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Role and contributions of an incubator in academic intrapreneurship – An examination

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A B S T R A C T

Over the past two decades, the changing mission and goals of universities have led to a surge in the literature on academia. However, academic intrapreneurship has not received sufficient attention. Very little is known about how intrapreneurial processes and activities are facilitated and supported in academia. Many universities have established incubators to support entrepreneurship on their campuses. However, incubators' role and contributions in facilitating intrapreneurship in the academic environment are underexplored. The present study addresses this gap. Specifically, the study's research objective is to examine an incubator's role and contributions in academic intrapreneurship. It examines the case of an incubator housed in a business school environment and leverages the academic intrapreneurship literature as its theoretical anchor. Qualitative thematic analysis was conducted on the primary data collected by interviewing 34 individuals who represented all the facets of the entrepreneurial ecosystem. Secondary data that included annual reports, articles, and information from incubator websites, startups, and other ecosystem stakeholders provided additional data for the analysis. The study revealed that the incubator has acted as an enabler for the diversification of the host institution, as a vehicle for developing intrapreneurial capabilities, and as a conduit for organizational learning. It contributes to the academic intrapreneurship literature by explaining how an academic incubator can facilitate the development of academic intrapreneurship and intrapreneurial capabilities in academia. The study outcomes also provide pragmatic directions and insights to the management of universities and incubation centers housed within them, the incubation management personnel, prospective entrepreneurs, and all the ecosystem stakeholders in areas relevant to their operations.

1. Introduction

In the recent years, universities worldwide have changed their focus and goals driven by the need to sustain themselves economically and to expand their value creation activities (Udell, 1990; Wright, 2014). These developments have increased emphasis on academic intrapreneurship, defined as entrepreneurial activities pursued within academic contexts by its employees (Klofsten et al., 2021). Recent research has highlighted that intrapreneurs in academia can exploit new opportunities commercially based on their academic work, and these actions can result in enhanced capabilities and better career prospects for these individuals (Guerrero et al., 2020; Youssef et al., 2021). There is increasing awareness that academics, irrespective of their role in the university, can act entrepreneurially within the academic context and create value in various forms, including creation of new organizations (Valka et al., 2020).

However, many aspects of academic intrapreneurship, particularly on the processes related to different university contexts need to be understood in detail (Klofsten et al., 2021). For example, universities have established incubators, which support the inception, survival and growth of new ventures (Mian et al., 2016; Klofsten et al., 2019). Yet, the antecedents of establishing such organizations to support incubation activities for employees in academia are underexplored. Next, the enabling and constraining aspects of facilitating intrapreneurship within the academic context using such university-based institutions are not fully understood. Further, intrapreneurial capabilities development in the academic context is less explored (Bergman and McMullen, 2022). Lack of knowledge on these aspects has hindered universities worldwide as they struggle to translate their intrepreneurial development goals into reality (Bienkowska and Klofsten, 2012).

Unlike professional or corporate environments, the university context is heterogeneous. Each academic unit usually has the autonomy of operations and freedom to pursue research related to its domain of expertise. The difference in culture, processes, and routines across academic units makes it harder to promote networking activities and collaboration with entrepreneurial ecosystem stakeholders (Munoz et al., 2018). Despite these constraints, some universities have successfully overcome these challenges (Caiazza, 2013). However, the modes, mechanisms, and aspects that helped them tackle these challenges are not fully understood. This knowledge gap is particularly stark in the context of incubators housed in business or management schools. The present study tries to address the above gaps. This study primarily

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examines the role and contributions of an incubator in academic intrapreneurship. It is theoretically anchored in intrapreneurship literature.

Using the descriptive case study method, the study investigates the evolution and activities of an incubator housed in the Indian Institute of Management Bangalore (IIMB), India. N S Raghavan Centre for Entrepreneurial Learning (NSRCEL, 2022) is one of the leading academic incubators in India that has demonstrated sustained outcomes in supporting entrepreneurship over two decades (Sareen, 2014; Soni, 2017; NSTEDB, 2020). Therefore, it was chosen for the study. Data for the study was collected by interviewing 34 individuals who represented all the facets of the entrepreneurial ecosystem. The respondents comprise the host institution management, incubator management, incubator personnel, incubated entrepreneurs, and entrepreneurial ecosystem stakeholders such as investors, mentors, industry partners, and media. Annual reports of the institution, online reports, and articles from reputed entrepreneurial ecosystem partners and websites formed the secondary data for the analysis. The data were analyzed using qualitative thematic analysis techniques to address the research objective.

The analysis reveals the multifaceted role of the incubator housed in the business school. The findings show that the incubator has acted as an enabler for the diversification of the host institution, as a vehicle for developing intrapreneurial capabilities, and as a conduit for organizational learning in entrepreneurship development. The study contributes to the intrapreneurship literature by explaining how an academic incubator can facilitate the development of academic intrapreneurship. The findings explain how university-based incubators can expand their scope and impact over time to become a key element in supporting core university education and research functions. In doing so, they become instruments of nurturing academic intrapreneurship. By explaining the key actors, approaches, and high-level processes that enabled the achievement of diversification of an organization, the study contributes to the intrapreneurship literature. Its outcomes also provide pragmatic directions and insights to the management of universities and incubation centers housed within them. The findings have implications for incubation management personnel, prospective entrepreneurs, policymakers and all the entrepreneurial ecosystem stakeholders in areas relevant to their operations.

The remainder of the paper is organized as follows. The next section provides the literature review and theoretical background of the key constructs and concepts discussed in the study. It concludes by identifying the research gaps and linking them to the research objective examined in the study. The third section details the methodology, including the description of the study location, the research method, the data collection procedure, the description of the sample, and the data analysis carried out for the study. The fourth section presents the data analysis findings; the fifth section analyzes these findings and discusses the new insights emanating from the study. The sixth and last section provides the summary and conclusions, detailing the theoretical contributions, implications to practice, limitations, and areas for future research.

2. Literature review and theoretical background

In this section, review of relevant literature around academic intrapreneurship and incubation is presented. This discussion facilitates identification of the research gaps, and subsequently, the research objective.

2.1. Intrapreneurship in the academic context

At a broader level, intrapreneurship has been defined as the practice of entrepreneurship in existing organizations (Antoncic and Hisrich, 2003; Klofsten et al., 2021). Early literature on intrapreneurship focused on explaining entrepreneurship's role in revitalizing the performance of organizations and enabling the creation of new ventures and spin-offs from the parent organization (Abreu and Grinevich, 2013; Corbett et al., 2013). Intrapreneurship has been examined using strategic management, innovation, and entrepreneurship theories (Abreu and Grinevich, 2013; Audretsch et al., 2021; Corbett et al., 2013; Klofsten et al., 2021). Antoncic and Hisrich (2003) proposed eight dimensions of intrapreneurship, which include the creation of new ventures, new businesses, product/service innovativeness, self-renewal, risk-taking, proactiveness, and competitive aggressiveness.

From the early 2000s, researchers started to explore the specific nuances, characteristics, and contributions of academic intrapreneurship in detail. Academics, regardless of their role within the university, were shown to be as competent as their peers in the industry or startup world to pursue entrepreneurial activities (Stuart and Ding, 2006; Vanhaverbeke and Peeters, 2005). Recent research indicates that intrapreneurs in universities create value and new contributions to their work by leveraging and acting on new ideas and opportunities that confront them in the university context (Guerrero et al., 2020; Youssef et al., 2021). The encouragement of entrepreneurship in a university context also affects university personnel. As a consequence of supporting entrepreneurship in the university, the internal stakeholders of the university (faculty, researchers, students, supporting staff, and alumni) also get motivated to act entrepreneurially.

Universities are complex organizations, much like their large corporate peers (Munoz et al., 2018). The university environment typically comprises many departments and independent units with operational autonomy and different cultures, operating processes, and norms (Bienkowska and Klofsten, 2012). Therefore, extant research on academic intrapreneurship has indicated that these environments create challenges and provide scope for new intrapreneurial opportunities (Klofsten et al., 2021; Guerrero et al., 2020). Valka et al. (2020) studied the intrapreneurial behaviors of the employees of a Latvian university. They identified the individual, organizational, and environmental factors that enabled or hindered the intrapreneurial behavior of the university employees. Guerrero et al. (2020) considered the context of massive open online courses (MOOCs) to explain how the intrapreneurial capabilities of the university directly contribute to achieving university outcomes.

Thus far, the dominant discourse of academic intrapreneurship has revolved around science and technology-based universities. Lately, incubators in business and management schools are finding relevance as credible vehicles for early-stage idea and venture development (Bienkowska et al., 2016). Virtanen and Laukkanen (2002) described that by focusing on the pre-emergence and idea stage activities of individuals at the university, the business laboratory enabled the emergence of incubation-ready new ventures in Finland. Caiazza (2013) observed that business schools of leading American universities created their incubators to support the development of practical business acumen in students. Dang et al. (2019) describe how B-schools in Australia can pursue knowledge transfer through formal and informal channels. Allahar and Sookram (2019) discuss how an entrepreneurial ecosystem was created by making a business school at the University of West Indies the hub of all university related activities.

The above discussions indicate that incubators of academic institutions can also serve as a vehicle to facilitate intrapreneurship. In the next section, we briefly explain the role of incubators in academia and discuss how incubators can be instruments of intrapreneurship development in an academic environment.

2.2. Incubators in the academic context

Incubators in academia have been explored as enterprise development tools by universities (Bruneel et al., 2012; Mian et al., 2016; Han et al., 2022). These incubators support entrepreneurs and their ventures by plugging gaps in the areas of talent, technology, finance, and operational insights on managing new ventures (van Weele et al., 2017). These aspects of support result in various outcomes such as the survival and scaling of new startups, commercialization of technology, and job

creation, among others (Bergman and McMullen, 2022). The university-based incubators provide knowledge inputs via access to faculty and students (Hisrich and Smilor, 1988). By lending the brand and image of the institution, these incubators help establish the legitimacy of the incubated startups (Udell, 1990). The academic incubators also provide physical infrastructure such as lab and equipment, computing power, library, and other soft infrastructure to help reduce the operational overheads of the new ventures (Lasrado et al., 2016).

The activities pursued by these incubators impact the universities or the academic institutions that host these incubators. Most studies have indicated that the incubators leverage university resources (tangible and intangible) to support the incubated entrepreneurs and their ventures (Guerrero et al., 2015; Guerrero and Urbano, 2012). Prior studies have described how incubators act as a conduit for technology transfer, bringing branding and economic benefits to the university (Hisrich and Smilor, 1988; Lasrado et al., 2016). Another strand of research has indicated that incubators help enhance the university's social and business networks due to their activities (McAdam and Marlow, 2007; Breznitz et al., 2018). Kolympiris and Klein (2017) observed that the presence of an incubator in research-intensive universities led to quality reduction of innovations in the university. They opined that the positive outputs of the university incubator would offset this loss of quality of innovation.

The role of incubators has been examined from an organizational learning lens as well (Klofsten et al., 2019). Organizational learning has been defined as a dynamic process by which an organization can create, assimilate and disseminate knowledge based on the organizational requirements (Kane and Alavi, 2007; Lyles, 2014). In the academic context, incubators have been described as mechanisms that help the incubated firms to learn to sustain and grow their businesses (Patton and Marlow, 2011; Mian et al., 2016). The information and knowledge exchange facilitated by academic incubators have also contributed to innovation outcomes for the incubated startups (Kolympiris and Klein, 2017; Haessler et al., 2022).

The literature review on academic intrapreneurship and academic incubation brings to fore the limited extent of knowledge available on academic intrapreneurship in general, and on the role academic incubators play in this process. Many aspects related to the academic institutions, such as the strategic objectives of the university, and internal abilities to support entrepreneurial activities, influence the type of incubators that get established (Bala Subrahmanya and Krishna, 2021). These aspects also impact the nature and type of academic intrapreneurship. Academic institutions set up incubators to support regional economic growth and development, increase innovation, promote technology transfer and commercialization of research, and enhance industry-academia interactions, among others (Grimaldi and Grandi, 2005; Klofsten et al., 2019). The above discussion provides an overview on how incubators can contribute to the growth of new ventures in an academic context. However, there is limited knowledge on how academic incubators can be leveraged as instruments for supporting intrapreneurship in the university context. This is a major knowledge gap that needs to be addressed.

Next, the above discussion also reveals very little insight into many contexts across different levels of analysis (individual, organizational, and system levels) of academic intrapreneurship. For example, at an organizational level, the antecedents of establishing the entrepreneurial support units within the universities, and the motivation and circumstances under which they get formed are not deeply examined (Bergman and McMullen, 2022). Then, the key actors, processes, choices, approaches and elements that drive and sustain the intrapreneurial activities within the purview of the university context are underexplored (Bergman and McMullen, 2022). Further, the enabling and conflicting aspects of nurturing intrapreneurship within the academic context have not been sufficiently probed in the extant literature, barring a few examples such as Cohen et al. (2019). In particular, there is a shortage of literature on how successful intrapreneurial outcomes are enabled in a business school environment, given that they may not have all the necessary in-house resources and capabilities (particularly technical and R&D oriented).

There is some evidence that personnel from universities that have significant natural sciences and technology orientation favor the creation of a spin-off venture as an outcome of their entrepreneurial activity (Bienkowska et al., 2016). In comparison, arts or social sciences oriented university personnel tend to focus on entrepreneurial activities that address social or societal challenges (Bienkowska et al., 2016). However, except for the few studies that have been discussed, there is very little knowledge on what organizational structures shape the intrapreneurial activities of personnel in a business school environment. For example, while the literature review revealed that incubators in academic settings could facilitate intrapreneurship, these aspects are not explored adequately. There is limited understanding on how intrapreneurship is encouraged or how intrapreneurial capabilities are developed in the above contexts. The present study tries to address the above gaps. Specifically, the research question explored in this study is: *What is the role of the incubator in academic intrapreneurship and how does an incubator contribute to academic intrapreneurship?*

3. Methodology

This section details the research methodology. It begins with providing an overview of the location of the study. Then, the research method, procedure for data collection and characteristics of the data sample are described. Next, the procedure for data analysis is explained.

3.1. Overview of the study location

An incubator housed in IIMB, a business school in Bengaluru, India is chosen as the case study location to address the research objective. IIMB, the host institution, figures among the top 50 business schools in the world (QS Global MBA Rankings, 2023). Unlike the typical business schools housed as part of a university, IIMB is an autonomous institute of eminence that focuses on imparting management education and research. IIMB was established in 1973 and is celebrating its 50th year of service to the nation. In its first two decades of establishment (1973–1993), IIMB offered post graduate and PhD programs in management. Later, it diversified into providing faculty development programs and conducting specific programs for working technologists during the 1990s. During the next decade (1993–2003), IIMB improved its internal infrastructure and enhanced its external collaborations. Milestones such as the first management institute to achieve complete internet connectivity on the campus, the establishment of international exchange programs for students, and the establishment of NSRCEL among others were accomplished during this decade. The fourth decade of IIMB's operations (2003–2013) saw IIMB recognized as one of the top 50 business schools globally. IIMB started mentoring other new business schools in the country and received EQUIS accreditation during 2010–2011 (IIMB, 2023).

IIMB enhanced its impact and influence in this decade (2013–2023) by launching MOOCs with eDX, women's startup program at NSRCEL, among others. Its incubator was selected by the country's top policy-making institution NITI Aayog to help anchor and support the entrepreneurship development program in the country. In 2022, IIMB featured at the top level in the Positive Impact Rating and was identified as a 'Pioneering School' (Positive Impact Rating, 2023). In November 2022, IIMB launched a year-long program to commemorate the Golden Jubilee of delivering management excellence. This decade also saw entrepreneurship development taking center stage across many levels in the country (Bala Subrahmanya and Krishna, 2021). IIMB and NSRCEL responded to these external environment changes by making entrepreneurship a dominant field of study and practice during the present decade. Currently, IIMB has about 106 full-time faculty and caters to about 1200 students through its management degree programs and

about 5000 industry executives annually through its management education programs. This specific focus on management education and research allows for greater autonomy to co-create, nurture and grow innovative programs and initiatives in business and management. IIMB offers courses and conducts research in 11 disciplinary areas and through ten centers of excellence. Through its global partnerships, collaborations and deep engagement with governments, industry and institutions, IIMB has created a niche as a credible and critical partner in the development and growth of the respective ecosystems (IIMB, 2023). NSRCEL, the incubator set up at IIMB, also obtains the same ethos of the host institution and has demonstrated several outcomes over the years.

NSRCEL formally started its operations during 1999–2000, and since then, it has been nurturing the startup ecosystem in the region. NSRCEL has two key focus areas – the first is to catalyze entrepreneurship by bringing together entrepreneurs, academia and industry. The second is to contribute to fundamental research in entrepreneurship due of the entrepreneurial ecosystem activities it pursues. The unique aspect of NSRCEL is its focus on the development of entrepreneurs, with particular emphasis on the early and pre-emergence phases of the startup lifecycle. NSRCEL has set a goal to impact at least 10,000 entrepreneurs during the three years between 2022 and 2025. It intends to impact 1 million people directly and indirectly through its social entrepreneurship focus, and deliver $1 billion of incremental revenue from its incubated entrepreneurs as the economic impact of its activities (NSRCEL, 2022).

NSRCEL offers two programs for incubation: Launchpad and Velocity. Launchpad is an idea-stage incubation program targeted at entrepreneurs in the initial stages of their venture formation, with just an idea of the new product or service to be launched in the market. The incubated founders of this program are trained on the foundational skills required to pursue entrepreneurship. Over the three months, the incubated founders of the Launchpad program are provided hands-on training on three facets, namely the individual, firm-specific, and external environment-related aspects. Opportunity identification, establishing the value proposition, and mindset orientation are some of the vital individual-specific aspects that are taught in the program. Aspects of business and revenue models, organization design, and product and technology roadmap development are some of the firm-specific training imparted to incubated founders of the Launchpad program. Aspects of governance, compliance and the value of networking with entrepreneurial ecosystem stakeholders and partners are some of the external environment-specific skills imparted as part of the Launchpad program.

Velocity is the incubation program tailored for entrepreneurs who have found the product-market-fit and are looking at the growth of their ventures. In this program, the incubated entrepreneurs are taught about developing an entrepreneurial mindset to scale and sustain their new ventures. On the firm-specific aspects, NSRCEL helps the entrepreneurs scale their organizational processes, capacity-building to ensure resilience in operations, and financial management. Further, for the incubated entrepreneurs of the Velocity program, extensive mentoring support on aspects they need and access to over 70 entrepreneurial ecosystem partners are provided to ease the operational hassles for growth and market expansion.

Regarding sectoral focus, over the past two decades, NSRCEL has established eminence in nurturing women entrepreneurship, the social impact sector, and in promoting startup ideas in emerging areas (NSRCEL, 2022). The outcomes of NSRCEL are testimony to its impact on the entrepreneurs and the surrounding entrepreneurial ecosystem. For example, in 2022, NSRCEL impacted about 1200 entrepreneurs. A couple of incubated entrepreneurs led their firms to obtain unicorn valuations, with other ventures raising about 2000 million rupees of scale-up capital from venture capital (NSRCEL, 2022). Further, many of its incubated women-led enterprises won multiple international accolades as they navigated their firms towards scale and sustainability. For example, one startup won the UN BMW intercultural innovation award, whereas another women-led startup won the Government of India's emerging product innovation award for 2022 (NSRCEL, 2022). Due to its presence and sustained contribution for over two decades to the entrepreneurial ecosystem while in a B-school environment, NSRCEL becomes an ideal incubator to examine the research objective adopted by this study.

3.2. Research method and data collection procedure

The case study method was chosen to analyze the research objective. Case studies have been described as qualitative research techniques that allow for a deeper investigation of a prevalent phenomenon in its current context (Stake, 1995; Yin, 2003). Case studies are beneficial when there is a need to study and understand the different facets of the phenomenon using different lenses of examination (Eisenhardt, 1989; De Massis and Kotlar, 2014). In the present study, there is a need to examine the multiple processes involved around the incubator that include multiple actors and the different motivations for each of these actors to engage with the incubator, among others. The case study, therefore, emerged as the most optimal technique to be leveraged since it allowed the examination of a different set of variables that are intertwined with the objective of the study (the incubator) (Yin, 2003). The case study method also allows for integrating and interpreting data from primary and secondary sources to derive insights (De Massis and Kotlar, 2014). For these reasons, the case study method with the interview protocols was considered.

For data collection, a semi-structured interview protocol that consisted of open-ended questions was used. Purposeful sampling was used to recruit respondents for the interviews. This technique helped in the collation of different facets of information from a variety of respondents (Nag et al., 2007). The primary criteria for recruitment of the study respondents were that they had directly interacted or engaged with NSRCEL in one or more roles. The sampling design and the selection criteria helped obtain diverse responses from multiple stakeholders in line with Gioia et al. (2013).

The interview protocol had two sets of questions. The first set aimed at extracting information from internal stakeholders of NSRCEL and IIMB, such as the IIMB management team, incubation management, incubated startup entrepreneurs, students, and alumni. The second set had questions optimized to obtain feedback from external entrepreneurial ecosystem stakeholders. These included mentors, investors, government representatives, media personnel, and industry partners. The first set of interview protocols consisted of three parts. The first part collected information about NSRCEL as viewed from the respondent's perspective; the second part collected information about the various processes in which the respondent was involved during the association with NSRCEL, and the third part collated information about the infrastructure and resources of NSRCEL as perceived by the respondent.

The second set of interview protocols also had three parts collecting information on similar lines as the first set. However, the respondents who were administered the second set had more leading questions related to their role and domain of expertise. Further, at the end of every interview, a few minutes were kept for open discussion, allowing the respondent to put forth any additional information necessary to support the study. This approach helped in obtaining rich information from the respondents. The incubation management team at NSRCEL helped in contacting the respondents. They sent an email to all prospective respondents, and after receiving the response and acceptance to participate in the study, the interviews were scheduled by the research team at a time of mutual convenience. Wherever possible, in-person interviews were held, and the rest were conducted online or on call.

To control for participant bias during the interviews, open-ended questions were asked to ensure genuine responses. Follow-up questions were asked in cases where the researchers felt the concept was not clearly understood. The variety in questions and topics ensured participant engagement throughout the discussion. The researchers who

collected data were trained to remain neutral for all the responses provided by the respondents. These steps ensured control of bias during the data collection process.

3.3. Sample description

The data was collected by interviewing 34 respondents who interacted, worked with, or are currently associated with the incubator. These respondents represented about ten different types of entrepreneurial ecosystem stakeholders. The profile of the respondents is provided in Table 1. The interviews were carried out from December 2022 through February 2023 and spanned three months. In addition to the primary data collection, data was collected from secondary sources such as annual reports of IIMB, and from websites of the incubator and incubated startups. Further, sector-specific reports from entrepreneurial ecosystem partners such as Indian Angel Network (early-stage investment partners), media, and government portals dedicated to entrepreneurship support (Startup India Portal, NITI Aayog's AIM Portal) were collected. Third-party data provision agencies (Tracxn) were used to collect information about the entrepreneurial ecosystem stakeholders and their interaction with NSRCEL.

The respondents comprised stakeholders, both internal and external to NSRCEL. The respondents internal to NSRCEL or IIMB included the two members from the current management of the host institution, five faculty members who helmed the incubator during various periods of its operations (present and past), and four incubation leads of specific programs at NSRCEL. Eight respondents represented the incubated entrepreneurs including current students, alumni, and individuals engaging with NSRCEL for the first time. The respondents external to NSRCEL or IIMB include four mentors (a couple of whom were alumni of IIMB), two venture capitalists, two industry partners, one government representative, and three media personnel.

3.4. Data analysis

The data analysis was carried out based on the steps outlined for qualitative analysis of content (Gioia et al., 2013). The first step of data analysis was to read and reread the individual transcripts multiple times to obtain an independent understanding of the respondent's thought process. Where necessary, the additional notes and secondary data related to the content being read was compared to obtain a balanced interpretation. In the initial iterations, the transcripts of the host institution and incubator management were read multiple times to arrive at a broad understanding of the key topics that were being conveyed from the conversations. Next, transcripts from the stakeholders of the incubator including students, entrepreneurs were read to verify and validate the presence or absence of some of the themes. Later, all transcripts were anonymized and the sentences of each respondent were broken down into discrete, but meaningful codes. This exercise was repeated for all respondents' transcripts independently by the researchers. Subseqently, these codes were organized into meaningful themes based on grouping similar sounding phrases. This exercise yielded 21 first-order themes from the data.

In the next step, the researchers looked for similarities of themes both within and across the respondents to unearth conceptual patterns that aligned with extant literature concepts, but also conveyed new insights not present in the different literature (Glaser and Strauss, 1967). This was accomplished by the researchers going back and forth with the data across multiple iterations, as well as reviewing the first-order codes in tandem. The outcome of this exercise was the clustering of first-order themes into second-order constructs. By following this method, three first-order codes each could be clustered around inclusion of entrepreneurship in the vision statement, establishment of entrepreneurship area by the host institution, and intrapreneurship-related knowledge acquisition, respectively. Four first-order codes each were clustered against process innovativeness and self-renewal second-order constructs,

Table 1
Profile of the respondents of the study.

Respondent ID	Designation/role of the respondent	Entrepreneurial ecosystem category of the respondent
R1	Chief Operating Officer at the incubator	Incubator management
R2	Student at host institution	Incubated student entrepreneur
R3	CEO, incubated startup	Incubated startup
R4	Student at host institution	Prospective entrepreneur
R5	CEO, incubated startup	Incubated startup
R6	Serial entrepreneur incubated earlier, currently mentor at the incubator	Mentor
R7	CEO, incubated startup	Incubated startup
R8	CEO, incubated startup	Incubated startup
R9	Former CEO of a global retail conglomerate, business and leadership coach and alumnus of the host institution	Mentor, investor and coach on strategy
R10	CEO, incubated startup	Incubated startup
R11	Professor Emeritus of the host institution and past Chairman of the incubator	Incubator management (past)
R12	Director of the host institution	Management of the host institution
R13	Lead investor and founding member of social investment seed fund of angel investors in India. Mentor at the incubator	Angel investor, Mentor, Fund advisor
R14	CEO, Incubated startup	Incubated startup
R15	Formerly, Operations leader of the incubator	Incubator management (past)
R16	Coordinator, Women entrepreneurship programs at the incubator	Incubation management
R17	Former COO of the incubator	Incubator management (past)
R18	Co-founder, Incubated startup	Current incubatee
R19	Corporate social responsibility leader of a multinational enterprise	Industry and program partner for incubator
R20	CEO, incubated startup	Current Incubatee
R21	Founder Director, Atal Innovation Mission, NITI Aayog, Government of India	Government representative and Program investor
R22	Student and prospective entrepreneur	Prospective entrepreneur
R23	Program lead, Social and financial inclusion at the incubator	Incubation management
R24	Media liaison at the Communications department of the incubator	Media
R25	Former CEO of a marketing and advertising company and alumnus of the host institution	Resident Mentor at the incubator
R26	Professor at the host institution	Management of host institution
R27	Leader of CSR arm of a multinational corporation	Industry and program partner for the incubator
R28	Former CXO in multiple enterprises and a startup founder; currently CEO of a non-profit and active in startup development	Mentor at the incubator
R29	Angel investor and venture capitalist	Financial investments stakeholder
R30	Lead for incubation programs at the incubator	Incubation management
R31	Lead for pre-incubation program at the incubator	Incubation management
R32	Reporter for a reputed entrepreneurship magazine	Media
R33	Senior journalist at a private media house covering business and economy	Media
R34	Professor and current Chairman of the incubator	Incubator management (present) and professor at host institution

respectively. Two first-order codes each that remained could be clustered around intrapreneurship-related knowledge retention and application constructs, respectively.

As the final step, the second-order themes were aggregated into the higher-level third-order dimensions based on theoretical support from intrapreneurship and learning literature. This was done by ascertaining the association of the codes and themes with the dimensions. The R package for Qualitative Data Analysis (RQDA) was used for all the data cleaning, segregation, and tokenization of content. During the data analysis, researchers independently coded and analyzed the data, and then mutually presented the themes and constructs of the data structure that evolved. In cases of conflict, each researcher presented their version and resolved all conflicts in the presence of the third researcher. These steps ensured independent analysis of data. Table 2 presents the mapping of themes, constructs, and dimensions obtained from the data analysis.

4. Findings

The data analysis revealed that the incubator in the business school environment enabled the business school to diversify its teaching departments, helped develop intrapreneurial capabilities for the school, and acted as a conduit for learning in the area of entrepreneurship. The following sub-sections describe the findings in detail.

Table 2
Mapping of themes, constructs, and dimensions from the data analysis.

First-order themes	Second-order constructs	Third-order dimensions
- Initial enterprise support activities - Obtainment of funding by the incubator from anchor donors - Figuring out skin in the game (after trial and error) and achieving Product-Market-Fit	Inclusion of entrepreneurship in the Vision statement of the host institution	Diversification of the host institution
- Optional courses on entrepreneurship - Core course in entrepreneurship - Hiring of entrepreneurship faculty	Establishment of Entrepreneurship Area	
- Basic infrastructure provision - Mentors - Industry partners - Funding	Process innovativeness	Intrapreneurial capabilities for the host institution
- Autonomy of the incubator - Establishment of Chief Operating Officer role at the incubator - Academic owner of the incubator - Section-8 (non-profit) company formation	Self-renewal	
- Alumni - Corporate partners - Academic incubator collaborations	Intrapreneurship-related knowledge acquisition	Organizational learning for the host institution
- Faculty in the entrepreneurship area - Practice of new processes and programs with partners	Intrapreneurship-related knowledge retention	
- Value addition to early-stage entrepreneurs - Benefits to entrepreneurial ecosystem stakeholders (industry partners, government, society, etc.)	Intrapreneurship-related knowledge application	

4.1. Diversification of the business school

The first set of findings help to understand the strategic outcomes achieved by the host organization. The transcripts revealed that establishing the incubator within the premises of the business school increased entrepreneurship related activities within the campus. Over time, these led to the inclusion of entrepreneurship in the institution's vision statement. Later, sustained entrepreneurial activities led to the establishment of a new area of entrepreneurship within the business school, indicating the diversification of the business school activities. These findings are discussed in detail in the following sub-sections.

4.1.1. Activities that led to the inclusion of entrepreneurship in the vision statement of the host institution

Over the first decade of operations, many key activities and initiatives pursued by NSRCEL eventually led to formal recognition and support from the host institution. The narratives of the respondents of the study corroborate evidence of these key milestones. For example, one of the respondents, R11, who was academic head of the incubator, shared the following while recounting the activities that led to the formation of the incubator:

> *Even prior to formation of NSRCEL, we were running a couple of programs to help small and medium business owners in this region to manage their businesses and scale. We partnered with a couple of banks to support these activities. However, we could not run these programs at scale. We could handle a maximum of 10 entrepreneurs at any given point of time. When we sensed the possibility that we could obtain funding from Mr. N S Raghavan, who was retiring from [the multinational company] at that time, we quickly worked on a proposal and engaged with him (R11).*

The circumstances that led to the founding of NSRCEL came about serendipitously. It was a case of proactive institution management engaging with industry and seizing on the presented opportunity. R12, another respondent who was privy to the developments during that time, had the following to share during the discussion:

> *At that time, our Director visited [the multinational company] to explore support and collaboration opportunities. He had a list of about 10 different initiatives of which supporting entrepreneurship in the region at scale was one of them. During the consultation process, it transpired that one of the co-founders of [the multinational company] was retiring and would be interested to consider supporting if there were to be a formal proposal. We immediately huddled around to create a proposal, and with support and facilitation of other co-founders, we were able to obtain an initial seed corpus of about 12 crores INR from Mr. N S Raghavan to start the activities. This is when the erstwhile Center for Entrepreneurial Studies (CES) got renamed into NSRCEL (R12).*

Secondary data sources (annual reports of IIMB) indicate that during 1999–2000, NSRCEL formally stated its operations as an independent center. The transcripts also provided information that another anchor investor, Bill Melton, Founder of Global Internet Ventures, who was on a visit to India around the time of the inception of NSRCEL, supported the idea of setting up an incubation center within IIMB. With the support of these anchor investments, NSRCEL began its operations with renewed vigor in the early 2000s.

The first decade of operations at NSRCEL was about experiments and experiential learning on the best modes and mechanisms to support entrepreneurship in the region. During this time, multiple initiatives were tried out, and based on the outcomes, certain course corrections were made to ensure optimal outcomes for all stakeholders involved. Of particular relevance are the women entrepreneurship and social entrepreneurship related programs that a few passionate faculty members at the host institution championed. NSRCEL became a vehicle for implementing these entrepreneurship support programs and helped the faculty and associated personnel at IIMB to realize the outcomes. The learning from the execution of these programs helped NSRCEL to

identify the core areas where it could best support entrepreneurs. These aspects are corroborated by the narrative of R15, who helmed the activities of the incubator during the early years of NSRCEL:

> *The early years of operation of NSRCEL was about getting the documentation right, the building and infrastructure available for startups to operate among others. Other than these operational things, we had to experiment with different types of funding support, mentoring assistance to the incubated startups. My predecessor had initiated the women entrepreneurship program and we had to engage deeply with these entrepreneurs to understand their needs and evolve initiatives on how best we could support them (R15).*

All the above activities provided sufficient impetus for the IIMB management to incorporate entrepreneurship as part of the institution's vision statement in 2013–2014.

4.1.2. Establishment of entrepreneurship area as an independent field of research

Incorporating entrepreneurship in the vision statement constituted a major milestone in the institution's history. However, the support for entrepreneurship activities was not just a procedural exercise. It is also reflected in the type and kind of courses that were introduced in the institution over time. For example, R11, one of the faculty members who helmed NSRCEL for a considerable time, explained the operationalization of the vision to support entrepreneurship as follows:

> *At the beginning, we started offering an optional course on entrepreneurial management to the students. However, since we saw sustained demand and interest from students across multiple batches, we introduced another core course which now students had to mandatorily study as part of their MBA curriculum. The positive embracement of these courses from students, coupled with the external environment need to support entrepreneurship activities in the region finally led to establishment of a separate 'Entrepreneurship' area in IIMB to which new faculty were hired. This way, a formal mechanism to create knowledge through research and impart the same to students and entrepreneurs in various aspects of entrepreneurship was institutionalized (R11).*

It can be observed that the establishment of the incubator in the institution led to a gradual increase in scope and impact that the institution could make on society. Further, from the transcripts, it is understood that NSRCEL provided the institution with a mechanism to translate the theoretical knowledge on entrepreneurship into actual practice. These actions created positive externalities for the entrepreneurial ecosystem stakeholders associated with the incubator and the institution. Further, it also created a bidirectional knowledge exchange mechanism on aspects related to entrepreneurship by allowing faculty at IIMB to learn from practice, leading to the establishment of an independent area of research on entrepreneurship at the host institution. All these aspects helped in the diversification of activities of the institution and enabled it to differentiate itself from its peers under several dimensions of evaluation.

4.2. Intrapreneurial capabilities

The second set of findings help to understand the components and constitutents of the intrapreneurial capabilities in the academic context. These capabilities depict evidence of the 'what' aspect of the research objective. In the context of the study, intrapreneurial capabilities of process innovativeness and self-renewal at NSRCEL were discovered from the analysis of this set of findings. Further, the evidence indicates that these intrapreneurial capabilities of NSRCEL benefitted the host institution as well.

4.2.1. Process innovativeness

The transcripts revealed that during the initial years of operations, NSRCEL followed a copybook style. NSRCEL offered working space and other operational infrastructure, mentoring and financial support, and other required aspects to incubating startups at a subsidized rate. However, over time, the transcripts reveal that given the strengths of IIMB, NSRCEL received adequate financial support from multiple players in the entrepreneurial ecosystem. It did not have to earn revenue from incubated startups for its sustenance. After multiple iterations and experiments, it offered space and operating infrastructure, mentoring and all other support from NSRCEL for free to the incubated entrepreneurs. Only in some cases did the entrepreneurs pay subsidized costs if they availed services from NSRCEL's partners. A currently incubated entrepreneur articulates the current state of support on the infrastructure provision as follows:

> *At NSRCEL, we are provided the basic infrastructure for free. This includes seating space, the meeting rooms, the internet and all other things you would expect at a professional setup. We are allowed to use IIMB address for our correspondence and that helps when we meet our prospects and partners among others. NSRCEL offers virtual incubation also, and this helps me to work from here and the rest of my co-founders and team work from our office in Chennai (R20).*

Along similar lines, other respondents from the study outlined how helpful mentoring support was for them and their startups. The analysis of transcripts of multiple respondents indicated that NSRCEL had created a strongly differentiated position compared to other incubators in the region due to its superior support of startups via mentoring. Further, these value-added services are currently provided free to incubated entrepreneurs. As evidence of these aspects, an excerpt from a resident entrepreneur at NSRCEL is reproduced below:

> *According to me, one of the key differentiators for us choosing NSRCEL among other available incubation options is due to its mentoring. For long, we had been trying to reach out to this person in our domain – to make him our strategic investor and advisor, but in vain. However, since we joined the incubation program at NSRCEL, to our pleasant surprise, not only we are able to have him as our chief mentor – but we also have access to many more experts who can be consulted for various aspects of our startup. They all are available to us for free, by the way! (R18).*

The subsidized support entrepreneurs received from the industry and business partners of NSRCEL was another aspect dominantly revealed by the analysis. Analysis of the transcripts showed that the incubator has forged and sustained strong and deep relationships with entrepreneurial ecosystem partners and stakeholders, entrepreneurial service providers, and vendors from different domains. These partnerships have resulted in entrepreneurs benefiting from the availability of these services at costs below the prevailing market rates. As an example, R1, the current operating head of the incubator, stated the following regarding the services available for incubated entrepreneurs at NSRCEL:

> *In our Velocity incubation program, which is of 12 months duration, we provide the incubated entrepreneurs a start-up kit that has all the basic organizational support packages from legal, accounting, cloud credits, design, logistics and other aspects at virtually zero or heavily subsidized rates. Next, our incubated startups can engage with more than 70 ecosystem partners to avail services across the business lines at subsidized costs for their specific needs (R1).*

It is important to note that access to funding and support for entrepreneurs to raise external capital is also one of the core value-added services provided by NSRCEL. Regarding the funding support, the transcripts revealed multiple configurations were tried at different points in time of the operations of NSRCEL. The support ranged from providing seed funding to entrepreneurs by picking a tiny equity stake in the incubated startup to the current practice of not taking any equity in the incubated firms, but not directly providing capital support from NSRCEL. The access to capital via seed, angel, venture capital, government grants, and corporate social responsibility grants from large enterprises is now facilitated by NSRCEL to those entrepreneurs who wish

to raise external capital.

The changes in the funding support landscape are a response to changing startup funding landscape in the local entrepreneurial ecosystem. Two decades ago, during the initial days of operations of NSRCEL, external financial support was not developed, and NSRCEL had to fill these voids to support entrepreneurs. Gradually, however, as the startup activities grew and the entrepreneurial ecosystem maturity improved, external capital mechanisms and availability became more structured, prompting NSRCEL to change its funding support systems for its incubated entrepreneurs. These aspects are corroborated by one of the incubator's program managers, who explained how and why these changes transpired:

> *The world was moving to impact investments and for-profit investment models. At the investor side, we had entities who had succeeded with these models and were interested to do more in India. I was able to convince both the faculty in-charge and the COO here at NSRCEL that this is the best model to move forward (R23).*

In summary, the above transcripts provide a detailed overview of the processes continuously reoriented in response to the changing dynamics of the external ecosystem.

4.2.2. Self-renewal

It must be noted that the changes at NSRCEL were not just related to the operational aspects of the incubator, but, the overall incubation strategy was also realigned to continue to offer the best possible support to entrepreneurship. For example, R12, a respondent from the business school management, provided a macro-level perspective of how the institution's culture of providing freedom of operations has ensured the autonomy of the incubator at an operational level, which further enables it to change, update or modify its processes and routines to keep itself relevant to changing external circumstances:

> *I think the idea of a center at IIMB is that you take forward all the activities related to your center independently. To the external world, NSRCEL might be seen as a part of IIMB – and it can rightly leverage the brand of IIMB for its purposes. Operationally, throughout its existence, NSRCEL has the freedom to pursue what is best at any given point in time to achieve its objectives (R12).*

The agility and flexibility to change the required facets of the incubator to fully realize the incubator's vision and goals and remain true to its objectives of supporting entrepreneurs have been corroborated by multiple respondents who provided examples of the same. For example, based on the initial years of operations under a faculty member as head of operations, the institute management realized that they needed the services of an industry/incubation expert to manage the operational aspects of NSRCEL appropriately. One of the respondents, who was among the early operational leaders of NSRCEL, provided evidence of the above thought process as below:

> *As we experimented different models of entrepreneurship support in the initial years, it became clear that we needed a two-pronged approach to optimally execute the activities at NSRCEL. While faculty as Chair brought in the academic, research and knowledge side of things to NSRCEL, there was a need felt that someone from the industry who has the operational expertise is equally needed to navigate and shape the activities. I think this is why I was brought in to NSRCEL to manage these aspects (R15).*

Multiple respondents noted that NSRCEL evolved to have a dual leadership structure, with one of the institution's faculty members being appointed the formal head of the incubator, with another leader with industry and ecosystem exposure leading the operational aspects of the incubator. This dual leadership structure, as per the respondents, has ensured multiple benefits to IIMB and all its stakeholders. Another recent example of responding to changes and adapting to the needs and requirements of the entrepreneurs and other stakeholders is hiving off all the operational aspects of the incubator to a not-for-profit company. This change was initiated to make it easier for the entrepreneurs and personnel of the incubator to operate without operational hassles. R1, the operational lead of NSRCEL explained the motivation for affecting this change:

> *Since the initiatives and impact of NSRCEL expanded considerably over years – we realized that our internal operating structure that of formally being part of IIMB for governance and financial purposes were creating more operational challenges than benefits. In order to mitigate this challenge, we have now created a not-for-profit company – IIMB Innovations under which all activities of grants, formal governance related aspects with startups, our entrepreneurial ecosystem partners are carried out. This has ensured that all stakeholders of our entrepreneurial ecosystem are benefited and derive more value out of NSRCEL (R1).*

The above evidence details how the incubator and the institution's management have proactively ensured that necessary changes in routines, processes and structures are made from time to time to respond to the changing dynamics of the entrepreneurial ecosystem.

4.3. Organizational learning

The third set of findings provide evidence of the processes that enabled the achievement of intrapreneurial capabilities and strategic outcomes for the incubator and the host institution. These processes explain the 'how' component of the research objective. The findings led to the discovery of a process of continuous learning, made possible by networking and continuous engagement with internal and external stakeholders and bidirectional communication between all stakeholders at all times. These processes are the core, due to which the intrapreneurial capabilities and strategic outcomes (findings from the previous sections) for the incubator and host institution were made possible. The third and final set of themes and constructs revealed from the analysis of transcripts was related to the internal learning, assimilation, and application of knowledge of supporting entrepreneurial activities over the two decades of NSRCEL's existence. The transcripts provided insights into the various sources through which the incubator could acquire new knowledge. They further revealed the modes and mechanisms using which the acquired knowledge was retained and assimilated within the incubator and the broader business school context. The transcripts also revealed the type and kind of activities that provided proof of new knowledge applications leading to tangible value creation for all entrepreneurial ecosystem stakeholders and to the host institution.

4.3.1. Intrapreneurship-related knowledge acquisition

It was observed that NSRCEL obtained new information on the developments that would impact intrapreneurship through various channels. The IIMB alumni were one such important source of new knowledge. The transcripts revealed that the alumni of IIMB engaged with the institution and the incubator under various contexts, such as coming back to start a new venture after pursuing a few years of professional career or representing their organization's engagement with NSRCEL and IIMB, among other things. One such example from a respondent of the study, R3, help to understand how external knowledge comes back through the alumni to the business school due to association with the incubator:

> *After my graduation, over the next six years, across startups and companies, by 2019, I was a Director of Growth at a carpooling startup. By now, I had built expertise primarily in scaling, like, understanding growth, dealing with blind spots, early-stage startup decision making, how do you build a team etc. I knew that practical opportunities were available in the mobility and healthcare sectors with a focus on Indian market. This led me back to NSRCEL (R3).*

Corporate partners were found to be another mode of new

information and knowledge acquisition for NSRCEL. A few of the respondents included professionals from large enterprises and non-profit/corporate social responsibility units of large multinational corporations. These respondents described the incubator as a vehicle to build or evaluate a pipeline of new ventures that leveraged the latest technological developments, which likely would have an economic or social impact. Hence, partnering with NSRCEL concerning such initiatives and activities was part of their work plan. For example, R27, the NSRCEL liaison of the non-profit wing of a multinational enterprise, had the following to share about the above aspects:

> *When innovative things happen, as corporates, we cannot wait for new ventures to fully be ready with product-market-fit, but proactively, we need to engage with incubators to identify promising ventures. We usually look for incubators who come with strong pedigree or track record and have a social or market making bend of mind. As we started scanning the market, NSRCEL came up as one of the few who met both of our criteria (R27).*

The above example illustrates the need for the incubator to be seen as worthy or capable enough by the corporates to execute their objectives satisfactorily. It also explains how the industry partners bring new knowledge of the latest developments into the incubator. It is not just the corporate partners who are a conduit of new knowledge to the incubator. All the entrepreneurial ecosystem stakeholders with whom the incubator interacts, including the prospective entrepreneurs, serve as sources of new knowledge streams. For example, R29, a venture capitalist who also was an entrepreneur, had the following to share regarding their involvement with NSRCEL:

> *As an entrepreneur and a venture capitalist, I have come across NSRCEL shortly after it was founded, and since then, I have been constantly engaged with its incubates and participants. It has been a fairly long and almost continuous involvement, exchange of ideas for a long while. Till some time back, I was part of the investment committee of NSRCEL. As the ecosystem has matured, NSRCEL's ability to benefit entrepreneurs has increased accordingly (R29).*

These illustrations indicate that NSRCEL engages with different entrepreneurial ecosystem stakeholders and also with other collaborators, and through them, NSRCEL can acquire new knowledge related to entrepreneurship continuously.

4.3.2. Intrapreneurship-related knowledge retention

The transcripts provided evidence about the modes and mechanisms by which the incubator could retain the new knowledge gained from the different sources. For example, one of the faculty members in the administration of the business school (R26) noted that faculty involvement in various forms (as the overall leader, by engagement with startups through various programs, among others) with NSRCEL has helped in assimilating the new knowledge gained from multiple sources. R26 further opined that this mode has ensured that the key knowledge aspects are retained in the institution – which later would be repurposed for helping the entrepreneurial ecosystem stakeholders. An excerpt from the conversation with R26 is provided below to substantiate the above observations:

> *Importance of entrepreneurship has been highlighted more and more so now. Sitting in Bangalore, you cannot just ignore that. When we got the endowment from Mr. Raghavan in the early 2000s, entrepreneurship was a very nascent domain out here. There was a lot of confusion at that time on whether entrepreneurship is a mishmash of some organizational behavior and strategy domains. Over the past 20–25 years, there is now a very clear understanding of where the regular organization differs from an entrepreneurial organization, thanks to NSRCEL (R26).*

Another mode of knowledge assimilation and retention by NSRCEL was the experimentation and adoption of new knowledge in its existing programs and initiatives. Based on the outcomes of such variations, these new routines or best practices would then get institutionalized across its programs. Further, the transcripts provided evidence that entrepreneurial ecosystem stakeholders were also comfortable working with NSRCEL because of its ability to quickly assimilate new developments in the market and provide new value addition to the initiatives. For example, R27, a corporate partner of NSRCEL, shared the following when asked why they chose to collaborate with NSRCEL:

> *We are a Foundation but we fund startups in the social impact space because we want to solve problems for people who are in the low-income and marginalized segments. In such segments, usually market linkages do not work optimally. If we can show a few role models that actually serve these segments, then, we will meet our objectives. With NSRCEL we had gone with such mandate (R27).*

4.3.3. Intrapreneurship-related knowledge application

The last set of themes derived from the analysis provided evidence of the successful application of the new knowledge gained by NSRCEL, leading to the acknowledgment of value addition provided by the incubator to multiple stakeholders. For example, R4, one of the incubated entrepreneurs, had the following to share about the value addition that NSRCEL provided to them:

> *We were into B2B manufacturing of soft drinks but we did not have any experience in how to create a brand, what marketing aspects we need to follow. What NSRCEL did is that they asked me about my requirements and then they connected me to mentors in branding and manufacturing who helped me to understand how to approach the market, positioning and improvements in manufacturing. Due to NSRCEL's connects, we also were able to cross-sell and upsell our combined offerings for the Diwali festival (R4).*

While the above example denotes how entrepreneurs benefit from the new knowledge gained by NSRCEL, these aspects also found relevance among other partners in the ecosystem. In another instance, R21, a representative of the government responsible for entrepreneurship and innovation proliferation in the country, acknowledged the value addition that NSRCEL was able to provide to further entrepreneurship initiatives in the country, particularly for the women-related and social impact sectors:

> *Through Atal Innovation Mission, funding up to 10 crores as grants was provided to the incubators by the Government to be able to incubate and foster world-class startups. This was done through a competitive selection of the ability of the incubator to enable success of entrepreneurs and startups. In that process, NSRCEL were among the first set of incubators to be selected over several thousands of applicants. We are happy that all the incubators we funded are doing extraordinarily well. Through these initiatives, we have encouraged women led startups and also have encouraged socio-economic innovation that benefits the community (R21).*

As a last example, one of the entrepreneurial ecosystem stakeholders, a respondent representing the media, explained how the flow of information and knowledge helps NSRCEL and IIMB in driving excellence in the respective fields:

> *IIMB is consistently ranked among India's top business schools. Also, due to a lot of knowledge transfer from IIMB as a research body to NSRCEL makes it I believe one of the world's best entrepreneurship development organizations. (R33).*

In summary, the findings reveal that knowledge acquisition, assimilation, and application capabilities of the incubator helped to establish NSRCEL as a conduit of organizational learning for IIMB.

5. Discussion

The primary research objective of this study is to examine an incubator's role and contributions in academic intrapreneurship. The

findings from the data analysis pave the way to analyze and discuss the key discoveries and implications related to the incubator, the hosting institution, and all the entrepreneurial ecosystem stakeholders. The findings outline that the NSRCEL incubator has helped IIMB, the host institution, to diversify its operations by incorporating a new area (department) of research and training. Next, NSRCEL has helped IIMB develop intrapreneurial capabilities by continuously engaging with all stakeholders of the entrepreneurial ecosystem. All the above activities have led NSRCEL to contribute to organizational learning in intrapreneurship development for IIMB.

The findings depict three distinct but interrelated levels in the phenomenon. The organizational learning by NSRCEL ('how' aspect of the phenomenon) explains the internal processes that lead to the achievement of the intrapreneurial capabilities of institutions ('what' aspect of the phenomenon). The diversification (strategic outcomes of institutions) being at the apex level is a result of development and continuous refinement of intrapreneurial capabilities, which is made possible by continuous organizational learning. In other words, without learning (the root node level), the capabilities and strategic outcomes cannot be achieved. Each level of the category of findings builds on the previous level. Based on the findings and their interpretation, a framework of how an incubator contributes to intrapreneurship in the academic context is presented in Fig. 1.

Fig. 1 depicts the dynamics that explain how an incubator contributes to academic intrapreneurship. It explains how the incubator and host institution continuously interact with a variety of internal and external stakeholders resulting in a bi-directional knowledge acquisition process between the stakeholders and institutions. The knowledge acquired through these sources is then exchanged and retained where appropriate, amongst the host institution and the incubator. This process results in changes to incubator processes and routines, while adding to existing knowledge base of the host institution. The resultant learning from the acquisition and assimilation of external knowledge is later applied by both the incubator and host institution through new programs, activities and related events, indicating the application of new gained knowledge. This continuous learning cycle accumulates temporally, and leads to development and enhancement of intrapreneurial capabilities of the organizations. When this cycle of continuous learning gets institutionalized and stays effective despite changing internal and external developments, then, strategic outcomes such as diversification of the host institution are achieved. This outcome is made possible due to the continuous refinement and enhancement of intrapreneurial capabilities within the institutions. These aspects are discussed in detail in the following sub-sections.

5.1. Incubator as an enabler for business school diversification

The first core aspect of the findings is that the incubator has played a role in enabling the diversification of its parent entity, i.e., the business school. Diversification in strategic management literature has been explained as a method to expand or grow existing business by introducing new products, services or offerings (Rumelt, 1982). It enables firms to exploit new opportunities, grow revenue and sustain competitive advantage (Rothaermel et al., 2006). In our context, due to the incubator's support, the host institution created a new area of research and teaching, thereby expanding its portfolio of courses to its students. It was also able to differentiate itself from its competitors (other business schools) on account of the same. The findings provide evidence of all the above aspects. The introduction of an optional entrepreneurship course to students in the initial years, which culminated in establishing an Entrepreneurship area and hiring research faculty for this area can be viewed as tangible outcomes for the host institution. These outcomes can be viewed as results obtained by the host institution due to the implementation of the diversification strategy.

The above findings indicate that university incubators could go beyond providing entrepreneurship support services and play an extended role in supporting core university education and research functions. Etzkowitz et al. (2019) states that in mature entrepreneurial universities, the focus is shifting from an incubator to a larger and wider role of incubation. Prior literature has described the nuances, advantages and challenges of the transition to an entrepreneurial university (Etzkowitz, 1983; Etzkowitz et al., 2019). Among them is how an institution needs to manage the dual objectives of academic and social goals or different combinations of both, which sometimes appear juxtaposed (Etzkowitz, 2013). In this case, the findings indicate the gradual transition of NSRCEL as an incubator to NSRCEL as an enabler for the diversification of business schools, indicating the increased scope and function of the entity in its housed ecosystem. The study's findings depict how an incubator, with the correct strategic orientation, autonomy, and execution, has legitimized the practice of intrapreneurship and entrepreneurship in academic contexts.

The findings also underline another important aspect – the presence

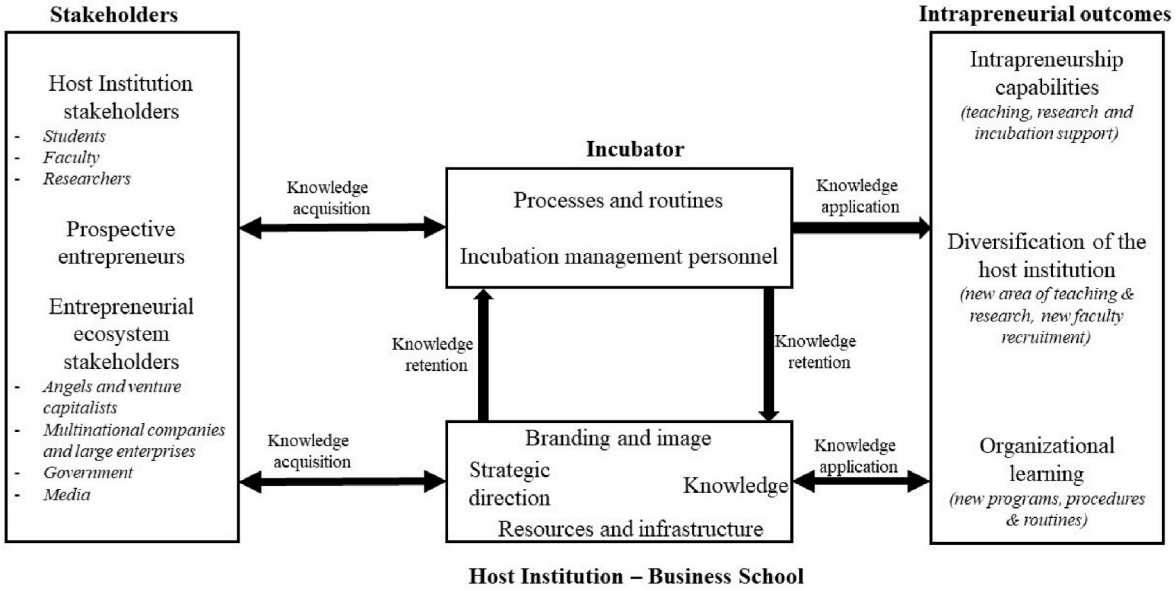

Fig. 1. Role of a business incubator in the development of intrapreneurship.

and nurturing of systematic and strong bidirectional support and leverage between the incubator and the host institution. While the above paragraphs discuss how the incubator has supported its host institution, there is evidence of the host institution enabling the incubator as well. The study found that IIMB as the host institution provides its brand, credibility, and expertise in business activities (for example, selection of entrepreneurs for incubation, and training), which the incubator leverages to obtain its competitive advantage. Further, the host institution supports the incubator by providing a steady pipeline of alumni, who support the incubator through various roles such as incubates, mentors, or, in other cases, a corporate partner. A related interpretation from the findings is that each major outcome or accomplishment of the incubator sets the stage for more extensive and impactful outcomes for the host institution over time.

Another important finding is about the orientation of incubation activities and the culture of incubation, which is heavily influenced by the host institution. Given that IIMB is a public institution, a majority of the processes and focus areas of the incubator are a direct influence on the ethos and orientation of the host institution. For example, the stance of focusing on entrepreneurs, no equity dilution requirements for incubated entrepreneurs, and the incubator's focus on nurturing social and women-led enterprises during the idea and pre-incubation stages, demonstrate these influences. Prior literature has indicated that there is an orientation towards creating spin-off ventures in science and technology rich academic environments. In contrast, in social sciences-oriented universities, the orientation of incubation is towards solving societal challenges (Bienkowska et al., 2016). This study also demonstrates the influence of host university ethos on incubation activities.

5.2. Incubator as a vehicle for the development of intrapreneurial capabilities

The study's findings indicate that the incubator has constantly reinvented itself over time to cater to and adjust to the changing demands of the external ecosystem as well as the internal stakeholders. These aspects pave the way to discuss how the incubator can be viewed as a vehicle or instrument for developing intrapreneurial capabilities for the host institution. A review of the findings indicates that the incubator at IIMB was able to garner financial resources to sustain its operations throughout its tenure of operations. The clarity of objectives and the competence to achieve the outcomes have enabled NSRCEL to obtain external grants for sustaining its operations over the past two decades. This aspect has enabled the incubator to focus on the core objective of entrepreneurship development for society without being distracted by the need to explore modes for self-sustenance. The nomination of skilled and entrepreneurially oriented faculty as leaders for the center enabled the incubator to develop dynamic capabilities over time, creating tangible outcomes for the host institution and society.

Teece (2018) has indicated that leaders with entrepreneurial orientation can orchestrate the available resources efficiently and thus contribute to innovation and enhanced performance of their firms. Evidence from the transcripts indicates that multiple configurations of available resources were experimented over time at NSRCEL in financial support, basic infrastructure, and mentoring support to the incubated entrepreneurs. These activities helped the incubator to respond effectively to new opportunities as they presented themselves. For example, the transcripts exhibit the prior experience of NSRCEL in dealing with issues of women entrepreneurship, and how global multinational firms such as Cap Gemini, Goldman Sachs, and others engaged with NSRCEL to promote women entrepreneurship in the country. Similarly, NSRCEL can differentiate itself from other incubators in the region and country by not directly funding incubated entrepreneurs, relying heavily on providing mentoring support for free, and enabling access to over 70 industry partners. These innovative processes result from dynamic capabilities developed by NSRCEL, which has effectively leveraged the available entrepreneurial resources (Wu, 2007; Arend, 2014).

Self-renewal of the incubator is another intrapreneurial capability demonstrated by the study's findings. It is observed that as the incubator started its operations very early on, it was understood that there was a need for externally oriented and professionally qualified personnel for the management of operations of the incubator to obtain the desired outcomes. This gap was addressed by appointing a Chief Operating Officer qualified to orchestrate the resources available to the incubator and maximize the outcomes accordingly. Similarly, as the impact and the number of concurrent entrepreneurship development programs increased at NSRCEL, a not-for-profit entity was created to ease the operational overheads for all the incubator personnel.

The increasingly different objectives of the host institution and the incubator primarily drove this change. For example, imparting education in a disciplined, structured way was the primary orientation of the host, whereas experimentation and agile practices and processes were the need of the incubator. This led to a separation of both entities, but with a link to the host institution through a host institution faculty member being the incubator Chairperson – which ensured a perpetual bidirectional linkage. These examples indicate that whenever external conditions changed, the incubator was able to reorient and reinvent itself to respond appropriately to the ecosystem's needs. Skarmeas et al. (2016) note that self-renewal and innovativeness are key dimensions of intrapreneurship, particularly in contexts where dynamic capabilities of a firm complement its entrepreneurial orientation.

In this case, the host institution benefitted due to the innovativeness and intrapreneurial actions of the incubator. For example, IIMB positioned itself as a unique institution competent to pursue fundamental research and education in the field of entrepreneurship, a feat that none of the other institutions in the country and region could replicate, despite hosting incubation centers at their institutions. Further, the incubator acted as the implementation and testing arm of research-generated entrepreneurial knowledge. The bidirectional flow of knowledge between the host institution and the incubator ensured the refinement of knowledge, aiding both these entities. These aspects have enabled the entities to provide tangible and meaningful value-added outputs to society in the context of entrepreneurship development.

The culture of the incubator to constantly look out for new ideas and experiment with new modes of entrepreneurial support and services constitute its innovativeness (Lumpkin and Dess, 1996; Teece, 2018). The reformulation of the incubator activities, re-organization of processes, and organizational change initiated to respond better to external stakeholder needs constitute the intrapreneurial capabilities of self-renewal (Guerrero and Urbano, 2012). This discussion shows the role of the incubator as the vehicle for the development and sustenance of intrapreneurial capabilities to the host institution. In doing so, the findings and subsequent discussion explain the 'what' aspect of the research objective.

5.3. Incubator as a conduit for organizational learning

The final set of findings indicate a mechanism of organizational learning that has been institutionalized in the incubator's activities. The findings revealed that the incubator acts as a hub for new knowledge discovery due to the multiple modes of engagement with external stakeholders. The institution's alumni network, prospective entrepreneurs, the corporate partners of the incubator, and collaborations with other entrepreneurial ecosystem stakeholders were the sources of new knowledge acquisition for the incubator. The host institution's faculty helps create new knowledge by integrating existing organizational and domain-specific knowledge with the new knowledge discovered through the incubator. Further, by allowing the application of new knowledge in the incubator's operations and processes, knowledge assimilation to the incubator and the host organization is achieved. Finally, based on the outcomes of these experiments, the new knowledge routines created at the incubator and the host institution are disseminated to the incubated entrepreneurs and through research and teaching activities back to

society. These activities depict a continuous and closed loop of organizational learning made possible due to the presence of the business incubator.

The strategic management literature and entrepreneurship literature both emphasize the need for an organization to continuously monitor the external environment and learn and adapt to the changing circumstances (Mintzberg and Waters, 1985; Gupta and Bose, 2019). Absorptive capacity (AC) and strategic learning (SL) are some of the constructs used in the organizational learning domain to explain identification, assimilation, and exploitation of knowledge from the external environment. These help firms develop new competencies and skills and achieve the organizational objectives (Mintzberg and Waters, 1985; Cohen and Levinthal, 1990). In the study's context, the incubator helps discover external knowledge, and the host institution helps transform the acquired knowledge. Both entities exploit the new knowledge by imparting the skills to students in the academic context and to entrepreneurs and entrepreneurial ecosystem stakeholders in the incubation context.

By explaining the entire lifecycle of organizational learning in the academic context involving the incubator and the host institution, the above discussion explains the 'how' aspect of the research objective. In other words, it explains the contributions of the incubator towards enabling intrapreneurship in the academic context.

6. Summary and conclusion

The primary research objective of the study was to examine the incubator's role and contributions in academic intrapreneurship. The data analysis reveals that the incubator helped the host institution diversify and differentiate itself from its peers. Further, the incubator acted as a vehicle for the business school to develop intrapreneurial capabilities and served as a conduit of organizational learning. The outcomes of the study have implications for theory and practice. The study outcomes also pave the way for future research directions. These aspects are detailed in the following sub-sections.

6.1. Theoretical implications

The outcomes of the study enable the identification of theoretical contributions to the academic intrapreneurship literature. First, the study describes how university-based incubators can expand their scope and impact over time to become a key element in supporting core university education and research functions. In other words, the study explains how incubators can help universities become entrepreneurial through by developing intrapreneurial capabilities (Guerrero et al., 2015; Klofsten et al., 2019). Additionally, the findings reinforce that this transition and an increased role of the incubator in the university setup is made possible due to the development and sustenance of intrapreneurial capabilities of the host institution and the incubator.

Second, this study has demonstrated that the academic institution can leverage an incubator as an instrument to achieve diversification. The findings and subsequent discussion bring about the various facets of how, over time, the incubator has enabled the creation, sustenance, and leverage of specialized intrapreneurial capabilities (Guerrero et al., 2020; Klofsten et al., 2021) that has resulted in providing strategic differentiation to the host institution. It explains the key actors, approaches, and high-level processes that enabled the achievement of diversification of the business school. The study finds evidence of deliberative, serendipitous, and evolutionary processes nurtured by the host institution and incubator management, leading to different intrapreneurial activities. The interplay of these processes leads to the creation of intrapreneurial capabilities for the incubator and the host institution. Through these outcomes, the study contributes to the intrapreneurship literature by explaining how an incubator can enable the host institution to develop intrapreneurial capabilities.

Third, we contribute to academic intrapreneurship literature by explaining how an incubator orchestrates the key actors, processes and elements to develop and nurture intrapreneurial capabilities in the academic context. The framework derived from the analysis captures the dynamics and the temporal sequence of activities that lead to intrapreneurship development in the academic context. The findings and subsequent interpretation also indicate the need for a robust bidirectional communication channel between the incubator and the host institution, and strategic orientation of the management of the institutions and their proactiveness (Lumpkin and Dess, 1996) as key influencing elements for the development and sustenance of academic intrapreneurship. In doing so, the study explains how an academic incubator can contribute to the development of academic intrapreneurship.

6.2. Implications to practice

The study outcomes have implications for senior management of universities, incubation management personnel in academic environments, prospective entrepreneurs, policy-makers and stakeholders of the academic entrepreneurship ecosystem. For the members of senior management and administration of universities, the findings and subsequent discussion explain how universities can leverage the incubator not just as an entrepreneurship development tool but also as an instrument of intrapreneurship development for the university. Extant literature has indicated that universities are complex organizations and heterogeneous in composition (Klofsten and Jones-Evans, 2000; Bienkowska and Klofsten, 2012). However, from this study, it is evident that the incubator can be devised and operationalized as an interdisciplinary initiative within the university, and with the requisite strategic direction and autonomy of operations, the host institution would derive sustained outcomes.

The findings from the study also have implications for prospective entrepreneurs. The study outcomes indicate that novice entrepreneurs considering entrepreneurship as an alternate career choice must shortlist and identify the appropriate entrepreneurial support organization to enable them to achieve their immediate objectives. Prior literature has indicated that many different types of incubators, with varied objectives, are available as options for prospective entrepreneurs (Klofsten et al., 2019; Perkmann et al., 2021). With many public and private incubators being set up both within and outside the academic environment, one needs to weigh the advantages and disadvantages of selecting an incubator based on the needs and current status of the entrepreneurial idea being pursued.

The entrepreneurial ecosystem stakeholders benefit from the outcomes of the present study – since the findings explain the unique benefits that an incubator housed in an academic environment would provide to partner and collaborate in achieving mutually beneficial objectives. It has been noted that academic incubators form a vital element of the regional entrepreneurial ecosystem and innovation system (Brem and Radziwon, 2017; Bergman and McMullen, 2022). For angel investors, the incubator that focuses on early-stage venture support is the optimal vehicle to build and enhance the pipeline for their investments. Mentoring opportunities in such incubators allow investors, alumni, and professionals in corporate functions to identify, nurture, and co-create solutions and initiatives that bring value to all stakeholders.

For policy-makers in regional and national governments tasked with entrepreneurship proliferation, the study indicates the different possibilities for enabling positive entrepreneurship and intrarepeneurship outcomes. The framework provided in this study can help higher education policy-makers improve guidelines and tools to support intrapreneurship development within universities. Universities can use the framework to identify, prioritize and act on areas that need improvement as they embark on intrapreneurship development. Similar to the HEInnovate framework (HEInnovate, 2023), further studies can enhance the study's framework to help higher education institutions benchmark, and assess their current strengths in leadership,

organizational resources and their external ecosystem linkages, leading to intrapreneurship development in their institutions. For media personnel tracking the economy and entrepreneurship development, the study outcomes provide the background and context to understand why certain incubators operate differently and have differentiated outcomes.

6.3. Limitations and scope for future research

The study explored how an incubator in the business school environment contributed to academic intrapreneurship. In doing so, it has unraveled certain unique aspects of academic intrapreneurship. While the study has outlined its contributions, a few limitations need to be highlighted. First, the study has considered a qualitative approach to data analysis. While this approach provides a rich and deeper understanding, a quantitative study involving more institutions and incubators will generalize the outcomes claimed in the study. Next, the present study has a specific scope and context of a business school-based incubator and its contributions to promoting academic intrapreneurship.

A comparative study with a technology-oriented school and its incubator could enrich the study's findings. The differences in university objectives, goals, infrastructure, and other related aspects could be clearly explained in such a study. Further, such comparative studies would also help understand the core aspects of academic intrapreneurship specifically. It is to be noted that the present study adds to a minimal set of research in the domain of academic intrapreneurship. There are many different contexts and phenomena related to academic intrapreneurship, such as the mechanisms of entry, selection of personnel, the processes and routines for sustainable intrapreneurship, and the behavioral aspects that enable or hinder intrapreneurship in the academic context. Future research on these aspects will enable a deeper and better understanding of the academic intrapreneurship domain.

Data availability

The data that has been used is confidential.

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