BUSINESS SUPPORT WITHIN BUSINESS INCUBATORS

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Abstract

Business incubators (BI) have been established worldwide as tools for company creation and small businesses support. BIs claim to help their tenants by providing them with the optimal conditions for increasing early stage survival. Practitioners and researchers agree that business support is a crucial dimension of BI. Yet this feature is seldom researched. In this study we investigate to what extent business incubators support their tenants overcome their developmental problems. Results show that tenants do not experience many problems and when they do business support is not necessarily sought. Furthermore, our data suggests that business support is not preferentially sought within incubator environment. When this happens, support provided by the BI does not contribute to problem solving. Finally, we discuss the impact of the type of BI in helping their tenants.

Keywords: Business Incubators, Business Incubation, Business Support, Problem Solving

INTRODUCTION

Business incubators (BI) are a unique combination of people, space and business development processes (UKBI, 2007). The ultimate goal of business incubators is to support nascent companies and entrepreneurs till they become sustainable businesses (Lalkaka & Bishop, 1996), contributing to job and wealth creation (EC, 2002; NBIA, 2007). Usually property-based (Phan, Siegel, & Wright, 2005), BIs provide their clients with specialized services such as flexible space, shared equipment, administrative services, granting them networking opportunities and access to venture capital (EC, 2002; Hackett & Dilts, 2004; Lalkaka et al., 1996). However, little is known about the impact of BI on any level as there is no systematic framework to understand and identify the nature of their performance (Hackett et al., 2004; Phan et al., 2005).

Business support services are part of BIs (Chan & Lau, 2005; Grimaldi & Grandi, 2005; Merrifield, 1987) and perhaps their most important dimension (Bergek & Norrman, 2008). Yet Peña (2004) found that general incubator services do not significantly explain that growth of incubated. Outside the incubator's context, the relationship between external business advice and small firm growth has already been researched (Robson & Bennett, 2000) as well as the role of an external support agency in new firm growth (Davidsson & Honig, 2003); both were found to have no impact. However, these studies did not use a comprehensive framework for business support, enquiring only about their existence.

Our main research proposition is: "Are BIs contributing to tenants' development?" In this study, we investigate the specific contribution of business support using a 20 problem framework. Business support is studied in the form of problem solving. The basis for defining the problems framework was inspired by the work of Parsons on social systems (1964) and its more recent theoretical developments applied to entrepreneurial ventures (Groen, Wakkee, & De Weerd-Nederhof, 2008). Our analysis will show whether business support within the BI impacts problem solving. To empirically test our framework, we researched 354 incubated companies across 12 BIs located in Northwestern Europe. Results will show where incubated companies are more likely to seek support as well as in which specific problems that is more likely to happen.

THE NATURE OF BUSINESS INCUBATION

We start by analyzing literature on BIs, searching for a definition while exploring the evolution of the concept since its emergence in the 1970s. Next, we describe briefly which business support services are more often provided to tenants. Finally, we present the operationalization of business support in the form of problem experienced, support sought and solution achieved.

Evolution of business incubation

BIs have been evolving since the 1970s, when initially emerged among other small and medium enterprise support initiatives. The first generation of BI offered basically low-cost space and management training to entrepreneurs (Barrow, 2001; Lalkaka et al., 1996). In the beginning of the 1980s, partly due to the unemployment rampage arising from traditional sectors, policy makers started to establish BI as tools for

economic development as well as promoters of regional revitalization (Lewis, 2001). This second generation of BIs already included more developed services such as marketing training as well as access to finance (Lalkaka et al., 1996). Currently, the third generation of BIs are collaborative service providers, offering a broad portfolio of business support services, such as consultancy, networking and access to venture capital (EC, 2002; Lalkaka et al., 1996).

There are no universally accepted definitions for BIs. Looking at several definitions proposed in both academic and practitioner literature, it emerges that definitions do not focus exclusively on physical space, but also include the provision of services as well as access to professional networks. Business support services generally include physical premises for incubated firms as the key defining feature (Table 1).

Table 1 – Definitions of Business Incubation

National Business Incubation Association. Business incubation is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighbourhoods, commercialize new technologies, and strengthen local and national economies (NBIA, 2007).

United Kingdom Business Incubation. Business Incubation is a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through the early stages of development and change (UKBI, 2007).

United Nation Development Programme. (…) incubators exist to support the transformation of selected, early-stage business with high potential, into self-sufficient, growing, and profitable enterprises. By reducing the risks during the early period of business formation, the incubator is intended to contribute to economic growth through sustaining enterprises tat otherwise fail due to a lack of adequate support; creating present and future jobs, and other socio-economic benefits (Lalkaka et al., 1996).

European Commision. A business incubator is an organisation that accelerates and systematises the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: Incubator space, business support services, and clustering and networking opportunities.

By providing their clients with services on a 'one-stop-shop' basis and enabling overheads to be reduced by sharing costs, business incubators significantly improve the survival and growth prospects of new start-ups.

A successful business incubator will generate a steady flow of new businesses with above average job and wealth creation potential. Differences in stakeholder objectives for incubators, admission and exit criteria, the knowledge intensity of projects, and the precise configuration of facilities and services, will distinguish one type of business incubator from another (EC, 2002).

Organisation for Economic Co-operation and Development. Technology incubators are a specific type of business incubator: property-based ventures which provide a range of services to entrepreneurs and start-ups, including physical infrastructure (office space, laboratories), management support (business planning, training, marketing), technical support (researchers, data bases), access to financing (venture capital funds, business angel networks), legal assistance (licensing, intellectual property) and networking (with other incubators and government services) (OECD, 1997).

Yet an BI is much more than providing a key-in-hand office and shared building services (Aernoudt, 2004). Literature suggests business incubation to have additional dimensions such as shared resources, business support and access to networks (e.g.

Barrow, 2001; Smilor & Gill, 1986). Practitioners often claim that BI have several multi-level impacts, such as firm performance and long-term survival, economic growth, job creation as well as active contribution to an entrepreneurial culture (EC, 2002; NBIA, 2007; OECD, 1997; UKBI, 2007) (Table 1).

The population of BI is far from being homogenous. Several models have been proposed based on characteristics such as ownership (Carayannis and von Zedtwitz, 2005; Grimaldi and Grandi, 2005), management characteristics (Aerts et al., 2007; Clarysse et al., 2005), strategic objectives (Hackett and Dilts, 2004; Koh et al., 2005; Schwartz & Hornych, 2008; von Zedtwitz and Grimaldi, 2006), competitive focus (Carayannis & von Zedtwitz, 2005; von Zedtwitz & Grimaldi, 2006) and available services (Grimaldi and Grandi, 2005; Hansson et al., 2005). According to the National Business Incubation Association, the most common business incubators in the USA are mixed use (54%) and technology based (39%) (Knopp, 2007). Also, Aernoudt (2004) lists these types of business incubation among the most important. Mixed use BIs do not show any focus in terms of sector of activity of incubated companies and aim mainly at employment creation. Conversely, technology based BIs are often focused in terms of sector of activity of incubated companies and aim mainly at bridging an entrepreneurial gap (Aernoudt, 2004).

Dimensions of business incubation

Business incubation has at least four dimensions: space, shared resources, business support and access to networks (e.g. Barrow, 2001; Smilor et al., 1986). Therefore, business incubation services include all services provided to tenants, which cover these dimensions.

Space and shared resources

Providing space has always been part of BI (Lalkaka et al., 1996). Available premises are generally an office although some BI show different approaches such as hot-desking (more common in pre-incubation schemes) (Barrow, 2001). Provision of space is critical to business incubation (Bergek et al., 2008; Lee & Osteryoung, 2004; McAdam & McAdam, 2008) and empirical evidence suggests it as the most beneficial feature to tenants (Chan et al., 2005). Additionally, the office space already includes some services which can be classified as shared resources. These include reception, secretariat, meeting rooms, conference rooms or car parking (Aerts, Matthyssens, & Vandenbempt, 2007; EC, 2002; McAdam et al., 2008). More specialized premises, such as laboratories and research equipment, can also be placed under shared resources (Grimaldi et al., 2005).

Business support services

Professional business services emerged in the second generation of BIs and are integral part of the third generation (Lalkaka & Abetti, 1999; Lalkaka et al., 1996). These include mentoring, coaching and counselling (Chan et al., 2005; EC, 2002), business plan development support (Peña, 2004) and training (Aerts et al., 2007; Barrow, 2001). Some BIs were found to provide directly or indirectly seed and venture capital (Bøllingtoft & Ulhøi, 2005; Sofouli & Vonortas, 2007). Recently, the concept of virtual business support emerged alongside the use of web-based

technologies (Carayannis et al., 2005; Durão, Sarmento, Varela, & Maltez, 2005; Nowak & Grantham, 2000).

<u>Access to networks</u>

Access to a network of professional contacts is also part of the incubator concept (Hansen, Chesbrough, Nohria, & Sull, 2000). Some authors actually define BIs as networks of individuals and organizations (Hackett et al., 2004). Also, networking both among tenants, and graduates and tenants is reported in some empirical studies as crucial (Aernoudt, 2004; Grimaldi et al., 2005). Linking tenants to the most appropriate networks will ultimately help them to build their social capital (Bøllingtoft et al., 2005; Totterman & Sten, 2005). The value of social capital for new ventures is already ascertained (Davidsson et al., 2003), found critical among incubated companies (McAdam et al., 2008) and crucial in the development of high-tech spin out companies (Vohora, Wright, & Lockett, 2004).

THE PROBLEM-SOLUTION FRAMEWORK

We developed a framework for analyzing business support within BI. The key assumption here is that tenants experience problems throughout their development and the best way BI can provide support is by helping them to overcome such problems. The list of problems was inspired by the work of Parsons (1964) using also more recent insights (Groen et al., 2008) (Table 2). Furthermore, we also considered empirical literature on business incubation (e.g. McAdam et al., 2008), business support (e.g. Robson et al., 2000) and new venture development (e.g. Vohora et al., 2004).

According to Groen et al.'s four capital theory (2008) entrepreneurs will develop along four main dimensions: strategic, cultural, economic and social. In each one it is therefore necessary that entrepreneurs possess a certain minimum capital threshold to evolve (Groen et al., 2008). *Strategic Capital* encompasses the strategy of the firm's and also its position and authority in the field (Kirwan, van der Sijde, & Groen, 2007). In a broader sense, strategic capital is defined by set of capacities that enables actors to decide on goals and to control resources and other actors to attain them (Groen et al., 2008; Kirwan et al., 2007). Increase the firm's credibility will be the key problem to increase this kind of capital (McAdam et al., 2008; Vohora et al., 2004). For new ventures, writing a business plan is also particularly important (Delmar & Shane, 2003). Furthermore, to introduce new products, accelerate their time-to-market and generating new business ideas are also part of the firm's strategy. Finally, get advantage over competitors is also part of this kind of capital (cf. Covin & Slevin, 1991). *Economic capital* is traditionally linked to financial resources. This capital is a set of mobile resources used in the relationships between the firm and its environment, mainly in processes of acquisition, disposal or selling (Groen et al., 2008). Obtaining finance is a key problem most new ventures face (Bryson, Keeble, & Wood, 1997; Honjo & Harada, 2006; Vohora et al., 2004). Further problems in this kind of capital are: i) save on equipment costs; ii) improve cash flow; and iii) save on labor costs.

Table 2 – List of problems organized according to Groen et al.'s four capital model (2008)

Capital	Problem (derived from Groen et al., 2008; cf. Parsons, 1964)
Strategic	Accelerate Time-to-Market
	Get advantage over competitors
	Introduce new products
	Increase credibility
	Write/Present BP
	Generate new business ideas
Economic	Obtain finance
	Save equipment costs
	Improve cash flow
	Save on labor costs
Cultural	Professionalize management
	Hire personnel
	Comply administrative regulations
	Get external advice
	Enhance entrepreneurial skills
	Introduce new technology
	Find office/production space
Social	Build/expand market base
	Ally with enterprises
	Establish suppliers contacts

Cultural capital comprises the firm's and the entrepreneurs' knowledge and experience (Kirwan et al., 2007) as well as the valid set of values, norms, beliefs, assumptions, symbols, rule sets, behaviors and artifacts (Groen et al., 2008). Hence, in order to increase this kind of capital, the venture will need to professionalize its management and hire qualified personnel to enhance their entrepreneurial skills. The premise that management skills may hinder firm's growth is known as Penrosian effect (Penrose, 1959; Thompson & Wright, 2005). Also, Richardson (1964) and Shen (1970) investigated the availability of managerial talent as a determinant of firm's growth. External advice can also be a source of cultural capital. The impact of external advice in firm's performance have already been investigated (Robson et al., 2000). We also added compliance with administrative regulations as well as introducing new technologies as problems that can arise when trying to increase the firm's cultural capital. As some firms might be about to leave the incubator or in need or production space, we included finding suitable office space in cultural capital. Lastly, *social capital* is related to the actors in the firm's network through which it can acquire other kinds of capital (Coleman, 1988; Groen et al., 2008; Portes, 1998). Problems to develop this kind of capital relate to alliances (Gomes- Casseres, 1997; Larson, 1991; suggested by Peña, 2004 in the incubation context; Wright, Vohora, & Lockett, 2004), establish supplier contacts and market base expansion.

BUILDING HYPOTHESES

Our main research proposition is: "Are business incubators contributing to tenants' development?". Young ventures experience problems throughout their development (e.g. Groen et al., 2008; Vohora et al., 2004). Our chief assumption here is that young ventures housed within a BI will have privileged access to business support for those specific problems. In other words, the BI support will have a determinant role in solving problems. It is crucial to consider also the effect of problems experienced: tenants would not seek support if they would not experience any problem (Figure 1).

> *H1: The total amount of problems solved is related to the total amount of problems experienced controlling for the total of amount of support given by the incubator.*

However, companies located within incubators do not necessarily enjoy business support provided only by the incubation management. Support provided directly outside can also exist. This means that companies might solve their problems without the specific help of the incubator but rather with help of any support sought.

> *H2: The total amount of problems solved is related to the total amount of problems experienced controlling for the total of amount of any support.*

We will also analyze both hypotheses for each problem to investigate whether differences between problems exist.

Figure 1 – Schematic representation of the research model
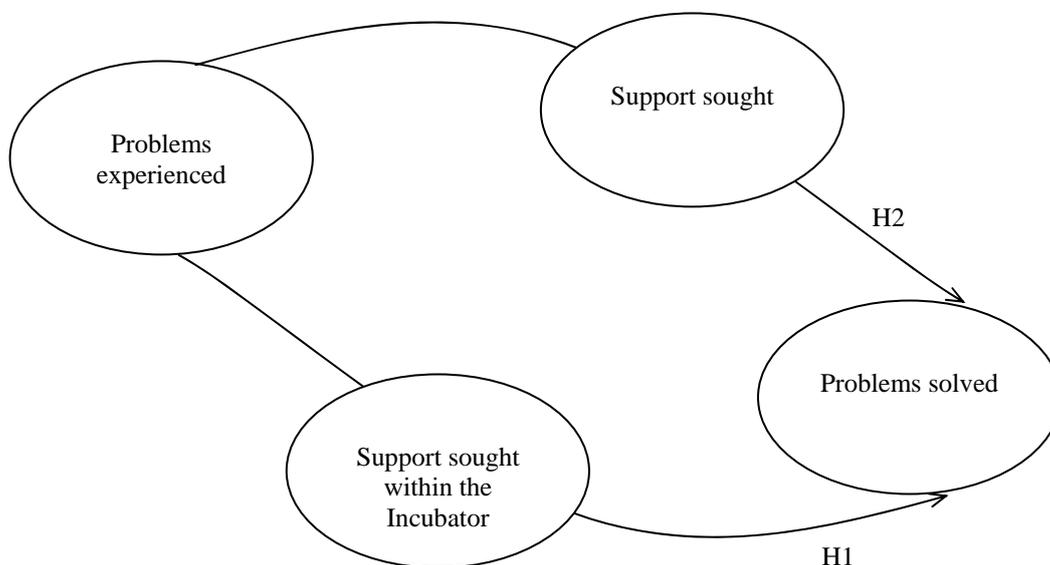
RESEARCH DESIGN

To investigate to what extent business incubators are helping their tenants' to solve problems, we sent out written questionnaires to a 354 incubated companies housed at one of the selected 12 incubation centres at the time of research.

The business incubation centers

The incubated companies were part of the Nensi project - North European Network of Services Incubators. The Nensi incubators were self selected and EU funded for a total of 3 years. Located across five European countries (France, Germany, Ireland, the Netherlands and the United Kingdom), the 12 centers share most of their basic characteristics: they are owned by a combination of universities and regional authorities and mostly located in urban regions or within cities. Furthermore, no specific focus in terms of sectors of activity or nature of their tenants was found. All the incubators offer approximately the same bundle of business support services, i.e., space, facility support, counseling, business plan development, training, brokerage, access to seed and venture capital and virtual support (one of the deliverables of the project). Finally, tenants are already established companies and trading; average tenant entry age is about 2 years and age the time of research was above 4 years (Table 3).

Data collection and methods

During the Nensi project, we collected data from supply (incubators) and demand (tenants), using two questionnaires (one for the initial moment and other for the periodic follow-up). However, for this initial analysis, we only focus on a small part of the database related to problem experienced, support sought and problem solution (for a detailed description of both questionnaires and the monitoring tool see Jenniskens, 2006). From the initial call to 354 companies, 164 answered (46%). However, while conducting the second monitoring exercise only 101 returned questionnaires (29%). The problem solution approach was only asked in the follow up questionnaire and referred to problem support since entrance in the incubator.

For each of the problems described above (Table 2), we enquired on their seriousness using a five point scale. Subsequently, we enquired if support was sought and where using the following three options: incubation management, fellow tenants or directly outside. Finally, we asked whether the problem was solved.

Table 3 – General characteristics and data availability of the researched business incubators

Country	Incubator	Location	Focus	# companies	# companies 1st questionnaire		# companies 2nd questionnaire		Entry age	Age
Netherlands	BTC	Campus / Business and Science Park	Mixed use	68	13	19%	11	16%	1.73	6.45
	Campus Business Centre	Urban	Mixed use	49	27	55%	18	37%	1.94 (N=16)	3.38 (N=16)
	ROC ASA	Campus	Mixed use	10	6	60%	4	40%	8.25	9.25
UK	CUTP - EPIC - Eliot Park Innovation Centre	Urban	Mixed use	17	15	88%	2	12%	3.50	4.50
	EMIN - Innovation Centre	Campus	Technology based	18	11	61%	6	33%	-	3.83
	EMIN - Sparkhouse Studios	Campus	Technology based	10	10	100%	6	60%	-	1.17
Ireland	DCEB - Guinness Enterprise Centre	City	Mixed use	67	9	13%	7	10%	5.29	8.43
	DCEB - iCELT	Campus	Technology based	13	7	54%	3	23%	7.00	9.67
	DCEB - Terenure Enterprise Board	City	Mixed use	25	10	40%	6	24%	0.83	2.83
France	Emergence	Urban	Technology based Focused on young ventures	16	16	100%	13	81%	0.58 (N=12)	2.5 (N=12)
	Normandie Incubation	Campus	Technology based Focused on pre starters	19	17	89%	14	74%	-0.45 (N=11)	1.55 (N=11)
Germany	TechnologiePark Münster	Urban	Technology based	42	23	55%	11	26%	2.00 (N=10)	6.09 (N=11)
Total				354	164	46%	101	29%	2.13 (N=82)	4.42 (N=95)

RESULTS

To test our hypotheses, we used partial correlations analysis. Looking at partial correlations of problems solved, problems experienced and support sought (either generally or specifically in the incubator) will allows to investigate what proportion of support sought explains problems solved (Cohen, Cohen, West, & Aiken, 2003). The incubation hypothesis (H1) will meet the conditions

$$\begin{cases} r_{PS,SuppInc} < r_{PS,Supp} < r_{PS} \\ r_{PS,SuppInc} \approx 0 \end{cases} \tag{1}$$

where P is the total amount of problems solved, S the amount of problems solved, $SuppInc$ the total amount of problems for which support was sought within the incubator and r are the partial correlations.

In the first condition we require that the partial correlation controlling for is smaller than the partial correlation controlling for business support sought anywhere and both are smaller that the zero order correlation. Partial correlations have to be smaller than zero order correlations. If this is not the case, then spurious relationships and different causal relationships between the variables are present (Cohen et al., 2003). The farther the partial correlation is from the zero order correlation, the bigger the effect of control is (Cohen et al., 2003). Hence, if $r_{PS,SuppInc}$ is smaller than $r_{PS,Supp}$, it follows that the support sought within the incubator explains a bigger proportion of problems solved. The second condition requires that the partial correlation controlling for business support sought within the incubator is close to zero. If $r_{PS,SuppInc} \approx 0$ it follows that problems solved could not be correlated to problems experienced without the presence of business support (Cohen et al., 2003).

Similarly, the non-incubator hypothesis will meet the conditions

$$\begin{cases} r_{PS,Supp} < r_{PS} \\ r_{PS,Supp} \approx 0 \end{cases} \tag{2}$$

The same conditions are valid when analyzing individual problems.

Descriptive statistics

Table 4 shows the descriptive statistics on problems, support and solutions. The first column represents the percentage of tenants who experienced a given problem in any degree of seriousness. The second column relaxes the construct by considering the first two points of the five point scale as no problem occurring. The remainder columns represent the percentage of tenants who sought support within the incubator, who sought support anywhere, and who solved their problems, respectively.

These results show that while large percentages of tenants experience problems, their seriousness is not so high. The most frequent problems and most serious problems are mainly strategic and relate to introduce new products (63.4%), accelerate time to market (64.4%) and get advantage over competitors (69.3%). Expanding market base (80.2%), improving cash flow (62.4%), professionalize management (65.3%) and hire personnel (54.5%) are also among the most frequent and most serious problems.

Table 4 – Descriptive statistics on problems, support and solutions

Capital	Problem	Problem experienced (%)	Serious problem experienced (%)	Support within Incubator (%)	Support anywhere (%)	Problem solved (%)
Strategic	Accelerate Time-to-Market	64.4	50.5	7.9	20.8	19.8
	Get advantage over competitors	69.3	43.6	5.9	27.7	46.5
	Introduce new products	63.4	40.6	7.9	27.7	45.5
	Increase credibility	47.5	29.7	14.9	26.7	47.5
	Write/Present BP	48.5	27.7	15.8	26.7	35.6
	Generate new business ideas	47.5	21.8	7.9	17.8	50.5
Economic	Obtain finance	40.6	29.7	24.8	42.6	33.7
	Save equipment costs	43.6	22.8	2.0	11.9	15.8
	Improve cash flow	62.4	43.6	8.9	21.8	32.7
	Save on labor costs	55.4	35.6	5.0	16.8	13.9
Cultural	Professionalize management	65.3	33.7	7.9	19.8	33.7
	Hire personnel	54.5	36.6	6.9	25.7	32.7
	Comply administrative regulations	46.5	33.7	11.9	30.7	31.7
	Get external advice	43.6	24.8	29.7	47.5	45.5
	Enhance entrepreneurial skills	53.5	30.7	11.9	20.8	35.6
	Introduce new technology	51.5	28.7	7.9	18.8	25.7
	Find office/production space	30.7	18.8	3.0	26.7	29.7
Social	Build/expand market base	80.2	53.5	8.9	38.6	47.5
	Ally with enterprises	48.5	21.8	6.9	33.7	49.5
	Establish suppliers contacts	38.6	17.8	1.0	18.8	40.6

N=101

However, apart from building market base, the most frequent and serious problems are not among the one for which support is sought for. Tenants mainly seek support in cultural and social issues such alliances (33.7%), external advice (47.5%) and comply with regulation (30.7%). Also, support on obtaining finance is highly sought for (42.6%). Yet support within the incubator management is sought for strategic and cultural issues such as increase credibility (14.9%), write and present a business plan (15.8%) and get external advice (29.7%).

Hypotheses testing

Aggregated results show no support for any hypothesis (Table 5). Aggregated partial correlation between problems experienced and problems solved mediated by incubator support is not low enough to satisfy the condition (1). Similarly, aggregated partial correlation between problems experienced and problems solved mediated by support sought anywhere is not low enough to satisfy the condition (2). Conversely, the results show that support sought within fellow incubated companies does not mediate solving problems.

Aggregated partial correlation between problems experienced and problems solved mediated by incubator support is not low enough to satisfy the condition (1).

Results for each problem are shown in Table 6. We could not find support for either hypothesis for individual problems. Some moderate effects were observed though: support given by the incubator management is partially responsible for solving problems in writing the business plan while the converse is not true for improving cash flow, save on labor costs and introduce new technologies.

Our population of BIs is not homogeneous (Table 3). We also tested hypothesis 1 and 2 grouping our cases by type of BI: mixed-use vs technology based. Results show moderate support for hypothesis 1 only for technology based incubators (Table 7). This means that tenants housed within technology based BIs who seek support within the incubator management are more likely to solve their problem than those seeking support directly outside.

Table 5 – Zero order and partial correlations (aggregated values)

Variables	Control Variables: Total number for which support was sought	Partial correlation	Zero-Order Correlation
Total number of experienced problems Total problems solved	Anywhere	0,292**	
	within the incubator management	0,285**	0,453***
	next to fellow tenants	0,442***	
	directly outside	0,317**	

N=95

Table 6 – Zero order and partial correlations (per problem)

Capital	Variables: Problem and Solution	Control Variables: Support sought	Partial correlation	Zero-Order Correlation
Strategic	Accelerate Time-to-Market	Anywhere	0.024	0.136
		within the incubator management	0.094	
	Get advantage over competitors	Anywhere	0.067	0.171
		within the incubator management	0.125	
	Introduce new products	Anywhere	0.181	0.265*
		within the incubator management	0.248*	
	Increase credibility	Anywhere	0.128	0.190
		within the incubator management	0.135	
	Write and Present Business Plan	Anywhere	0.091	0.274**
		within the incubator management	0.217*	
	Generate new business ideas	Anywhere	-0.016	0.118
		within the incubator management	0.122	
Economic	Obtain finance	Anywhere	0.100	0.368***
		within the incubator management	0.089	
	Save equipment costs	anywhere	0.168	0.241*
		within the incubator management	0.121	
	Improve cash flow	anywhere	0.231*	0.311**
		within the incubator management	0.298**	
	Save on labor costs	anywhere	0.242*	0.369***
		within the incubator management	0.365***	

Table 6 – Zero order and partial correlations (per problem) (cont.)

Capital	Variables: Problem and Solution	Control Variables: Support sought	Partial correlation	Zero-Order Correlation
Cultural	Professionalize management	anywhere	0.079	0.114
		within the incubator management	0.116	
	Hire personnel	anywhere	0.094	0.259*
		within the incubator management	0.224*	
	Comply with administrative regulations	anywhere	0.054	0.163
		within the incubator management	0.134	
	Get external advice	anywhere	0.007	0.208*
		within the incubator management	0.078	
	Enhance entrepreneurial skills	anywhere	0.039	0.187*
		within the incubator management	0.119	
	Introduce new technology	anywhere	0.273*	0.404***
		within the incubator management	0.411***	
	Find office/production space	anywhere	0.050	0.184
		within the incubator management	0.160	
Social	Build/expand market base	anywhere	0.033	0.040
		within the incubator management	0.033	
	Ally with enterprises	Anywhere	0.195	0.231*
		within the incubator management	0.207	
		directly outside		
	Establish suppliers contacts	Anywhere	0.111	0.176
		within the incubator management	0.111	

N=95

Table 7 - Zero order and partial correlations (aggregated values) for mixed use and technology based incubators

	Variables	Control Variables: Total number for which support was sought	Partial correlation	Zero-Order Correlation
Mixed use Incubators (N=45)	Total number of experienced problems Total problems solved	anywhere	0.272	0.266
		Within the incubator management	0.268	
		next to fellow tenants	0.254	
		directly outside	0.217	
Technology based incubator (N=48)	Total number of experienced problems Total problems solved	anywhere	0.374**	0.505***
		Within the incubator management	0.374**	
		next to fellow tenants	0.547***	
		directly outside	0.446***	

CONCLUSION AND FURTHER RESEARCH

We set out to investigate to what extent business incubators help their tenants to develop. Our chief assumption is that tenants experience problems during their development and business incubation comes in the form of help to overcome such problems. Results show that

incubators are not intensively helping their tenants even though they (the tenants) experience frequent and serious problems. Tenants experience only about half of the problems we inquired about. Support for solving those problems is not necessarily sought and it is even less likely to be sought within the incubator. Yet differences across the type of problems for which support is sought are visible: while strategic problems are among the most frequent and serious problems tenant face, incubator support is mostly likely sought in human capital development areas. This suggests that tenants' perspective about their problems and their actual needs are not the same. It might also imply a mismatch between the support currently provided by BI and the needs of tenants: while business incubators are helping tenants in developing their human capital, their most immediate needs are strategic. This type of mismatch is potentially serious in what regards to solving tenants' development problems. At the same time, it impacts the effectiveness of the BI outcomes as it provides new venture with different skills than those needed.

We hypothesized the relationship between problems experienced and problems solved to be moderated by support sought within the incubator environment. Zero order correlation between experiencing and solving problems are generally low. This means that tenants who experienced problems did not solve them, with or without help. Partial correlations show that having support whether inside or outside the incubator does not help explaining the problem solution. Also, differences between seeking support anywhere, within the incubator or directly outside are not significant. The same analysis for each problem yields the same results. Finally, we found that the type of incubator impacts the value of support given to tenants. Support within technology based incubators helps explaining problem solving while within mixed use incubators no significant correlation was found. The reason might lie in some of the characteristics of mixed use incubators such as age of tenants.

Our results contribute to the current discussion about the impacts of business incubation (e.g. Hackett et al., 2004; Phan et al., 2005) by investigating the current state of business support within business incubators. Our analysis challenges the often accepted view that incubators provide their tenants with a comprehensive, unique and constant package of services. The results can be used to differentiate business incubators based on their ability to help tenants to solve problems.

We highlight two future avenues for research. Firstly, investigate the reason behind tenants not looking for support. This suggests that tenants are solving their problems without any help. This *independence hypothesis* is potentially related to tenants' experience or company age. Secondly, further analysis of the defining characteristics of each type of incubator and its relationship to business support patters is needed. For instance,, technology based incubators might have a more proactive way of providing support while mixed use incubators deliver on demand.

This study is not without its limitations. We compared support sought for problems to the specific support sought within the BI management. These categories are not mutually exclusive. Further analysis should compare directly the business support provided by the BI and business support sought directly outside. Also, we did not focus in any characteristics of each BI, except mixed use BIs and technology based BIs. Further analysis will investigate which BI differences impact business support.

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