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Evolution and Distribution of Business Incubators: A Literature Review

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ABSTRACT

This review paper explores the ways business incubators evolved historically and their current geographic distribution in the global landscape. The study aims to understand the big picture of the incubation industry to facilitate informed decision-making by different stakeholders such as founders, universities, governments, and incubation leaders. Drawing on the available information from all continents, this paper highlights the growing prevalence of incubators in all the continents. This study used academic journals, government and industry reports, and other credible sources to understand incubators' evolution and global expansion, geographic distribution, development of newer phenomena such as virtual and focused incubators, and comparison between developed and developing economies' perspectives. The findings from extant literature suggest that the incubators that originated in the 1950s have proliferated to more than 10,000 institutions globally, with higher concentrations in North America, Europe, and Asia. The findings also uncover several potential gaps for conducting further research in this field.

Keywords: innovation, business incubators, entrepreneurship, entrepreneurship ecosystem

Introduction

Entrepreneurship is the process of creating innovative and scalable companies that grow exponentially, and alongside creating significant employment opportunities (Ács et al., 2017). Studies have demonstrated that innovation-based high-growth entrepreneurial ventures have a profound impact on employment generation and economic growth (Morris et al., 2015; Leković & Berber, 2019; and Kritikos, 2024). As a result, the governments, academic institutions, private sector, and even the development sectors, working on the mutual goal of increasing economic prosperity, have initiated policies and programs directed to support entrepreneurship (Terjesen et al., 2016; Isenberg & Onyemah, 2016; Bradley et al., 2021). One major initiative for promoting entrepreneurship is the implementation of a business incubation program (Cunha et al., 2018; Hillemane et al., 2019; Vaz et al., 2023; Kaggwa

et al., 2023; Singh & Sharma, 2024). Business incubators, also known as incubation centers, are the institutions that are designed to support new entrepreneurs by providing them with office space, business coaching, support with raising seed capital, and other support in exchange for either a fee or an equity (Hackett & Dilts, 2004; Mian, 2021).

There is a growing body of empirical and theoretical evidence on the prevalence and expansion of incubators worldwide. Considering the existing information, we can estimate that over 10,000 incubators are operating globally (Sohail et al., 2023), with their role holding significant interest to both academia and policymakers. The proliferation of incubators over the last 65 years (1959–2024)-from their inception to over 10,000 entities—demonstrates the significant emphasis placed on incubation as a tool to foster entrepreneurial culture worldwide. Amid this widespread adoption, there is a gap in existing literature in understanding the historical evolution of incubators worldwide and assessing their current geographic distribution in a comprehensive manner. This study aims to bridge this gap with an extensive literature review and drawing on the published statistics from credible sources.

Establishing an incubator entails significant costs in both developed and developing nations. Further maintenance until they become self-sufficient puts an extra financial burden on the part of the government and owners of incubators, especially in the developing economies where resources are scarce. Government, private sector entities, and academic institutions all operate under some level of financial constraints, yet they have remarkably contributed to establishing incubators, which has resulted in their present-day prominence. In this context, how they evolved historically and geographically and their current statistical distribution across the globe are matters of utmost importance. Without the holistic understanding of these basic statistics, the academic inquiry on this field is incomplete. On a similar note, the countries trying to create startup ecosystems may only invest in establishing new incubators, neglecting the existing incubators, their size, capacity, and their effectiveness. Thus, this study presents practical relevance for both academics and practitioners, including governments.

Multilateral organizations are also focusing on entrepreneurship promotion programs globally. The European Union (EU) pioneered in fostering incubators through the European Business Network (EBN), established in 1984 and now renamed the European Business and Innovation Centre Network, which now has 118 certified incubators across 35 countries, supporting 25,000 startups (EBN, 2024). The EU also focuses on Environmental, Social, and Governance (ESG) and Sustainable Development Goals (SDG) compliance within incubators (Cirule et al., 2022). The Organization for Economic Co-operation and Development (OECD) has framed incubators as critical to knowledge-based economies, emphasizing metrics like startup survival rates and employment generation (OECD, 2023a). It also viewed incubators as helpful entities for networking and accessing financing opportunities (OECD, 2023b). The World Bank Group (2021) has launched the Nurturing Excellence in Higher Education Program (NEHEP) in Nepal, a 60 million USD project, out of which 3.38 million USD (458 million NPR) has been specifically allocated for the Entrepreneurship Support Program (ESP) to establish business incubators in about 70 higher education institutions (HEIs) between 2021 and 2026 (UGC Nepal, 2022). This further reflects the significance of academic inquiry about the incubators, their evolution, and regional status.

This review synthesizes insights from a wide range of sources, with a primary focus on recent peer-reviewed journal articles complemented by industry and government reports and case studies. The reports were sourced from credible organizations such as the National Venture Capital Association (NVCA), European Union, World Bank, Organization for Economic Co-operation and Development (OECD), and other entrepreneurship-focused agencies. Similarly, academic references are largely taken from the publications of the past decade - 2015 and beyond - with some exceptions. The study compares the evolution of incubators across various regions—North America, Europe, Asia, Africa, South America, and Oceania. The paper identifies common patterns, trends, regional variations, and key challenges faced by incubators in supporting startups and scaleups. Furthermore, the review tries to ascertain the accurate statistical picture of the incubators in the global landscape.

The review is structured to first provide a broad overview of the evolution of incubators globally, followed by an exploration of their geographic distribution in terms of the number of incubators in operation. This review also compares the incubators' evolution in developed and developing economies and highlights newer phenomena emerging in the context of startup incubation. Finally, the review concludes by answering the research question and policy implications of the finding. In the process, the

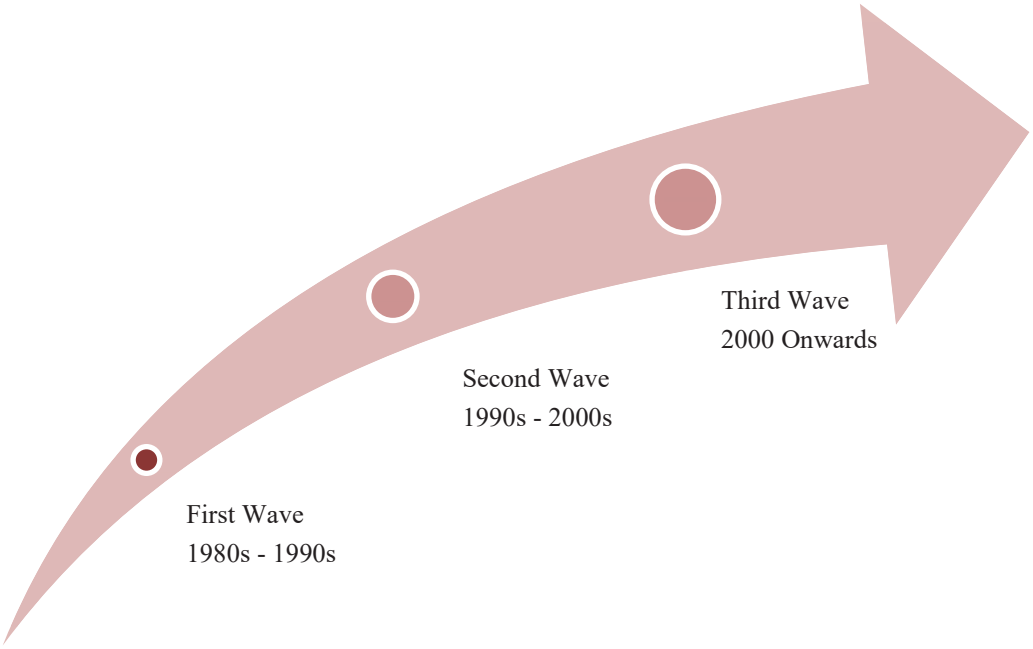
authors highlight critical gaps in current literature that provide research direction to future scholars in this domain.

Historical Evolution of Business Incubators

The first incubator of today's conception was started accidentally by Joseph Mancuso in 1959, when he restructured the abandoned *Industrial Center* of Batavia in New York to lease it to small businesses; however, in the process he also provided them with business coaching and financial support to ensure their smooth operation (Galbraith et al., 2019; Mian, 2021; Sohail et al., 2023). Technology incubation centers in the form of IT Research Parks preceded the incubators, the first of which was Stanford Research Park, setup in 1951 (Mian et al., 2016), which fueled the growth of Silicon Valley as a startup hub (Galbraith et al., 2019). More recently, the goal of the incubators, IT parks, and accelerators, among others, has converged to one common goal of supporting aspiring entrepreneurs to create high-growth technology-backed startups (Galbraith et al., 2019). Startups, the primary focus of incubators, are "the temporary organizations formed to search for a repeatable and scalable business model" (Blank, 2013). Today, business incubation and technology commercialization have become an established phenomenon globally for startup creation with the aim of expediting economic growth and employment generation (Ács et al., 2017; Cunha et al., 2018; Sansone et al., 2020; Vaz et al., 2023). However, the early evolution of incubators took two decades to gain traction and seems to have witnessed at least three major waves in its history - that have been recorded in academic literature.

Figure 1.

Wave of Business Incubation



As mentioned in Figure 1, the three waves are very important. The first wave started in the 1980s through government intervention in the United States led by the US Small Business Administration department (Lalkaka, 2003; Gerlach & Brem, 2015). The focus of the first wave was only on affordable office space with shared facilities. Kemp (2013), in his master's thesis, supports this notion that the first wave was created out of the need to utilize old and vacant commercial buildings in the Northeast and Midwest of the USA. The first wave emerged as the need for the USA to come out of the economic depression that plagued many industries and their buildings needed to be repurposed. Similarly, the second wave that globalized the phenomenon of establishing incubators began around 1990 and broadened services to mentorship, networking, and skill development (Lalkaka, 2003; Gerlach & Brem, 2015). Different types of initiatives were taken worldwide; for instance, China launched 'The Torch Programme' to commercialize research through entrepreneurship (Heilmann et al., 2013; Chen et al., 2019). The focus of the second wave was largely to foster entrepreneurship and innovation within universities to commercialize research and contribute to economic development (Kemp, 2013).

The third wave has been discussed as the private sector's entry to establish venture capital funds with a focus on new investment avenues and commercializing new technologies (Kemp, 2013). Several technology companies, such as Dell, HP, Intel, Adobe, Panasonic, Ford, and so forth, have been discussed as having their own venture capital wings or incubators to invest in nascent startups. This wave is marked by a shift in the business model of incubators—from earlier models that relied primarily on rental income to newer, profit-driven approaches that adopt equity-based models (Kemp, 2013). This wave also had other peculiarities: for instance, the keen interest in high-tech and web-based startups, the emergence of virtual incubators, and the know-how-based value addition against the physical support as highlighted in the European Commission's study (CSES, 2002).

Table 1

Historical Evolution of Business Incubators

Theme	Key Findings	Authors
Origins of Incubators	First modern incubator by Mancuso (1959); Stanford Research Park (1951) spurred Silicon Valley.	Galbraith et al. (2019), Mian (2021), Sohail et al. (2023)
First Wave (1980s)	Government-led, focused on repurposing vacant buildings for economic recovery.	Lalkaka (2003), Gerlach & Brem (2015), Kemp (2013)
Second Wave (1990s)	Expanded to mentorship, networking, and university-linked commercialization (e.g., China's Torch Programme).	Lalkaka (2003), Heilmann et al. (2013), Chen et al. (2019)
Third Wave (2000s)	Private-sector-driven, equity-based models, and rise of high-tech/virtual incubators.	Kemp (2013), CSES (2002), Mian et al. (2016)
Virtual Incubators	Remote support via digital tech, reducing geographic barriers.	Mian et al. (2016), Ririh et al. (2020)
Niche Incubators	Sector-specific (fintech, agritech) and social impact focus, though not proven more effective than general incubators.	Schwartz & Hornych (2010), Ririh et al. (2020)

Regional Status of Incubators

The historical evolution of business incubators is closely tied to their geographic development, with some countries taking the lead in establishing such initiatives while others lagged (Mian, 2021). In this context, the regional incubation-related development and forward-moving stories are important. Such stories help to understand the status of incubators by region, including key metrics, influential organizations, and pioneering countries that have shaped their development. North America is the pioneer in establishing incubators, as is evident in the historical evolution section above. The US observed steady growth in the number of incubators after the 1980s for two decades (World Bank, 2002). Consequently, the United States (US) has emerged as the global leader in producing unicorn startups valued at over 1 billion dollars, hosting 760 out of the 1,565 global unicorns whose combined valuation stands at 5.2 trillion US dollars (Sarath, 2025). It is no surprise that the U.S. also has one of the richest ecosystems of incubators, suggesting a strong correlation between a well-developed incubation ecosystem and the creation of high-growth startups. In addition to incubators, the growth of startups in the U.S. was driven by 3,417 venture capital firms, which collectively provided $170.6 billion in startup funding in 2023 alone (National Venture Capital Association, 2024). This impressive feat of the US provides a benchmark for all the economies to focus on entrepreneurship and startup creation and explains why they have aggressively started and nurtured the incubators. Tracxn (2025) reports the presence of 2,910 incubators in the USA and over 3,340 incubators in the North American region.

According to Tracxn (2025), Europe is placed as the second largest home to incubators after North America, with over 2,890 incubators. Although the statistical figures can be contested, the sheer development and maturity of the entrepreneurship ecosystem in Europe cannot be undermined. Literature reveals that incubators were launched in Europe starting in the late 1960s; however, they started gaining traction only after the 1980s through the formation of the European Business Network (EBN) in 1984 (Mian, 2021). In the subsequent decade, they not only became widespread in Europe but also started gaining global prominence. EBN, now renamed the European Business and Innovation Centre Network, after 40 years of establishment, reports supporting 25,000 startups in over 35 nations through its 118 certified incubators and 54 associate members (EBN, 2024). Additionally, EBN-supported ventures secured a cumulative 870 million euros in funding in 2023 only (ibid). This initiative, along with others, helped Europe to develop its startup ecosystem in intricate ways, championing concepts like the triple helix model of innovation, open innovation, collaboration, and so forth. A study by Carayannis et al. (2021) highlights the fact that European incubators are evolving from a triple helix perspective to quadruple and quintuple innovation helices, whereby not just industry-academia-government but also civil society and the environment are seen as participants or drivers of innovation. A study by Cirule et al. (2022) revealed that incubators, in Europe, serve as the "Open Innovation" platforms that leverage networks and outside resources. They also tend to adhere to the United Nations' Sustainable Development Goals (SDGs) and comply with Environmental, Social, and Governance (ESG) performance standards, which signifies that European incubators have emerged as global thought leaders in some areas of innovation.

Tracxn (2025) reported that Oceania, mainly Australia and New Zealand, houses 263 incubators and accelerators that drive the innovation ecosystems. Research suggests that incubators in Australia followed the model of technological parks designed to transfer universities' knowledge for commercialization by companies housed in the technology parks (Rubin et al., 2015). The Australian Federal Government also launched the Building on Information Technology Strengths (BITS) program to directly establish over 10 technology business incubators (Kemp, 2013; Rubin et al., 2015). Despite several attempts, government-funded incubators failed to sustain themselves on their own (Kemp, 2013; Rubin et al., 2015; Bliemel et al., 2018). A similar fate was observed at New Zealand's Callaghan Innovation, as it is in the process of disestablishment (Callaghan Innovation, 2025).

A 2006 study estimated that South America housed over 400 incubators (Tsaplin & Pozdeeva, 2017), which signals that the continent witnessed incubators' proliferation early on. Guerrero (2021) reported the presence of 300 incubators in Brazil alone, established under the government initiative of the National Program for the Support of Business Incubators and Technology Parks. With the objective to foster university-industry collaboration and to create an entrepreneurial climate, most Brazilian universities own incubators that commercialize their research through spin-off projects (Dalmarco et al., 2018). However, the legislation, bureaucracy, and financial constraints hinder the collaboration between small-scale startups and universities (OECD, 2022) in South America. Additionally, the academic research on the emergence of incubators and their efficacy on the South American continent still remains scant (Allahar & Brathwaite, 2016; Guerrero, 2021), confirmed through my own search that generates limited papers. Guerrero (2021) discusses incubation phenomena only in Brazil, Chile, Colombia, and Mexico; thus, more encompassing studies are required to get a truer picture of business incubation happening in other countries of the continent. Similarly, Africa houses over 1000 innovation hubs (African ScaleCraft, 2025) - that include incubators, accelerators, and innovation centers - among which 500 hubs are members of AfriLabs's Network (AfriLabs, 2025). Nigeria, South Africa, and Kenya lead the African startup ecosystem landscape with over 160, 100, and 90 hubs, respectively (African ScaleCraft, 2025). AfriLabs has connected innovation hubs in over 53 countries of Africa out of 54 countries, which demonstrates the sheer ubiquity of the incubators in the region.

Asian nations are extensively investing in incubators, housing over 2,480 incubators (Tracxn, 2025). Although Japan and South Korea have also been cited as the leaders within the Asia region for nurturing startups through incubators (Singh & Sharma, 2024), emerging economies such as China and India are increasingly gaining prominence recently. One study claims the presence of over 10,000 incubators in China only (Jiang & Zhou, 2024), whereas another article *cites over 5,000 incubators* (Pan et al., 2022). The China's Torch Program, launched in 1988, currently manages 83 high-technology zones (HTZs), supporting technology-based startups in commercializing innovation, attracting Foreign Direct Investment (FDI), and exporting their high-value commodities in foreign markets (Heilmann et al.,

2013). Similarly, India's Atal Innovation Mission (AIM) has facilitated the establishment of over 5,000 Atal Tinkering Labs in schools (Ramanan et al., 2020) and over 100 incubators, many of which are housed in academic institutions and industry clusters (Singh & Sharma, 2024). In total, India is home to over 250 incubators nurturing over 30,000 startups (Ramanan et al., 2020). Similarly, Singapore, Malaysia, and several other economies have also nurtured incubators, although the exact number of countries establishing incubators could not be found.

Regional studies show the need to examine regional distribution patterns, particularly at the continental level. Studies also suggest that variations in economic policies, innovation ecosystems, and governmental support have influenced the uneven growth of incubators across the regions (Audretsch & Belitski, 2021).

Table 2

Regional Statistics of the Incubators - Distribution by Continents

Continent	Number of Incubators/ Accelerators/ Innovation Hub	Source
North America	3,340	Tracxn, 2025
Europe	2,890	Tracxn, 2025
Asia	2,480	Tracxn, 2025
Africa	1,000	African ScaleCraft, 2025; Diouf et al., 2024
Latin America	400	Tsaplin & Pozdeeva, 2017
Oceania	263	Tracxn, 2025
Total Business Innovation Centers Worldwide	Over 10,373	

Although comprehensive statistics on incubators are limited and often imprecise, existing literature supports the presence of over 10,000 incubators worldwide. For instance, Gerlach and Brem (2015) reported the existence of 1,250 incubators in the USA and 7,000 incubators globally by 2009, whereas, more recently, Sohail et al. (2023) reported the presence of over 10,000 incubators globally. Our study contributes to existing knowledge about the statistical quantification of incubators by verifying data from multiple sources and confirming with the most recent study by Sohail et al. (2023). The statistics derived from this study seem to be coherent and consistent with the existing literature to some extent.

However, some recent studies present new evidence that makes ascertaining the actual number of incubators worldwide more complicated considering the current research. For instance, Jiang & Zhou (2024) reported that China hosts over 10,000 incubators, which suggests that the existing data may have been underreported, particularly in the case of China. However, the same could be the case for other nations and regions, and thus it may require independent research. On the flip side, there exists some possibility for data inflation, just like the probability for underreporting, and the results become inconclusive either way. To minimize such discrepancies, this study relies on the most conservative estimates confirmed by multiple sources. The diversity in incubator models, their definitions, and classification differences adds challenges in identifying, classifying and categorizing data. Even within reported data, some incubators operating informally risk omission, whereas incubators affiliated in multiple networks risk duplication in counting. Thus, this article has given greater emphasis to the data from Tracxn to maintain consistency and comparability. Where possible, this study has emphasized collecting reliable and cross-verifiable data about the incubators.

Emergence of Virtual & Focused Incubators

Evolving amid the different waves, the incubators not only have proliferated in numbers but also have diversified in their scope. The incubators' roles expanded to accommodate the changing needs of entrepreneurs. Galbraith et al. (2019) observed incubators evolving in two distinct strategies: first, a property management strategy to renovate and reuse abandoned properties, and second, a research commercialization strategy to leverage business resources that was further supported by Bayh-Dole Act 2080 (Dalmarco et al., 2018). From the North American perspective, the incubators also served as a tool to compete with Japanese companies in terms of research and innovation. In the 2000s, the focus shifted towards technology commercialization and creating scalable business models based on technological innovations (Lalkaka, 2003). The rise of digital technologies, and rapid expansion of the internet supported the concept of virtual incubators (Mian et al., 2016; Ririh et al., 2020), a revolution of its kind, that made incubation support accessible to entrepreneurs regardless of their geographic location (Vaz et al., 2023). Thus, technology served not only as a core focus for incubators but also as a tool to transform the operation of incubators. Virtual incubators evolved in different ways, like knowledge management systems, immersive 3D incubators, and creative virtual hubs (Vaz et al., 2023). The theme of virtual business incubators appeared in academic literature in 2000; however, the academic community started accepting this phenomenon only after 2010, with its research publication peaking in 2019, after which the number of research articles started to decline (Vaz et al., 2022).

A phenomenon of specialization has also been noted in incubators' operation where incubators started focusing on different sub-themes such as fintech (Alaassar et al., 2021), agritech (Isher, 2024), edtech (Ramiel, 2017), biotech (Grifantini, 2015), and so forth targeting on niche areas. Incubators are considered a tool to address socio-economic challenges, particularly in developing nations, by focusing on social entrepreneurship to create products for the underserved market segments (Ririh et al., 2020). Incubators are expected to expedite economic growth, and in addition, promote sustainability and inclusivity, increasing their significance in the innovative ecosystems. The focused incubators operate by narrowing their scope when compared with general incubators. Studies conducted to compare specialized and general incubators, have not seen any noticeable difference in effectiveness between the two (Schwartz & Hornych, 2010). Therefore, the case for such incubators at best seems to be an ease of operation.

Emergence of University-based Business Incubators (UBIs)

Although business incubators initially started as private initiatives, their expansion was significantly accelerated by government policy and funding, as evident in the previous discussion. University-based business incubators (UBIs) commenced during the second wave of incubation development, in the context of the "third mission" whereby universities were expected to continue teaching and research and alongside work for research commercialization to undertake socio-economic role in their locality (Dalmarco et al., 2018; Romero et al., 2020; Hassan, 2020; Cai & Ahmad, 2021). This new role involved university-industry collaboration (UIC), technology transfer, entrepreneurial support, and driving regional economic growth (Hassan, 2020). Scholars propounded the "entrepreneurial university" model that captured the universities' emerging role in innovation, enterprising and economic development (Etzkowitz, 2004; Guerrero & Urbano, 2010; Audretsch & Belitski, 2021a, 2021b; OECD, 2022). UBIs presented an operational model to translate the concept of an entrepreneurial university into practice.

UBIs have unique advantages over traditional incubators, particularly in utilising existing university infrastructure such as laboratories, office spaces, and research facilities; intellectual resources such as faculty expertise, and academic networks; and institutional funding (Barbero et al., 2014; Hassan, 2020). This resource synergy and efficiency allow UBIs to operate with a minimal overhead cost, and to offer quality support to startups. Empirically, they are regarded as the most effective type of incubators in promoting entrepreneurship (Salem, 2014). Similarly, research informs us that nearly all research-intensive universities in the USA own a UBIs, that represent approximately one-third of all business incubators in operation (Pellegrini & Johnson-Sheehan, 2020).

Recent research also discusses the role of UBIs in increasing universities' competitiveness by forging industry partnerships and improving graduate employability, either through startup creation or corporate innovation (Yasin & Gilani, 2022). The triple helix (3H) model of innovation—proposing

academia-industry-government collaboration—seems to be the most influential model guiding research about UBIs (Cai, 2014; Cai & Etzkowitz, 2020; Cai & Lattu, 2021; Fidanoski et al., 2022). The newer models such as the quadruple and quintuple helices are also being studied in recent years, however, the triple helix framework first proposed by Etzkowitz and Leydesdorff (1995), holds the greatest empirical support (Etzkowitz & Leydesdorff, 2000a, 2000b; Cai & Lattu, 2021). Similarly, the entrepreneurial ecosystem approach (Isenberg, 2010) has been proposed for research on UBIs, however, the critics argue that this concept lacks a well-accepted definition and a robust theoretical foundation to guide academic research (Wurth et al., 2021; Fubah & Moos, 2021), serving only as a metaphor (Pellegrini & Johnson-Sheehan, 2020; Cao & Shi, 2020). These academic discourses and debates signal the need for conducting empirical research to finetune the theoretical models and to deepen our understanding of UBIs and their broader ecosystems.

Developed and Developing Countries Perspectives

The role of business incubators varies significantly between developed and developing countries, owing to the differences in institutional support and entrepreneurial ecosystems. In developed nations, the incubators benefit from mature innovation policies and strong university-industry collaborations (UIC) that facilitate research and innovation commercialization (Etzkowitz & Leydesdorff, 2000; Audretsch & Belitski, 2021). On the contrary, developing nations rely on incubators to fill institutional voids and provide critical support to startups in terms of financing, market access, and mentoring (Khanna & Palepu, 1997; Manimala & Wasdani, 2015; Wasdani et al., 2022). For instance, in Brazil, incubators enhance startup innovation by facilitating research partnerships and securing external funding (Fernandes et al., 2017), while in India, incubation initiatives like science and technology entrepreneurship parks (STEPs) and software technology parks (STPs) have supported technology ventures through smart co-working spaces and tax exemptions either through custom-bonded warehouses or direct exemptions of import duty, and income tax (Lalkaka, 2003; Tang et al., 2014; Wasdani et al., 2022). These differences show how incubators in developing regions assume broader roles to establish entrepreneurial culture, enable internationalization, and mitigate systemic voids (Jamil et al., 2016; Engelman et al., 2015)—whereas incubators in developed regions focus solely on scaling high-growth firms.

Academic research has highlighted the need for context-specific incubation models. The developed economies have already established advanced frameworks like the equity-model of incubation and acceleration support, protection of intellectual properties, and so on whereas developing countries adopt hybrid approaches combining government support and international networks (Hassan, 2020; Fidanoski et al., 2022). The triple helix model, although relevant, requires adaptation for emerging economies where institutional roles are less defined (Cai & Lattu, 2021). For example, India's National Science & Technology Entrepreneurship Development Board (NSTEDB) program demonstrates how a state-run incubation program can stimulate entrepreneurship, although the long-term success of such programs depends on factors like funding sustainability and market acceptance (Tang et al., 2014; Wasdani et al., 2022). Future studies should explore how digital platforms and South-South collaboration can help developing economies to overcome these challenges. Comparative analyses of incubation policies in developed and developing nations may also generate newer insights for increasing the efficacy of incubators in supporting entrepreneurship and innovation globally.

Incubators Evolution: Nepal's Perspective

Following the global trend, the developing nations are also establishing incubators to promote entrepreneurship (Ririh et al., 2020; Singh & Sharma, 2024; Shrestha, 2024) and this trend has also been observed in Nepal (UGC Nepal, 2022; MoF, 2024). Nepal faces pressing economic challenges such as high youth unemployment of 19.2% (Kumar, 2024) and hindered economic growth. The Nepalese government is attempting to solve these critical concerns through promoting youth entrepreneurship. Additionally, Nepal is chasing the Sustainable Development Goals (SDGs) (NPC, 2024), and thus promoting entrepreneurship is high on the government agenda. Thus, the Government of Nepal is encouraging entrepreneurship through its key policy instruments such as the 16th Five-Year Plan (NPC, 2024), the National Startup Policy 2023 (MoICS, 2023), the Fiscal Budget for the fiscal year (FY) 2024/25 (MoF, 2024), and the Nurturing Excellence in Higher Education Program (NEHEP) supported by the World Bank (2021). While the first two plans and policies aimed to create a policy framework to

promote entrepreneurship, the latter two are directly aimed at providing financial support through subsidized loans and grants to achieve the same objective.

Although a new phenomenon in Nepal, establishing incubators, particularly the university-based business incubators (UBIs), has been facilitated by University Grants Commission (UGC) Nepal through the "Entrepreneurship Support Program" (ESP) starting in 2022. The ESP initiative operates under NEHEP, funded by the World Bank. It is designed to support students, young academics, and recent graduates in innovative venture creation (UGC Nepal, 2022). ESP has been allocated USD 3.38 million out of 60 million total budget (World Bank, 2021) to establish 70 business incubators (UBIs) in higher education institutions (HEIs) across the country by 2026. UGC Nepal (2022) has already funded over 42 HEIs in two different cohorts with 1.5 million rupees each to establish UBIs in those institutions. Additionally, the Government of Nepal has allocated NPR 1 billion in the FY 2024/25 budget to fund startups and establish incubation centers across all seven provinces (MoF, 2024). The fund is targeted to provide funds for establishing incubation centers, as well as providing subsidized loans to startups. This policy is still under implementation, and its outcome is yet to be known. Separately, there is another subsidized loan program that provides funds to startup founders - however, it operates under the Industrial Enterprise Development Institute (IEDI) and does not involve establishing incubators - the program relies on an open call that's publicized through public media.

Conclusion, Limitations and Future Directions

The global expansion of business incubators highlights the recognition of their pivotal roles in nurturing entrepreneurship, driving innovation, and supporting broader economic development. Incubators in North America and Europe have effectively led startup success through startup funding mechanisms, mentorship from highly expert professionals, and conducive startup and economic policies. Similarly, the developing regions across Asia, Africa, South America, and Oceania are gradually adopting incubation related programs and policies to expedite their economic progress. However, the developing countries have struggled to replicate the success of developed economies because of some structural barriers that hinder the efficacy of incubators. For instance, bureaucratic challenges, legal voids or inadequate legal provisions, poor monitoring mechanisms, and most importantly the lack of research-intensive universities, and research culture limit the realization of incubators' potential. These challenges are exacerbated by the lack of financial resources particularly for investment in startups. Another notable gap lies in forging collaboration between incubators and industry, which limits the opportunities for joint commercializing and marketing innovations. Likewise, academic incubators serve as hubs for research and ideation, however, their outcomes are less effective without collaboration and support of both government and industry.

This study contributes to the scientific literature by collecting key statistics about the business incubators spread across different continents, which has not been evident in any reports or prior studies. Understanding the geographical distribution and density of the incubators is an important step in understanding the big picture of the incubation phenomena. This is also important in assessing the financial investment in incubators and whether such investment is justifiable. However, further research is needed to obtain more reliable data on the actual number of incubators, with proper classification, across regions to understand this phenomenon in greater depth. While this study contributes valuable insights, the true measure of an incubator's success lies not in its numbers but in its ability to facilitate venture creation, enable startup scaling, and produce high-growth firms—including unicorns. This study has laid the foundation for several such future research projects. While academic literature offers extensive research on incubators in some regions, there is a dearth of knowledge about incubators in other regions, such as South America and Oceania. Besides, this study also revealed several gaps in understanding the true picture of incubation globally. One of the most significant gaps was the lack of specific data on the number of registered business incubators within an economy. Similarly, the data on incubator lifecycles, including the number of incubators that were established and later closed due to failure, could provide valuable insights into their effectiveness.

While there are distinctions between incubators, accelerators, science parks, innovation hubs, and so on, the available statistics, however, do not differentiate among them, and thus, the reported figures serve as an approximation, to say the very least. Yet, despite the differences, all kinds of institutions considered are understood in the light of, firstly, having a single overarching goal to support startups and, secondly, having similar operating models. Thus, the distinction was overlooked for the scope of this

review, and more critically, the focus remains on understanding evolution patterns and their current geographical distribution. However, these issues could represent an excellent avenue for future research. If we can ascertain the number of entities in each of these categories, then it would allow for a better understanding and analysis of the phenomena and trends about business incubators. There are several studies that map entrepreneurial activities in different regions, such as the Global Entrepreneurship Monitor (GEM) Report, Startup Blink, and Startup Genome Project. However, such reports barely present any statistical figures or keep track of key metrics regarding incubators. This could present an important area for future publications either within these reports or in a new publication.

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