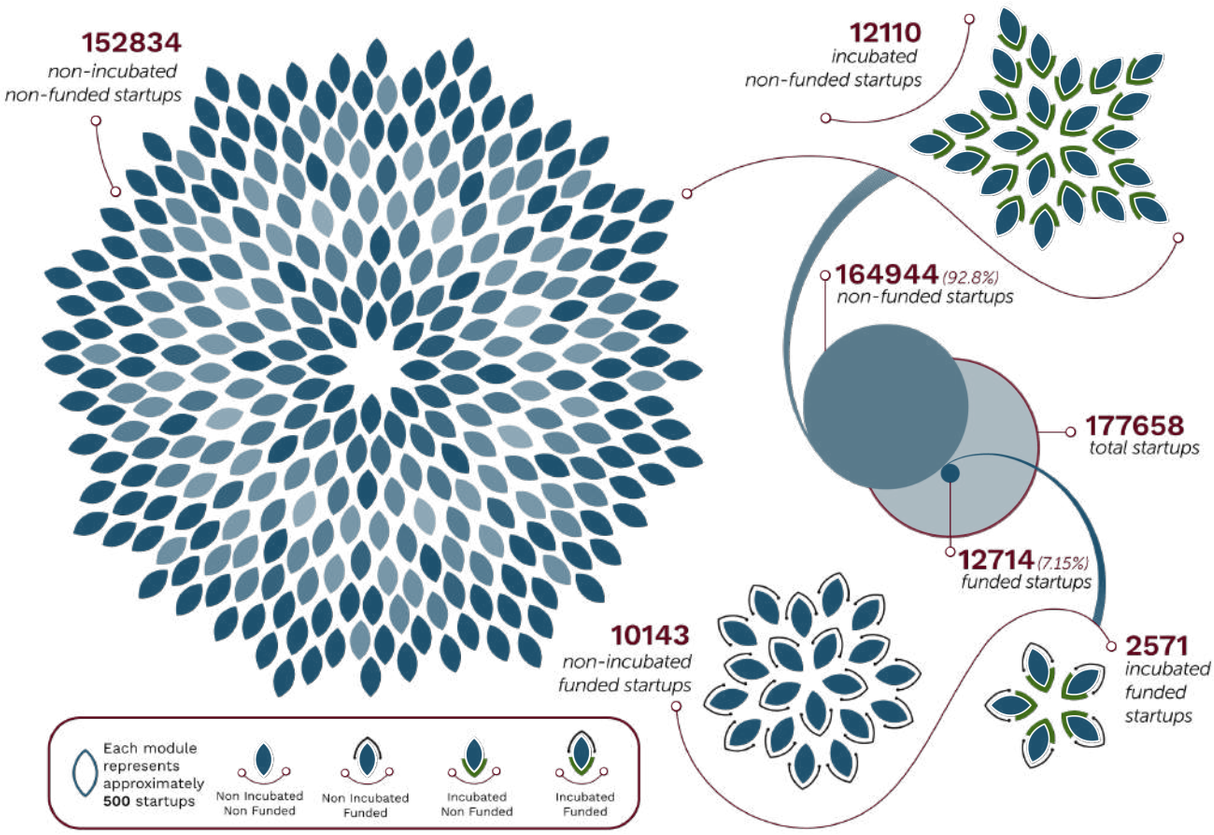


Figure 4.1: Number of incubated and funded startups

Higher proportion of incubated startups getting funded was a secular trend across different sectors indicating that the incubators contribute in a fundamental way that persists across sectors

Irrespective of the sectors that they operate in, two features that cut across startups of all categories is the emphasis on innovation and technology. However, it must be understood that there is considerable variation in startup characteristics between sectors. For example, biotechnology and healthcare startups would need longer gestation periods for new product development whereas startups in the information technology sector would have much shorter development lifecycles.

Our findings, however, show that sector differences notwithstanding, a higher proportion of the incubated startups have been able to get external funding as compared to non-incubated startups. Figure 4.2 show the proportion of funded startups for those that have been incubated and those that have not been in some of the prominent sectors. It can be clearly seen that the trend of incubated startups having a higher proportion of funding has been consistent across sectors. As they say, what's sauce for the goose has been the sauce for the gander as well.

Our results suggest that the contribution of incubators towards startups are more systemic in nature and does not get limited by the startup sector. While the magnitude of impact, viz., the increased probability of getting funded, varies between sectors, the direction does not change. There is not even a single sector where the non-incubated startups have shown a higher probability of getting funded.

Possible explanations for this trend could be:

Incubators are able to contribute to their incubated startups in a very fundamental manner, which does not depend on the sector of the startup.

This ability of the incubator to add value to the startup is seen positively by the investors, which manifests in a higher proportion of the incubated startups getting funded.

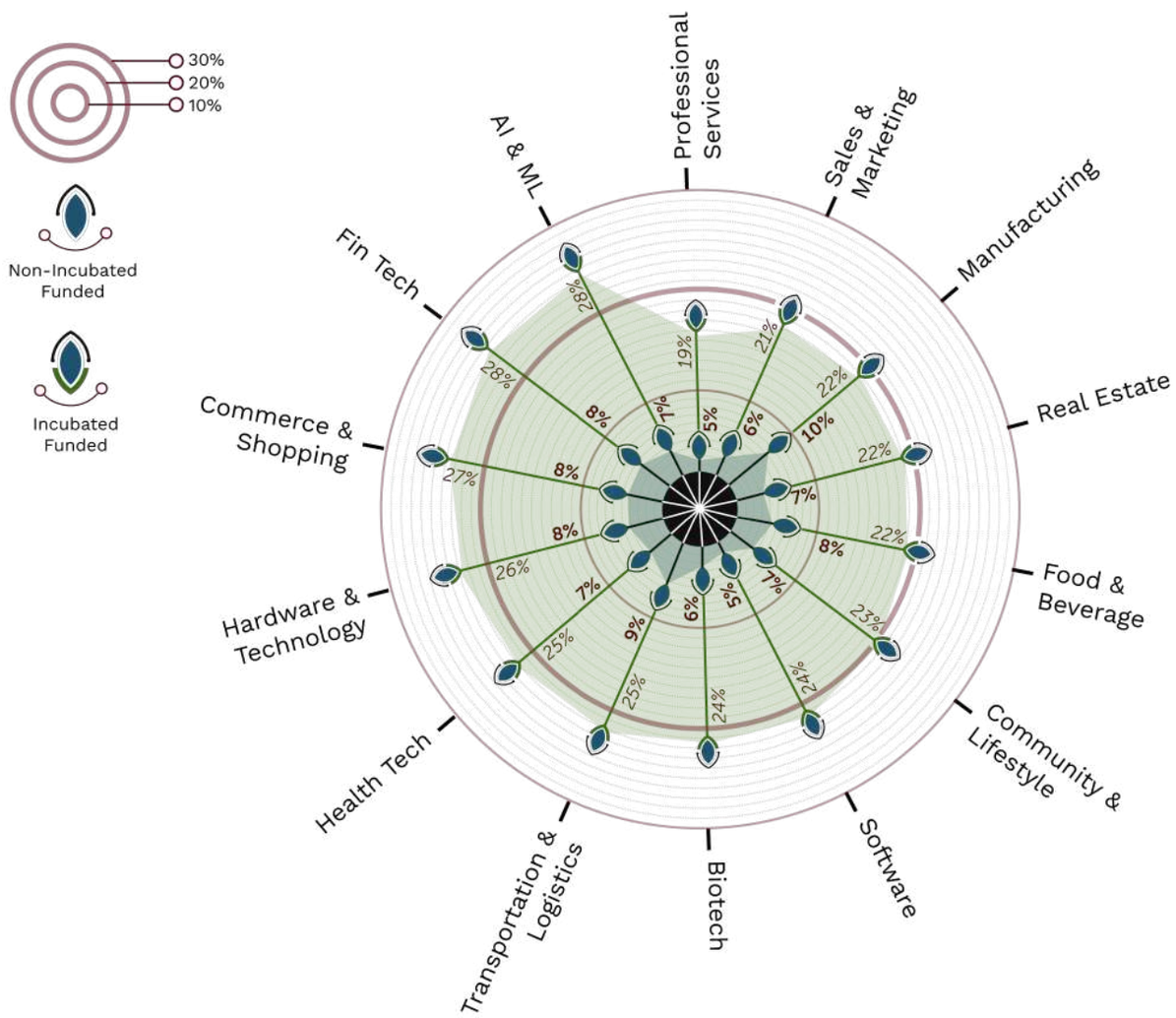


Figure 4.2: Proportion of funded startups in different sectors

Not only does incubation increase the chances of getting funded, but it also helps in getting funded earlier in the startup lifecycle

While justice delayed cannot be said as justice denied, the same may not be the case with respect to access to capital. Timely access to capital is as much important as access to capital itself. This is even more so for early stage startups, since they have very limited financial cushion to tide over adversity.

Analysis of 12,714 funded startups (Figure 4.3) shows that incubated startups are able to get their first round of funding earlier than that of non-incubated startups. For instance, of the incubated startups that receive funding, 27.4 percent were able to get it within one year of incorporation, whereas only 10.5 percent took more
than 5 years for the same. The corresponding numbers for non-incubated funded startups were 16.3 percent and 23.7 percent respectively.

The trend of getting early funding also persists for the second round (Figure 4.4). The second round of funding was observed within two years of incorporation for 21.7 percent of the incubated startups, whereas only 12.7 percent of the startups took more than six years. For the non-incubated startups, the corresponding percentages were 17.5 percent and 27.1 percent.

Incubated startups and non-incubated startups differ on various parameters such as, sector, founder age, and so on. A propensity score matching of incubated and non-incubated startups for a more like to like comparison indicated results that were a little subdued for angel and VC funding, though the trend persists (Table 4.1). However, a significant difference in time taken was observed for government funding.

We offer the following explanations to this trend

Investors would like to see a certain degree of maturity before investing in startups. Incubators help the startups to reach that level of maturity quicker, and therefore they are able to get their funding quicker.

Riding on the back of institutional oversight and monitoring by incubators, investors are able to make their decisions quicker, resulting in early funding. Incubated startups would have already undergone a due diligence exercise, which is an added comfort for the investor.

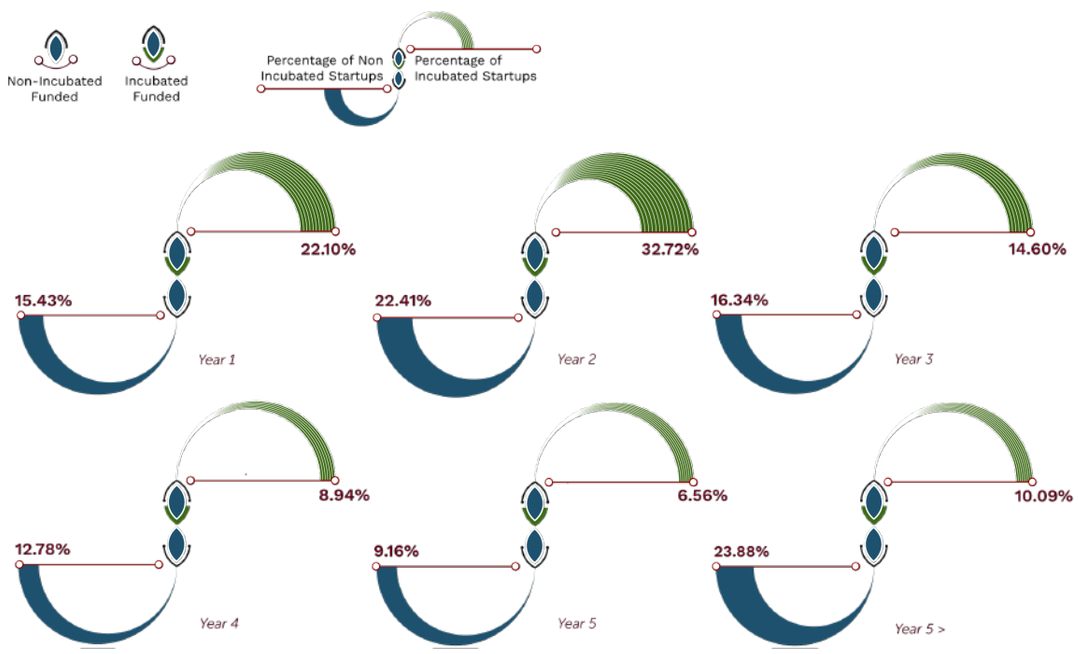


Figure 4.3: Time taken from incorporation year to raise the first round funding for incubated and non-incubated startups

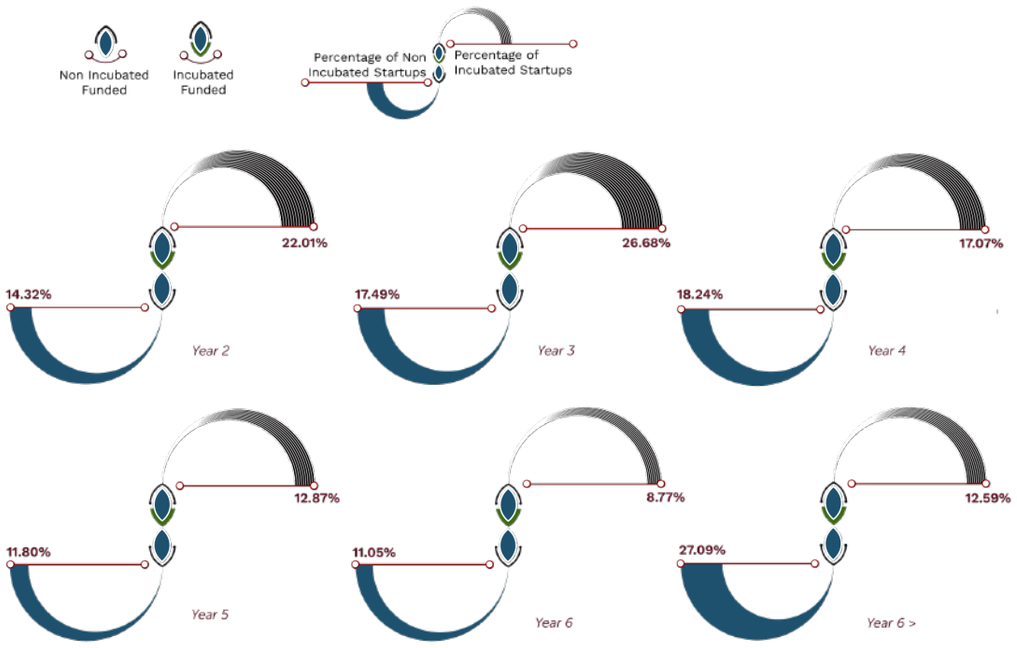


Figure 4.4: Time taken from incorporation year to raise the second round funding for incubated and non-incubated startups

Table 4.1: Average time taken to raise first and second round funding for incubated and non-incubated startups after propensity score matching [15]

Incubation type	Average time in years to raise first funding since incorporation of startup				
	Funded in any form (overall)	Angel invested startups	VC invested startups	Government funded startups	Debt financed startups
Incubated	1.3	1.24	1.28	1.21	1.99
Non-incubated	1.61	1.24	1.19	1.99	1.91

Incubation type	Average time in years to raise second funding since incorporation of startup				
	Funded in any form (overall)	Angel invested startups	VC invested startups	Government funded startups	Debt financed startups
Incubated	2.75	2.71	2.71	2.62	3.45
Non-incubated	3.02	2.72	2.71	3.47	3.62

[15] For calculating the average time for first round funding, only those startups that raised their first round funding within 5 years of incorporation were considered for the computations. For calculating the average time for second round funding, only those startups that raised their second round funding within 5 years after getting the first round funding were considered.

4.2 RISK CAPITAL FOR STARTUPS

Incubated startups are able to attract a higher proportion of risk capital as compared to non-incubated startups

Securing funding is both crucial and challenging for startups, because of the risks and uncertainties involved. The support from the banking system for early stage startups, has been understandably quite limited, because of the risky nature of the ventures. Less than 10 percent of the startups have been able to secure bank funding[16]. Asset Liability match is an important concept in fund raising, where the nature of assets created should be aligned to the characteristics of the funding sources. Funding a high risk asset through a low risk capital source can push a company towards unnecessary bankruptcy. Similarly, funding a low risk asset through high risk capital would pose an additional burden on the asset to generate the high returns needed.

Given the nature of the startup risk profile, equity funding would be the dominant source of funding for startups. Accessing public equity markets is ruled out for early stage startups given their initial scale of operations. Therefore, private equity markets would form the primary source for startups seeking funding. We present here key trends observed in the funding patterns of incubated startups.

Equity funding from Angels and VCs have been a dominant source of funding for incubated startups, whereas in the case of non-incubated startups, it has been debt funding

Early stage funding for startups can be broadly classified into four categories: Angel funding, VC funding, Government funding, and Debt funding. Among these, angel and VC funding can be classified as risk capital. Returns may not be a primary motivation for government funding and hence they may not be seen as risk capital, though they might be funding the riskiest phase of the venture. Debt funding, since it seeks a degree of certainty in repayment, may not be seen as much of a risk capital as angel and VC funding.

Investment from VCs and angels have been seen in 54 percent and 40 percent respectively of all the funded incubated startups. However in the case of non-incubated funded startups, the corresponding figures were 24 percent and 16 percent respectively. Debt funding was the dominant source of funding in the case of non-incubated startups, accounting for 72 percent of all the funded in the category (Figure 4.5 and 4.6).

[16] Out of 227,801 startups only 17,417 had bank funding. Source: www.ynos.in, accessed on September 17, 2024

Pecking order theory predicts that debt would be a preferred source of funding as compared to equity, because of lower cost of capital. A larger proportion of non-incubated funded startups have been funded by debt, indicating a relatively lower risk. A lower occurrence of debt funding among incubated startups makes us to infer that these startups have considerable risk, and are unable to attract debt funding. This supports the earlier finding that incubated startups have an inherently higher risk as compared to non-incubated startups. However, the oversight of the incubator gives a degree of comfort to the angels and VCs to invest in the incubated startups.

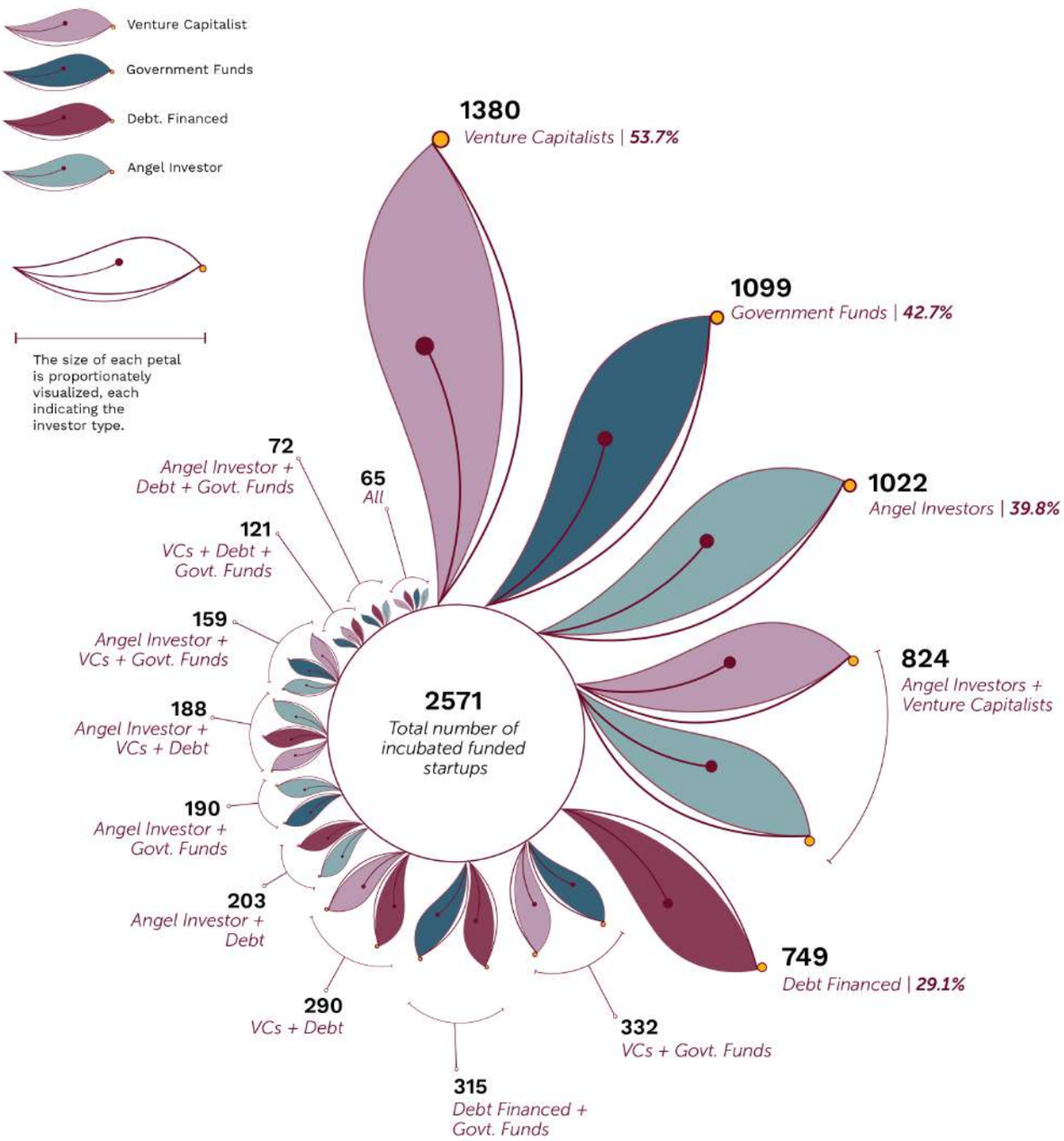


Figure 4.5: Investors in incubated funded startups

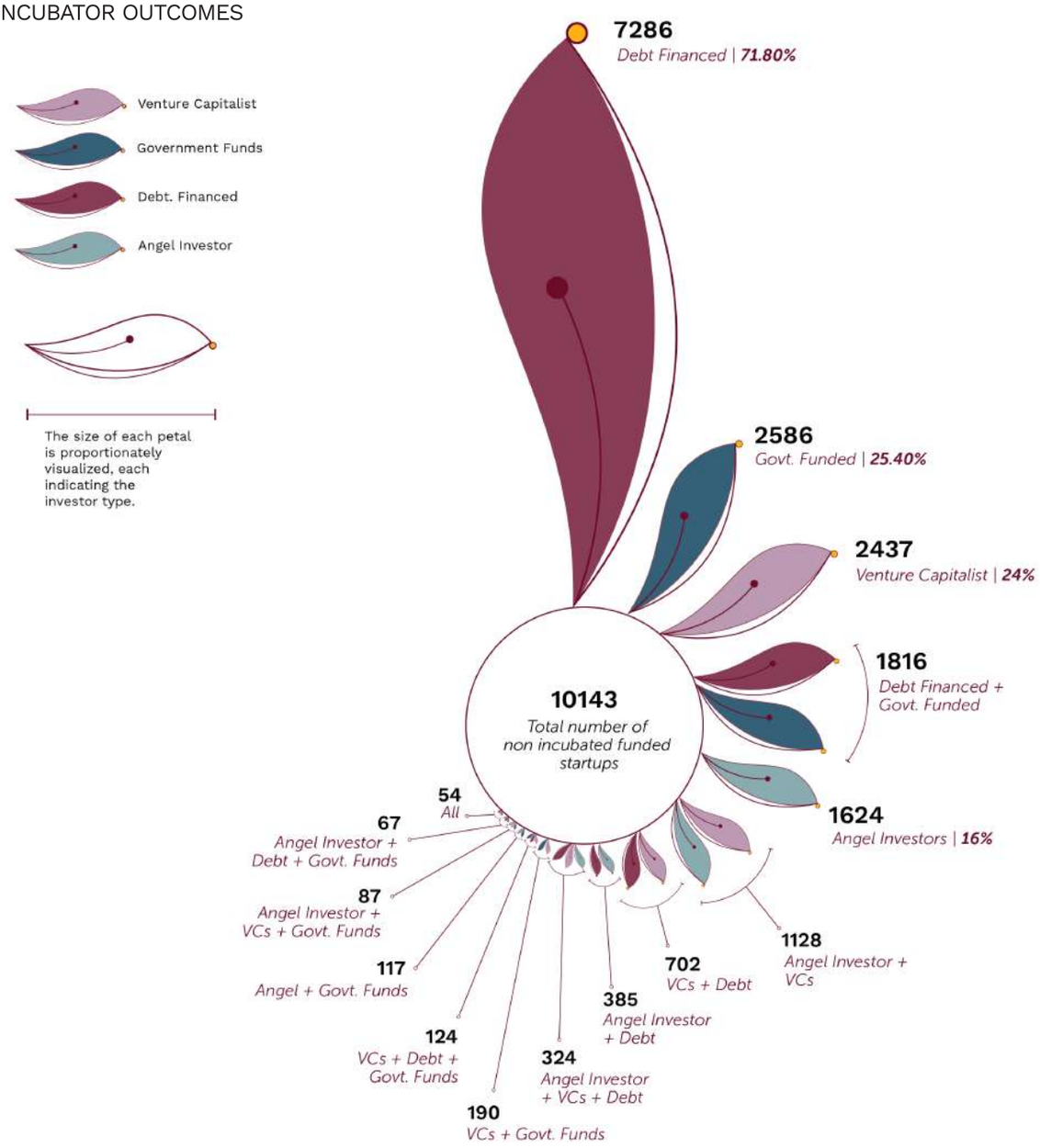


Figure 4.6: Investors in non-Incubated funded startups

Incubated startups have been able to attract risk capital from institutional sources earlier than that of non-incubated startups

Among the two sources of risk capital for startups, VCs would form the institutional capital whereas angel funding would be individual capital or non-institutional form of capital. Evidence indicates that institutional capital play an important role in rapid scaling of startups, which may not be possible solely from individual funding. The quantum of funding from VCs can be several orders of magnitude higher than angel funding, which can help startups to scale up quickly. Institutional investors also expect the startups to follow robust business and risk management processes. Angels can invest in very nascent stage of startups, whereas VCs would expect a certain level of maturity and market acceptance of the products or services before they can invest in a startup. Literature also confirms that VCs can provide significant value addition to their portfolio which increases their relevance to the startups.

Analysing the sources of capital for the first round of funding[17] indicates that VCs have invested in about 42 percent of the startups that have been incubated, whereas in the case of non-incubated startups, VCs account for only about 23 percent. In the case of non-incubated startups, debt funding account for about 58 percent, which is only about 13 percent in the case of incubated startups (Figure 4.7).

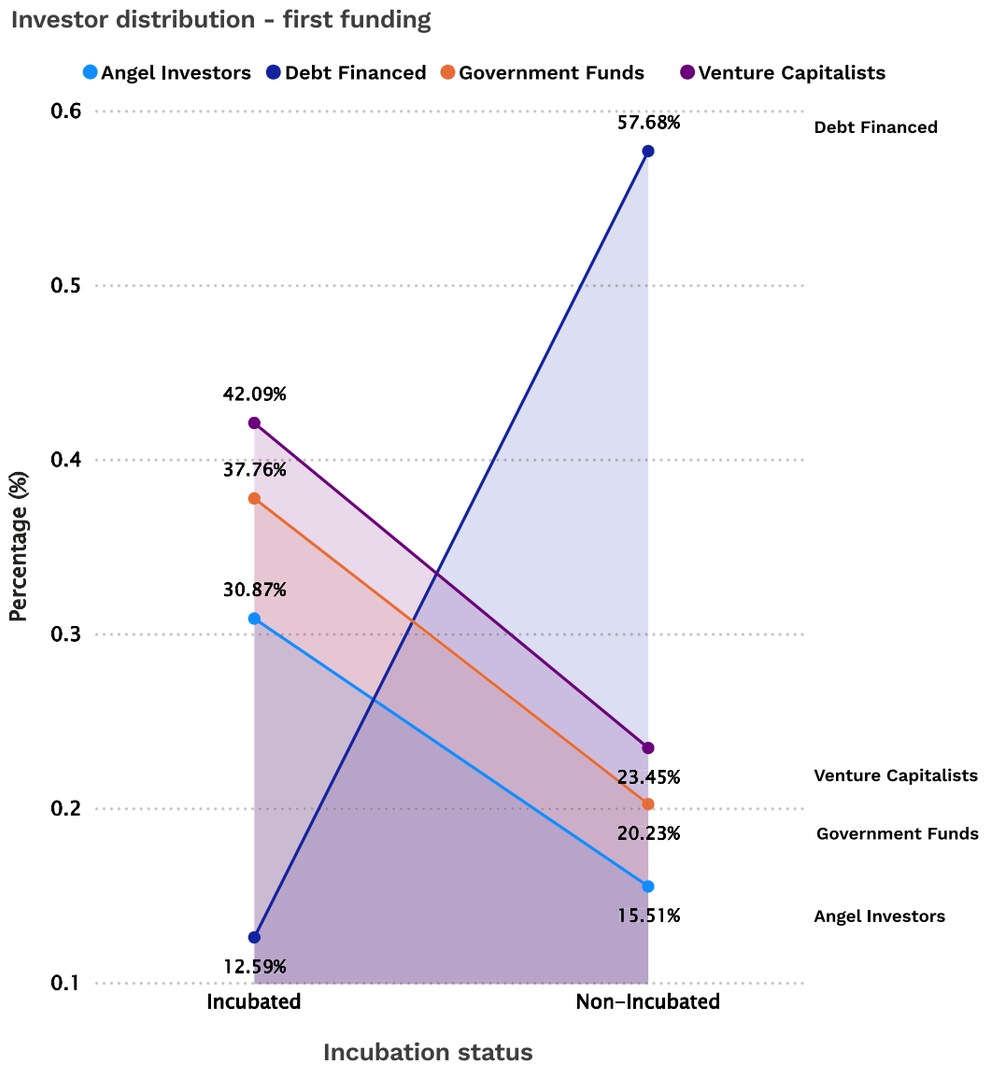


Figure 4.7: Capital providers for first round of funding – incubated and non-incubated startups

Analysis of second round of funding indicates that equity has been dominant source of funding for both incubated and non-incubated startups. The percentage of non-incubated startups receiving funding from VCs has increased from 23 percent to 48 percent. This indicates that VCs require a certain level of comfort and track record before they invest in startups. In the case of incubated startups, we believe that incubators provide that comfort to the VCs, which enables them to invest in incubated startups earlier than they would have invested in non-incubated startups (Figure 4.8).

[17] Only startups that have received the first round of funding within 5 years of incorporation have been considered in the analysis. The objective is to exclude boot-funded startups that go on to raise large funding rounds when they are more mature from the analysis

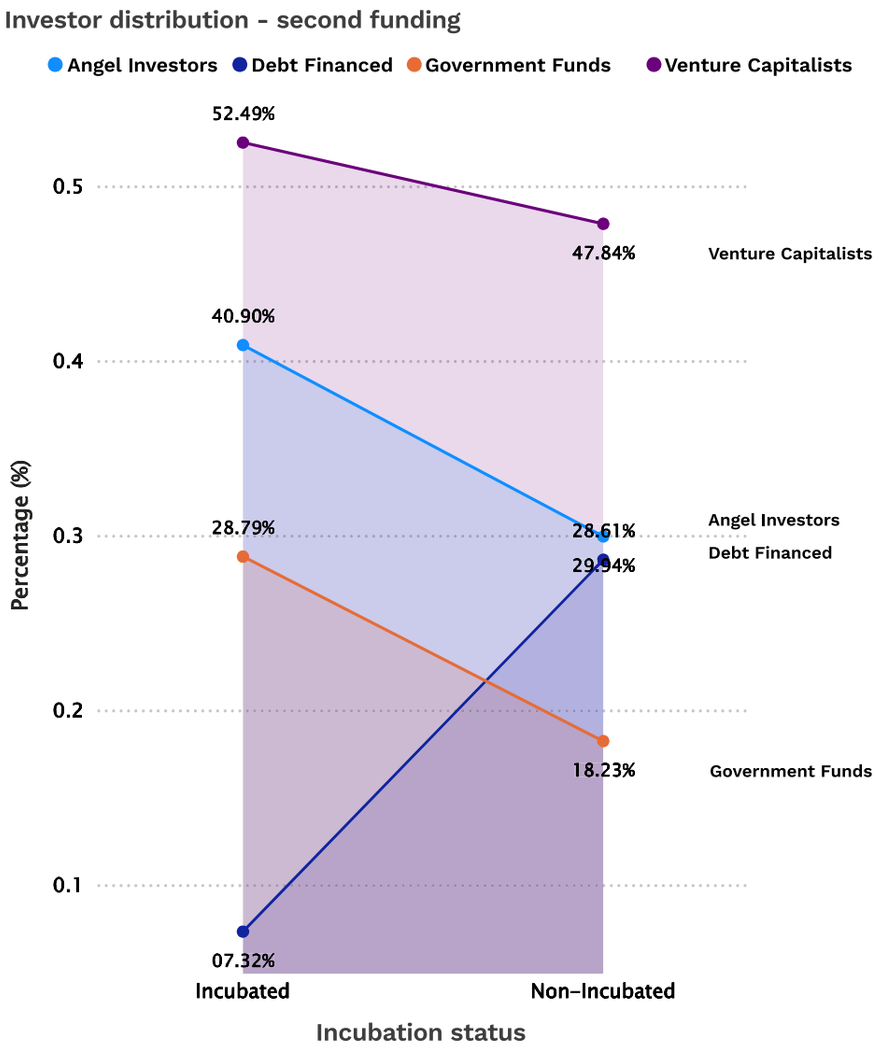


Figure 4.8: Capital providers for the second round of funding – incubated and non-incubated startups

Variations in funding patterns between incubated and non-incubated startups persist sector level variations

The nature of assets also determines the risk levels. The level of intangible assets are higher for certain sectors, making startups in such sectors riskier. For example, startups in sectors such as biotechnology, science and engineering, software, are likely to be characterized by a relatively higher proportion of intangible assets, whereas startups in sectors such as manufacturing, transportation and logistics are likely to have a relatively higher proportion of tangible assets.

Funding sources for startups in different sectors (Figure 4.9) indicate that the funding patterns between the incubated and non-incubated startups persist across sectors. Irrespective of the sectors, a higher proportion of incubated startups have been funded by angels and VCs, whereas in the case of non-incubated startups, it has been debt funding.

Evidence from the pattern of funding indicates that on an average, incubated startups seem to be riskier as compared to that of non-incubated startups. Getting incubated enhances the proclivity of startups to get angel and venture funding as evidenced by the funding patterns of incubated and non-incubated startups.

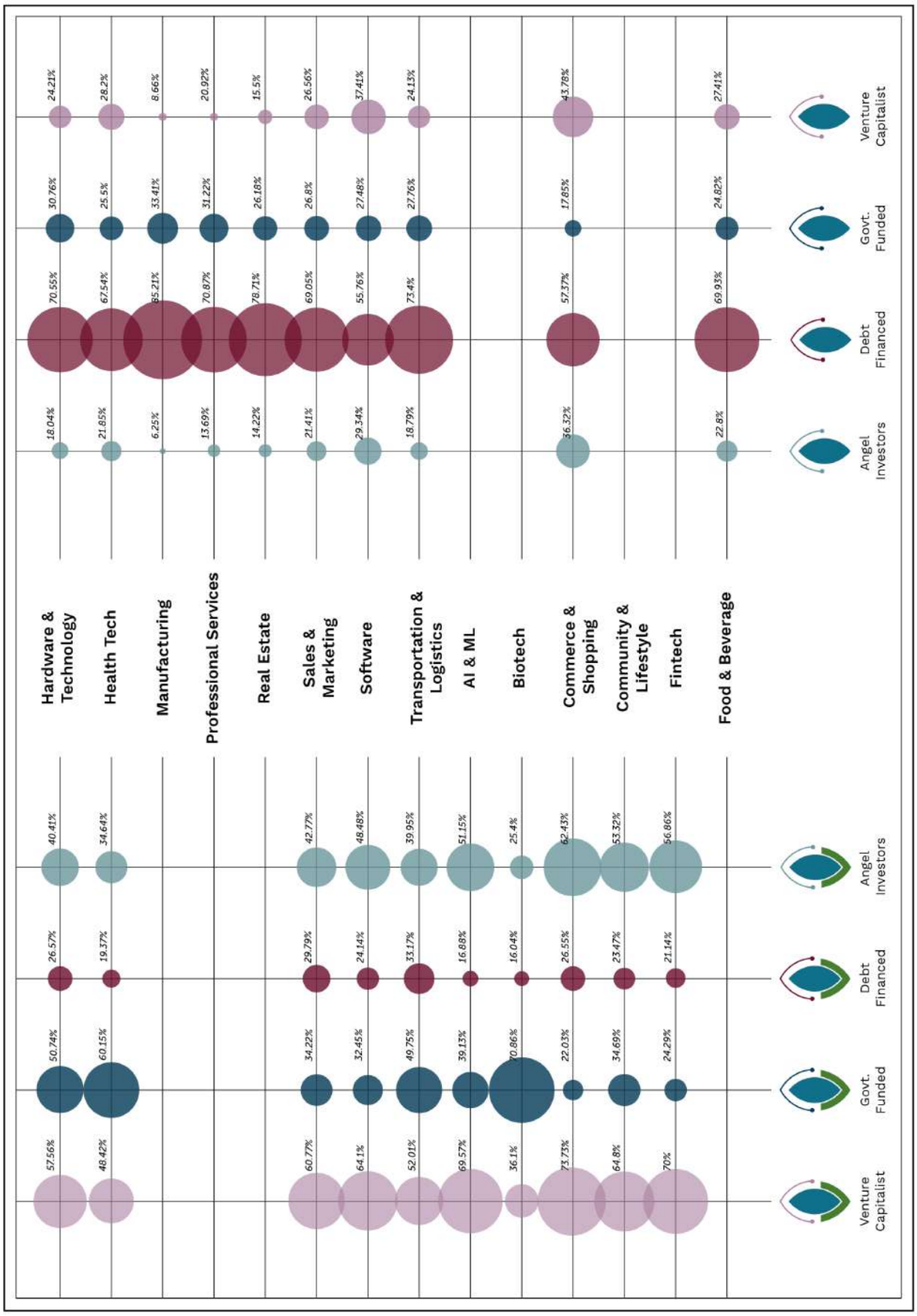


Figure 4.9: Funding patterns for incubated and non-incubated startups in different sectors

4.3 STARTUP AWARDS, PATENTS, AND MORTALITY

Incubated startups have been in the limelight more often at various startup awards, which can help in creating brand value and awareness. Incubators also seem to reinforce the importance of intellectual property creation, the evidence of which has been seen in a higher percentage of incubated startups publishing patents. And yes, the incubators have a nurturing environment that provides more time for the ideas to prosper.

In this section, we present the results of our analysis on three aspects. **Firstly**, as young business organizations, startups seek various opportunities that give them market access for their products and services. Brand building and creating market awareness play an important role in getting the attention of prospective buyers and users. Since startups have limited financial capacity to spend on various brand building activities, they often look for various avenues that elevates their brand positioning and bring credibility in the eyes of various stakeholders. One such mechanism to build brand value and credibility has been to aspire and win coveted awards designed for startups. Here we present the leaderboard for various startup awards and the share of incubated startups in winning these awards.

Second, pertains to creation of intellectual property. One of the distinguishing features of startups as compared to SMEs has been the emphasis on innovation. An outcome of the innovation is the intellectual property created. There has been significant emphasis in recent years on the importance of patenting by startups. Apart from providing a certain degree of protection in a competitive market, patents also serve as a signal for the technology strengths of the startup. In this section we present results of the patenting trends between incubated and non-incubated startups.

Third, pertains to startup mortality. While, "No force on earth can stop an idea whose time has come[18]", each idea needs a certain gestation period before it can acquire the momentum and become a force to reckon with. It is important that the idea is nurtured and sustained during the initial vulnerable phase, before it can flourish. At the end of the day, most founders start their ventures on an idea (along with a prayer, of course) and it is important that the startups are able to weather the initial uncertainty and give a chance for the idea to survive, for the startups to realize their full potential. We believe incubators provide such an environment for their startups, providing them a longer rope for survival and to test their ideas before shutting down.

[18] Attributed to Victor Hugo

Despite being smaller in number, incubated startups have won more awards in all the leading startup awards

Winning awards can play an important role in boosting the morale of the startup founders, as it is seen as a recognition of the potential of the idea on which the startup has been built. The awards also provide a certain degree of credibility and serve to enhance the brand perception and value in the marketplace.

The share of awards won by incubated startups in some of the major startup awards instituted in the country is given in Table 4.2. It can be seen that across all award types, the incubated startups have won a higher share of the awards. A possible explanation is that incubated startups are characterized by a higher innovation quotient, which is getting the attention of the jury members and also investors.

Table 4.2: Share of incubated startups in various startup awards

Startup award	Total number of startups awarded	Percentage of incubated startups awarded	Percentage of non-incubated startups awarded
CII Startupreneurs Awards	28	75%	25%
Maharashtra Startup Week (MSInS)	191	70.16%	29.84%
NASSCOM Emerge50 Awards	382	54.71%	45.29%
National Startup Awards	390	51.03%	48.97%
National Technology Awards	29	65.52%	34.48%
Startup India Innovation Challenge	271	66.42%	33.58%
The Economic Times Startup Awards	35	57.14%	42.86%

The percentage of startups publishing patents is about 5 times more for incubated startups as compared to that of non-incubated startups

One of the major features of innovation economy is the emphasis and creation of intellectual property. As India aspires to become an innovation economy, there has been all round emphasis on creating intellectual property through patents. As organizations of innovation, startups are expected to file more patents as compared to SME based entrepreneurship.

Table 4.3 provides the percentage of startups that are publishing patents. It can be immediately seen that the percentage for incubated startups is considerably higher (almost five times) than that of the non-incubated. Possible explanations for this could be as follows: Firstly, incubated startups are in those sectors where patenting is more prevalent. Secondly, incubators provide the necessary support and incentives to their startups to go for patenting. In both cases, we see a strong correlation between incubation and publication of patents.

Table 4.3: Patenting rate in startups

Startup status	Total no of startups	Percentage of startups that are publishing patents
Incubated	14,681	6.98%
Non-incubated	162,977	1.43%
Total startups	177,658	1.89%

For the startups that ceased to operate, the average age at which operations ceased was about 15 percent higher for incubated startups, indicating that incubators could provide a nurturing ecosystem that provides more time for the ideas to flourish

It is often said that the decision to abandon a project at an appropriate time is as much important as that of the decision to continue. If a failing venture can be identified earlier in the lifecycle, it helps to avoid unnecessary cash burn. However, if a venture that is likely to be successful ceases to operate because of temporary headwinds, then the nation becomes bereft of a valuable innovation that can benefit several. Therefore, while ventures should be allowed to fail, they should not be forced to fail without getting adequate opportunities.

A comparison of the average age at which startups that ceased operations (Table 4.4) indicate that incubated startups took a longer time before the venture shutdown. This supports the assertion that incubators provide a nurturing environment that facilitates a longer runway for the startups before they take an eventual decision to shut down. Since ceasing operations is almost always an irreversible decision, it should be taken at an appropriate time, but never earlier.

Interestingly, the incubators have a higher percentage of startups that ceased to operate among them as compared to the non-incubated. However, this can be easily explained. Incubators have a higher proportion of startups in the technologically intensive sectors and such technology startups are likely to have a higher proportion of failure rates as compared to startups in non-technology sectors.

Table 4.4: Startup mortality

Startup status	Average age when ceased to operate (months)	No. of startups ceased to operate (percentage of total)	Total no. of startups	Percentage of startups ceased to operate
Incubated	42.4	943 (10.12%)	17,446	5.4%
Non-incubated	36.8	8,371 (89.87%)	210,350	3.97%
Total startups	37.6	9,314 (100%)	227,796	4.08%

4.4 REVENUES, ASSET CREATION, AND EMPLOYMENT

The second order contribution of incubators to the economy through the startups that they have incubated have been significant. The track record by the incubated startups in terms of revenues generated, assets created, and jobs added bring buoyancy and cheer

Setting up of incubators has been a major focus for policy makers in recent years. The end goal of the policies has not been to set up incubators per se, but to create an ecosystem that results in the emergence of successful startups. The startups are expected to contribute significantly to the economy in terms of bringing in innovation, revenue generation, attracting capital, and employment creation. Incubators are, thus, a via media to achieve these policy objectives.

As they say, the proof of the pudding is in the eating. Similarly, the real impact of incubators can be assessed from the performance of startups that they have incubated. In this section, we present the impact created by incubated startups in terms of revenues, assets created, and employment growth. Success has many fathers, while failure is an orphan. For the same reason that it is unfair to hold incubators accountable for startup failures, one cannot fully attribute the performance of the incubated startups to the incubators. Therefore, while presenting the results of the incubated startups we include results only from the initial years[19] of the startup lifecycle. We would also like to present it with a disclaimer that incubators may not be solely responsible for the startup performance, but is only a part of the mix, though often the incubators see themselves as the first among equals.

The annual average revenues in the initial years for every 100 incubated startups is about ₹1,590 crores

Revenue is the most important parameter for a business since it determines the sustainability of the business. The annual average revenues generated by 100 incubated startups is ₹1,590 crores (2024 values). Considering that there are around 12,000 incubated startups, the aggregate annual revenue generated by these startups can be estimated at an astounding ₹190,800 crores. Since startups are involved in innovative products, the revenues give an indication of the consumption of innovative products and services in the economy. The revenue generation indicate the impact of incubated startups on the economy, since it would not have been possible to generate these revenues without the associated input factors such as employment, investment flow, patents, and so on.

[19] While there is no single definition on what constitutes the initial years, in our analysis we consider the first nine years after incorporation as the initial years, i.e., before the age of the startups enter the double digits!

We also analyzed the revenues generated by the startups in recent years in addition to the chronological age of the startup. The results have been consistent. Average annual revenues per 100 incubated startups in recent years, viz., 2018-2023 has been ₹2,139 crores (2024 values).

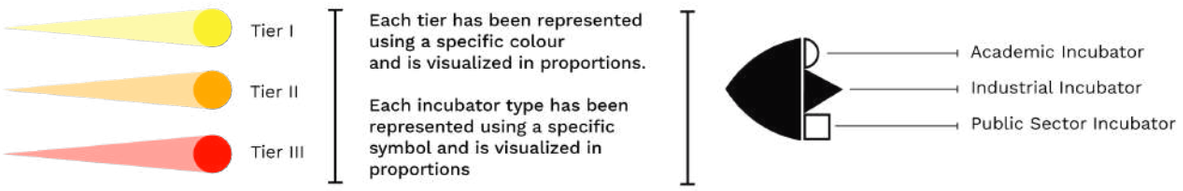
Analysis of revenue generation of incubated startups based on the incubator host organization and the city tier gives more insights (Figure 4.10). The annual average revenues in the initial years per 100 startups incubated by incubators in Tier I cities has been the highest (₹1,451 crores), but the second position has been taken by startups supported by incubators in Tier III cities rather than those in Tier II cities. Analysis for the calendar year period 2018-23 shows that annual average revenues for startups in Tier III incubated startups take the top spot, with startups from Tier I cities being pushed to the second rank. We attribute this result to the strong growth in the number of startups in recent years in Tier I cities. The revenue growth rate, as expected has been higher for startups incubated in Tier I cities (Table 4.5, Panel A).

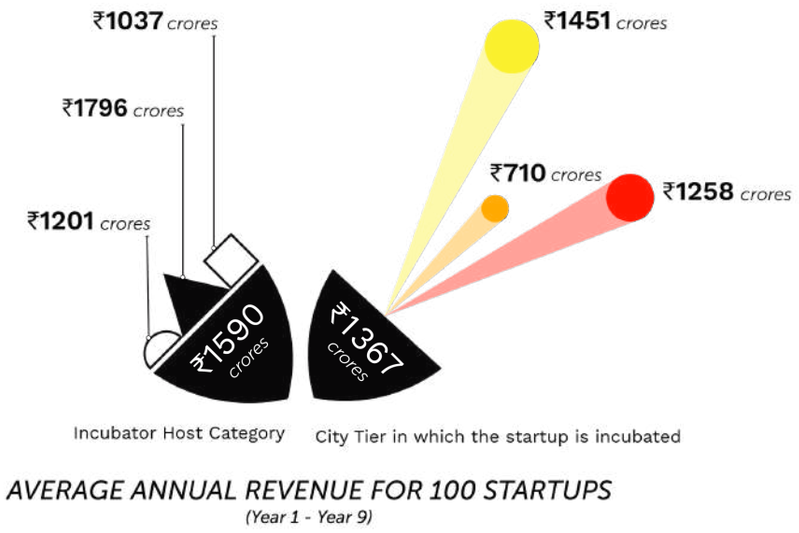
Annual average revenues per 100 incubated startups for incubators hosted by the industry is about 50 percent higher than the startups supported by incubators in academic institutions during the initial years of the startup lifecycle. For the time period 2018-2023, the corresponding number is 38 percent. It can be seen that there has been significant differential in the revenue as well revenue growth performance between startups incubated in academic incubators and startups incubated in industry incubators.

Table 4.5: Growth rates of various parameters

	City tier of the incubator			Host organization of the incubator		
	Tier I	Tier II	Tier III	Academic	Industry	Public sector
Panel A: Revenues						
Average revenue growth, year 2 – 9 since incorporation	141.2	57.6	4.3	72.92	1,155.81	62.32
Average revenue growth 2018-22	243.9	127.4	8.2	8.71	291.98	10.16
Panel B: Employee compensation						
Average employee compensation growth, year 2 – 9 since incorporation	6.87	8.67	1.10	11.15	6.59	1.35
Average employee compensation growth, 2018-22	5.94	21.18	1.86	10.97	4.74	2.01
Panel C: Assets						
Average assets growth, year 2 – 9 since incorporation	3.02	2.92	2.05	2.04	3.46	1.85
Average assets growth, 2018-22	8.38	7.31	6.83	5.02	10.13	10.73

(Sample sizes are available with the authors on request)





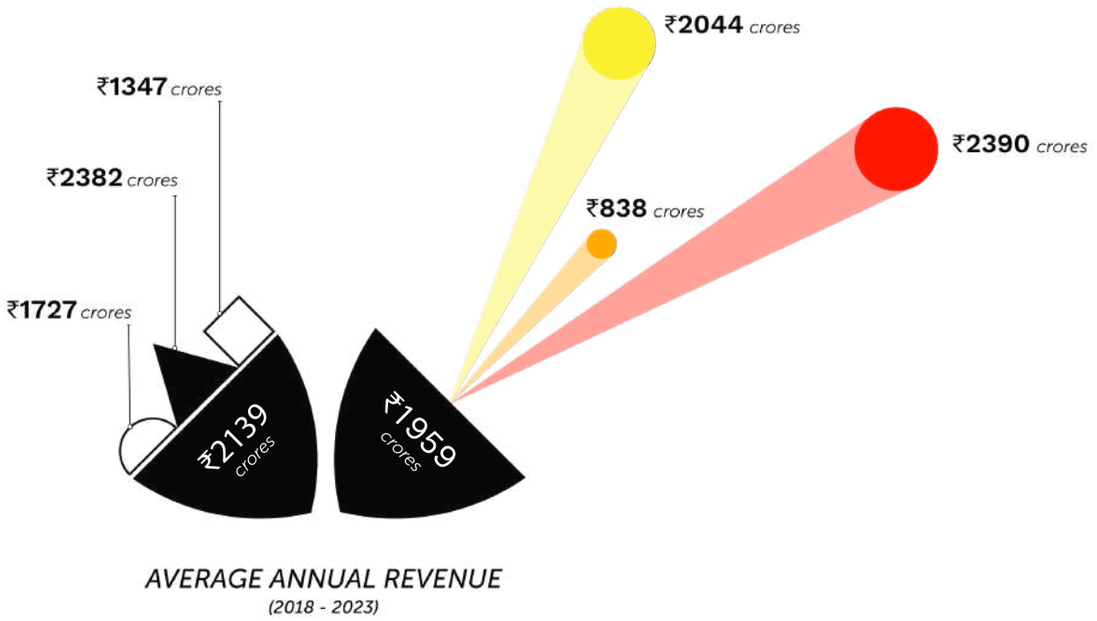


Figure 4.10: Average annual revenue generated by incubated startups

The annual average employee compensation cost for every 100 incubated startups is about ₹708 crores

Employment creation is an important policy imperative. The sustenance of India's economic growth depends on the number of jobs created. One of the policy expectations from the startups has been to create jobs. Entrepreneurs are seen as employment creators and therefore governments are keen to support the startups.

Since details regarding the number of employees in startups was not readily available, we studied employee compensation cost as a proxy to the number of employees.[20] It was found that the annual average employee compensation costs has been about ₹708 crores (2024 values) per 100 incubated startups during the initial years of the startup lifecycle, indicating that incubated startups are significantly contributing to employment creation. The estimated annual employee compensation costs during the initial years for 12,000 incubated startups works out to ₹84,960 crores. In the recent period, 2018-23, the employee compensation costs for 100 incubated startups has been ₹667 crores. Incubated startups thus have been prominent engines of employment creation.

Employment compensation costs for incubated startups based on the city tier of the incubator shows interesting results (Figure 4.11). During the initial years of the startup lifecycle, the mean employee compensation costs per 100 incubated startups in a Tier I incubator is almost 4 times of what was seen for Tier II or Tier III incubators indicating that startups in Tier I cities are able to generate a much higher level of employment. Another possible explanation would be the lower manpower costs in Tier II and Tier III cities. The trend is consistent even if we consider the employee compensation costs during the calendar years 2018-23.

Employment compensation costs for incubated startups based on the host organization indicates that during the initial years of the startup lifecycle, the mean employee compensation costs per 100 incubated startups for a PSU incubator is significantly lower as compared to that of an university or an industry incubator (Figure 4.11). While the employee compensation costs for academic incubators are slightly higher than that of industry incubators, the difference is marginal.

The average value of assets for every 100 incubated startups by the 9th year from incorporation has been estimated at ₹10,627 crore. For FY2023, the average value of assets for every 100 incubated startups was ₹6,429 crore

The value of assets is an indication of the investment received by the startup. Since a majority of the startups are unlikely to have retained earnings to finance their assets, they are likely to have been funded through external capital. Asset creation is also likely to result in other downstream benefits like employment creation and boosting consumption. Incubated startups have contributed significantly in asset creation. By the end of their 9th year, the average value of assets for every 100 incubated startups has exceeded ₹10,600 crore. For FY2023, the average value of assets for every 100 incubated startups was ₹6,429 crore.

Startup asset values by the city tier of the incubator has been along expected lines. (Figure 4.12) The asset values are the highest for incubators situated in Tier I cities – for assets at the end of the 9th year since incorporation and also for asset values in FY2023. This indicates that incubators in Tier 1 are supporting startups that are growing much faster than their counterparts supported in Tier II and III incubators. The startup and the business ecosystem in Tier I cities are favorable for quick scaling up.

[20] We make a simplifying assumption that increase in employee compensation costs are predominantly due to addition of new employees. The increase in employee compensation costs as a result of salary increases to existing employees has been assumed to be a small proportion of the overall employee compensation costs.

Startup asset values based on the incubator host organization has also been consistent with the previous results (Figure 4.12). The aggregate value of assets in startups supported by academic incubators have been the highest. However, when taken per 100 incubated startups the asset values for industry hosted incubators and academic incubators have been almost similar. However, if taken in conjunction with the revenues, it can be seen that asset turnover ratio has been higher for industry incubators (0.16) as compared to that of academic incubators (0.1). Startups supported by industry incubators have also posted a higher asset growth rate (Table 4.5, Panel C).

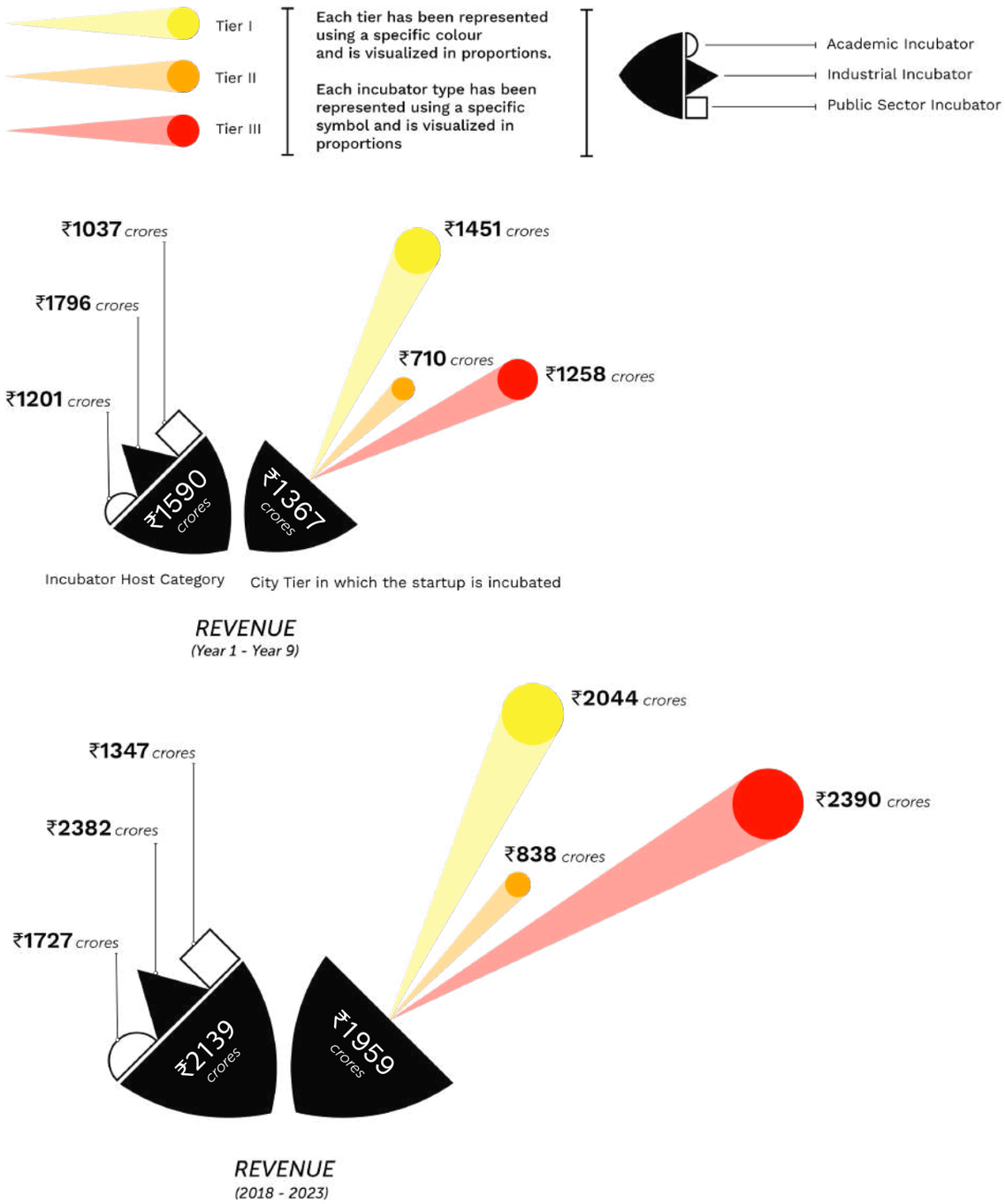


Figure 4.11: Employee compensation costs for incubated startups

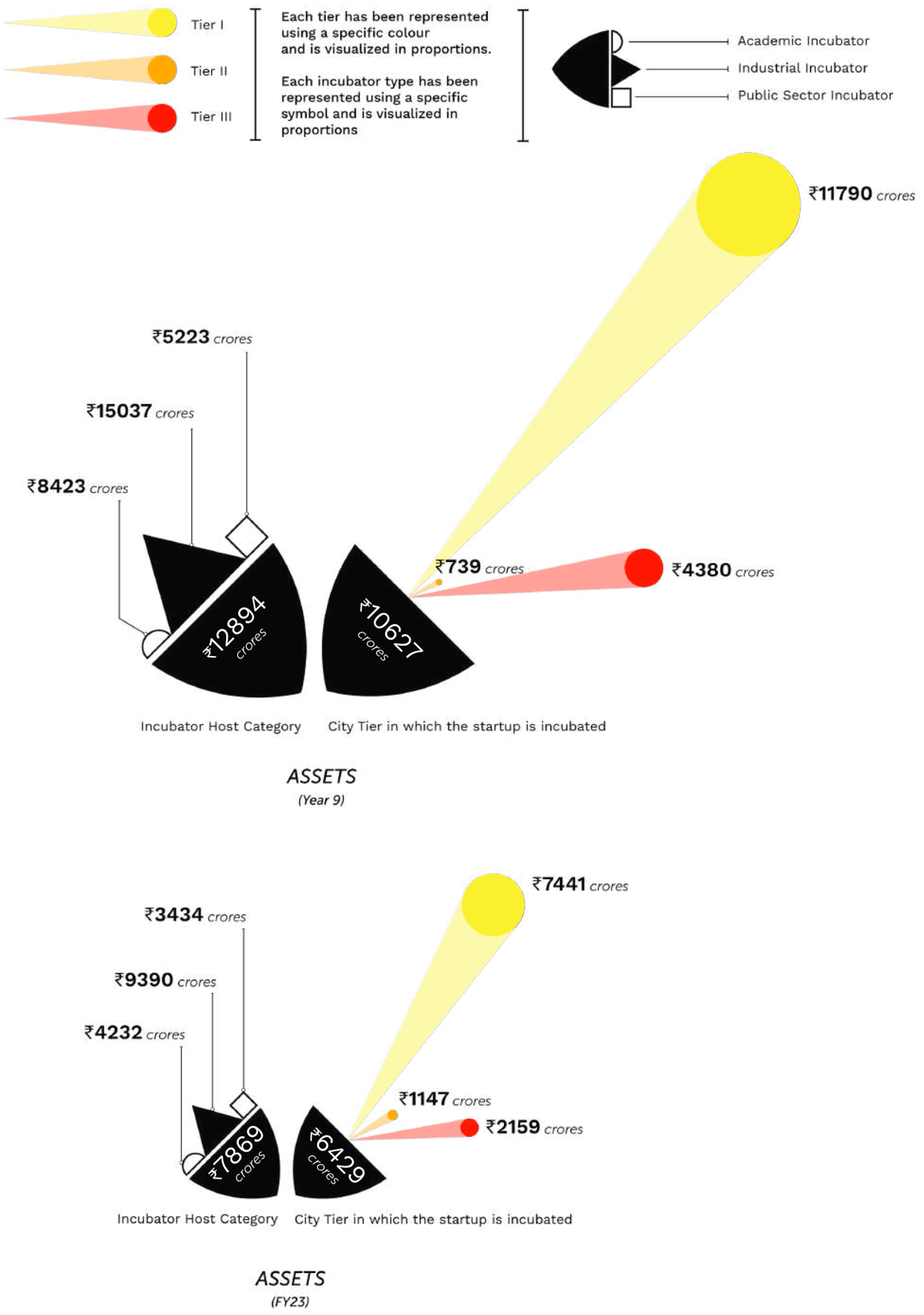


Figure 4.12: Asset values and growth rates for incubated startups

Comparison of the financial performance of incubated and non-incubated startups indicate that though the later have a consistently higher performance, the difference level reduced with time, despite the former starting with a higher handicap

The earlier findings in the report indicate that the average age of the founders of incubated startups are lower than those of their counterparts in the non-incubated. This indicates that the founders of incubated startups have lesser experience at the time of starting the venture. The financial capacity of the founding team has also been limited as evidenced by lower paid up capital of the venture at the time of incorporation.

However, comparison of the financial performance of the incubated and non-incubated startups for the initial years after incorporation (Table 4.6) indicates that the incubated startups have been able to catch up with the initial higher performance of non-incubated startups. This suggests that incubators could be playing a substantial role in elevating the performance of the incubated startups to be on par with those of the non-incubated startups, to be able to compete effectively in the marketplace.

Table 4.6: Comparison of financial performance of incubated and non-incubated startups

Startup age	Average revenue		Average assets		Average employee compensation	
	Incubated startups (₹, million)	Non-incubated startups (₹, million)	Incubated startups (₹, million)	Non-incubated startups (₹, million)	Incubated startups (₹, million)	Non-incubated startups (₹, million)
Year1	3.25	4.43	5.50	8.65	1.94	2.81
Year2	9.48	15.02	16.78	24.85	5.86	8.75
Year3	19.59	33.65	35.37	51.91	10.97	16.75
Year4	36.75	57.34	56.74	80.10	19.05	27.26
Year5	60.51	87.23	87.98	118.00	30.94	43.59
Year6	96.05	133.45	150.60	187.48	45.78	57.33
Year7	200.41	214.07	227.37	293.03	67.93	84.58
Year8	343.60	314.37	300.82	391.21	98.71	101.12

All values are adjusted to 2024 base year values. Sample sizes are available with the authors on request.

4.5 IMPLICATIONS

For policy makers

Incubators help to realize several policy objectives such as: (i) Access to capital at early stages of the startup lifecycle; (ii) Attract private sector capital for startups without the corresponding need for providing budgetary allocation to invest in startups; (iii) Increase the creation of intellectual property; (iv) Achieve economic growth in terms of making available innovative products and services to consumers; attracting investment; and generating employment. Our results shows that the role of incubators as a vehicle for economic growth stands vindicated. Governments should continue the support for setting up new incubators as well strengthen the existing ones.

Startups incubated at industry incubators demonstrate superior performance in terms of growth in revenues, employee compensation, and assets. Asset turnover ratio is also higher for startups supported by industry incubators. A policy focus that emphasizes on growth and employment creation should therefore facilitate setting up of incubators by industry.

The performance of the startups is impacted by various business environmental factors and not just incubation. The presence of a favorable business environment along with incubation creates a virtuous cycle for startups as evidenced by the revenues, employment compensation and asset values for startups supported by incubators in Tier I cities. Startups supported by incubators in Tier II and III cities have not been able to achieve the same levels of performance as that of the counterparts supported by incubators in Tier I cities. It can be thus seen that the primary contribution of incubators could differ depending on the city tier – in Tier II and III cities, they serve the goal of promoting entrepreneurship in hinterland areas contributing to a social cause, whereas in Tier I cities, they contribute more towards achieving economic goals of growth and employment. Understanding how incubators can contribute depending on the milieu can help in setting appropriate policy expectations.

For startup founders

Often startups are reluctant to approach incubators because of the cost of incubation, either as monthly rentals or in the form of equity share in the startup. However, startups are also keen on getting funded. Startup ventures relying more on external funding should factor in the increased chances of getting funded, among several other benefits, as a result of getting incubated.

Not only do incubated startups have a higher percentage of getting funded, the chances of getting funded by angels and VCs also considerably increase. Therefore, startups looking to raise angel or VC funding could consider incubating themselves to increase the likelihood of getting angel or VC funding.

Incubation is almost a pre-qualification criteria for many government schemes that support startups. Government funding is available for even for very early stage ventures, and the chance of accessing those funds brightens with incubation.

For industry

Startups supported by industry incubators have been able to achieve superior performance as compared to that of academic incubators. Industry incubated startups have been able to generate nearly 1.7 times more revenue than that of academia incubated startups. The mean revenue growth rates are also higher for industry incubated startups (1997.47) as compared to that of startups in academic incubators (336.49). The reasons for these differences could be the nature of startups supported by the different incubators. We hypothesize that industry incubators would be keen on supporting startups that have an immediate product market fit and a founding team that is focused on commercialization.

In the current incubator landscape, the highest proportion of incubators are academic incubators. However, our results show that startups associated with industry incubators have demonstrated superior performance than those of startups in academic incubators. While the nature of startups could differ between the two types of incubators, it is felt that industry incubators provide an overt impetus and urgency to the growth of startups that they incubate, whereas in academic incubators the nudge to growth might be comparatively latent. Managers of incubators in academic institutions could analyze the factors leading to the superior performance of startups in industry incubators, so that similar conditions that can enhance the performance of startups can be created in academic incubators. ■

5. DATA, DEFINITION AND METHODS

> To solve any problem here are three questions to ask yourself: First, what could I do? Second, what could I read? Third, who could I ask?
>
> - Jim Rohn

Data

The data used in this report was predominantly obtained from YNOS, an information platform on startups and investors. The data was extracted for analysis during August to September 2024. More details about the platform and data coverage can be accessed from www.ynos.in

Definitions

a. **Startup:** Entities that met any of the following criteria have been considered as a startup:

   Companies or partnerships registered as a startup under the DPIIT (Department for Promotion of Industry and Internal Trade) Startup India scheme.

   Entities being incubated by an incubator or equivalent organization.

   Entities that have received funding from angel investors, VCs or other private equity investors.

   SMEs incorporated after 2010 and have published patents.

b. **Incubator:** Organizations involved in supporting or nurturing startups. For the purpose of this report, the following organizations, if they were incubating or supporting startups were also considered as equivalent of incubators: accelerators, entrepreneurship cells, and innovation and research centers.

c. **Host organization and incubator classification:** In most cases, incubators are set up by a larger parent organization within their premises or under their organizational branding. The parent organization is called as the host organization of the incubator. Based on the nature of the parent organization, incubators have been classified into three categories as follows:

   Academic incubators: These are incubators set up by higher education institutes, universities. Includes all incubators set up by the government institutions as well as private sector institutions.

   Industry incubators: These would include incubators set up by the industry and other private sector corporations.

Public sector incubators: These would consist of incubators set up by public sector entities that are neither universities nor higher education institutions, for example research laboratories like the CSIR Labs.

d. City Tier: The cities, either those of the startups or that of the incubators were classified into three categories: Tier I, Tier II and Tier III based on their population and level of development:

Tier I: Comprise the following cities: Delhi-NCR, consisting of Delhi, Noida, Gurugram; Mumbai; Ahmedabad and Gandhinagar; Hyderabad and Secunderabad; Chennai; Pune; Bengaluru and Kolkata.

Tier II: Comprise the following cities: Dhanbad, Bhilai, Faridabad, Belgaum, Hubli, Mysore, Bhopal, Guwahati, Amravati, Nagpur, Aurangabad, Nashik, Solapur, Cuttack, Jamnagar, Bhubaneshwar, Jalandhar, Bikaner, Jaipur, Jodhpur, Kota, Tirucharappalli, Warangal, Visakhapatnam, Meerut, Ghaziabad, Agra, Allahabad, Gorakhpur, Amritsar, Rajkot, Vadodara, Raipur, Jamshedpur, Mangalore, Kozhikode, Kochi, Thiruvananthapuram, Gwalior, Indore, Jabalpur, Bhiwandi, Jammu, Kolhapur, Ludhiana, Srinagar, Salem, Tiruppur, Coimbatore, Madurai, Moradabad, Aligarh, Bareilly, Lucknow, Kanpur, DehraDun, Asansol, Varanasi, Surat, Vijayawada, Guntur, Patna, Ranchi, and Chandigarh.

Tier III: All cities and towns not part of Tier I and Tier II list will fall under Tier III.

Methods

a. Estimation of funding proportions

Funding rate (Incubated) =

$$\frac{\textit{No. of funded and incubated startups}}{\textit{Total no. of incubated startups}}$$

Funding rate (non-incubated) =

$$\frac{\textit{No. of non-incubated but funded startups}}{\textit{Total no. of non-incubated startups}}$$

Pearson Chi-squared tests was used to find if whether the funding status (funded or non-funded) was dependent on the incubation status (incubated or non-incubated). The resulting p-value was 0.0, less than 5% significance level. Therefore the results support the alternate hypothesis that the funding status is dependent on the incubation status.

b. Funding timeline estimation

Only startups that receive the first round of funding within the first five years of incorporation have been considered in the calculations. The reason has been to exclude those bootstrapped startups who receive their first round of funding much later for scaling up and growth. Similarly, for second round of funding, only those startups that have raised their second round within five years of raising the first fund were considered.

c. Propensity score matching

Since the pool of incubated startups and non-incubated startups differed significantly, mean comparisons without adjusting for these differences might not lead to accurate results. In order to make the pool of incubated startups and non-incubated startups comparable, we used the propensity score matching technique. The propensity scores are estimated based on four parameters: founder's age, startup age, startup city, and startup sector using the Logit model. Nearest neighbor technique was used to match the propensity scores for sampling.

d. Converting nominal financial values to 2024 base year values

The financial parameters, such as revenues, assets, and employee compensation used in the analysis cover a large time span, from 2012-2023. Since the money value changes with time, the financial variables were converted to 2024 values for the analysis. The following expression was used to calculate the financial values of respective years to 2024 values:

Past value in terms of base year value =

$$\frac{Value * Base\ year\ consumer\ price\ index}{Nominal\ year\ consumer\ price\ index}$$

The value of the base year 2024 Consumer Price Index was taken as 187.7 (Estimated as the average of the monthly CPI from January to July 2024). For the years from 2012 to 2019, Consumer Price Index values are sourced from RBI website.[21] CPI values for the years 2020 to 2024 are sourced from Rate inflation website.[22]

e. Converting nominal financial values to 2024 base year values

The total revenues generated by every 100 incubated startups has been estimated as follows after converting the individual year revenues to base year values:

Total revenues generated in the first 9 years

$$= \sum_{i=1}^{9} Revenues_i$$

Total revenues generated in the first 9 years

$$= \sum_{year=2018}^{2023} Revenues_{years}$$

Mean revenue per 100 startups per year (in the first 9 years) =

$$\frac{Total\ revenues\ generated\ in\ the\ first\ 9\ years}{No.\ of\ startup\ observations\ in\ the\ initial\ 9\ years\ (N)} * 100$$

Where N = Number of startup observations in all the initial 9 years

Average annual revenue growth rate =

f. Estimation of total assets

$$\sum_{i=1}^{n} \frac{\left(\frac{Revenue\ for\ year\ (t+1)}{Revenue\ for\ year\ (t)}\right) - 1}{n}$$

Where n = number of years

The total asset value, after converting the individual year values to base year values was estimated as follows:

Total $Assets_{Year9}$ = Asset accumulated by the startup till Year 9 since incorporation

Total $Assets_{2023}$ = Assets accumulated by the startup till 2023

The mean assets for 100 startups and growth rate were computed in the same way as it was done for revenues.

g. Estimation of total employee compensation

The total employee compensation, after converting the individual year values to base year values was estimated as follows:

Total employee compensation expenses in the first 9 years =

$$\sum_{i=1}^{9} Employee\ Compensation_i$$

Total employee compensation expenses from 2018 – 2013 =

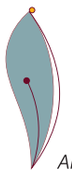
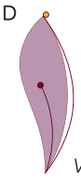
$$\sum_{year=2018}^{2023} Employee\ Compensation_{years}$$

The mean employee compensation for 100 startups and growth rate were computed in the same way as it was done for revenues. ■

[21] https://www.rbi.org.in/scripts/PublicationsView.aspx?id=19029

[22] https://www.rateinflation.com/consumer-price-index/india-historical-cpi/

6. DESIGN LEXICON

1.A  *Non-incubated, non-funded startups*	1.B  *Non-incubated, funded startups*	1.C  *Incubated, non-funded startups*	1.D  *Incubated, funded startups*
2.A  *Incubator*	2.B  *Incubator (academic)*	2.C  *Incubator (public)*	2.D  *Incubator (industrial)*
3.A  *Angel investor*	3.B  *Debt financed*	3.C  *Government funds*	3.D  *Venture capitalist*
4.A  *Founder's age (18-30 years)*	4.B  *Founder's age (30-40 years)*	4.C  *Founder's age (40-62 years)*	
5.A  *Tier I*	5.B  *Tier II*	5.C  *Tier III*	
6.A  *Startups with women founders*			

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- Srivardhini K Jha and Thillai Rajan A.

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