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Stand Alone or Continue to Support: Exploring the Need for Post Incubation Services for New and Growing Enterprises.

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Stand Alone or Continue to Support: Exploring the Need for post-incubation Services for New and Growing Enterprises.

Public support for entrepreneurship varies across countries and depends on issues such as sector, regional location and stage of the start-up. In making it easier for people to set up a business, many countries provide access to finance, training and advice. Business incubation (BI) centres are one such model of support for entrepreneurship. The current research provides some preliminary insights into the extent of the demand for post-incubation services in supporting new ventures to thrive and survive. Employing a unique data set based on information gathered from business incubation centre managers, current and alumni clients, we adopted an exploratory research method to contribute to knowledge on potential demand for post-incubation services in supporting new ventures to grow and scale beyond the on-site incubation phase. The findings contribute to the literature for and need to provide tailored services in the post-incubation phase. A gap that emerged from this research is the transition phase from graduating from a formal programme the next stage of business development, often without the continued business development support and government funding provision. Additional supports or scaffolding in this pre-revenue phase is sought by firms.

Keywords: **post-incubation**, start-ups, small firm growth, and scale up.

Introduction

Entrepreneurship has long been considered crucial for economic growth (Wennekers and Thurik, 1999), and its link with innovation and employment is well researched. Almost half (47%) of early stage entrepreneurs are motivated by the opportunity to increase income or independence, while 23% start a business out of necessity (GEM, 2019).

Public support for entrepreneurship varies across countries and depends on issues such as sector, regional location and stage of the start-up. The European Commission promotes entrepreneurship by encouraging people to become entrepreneurs and improve the ease of setting-up and growing businesses (EU, 2020). In making it easier for people to set up a business, many countries provide access to finance, training and advice. Business incubation (BI) centres are one such model of support for entrepreneurship. Primarily focusing on pre-

start-up (e.g., training and advice) and early-stage businesses (e.g., mentoring, physical and clerical supports). These Centres began appearing in most developed countries by 1970s (Irshad, 2014). Much research exists on the value of providing incubation services such as mentoring, training and clerical supports. All with the aim of encouraging pre- and early stage-start-up enterprise survival and growth. Research on the post-incubation supports for entrepreneurship is less understood from the literature.

The current research provides insights into whether there is a demand for post-incubation services in supporting new ventures to thrive and survive. Employing a unique data set based on information gathered from business incubation Centre managers, and current and alumni clients at one specific University Campus based Incubator, the research examines the demand for post-incubation support services. The rest of the paper is organised as follows: the next section provides a review of the literature, followed by a description of the data employed to understand the demands for post-incubation services. The penultimate section presents the findings, followed by the discussion and implications for policy and practice.

Review of the literature

Business Incubation (BI) has attracted attention from researchers and policy makers due to the emphasis attributed to new and growing firms in terms of their economic and social development (Özdemir, 2013). The first to establish an incubation process was Stanford University in 1951; it was named Stanford Industrial Park and then later renamed Stanford Research Park (Torun et al. 2018). This was followed by the establishment of an incubator by the Industrial Center of Batavia in New York, in 1959 (Lewis, 2001) and the first public incubator in Philadelphia in 1964 (Campbell and Allen, 1987). Since then, business incubation diffused slowly across Europe during the 1960s and 1970s (Hackett and Dilts, 2004). Torun et al. (2018) contend that two important steps accelerated the spread of the BI concept around the

world: the first was linking BI to university research in the 1980s (OECD 1997), and the second is the global expansion of high-quality Internet (Grimaldi and Grandi, 2005). In the 1980s, the first-generation incubators were primarily providers of shared office space and infrastructure to provide small start-ups economies of scale. In the 1990s, the emphasis shifted to providing business support to accelerate the start-up learning curve. Towards the end of this decade, the emphasis moved to facilitating access to external resources, knowledge and legitimacy. Additionally, this newer generation of incubators had a stronger focus on specific sectors, e.g. high-tech, ICT as well as targeting the most promising innovative start-ups (Aerts et al. 2007). After the 1990s, virtual incubation emerged as a new business incubation model. This model did not require shared offices or resources and was focused on information, communications and technology-based companies. Torun et al. (2018) document a further development in 2013 with the emergence of the business accelerators (BA). Today, incubators have become an integral part of the modern entrepreneurial ecosystem, supporting the growth of new ventures based on a broad range of measures (Hausberg and Korreck, 2018).

A result of the evolution of the incubator industry and the divergence of its development paths and experimentation with new incubator business models, is that no universal definition has crystallized and that both practitioners and scholars often use similar concepts synonymously (Hausberg and Korreck, 2018). Many definitions of an incubator exist in the literature. Some provide narrow, and somewhat simplistic, definitions of incubation, emphasizing that incubation involves a physical location providing services to entrepreneurs/companies (Hackett and Dilts, 2004; UKBI, 2009; Lewis, 2001). However, Eshun's (2009: 156) definition of a business incubator as 'an environment formally designed to stimulate the growth and development of new and early stage companies by improving their opportunities for the acquisition of resources aimed at facilitating the development and commercialization of new products, new technologies and new business models' is most relevant in the context of this

research as it addresses the wider incubator environment, which is important in the context of university campus-based incubation.

University based incubators are the focus of this paper as universities are increasingly tasked with devoting time, resources and talent to incubation activity. Universities can play a vital role in shaping the wider entrepreneurial eco-system and can contribute to local and regional economies through research commercialisation, patentable inventions, discoveries, spin-offs and technology transfers (McAdam and McAdam, 2008). Fritsch and Ronney (2013) contend that the mere presence and size of local universities, regardless of their quality, has a positive effect on the creation of new innovative (but not on non-innovative) businesses. Morris et al. (2011) illustrate the transformative impact of university-based entrepreneurship programmes can have on local economic development and provide recommendations for replication.

However, there is some evidence that university support mechanisms for venture creation can act as a substitute rather than a complement to the local environment. Fini et al. (2011) examine the support available to academic spin-offs and conclude that university support mechanisms complement the legislative support offered to high-tech entrepreneurship; whereas they have a substitution effect with regard to the amount of regional social capital, regional financial development, the presence of a regional business incubator, regional public R&D expenses as well as the level of innovative performance in the region. Additionally, Huggins (2008) notes that the presence of a university in a developed entrepreneurial eco-system does not mean that all universities are tied into and benefiting from the eco-system. Huggins (2008) examined Higher Education involvement in regional knowledge, commercialisation processes and found that many of the resources associated with successful knowledge commercialisation are skewed towards larger and more prestigious universities. The current research endeavours to contribute to knowledge on potential demand for post-incubation services in supporting new ventures to

grow and scale beyond the on-site incubation phase, in the context of a University based incubator.

Business Incubation Process

Business incubation is a policy tool that facilitates entrepreneurial development by creatively initiating and implementing programmes that focus on providing targeted resources and services (Ayatse et al. 2017). The business incubation process is designed to add value to incubated companies with the aim of increasing the survival rates of incubated companies (Moreira et al. 2012, Iyortsuun, 2017). Campbell et al. (1985) are acknowledged as the first to develop a business incubation process model which proposed four basic ‘services’ or value addition activities where incubators contribute to firm performance. The value addition activities start with diagnosis of needs, which is applied to prospective incubatee’s new business proposals.

Campbell et al. (1985), Smilor and Gill (1986) and Hackett and Dilts (2004) all propose models of value adding activities by incubators through provision of targeted services to firms selected from a pool of prospective firms. Selection is an important element of the incubation process, but selection competence does vary from one incubator to another (Hausberg and Korreck, 2018). While Campbell et al. (1985) and Hackett and Dilts (2004) focus on the internal network of support provided for the selected firms for incubation. Smilor (1987) focuses more on the external network of support from government, universities, non-profit and the private sector. In general, business incubation support comprises resources, expert networks, business, secretarial, and administrative support and capital investment. Furthermore, despite the emergence of the various models, incubators tend to offer a similar portfolio of services for new and growing firms (Bruneel et al. 2011).

According to Bruneel et al. (2011) and Amezcua et al. (2013), the functions of incubator services have evolved from a focus on activities to achieve economies of scale, to accelerating the learning curve and then to facilitating access to external resources, knowledge and legitimacy. In fact, Amezcua et al. (2013) divide incubation activities into ‘buffering’ and ‘bridging’ functions that limit the likelihood of start-up failure. Buffering protects new firms from their external environment by providing resources to shelter new firms against lack of own resources (Amezcua et al. 2013), thus encouraging the survival of new firms. Bridging, on the other hand, enables new firms to actively engage with their external environment by facilitating the building of connections with external organisations and developing social capital and legitimacy (Amezcua et al. 2013). This is intended to encourage business growth. Table 1 categorises the different activities and services incubators provide according to their function.

Table 1: Buffering and Bridging Activities of Incubation

	Buffering	Bridging
Entrepreneurial Resources Founding environment	Focus on the development of internal resources. Environment is a source of competition and resource dependencies	Focus on the acquisition of external resources. Environment is a confluence of potential stakeholders that can provide the new firm with social capital and legitimacy.
Sample Incubation Activities	Subsidised office space Subsidised office support service. Training, mentoring and development services. Business advisory and consultancy services Provision of financial resources	Networking Agglomeration. Field development – build or establish organisational fields. Memberships and associations. Event programmes. Sales & Marketing Assistance Strategy and business plan development IP protection services/expertise.

Adapted from Amezcua et al. (2013)

There are various stages of starting a business. Dee et al. (2015) separate the stages into: prestart- up, start-up, early stage and late stage. Incubation programmes often focus on supporting entrepreneurs at a certain stage in the start-up journey as the support needed varies during the stages. Dichter (2013) further delineate these phases into pre-incubation, incubation and post-incubation. Comparing the activities depicted here with the buffering/bridging concept in Table 1, it would appear that the incubation phase begins bridging and externally focused activities through the commercialisation and advanced business planning supports. According to the Dichter model, the main emphasis in the post-incubation and expansion stage is externally driven, particularly in the context of internationalization and clustering activities. In fact, Iacono et al. (2017) found that the incubation process for technology-based firms focused more on internal issues of the participating firms (organisational management) than on their external environment (market) in a study that generally found that the incubation process and support system provided therein had little effect on the growth patterns identified.

Post-Incubation

While much attention is paid to Business Incubation, there is a dearth of research on the post-incubation phase of the process. According to Schwartz (2008-2009), there is a gap of knowledge and understanding of the dynamics of survival or exit of firms after graduating from incubators and even more so on the specific support factors that actually determine their failure, survival, and success on leaving the incubation centre or programme. Schwartz (2010) and Studdard (2006) further argue that post graduate records of the graduated firms needs to be considered when assessing overall incubator performance to give a balanced view of firm survival. Schwartz and Hornych (2008) caution that the risk of becoming over dependent on the incubator supports could affect longer-term firm survival. Rothaermel and Thursby (2005) point to the fact that despite reaching an important milestone in the development of incubated

firms, graduation does not guarantee future success or survival. A study of German incubators found a period of high risk confronts graduates within their first three years after graduation with approximately 20 per cent of graduates failing within this timeframe (Schwartz and Göthner, 2009). A US study found incubated firms outperform their peers in terms of employment and sales growth but fail sooner (Amezcuca, 2010). Despite the *raison d'être* of incubation being to support and add value to start-up firms, post-incubation success is not a given (Mas-Verdú et al. 2015). Research has also suggested that incubated firms may not benefit considerably from their relationship with their incubators and may even become more vulnerable to failure after graduation (Lasrado et al. 2016).

Understanding the post-incubation landscape in terms of firm survival and success as well as an appreciation of the challenges and reasons for failure informs a discussion on what a post-incubation model needs to deliver. Establishing support mechanisms during incubation and a post-graduation follow-up process can improve the success rate, business survival, growth and profitability, which are relatively low after graduation from the incubator (Iacono et al. 2017)

The factors influencing the success rate of new firms have been identified by a number of studies (for example, Bruderl et al. 1992 and Bates, 1990). These studies, according to Marino and De Noble (1997) and cited in Iacono et al. (2017) and echoed by Wong et al. (2005), have sought to understand the founding partners' experience and attributes, the product and market strategies, product originality, and structural specificities of the sector in which they operate. In addition, criterion variables included are sales growth, employee growth, time-to-market of first products, business survival, and financial performance.

Except for Lai and Lin (2015) and Iacono et al. (2017), the literature is sparse on the components of a post-incubation model or framework. General recommendations to consider are prescribed by Iacono et al. (2017) on a company by company basis to take account of the

diverse needs of firms during the post-incubation period in relation to the entrepreneur, the product/service and market(s) served. The role of the incubation manager is called out by Iacono et al. (2017) and by Schwartz (2008). Specifically, the role of the manager in the bridging process is important to ensure the necessary support can be adequately provided to different incubated firms and the active integration of the incubator into the wider political and economic landscape of a region.

Lai and Lin's (2015) research on what they term as the 'post entrepreneurial phase' highlights that BI tenants require projects services (business planning, executive strategy, internationalization) more than resources services (human resources, intellectual property, capital, networking, space and equipment). The reason, they argue, is that resource services can only help overcome barriers at the beginning of the entrepreneurial phase, but not for long-term business development. Lai and Lin (2015, 228) recommend BIs should 'exert greater efforts in building projects service capabilities such as business planning (particularly in marketing competition), executive strategy (particularly in break even and profit plans) and institutionalization (particularly in brand construction plans) to help tenants overcome barriers when they are in the post-entrepreneurial phase'. Furthermore, Lai and Lin (2015) highlight intellectual property service capabilities (particularly in industry and market information databases) and networking service capabilities (particularly in maintaining industrial relationships with other enterprises as important areas needing attention.

In the context of the literature presented here, it is reasonable to ask the question: Are post-incubation services, a bridge too far in enterprise support? Posing this question requires insights from users and providers of such supports. Using Ireland as the context, the authors believe the methodology applied here is applicable elsewhere.

A Member-state of the European Union, Ireland is considered an excellent place to start a business and is highly ranked (10th of 127) for their level of innovation activity (DBEI 2018). Ireland's open economy boasts strong economic growth, albeit facing uncertainty with Britain's exit from the European Union and the impact of the Covid 19 global pandemic. Government policy in Ireland continue to support entrepreneurship by providing financial support for incubators and accelerators (DBEI, 2014). The latest policy statement, (DBEI, 2014) highlights a number of key supports for start-ups, in the areas of culture, human capital and education; business environment and supports; innovation; access to finance, and networks and mentoring. The latest report on the implementation of these key supports finds rapid increase in the number of business births as well as a reduction in the rates of business deaths (DBEI, 2017). The report also found there was a call by entrepreneurs for incubation hubs to support underrepresented cohorts.

In Ireland, nearly 70% of people are engaged in firms employing less than 50 people (also referred to as micro-enterprises (<10 employees) and SMEs (10-49 employees). Interestingly, one in five Irish adults aspire to starting a business in the next 3 years, while over 26,000 people indicated they were engaged in starting a business in 2018 (GEM, 2019). Similar to Amezcua et al. (2013) who employed data from all university business incubators in the United States, the current research is based on data from university business incubators in Ireland. The next section describes this rich novel information gathered in 2017 and 2018.

Data and Methodology

In researching incubators, Hackett and Dilts (2004) identify a number of levels of analysis to consider and include: the entrepreneur (individual); the incubator manager (individual); the incubatee (group / firm); the incubator (firm); the community (local); and the incubation (industry). This reflects the contention that the incubation process is facilitated by not only the

single individual incubator manager, but other members of the incubator management, including business advisors, the facilities officer, trainers and members of the Board of Directors (McAdam and McAdam, 2008). This research focuses on two main units of analysis: the incubatee (current and past) and the incubator manager.

One member of the research team had a direct involvement with the incubator at the time of the data collection and as such, could be considered an ‘insider’, which Jenkins (2000) defines as a member of an ‘in-group’ with access to its past and present, who shares experiences with the research participants. To overcome issues of over-familiarity (DeLyser, 2001), complicated dilemmas and challenges (Kim, 2011) generated through a researcher’s positioning in the research process (Takeda, 2012), the research team was expanded to include ‘outsider’ researchers and consultation with other stakeholders as research participants as shown in column 4, Table 2.

We adopted an exploratory research method (Tellis, 1997) using two different surveys and semi-structured interviews. Table 2 provides a summary of the data collection methods employed in this study. The first survey, conducted with current and alumni clients of a university-based incubation centre, was complemented by semi-structured interviews with eight current and alumni clients (Tello et al. 2012).

Table 2: Data Collection Methods

Method	Purpose	Collection Details	Research Participant
Secondary Data	To develop an understanding of the incubator; its objectives, the personnel involved and its operations within its context.	Information collated from secondary data sources including annual reports and strategy documents relating to the incubator and client information, Website and promotional material.	Researcher
Survey 1 – current and past incubator clients	To capture information on type of business, size, and age and how the business had progressed while in the incubator and how the incubator aided development	Online survey with a response rate 35%, 210 useable responses. 21 questions on questionnaire.	Academic/Incubation Manager/Client firms involved in piloting questionnaire.

			Survey disseminated to database of 600 current and past incubator clients
Survey 2- Incubation centre manager	Survey adapted from the European Commission Benchmarking Incubators Report (2002), included questions on managers' education, length of service as manager, incubation service, and type of sectors located in their incubation centre and centres' capacity rate and views on post incubation.	Online survey distributed with 10 complete and useable responses received.	Academic/Incubation Manager involved in piloting questionnaire. Network of 30 incubation centre managers in Ireland.
Semi- structured interview – current clients	To gain a deeper understanding of post incubation requirements	Total 4 interviews conducted by phone or face to face and audio recorded, transcribed	Academic/Incubation Manager/client firm involved in devising semi structured interview protocol. Past incubator clients interviewed.
Semi-structured interview – past clients	To gain a deeper understanding of post incubation requirements	Total 4 interviews conducted by phone or face to face and audio recorded, transcribed	Academic/Incubation Manager/client firm involved in devising semi structured interview protocol. Current clients interviewed.

With a response rate of 35%, the first survey gathered 210 completed questionnaires from current and past clients. The 21 questions captured information on type of business, size, and age and how the business had progressed while in the incubator and how the incubator aided development. To complement this survey, the researchers conducted eight in-depth interviews using semi structured interviews with four current and four alumni clients of a university-based incubator. Interviews were conducted face-to-face or by phone (Saunders et al. 2009), recorded and later transcribed. This method was deemed appropriate as it was felt that it was the best way to get into the 'lived' experience of a client in the incubator. Due to the nature of enquiry, the semi-structured interview offers the maximum opportunity for complete and accurate communication of ideas between the researcher and respondent (Cannell and Kahn, 1968).

Current clients were located in the incubation centre less than 5 years; alumni clients had left the incubation centre in the past 5 years. Interviewees were involved in a variety of sectors including: construction, renewable, software development and environmental compliance.

To understand the views of university-based incubator centre managers, the authors gathered information from 10, of a possible 30 managers across Ireland. This survey, which was adapted from the European Commission Benchmarking Incubators Report (2002), included questions on managers' education, length of service as manager, incubation service, and type of sectors located in their incubation centre and centres' capacity rate. These objective questions were followed by questions on managers' views on post-incubation.

Findings

Profile of Past and Current Campus Incubator Clients

A survey of current and alumni clients of the campus incubator under investigation was carried out in 2017 with 600 firms included. A total of 210 useable responses were received. The findings highlight that start-ups and entrepreneurs engage with the Incubation centre either as clients (where they take up a tenancy) or through formal entrepreneurship programmes (mainly through enterprise support agency programmes). Some companies have participated on a specific programme and became clients of the Centre or vice versa.

The respondent companies are therefore categorized under the following headings:

- A. Client Companies Only
- B. Client Companies who were Participants on a Programme
- C. Programme Participants Only

Client Companies Only

A total of 42 client companies responded and between them 223 jobs were created (including the founder) with an average employee number per firm of 5.3 employees. The responding companies have raised an average of €401, 750 over a 10-year period. In terms of engaging with the national enterprise support and funding agencies, three respondents were successful in securing additional funding through the Competitive Funding programmes and ten companies have secured additional funding through the Local Enterprise support agencies. 10 respondents have achieved HPSU (High Potential Start Up) status with Enterprise Ireland. One firm was successful in securing substantial research funding through EU funded Horizon 2020. 20% of companies are led by a female founder with 80% led by a male founder. 40% of companies have actively engaged with the host University through entrepreneurship, research and work placement activities.

Client Companies who were Participants on a Programme

A total of 52 programme participants/clients responded and between them 434 jobs were created (including the founder) with an average employee number per firm of 8.4 employees. The responding companies have raised an average of €481,846 over a 10-year period. In terms of engaging with the national enterprise support and funding agencies, six respondents were successful in securing funding through the Competitive Fund programmes and twenty-six companies have secured additional funding through the Local Enterprise support agencies. 14 respondents have achieved HPSU (High Potential Start Up) status with Enterprise Ireland. Eight companies were successful in securing research funding through EU funded Horizon 2020. Three companies are led by a female founder with the remaining 49 led by a male founder. 50% of companies have actively engaged with the host University through entrepreneurship, research and work placement activities.

Programme Participants Only

A total of 116 programme participants responded and between them 239 jobs were created (including the founder) with an average employee number per firm of 2.06 employees. The responding companies have raised an average of €90, 956 over a 10-year period. In terms of engaging with the national enterprise support and funding agencies, eleven respondents were successful in securing funding through the Competitive Funding programmes and thirty-eight companies have secured additional funding through the Local Enterprise support agencies. Three respondents have achieved HPSU (High Potential Start Up) status with Enterprise Ireland. Eight companies were successful in securing research funding through Horizon 2020. Nineteen companies are led by a female founder, five are led by a female/male founder with the remaining 92 led by a male founder. 23% of companies have actively engaged with the host University through entrepreneurship, research and work placement activities.

Table 3 summarises the key metrics and although further research and robust statistical analysis is needed, there appears to be a pattern emerging in relation to the clients who engage with the BI for specific programmes alongside their tenant status. They tend to score higher on metrics such as average number of jobs per firm, funding raised from national and EU sources as well as level of further engagement with the host HEI.

Table 3: Summary Profile of Incubation Client – Past & Present

<i>Metric</i>	Client Only	Client + Programme Participant	Programme Participant Only
Total Respondents	42	52	116
Total No. Jobs	223	434	239
Ave. Employee per firm	5.3	8.4	2.06
Ave funding raised in 10 yr. period	€401,750	€481,846	€90,956
Funding raised through Competitive Funding programmes	7%	11.5%	9.5%
Additional Funding Raised through other Enterprise support agencies	24%	50%	33%
HPSU Status	23%	27%	2.5%
EU Horizon 2020 Funding secured	2.4%	15%	7%

Female/Male led	20% Female/ 80% Male	5% female/ 95% Male	16% female/ 5% male + female/ 79% male
% engaged with host University	40%	50%	23%

Incubation Manager Survey Findings

Respondents were all from University campus-based Incubation Centres, all but one manager has higher education qualifications at postgraduate level with two to PhD level. Incubators currently provide office space, workshop and laboratory space, mixed/other types of units as well as common facilities such as meeting rooms. The majority of BIs report an occupancy rate of 95% to 100%. When asked their opinion on why clients select an incubator, cluster and opportunity to network was cited as the main reason followed by availability of professional business supports, location and image of BI and availability of funding opportunities. Managers were then asked to rank the main objectives for their Incubation Centres and Table 4 provides a full list.

Table 4: Ranking of Incubation Centre Objectives

Main Objectives of the Incubation Centre	Ranking
To contribute to competitiveness and local job creation	1
To help companies generate spin-off activities	2
To help universities/Institute of Technologies generate spin-off activities	3
To help disadvantaged communities/individuals with projects	4
To help generate income for the Incubation Centre	5

Highlighting the embeddedness in the region and with existing industry, Table 5 shows the highest ranking of the origins of clients as emanating from the region and from existing firms. This is followed by those originating from spin-off from university/institute of Technology or research and development centres.

Table 5: Origin of Incubation Centre Clients

Origin of Start-up Venture in Incubation Centre	Ranking
Branch of existing firm in the region	1
Spin-offs from an existing company	2
Spin-in from Industry	3
Spin-off from University / Institute of Technology or R&D Centre	4
University / Institute of Technology Staff	4
University / Institute of Technology Student	5

The sectors from which BI clients are drawn are broad, with the largest cohorts coming from the ICT and Medical Devices. Other sectors include Pharmaceutical, Sales, Marketing & Distribution, Business & Financial Services, Manufacturing and Services.

In relation to the range of services provided by the BIs, Table 6 below provides a weighted average of the services provided across all the incubators in the survey for BI managers and correspond to the range of buffering and bridging activities addressed by Amezcua et al. (2013) in the literature earlier in the paper.

Table 6: BI Services Provision

Services Provided by Incubators	Weighted Average	Buffering/ Bridging
Shared Secretarial & Office services	3.44	Buffering
Accounting, legal & similar services	3	Buffering
Support with exporting and/or partners search abroad	2.6	Bridging
Cleaning & Maintenance	2.11	Buffering
Informal training programmes	2	Buffering
VC, angel investors.	1.9	Bridging
Help with R&D and connections to University/Institute of Technology Research Centres	1.7	Bridging
Pre-incubation services	1.6	Buffering
Business planning and forming business skills	1.6	Bridging
Networking e.g. Entrepreneurs, Potential customers	1.6	Bridging
Formal training programmes e.g. New Frontiers National Programme	1.4	Buffering
Mentoring	1.2	Buffering

When it comes to making decisions on when clients move out from the BI, managers were asked to indicate what the main criteria or rubric for deciding which clients need to move on. Table 7 shows the top two reasons as rent period expiring or a need to expand, which arguably are mainly client driven and relatively easy to implement. The other reasons cited in this table are a little more subjective and involves a level of judgement and honesty on behalf of the client and the BI manager.

Table 7: Criteria for Clients Leaving BI

Criteria for Selecting Clients to Leave BI	Ranking
Clients can only rent space for a fixed period	1
Clients leave when they need more room to expand	1
Clients leave when they fail to achieve business goal	2
Clients leave when they have achieved their business goals	3
Clients leave when they require support the incubator cannot offer	4
No particular formalised exit criteria	5

Post Incubation Demand Findings

In order to answer the research question posed earlier on the level of demand for post-incubation services we analyze the data gathered from incubation managers across Ireland and incubation clients (current and alumni) from one campus-based incubator. Overall, our research supported Iacono et al. (2017) general recommendations that, given the diverse needs of enterprises; post-incubation is a case-by-case basis, depending on the entrepreneur, their business and market(s) served. A point reinforced by one of the BI alumni interviews *‘I think it could act as a cluster of companies, providing support on an as-needed basis to companies struggling to deal with life outside the incubator’*

In presenting the findings from the data, we focus on the demand for post-incubation support services from the BI managers’ as well as the incubation client perspective.

Most (70%) incubation centres impose a time limit on enterprises exiting the Centre. Of those that do not, managers indicate that 66% of their clients left or will leave when they require more space. Space in this context means office space, hot desk/temporary office space, meeting space as well as communal areas. Clients have indicated that there is *'Not enough boardrooms, meeting rooms, room for projectors'* in the incubator and *'not enough of common spaces that would draw people together'*.

Space for meetings and people were a priority, but a need for storage also emerged as an issue for clients *'...storage is the big one for us. We have stuff that comes in that could fill half an office and we are being charged for office rates when in fact we are not using it for an office.'*

Companies in certain sectors had specific needs that the Incubator was not in a position to provide e.g. two interviewees from the construction industry both rented an office in the incubator for a period of less than five years. Company expansion and lack of space were ultimate the reasons for their departure. The incubator could not offer the storage space for the required large building materials. An interviewee who is a digital software developer with a need to dispatch large hardware devices to their clients in both Ireland and the United Kingdom indicated that limited storage capacity is also an issue.

The need for mentoring was also cited a reason to consider relocating to *'where there is more support, more mentoring at a different level... this could also be provided on a drop in basis'*.

Networking opportunities was seen as an area to improve the services from both a current and alumni clients who would like opportunity to meet and hear from previous alumni on challenges and opportunities in starting and growing a business, highlighted by a suggestion to *'...have former companies come along and talk about their experiences each month – and perhaps bring in someone 1 year down the line, 2 years, 5 years, 10 years, so that they could identify if there were changes, they wished they'd made early on – very interesting to hear true,*

warts and all stories from past Incubation attendees’. Another suggestion from a current client is for regular coaching from experts in the area of tax and start-ups, funding and other relevant topics of interest to start-up and scale up companies.

With respect to the demand for post-incubation support, most entrepreneurs were unaware of what the term post-incubation support might mean for them. However, a number of alumni clients did refer to ‘scaling up’ as a possible interpretation for post-incubation, but on further probing, all eight interviewees indicated demand for post-incubation service and support. The area of recruitment and retention was a specific area identified by the interviewees, for example *‘The thing is, once you start to scale up, and we are looking for people again at the moment and you have an entirely different set of challenges. I could name a couple as an example of what should be in a post-incubation service, perhaps. Let’s say for arguments sake the importance in recruiting and retaining the right people....’*

According to the Incubation Centre managers, there is a specific need for the founders/employees of the Medical Devices industry to access design facilities and highlight the benefit for an incubator to be located on a University or Institute campus with access to these services.

When a client leaves an incubator, all but one BI manager makes formal or informal contact with the client through exit interview, standard evaluation form or survey, follow up conversation or follow up email. In fact, 80% of post departure queries are received within the first year of departure with this figure dropping to 20% in the subsequent two to five years post departure. These queries are communicated predominately by email, followed by phone or face to face drop in to the BI. In general, the queries fall under the headings of Sales, Marketing & Management, Internationalization, Growth/Expansion and Finance.

When asked where BIs can further support Alumni clients, suggestions such as organizing regular alumni events and regular communication from alumni were mentioned. Furthermore, researching the specific needs of the alumni community was mentioned as was the need for training and supports for staff dealing with specific alumni and post departure clients.

In terms of the nature and demand for post incubation services, the BI managers had a preference for the services to be delivered in a physical or virtual building (50%) with less opting for a virtual offering (20%), but slightly more favouring a blended approach combining both a physical and virtual service (30%). However, only 25% of BI managers indicate that alumni companies would use this service. The view of clients is somewhat different with 60% of clients indicated they would require alumni regular communication as well as events solely for alumni, facilitating networking and to maintain relationships with other alumni. The client interviews were in favour of a physical service, the consensus was that even though some people can work remotely, having a base or a main office for staff to report to is seen as beneficial. However, some interviewees had additional and technologically based suggestions such as ‘... *virtual receptionists and chat bots are possible add-ons which would be successful as these meet the needs of scaling businesses*’, and ‘...*a service available that could provide all the IT systems and line of business applications (accounting, VOIP, invoicing, CRM, HR, etc.) as part of a SaaS model, that would make moving much easier and facilitate global expansion*’

The findings from the past clients was very clear on the challenge of the transition period between graduating from a formal programme and moving to the next stage of business development (as in the client company categories outlined in Table 2). Respondents were strong in their depiction of this phase as crossing a chasm, for example ‘*The movement to how to build and scale and how to get to the other side of that chasm. That is the most difficult part as we found it*’. Others were specific in terms of challenges beyond the development of a

minimal viable product, which often coincides with a cessation of funding schemes, as *'...apparently, we are quite successful to a point where we have a minimum viability product. So you continue to develop it, you get your customers. And it all goes well. But there comes a point where, you then must support it and the product has to run really well and very often you don't have further money from the state or grants. You then go into space where you have to make commercial revenue and a lot of companies fail there...They don't have enough fund or commercial revenue to replace the state money. There are two key issues mainly - Recruitment and cash flow'*.

Respondents were also very clear on what is needed to bridge this gap and mentoring is seen as a key component. *'To me if there was a course or mentoring programme for scaling up companies...That is entirely different to start up. Because of my friendly mentor, he always forces me to think we don't get funding or grants anywhere because if you do you get lazy..... This is because he is used to growing companies. So this should be part of a post-incubation...We have developed our own post incubator network'*

Some would like to see a specific programme to cater for this post-incubation phase to support the continued development of the venture. *'You are crying out for another programme to sit in between and it needs to be a 12 month programme, it doesn't even need to be intense it just needs to include financial supports, rent free spaces and coffee. Just help people to get by'*

Where managers were asked what was important for enterprises post-incubation, the response was to attract and retain qualified personal and linkages to strategic partners. When asked about whether enterprises would avail of post incubator services, there was a mixed response on the predicted level of use of the service.

Discussion and Conclusion

The paper set out to provide insights into the extent of the demand for post-incubation services in supporting new ventures to grow beyond the on-site and on campus incubation phase. Data from business incubation Centre managers, and current and alumni clients at one specific University Campus based incubator were analyzed to answer the research question posed. The research found that in line with the learning curve, access to external resources, knowledge and legitimacy espoused by Bruneel et al. (2011) and Amezcua et al. (2013), BI clients have been active in generating employment for themselves and others, raising funds from national and EU sources as well as engaging with formal programmes in the incubator and deepening engagement with the host HEI in relation to R & D, work placement and general entrepreneurship activities on campus. Clients tended to use the term ‘scaling’ and ‘scaling up’ to conceptualise the post-incubation phase under investigation in this study. This focus on growth trajectory resonates with the business growth concept of the buffering and bridging services provided.

Similar to Iacono et al. (2017) and by Schwartz (2008), the role of the BI manager is important in the bridging process to integrate the incubator into the wider ecosystem on campus and regionally. The BI managers are in tune with the origin and needs of the incubator client and provide a range of services to meet the needs of the nascent and growing new venture. These services could be considered as both buffering (internally focused) and bridging (externally focused) services and are provided by BIs at all stages of the incubation process and is intended to encourage business growth (Amezcua et al.2013). In relation to the point of departure or graduation from the BI, the majority of managers have a process in place for decisions made at this point and for communication channels for feedback on exit.

While some of the initial concerns and needs of incubates focused on the physical aspect of space and additional financial supports, knowledge needs such as mentoring, networking, tax/funding, recruitment advice and events during the post BI transition period and beyond were also identified. Addressing additional physical and financial supports could be considered a longer-term strategy involving several key stakeholders including the host University, Enterprise support organisations and banking/finance sector. Whereas addressing the knowledge gaps could be addressed in a shorter time scale and a simpler decision-making process involved for the BI. Furthermore, the business environment in BIs has changed dramatically since Covid-19, and consideration for investment in physical infrastructure should be approached with caution.

A gap or a 'chasm' that emerged from the research is the transition phase from graduating from a formal programme to moving to the next stage of business development, often without the continued support and government funding provision. Additional supports or scaffolding in this pre-revenue phase is sought by firms. The exact nature of the scaffolding provided should have a longer-term business development focus as recommended by Lai and Lin (2015) and lean towards project services such as business planning, executive strategy and internationalisation. Contrary to Lai and Lin (2015), the findings in this research found a demand also for resources services such as capital, networking and space requirements.

Post incubation support needs of BI alumni is most prominent in the first-year post departure with the greatest level of queries directed back to BI managers in this timeframe and mainly by email correspondence. A common theme on the nature of post-incubation support and services is the need for a tailored case by case approach to cater for specific needs as they arise, a finding also highlighted by Iacono et al. (2017). Mentoring is seen as a key element in any post-incubation services. Networking and peer to peer learning as a feature of the incubation phase

should also be facilitated at post-incubation. While BI managers and clients (past and present) provided insight and solid suggestions in relation to what a post-incubation support service should provide, they were cautious in their commitment to ultimately using such a service. Hence, a greater focus on the research for more post-incubation contact by BI Managers is to be considered.

Against a background of limited research on post-incubation services for new and growing firms, this study contributes to the literature and practice and specifically, has implications for research on incubation services in general and research into the post-incubation phase in particular. First, we respond to the call for incubation research to take the post, scaling up or growth stages into account by identifying specific service and supports needs and by shedding light on the heterogeneity within the post-incubation phase for firms. Second, we show that while earlier incubation literature tended to focus on the internal network of support, subsequent research took the external network into account. This research shows a combination of internal (buffering) and external (bridging) focused services are provided by BIs. Third, the findings here clearly point to a need for tailoring these services and taking them to a deeper level in the post-incubation phase. While there is an emphasis on bridging activities on departure, buffering, particularly with regard to rental models and funding is also emphasised. post-incubation supports differ from other earlier incubation phases in areas such as structure of a specific programme in relation to targeting collective and individual needs of firms, strategic focus – growth, internationalization, investment strategy etc., selection criteria and timing, funding structure and alumni/BI relations. A key implication of the current study is that any post-incubation model of framework should not be generic. The impact of supports or interventions at this post phase will depend on tailoring their services to the needs of the target firm. Fourth, while acknowledging that the focus of this study is on campus based BIs, the wider eco-system and engagement with the host HEI is a source of resources in terms of R&D,

talent, knowledge and expertise, legitimacy, and identity. Finally, we find an encouraging level of curiosity and interest among the current and past BI clients as well as among BI managers and despite limited commitment to the concept of post-incubation, this study provides a useful base to build and develop frameworks to support this important cohort of incubator based entrepreneurial firms in their growth and expansion endeavors.

Limitations and Further Research

This study is not without limitations. The first limitation relates to the quantitative analysis in the study. Because the study focuses on a specific campus-based incubator in the context of one country, the sample size for the BI manager and client surveys and interviews is small and as a result, in depth statistical analysis of the data is limited. While the paper provides insights to practice, the scope of the data collection limits the potential to add significantly to the literature in the business incubation field. The research points to specific areas of further research. Future research could examine, and even compare, different business incubation centres, such as non-campus-based facilities, and business incubation models such as Business Accelerators in different geographical contexts. While the research did consider education and experience as an incubation manager, further research and consideration of the managers' entrepreneurial and real-world experience would be a fruitful area of further research.

This study is also limited in scope to the support provided from the BI specifically. This study merely mentions support from other actors such as the host HEI, enterprise support agencies, business angel networks and the wider support network of clients. While research suggests that the BI serves as the primary source of beneficial network opportunities (Scillitoe and Chakrabarti, 2010), future research should consider exploring the dimensions and benefits of networking with other actors for firms during all phases of incubation and particularly in the post-incubation phase.

One further avenue of future research from this study relates to the initial evidence of an association between participation in formal programmes, engagement with BI and host HEI and key performance metrics such as number of jobs created and funding raised, further research is needed to test this assumption.

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