

November 2008

***Business Incubator Services and Benefits:
an In-Depth Investigation***

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Abstract

The concept of business incubation to assist fledgling businesses to establish and to develop networks, management skills, and markets for their products or services is a relatively recent innovation. The origins are mainly overseas countries and the United States in particular. The research question addressed by this study is:

What services offered by business incubators either in-house, or accessed by referral, are of benefit to small and medium enterprise (SME) owner-managers?

This paper provides an in-depth and Australian perspective about this issue, through six South Australian case studies of business incubators 'with walls' and virtual incubators 'without walls'.

Keywords: business incubators; fledgling businesses; entrepreneurship; business mentoring.

Acknowledgements

We particularly acknowledge the following people for their assistance in the development of this research: Dr Selva Abraham for suggesting the research, assisting with the proposal and providing overall guidance; and Dr. Barry Elsey for his valued assistance, advice, encouragement and support. We would also thank the people who gave their time and expertise in the interviews, and provided a wealth of information that contributed to the data richness of the study.

Introduction

Concurrent with the downsizing and restructuring of large businesses and government bureaucracies, there has been an increasing focus on the formation and growth of small and medium sized enterprises (SMEs) (Karpin Report 1995) and the need to assist SMEs because of their contribution of employment and the economy (The Beddall Report 1990).

In particular, business incubators are seen to be an effective way of assisting the survival and growth of small, fledgling businesses (Allen 1988; Fryer 2000; Gerl 1996b; Hayhow 1997; Meeder 1996a; Rice 1992; Roper 1999; Sherman 1999; Thomas 1996; Whettingsteel 2000) and so contribute to economic development

within a geographic region (Carroll 1986; Kuratko & LaFollette 1987; Pricewaterhouse Coopers 1999). Indeed, early intervention by way of mentoring, training and establishment of management systems, is seen to be a way of reducing failure rates or detecting problems early enough for corrective action to be taken. Such intervention within an incubator environment enables training and mentoring and the sharing of actual success, opportunities and problems as they arise (Allen 1988; Price Waterhouse Coopers 1999; Rice 1992). Furthermore, they are an attractive economic development option for regional councils and are often fostered by them (Office of Local Government, Department of Immigration, Local Government and Ethnic Affairs 1992).

However, although there have been several research studies undertaken in some countries, and particularly the United States (Adkins 1996a; Bearnse 1993; Bruton 1998; Bykova 2000; Deakins et. al. 1998; Forst 1996; Hayhow 1997; Jorge, Malan & Lalkaka 2002; Meeder 1996b; Mian 1994; Rice 1992; Sherman 1999), the subject has not been recently researched in-depth in Australia. Furthermore, although there is prescriptive information relating to business incubation, there are few Australian case studies about the benefits of incubator services to specific outcomes.

Thus this research aims to explore the gaps in the literature about how business incubators assist SMEs in Australia. Particularly, it addresses the issue of what services offered by business incubators either in-house, or accessed by referral, are of benefit to SME owner-managers.

Several contributions are made in this research. First, there is a difference between the perceptions of incubator managers and tenants concerning which support services are of benefit or useful. Second, there are benefits for SME owner-managers in terms of positively influencing business skills development, reducing closure and failure rates during the incubation period and facilitating innovation and commercialisation of technology. Finally, the key role of an incubator manager is to proactively identify client needs before they evolve into major problems, and to assist them in the development of their opportunities.

These contributions are important because of the significance of SMEs to the Australian economy. Indeed, in Australia it is estimated the number of SMEs totals 1,075,000, that is, 96.4 per cent of the total number of business enterprises. These SMEs employ 47.2 per cent of the total workforce and over 60 percent of the private sector work force (Australian Bureau of Statistics 2001).

This paper has four parts. First, a preliminary framework of five research issues based on the literature is outlined. Then, the in-depth methodology of case research is described. The results are discussed next. Finally, conclusions about the research issues are explored and implications of the findings are discussed.

Background literature about business incubators

Background: Business incubators have their origins in the United States in 1959. However, the growth of these business incubators is a relatively recent phenomenon. In 1997-98 there were more than 800 incubators in the United States, compared to

only 12 in 1980 (Guglielmo 2000). Between 1992 and 1999, the Australian Government approved 72 incubator projects (Pricewaterhouse Coopers 1999). Individual states are also involved. For example, in the state of South Australia, support services specifically targeted to SMEs were provided by The Business Centre, now the Centre for Innovation, Business and Manufacturing, a state government entity. However, in common with some other states, the South Australian government is now providing targeted assistance through other service providers such as the Business Enterprise Centres (BECs) and Regional Development Boards. At June 2002, there were seven BECs in the Adelaide metropolitan area, and ten Regional Development Boards, providing business advisory services. In addition, there were six business incubators, not including virtual incubators, with a further five at the feasibility study or detailed planning stage. Of the six incubators, two are associated with universities, two are regional and two are metropolitan (Evans, A. 2002 pers. comm., 12 September).

Missions, roles, objectives and benefits: There are many different types of incubators and this diversity makes **comparisons** between them difficult (Dowling 1997a, pp. 1-3). But their objectives are similar. In brief, their primary mission is to assist in the survival, development and growth of start-up or early stage businesses. They achieve this mission both through the provision of professional management assistance and operating cost savings (English 1995).

Business incubators are part of an emerging trend of support systems for new venture creation, and successful incubators are judged by their ability to add value to tenant businesses (Rice & Matthews 1995). Client businesses should have increased in value when they leave compared to when they came into the incubator (Dowling 1997a). They are also judged by their ability to achieve a regular turnover of graduates, thereby providing space for new start-up businesses; reduce the level of tenant failure; indirectly create employment through tenant and graduate businesses; and over time, begin to operate as self-sufficient businesses, without ongoing reliance on government funding (DEWRSB 2001, p.3).

SME owner manager skills: Start-up businesses may be exposed to the world of commerce and competition from their very first day, and many fail in the critical early stages of their life because they lack nurturing, advice and assistance (Allen 1989). SME owners often have *technical* skills but lack management, marketing and entrepreneurial abilities, and without these abilities are unlikely to survive. Given that most SME owner-managers lack essential business management understanding and experience, particularly at the start-up stage, assistance is needed in meeting and successfully dealing with the crises and problems they will face. Often the owner-managers are unaware that they are approaching a crisis and it is the mentor/adviser who is able to assist before a potential crisis becomes a major risk to the business. Incubators are seen to be a cost effective way of providing timely advice and assistance (Allen 1988; ANZABI 1999b; Dowling 1997a; English 1995; Kenyon & Gardiner 1994; Philips & Hayhow 1996).

Services offered: Provision of business incubator services has a primary goal of assisting owner-managers to survive and grow, and to mentor them in the development of their business and entrepreneurial skills. The justification for their

existence is their potential for value adding to tenant businesses and the surrounding community of which they are a part (Allen 1988). Their unique value and contribution lies in enabling tenants to conserve scarce capital, and providing opportunities for interaction and the development of relationships with fellow tenants, external service providers, and the incubator manager for purposes of mentoring and monitoring. These relationships, and the benefit of ongoing assistance, often last well beyond graduation from the facility (Adkins 1996b).

Traps and problems to be avoided: There are a number of factors which militate against an incubator's success (ANZABI 1999b; Dalton 2000; Gerl 1996e; Jorge, Malan & Lalkaka 2002; Rice 1992, 1996; Rice & Matthews 1995). Firstly, they cannot be self-sufficient in the short term and require support and commitment over a long period of time, often up to ten years. Secondly, the lead time to establish an incubator can be quite long - from two to four years. Also, they cannot be commercially viable if they are required to pay commercial rent or a commercial return on investment. Economies of scale are also important and they consistently need higher than 60 to 70 percent occupancy ratios. Finally, they often need to be integrated with other businesses and economic development services in their region, and even then they are not likely to be viable in areas where the catchment population is below a certain threshold or where there are no suitable or affordable buildings available on appropriate terms. In these latter instances, a virtual incubator may be a viable alternative. A virtual incubator is an incubator that provides a substantial proportion of support and services to 'tenants' through a network of communications from a remote location. Business tenants will typically be dispersed over a wide geographic area. These incubator models are sometimes referred to as 'incubators without walls'.

Research issues

This research explores the benefits and problems associated with both physical (bricks and mortar) and virtual incubators and their role in assisting SMEs to establish, survive and grow in Australia. There are various interpretations of what constitutes a business incubator, the types of services offered, and the potential benefits of these services to SME tenants and clients. This imprecision led to the development of five research issues.

Services: To begin, the literature cites a number of studies in which incubators are identified as important to the growth and success of incubating businesses (Hayhow 1997; Jones 2001; Murphy 2000; Rice 1992; Roper 1999; Sherman 1999; Whettingsteel 2000; and Wonnacott 2001). Hayhow (1997, p. 1) cites a study in which 'firms made impressive gains in average gross sales and staff employed'. Average sales of tenants increased by more than 400 percent from the year they entered an incubator and employment increases from 4.5 to an average of 13 jobs per firm. The majority, 66 percent of tenants, were of the view that the incubator had a 'strong hand in their growth' (Hayhow 1997, p.2). But what did the incubators do to achieve these results?

Many incubators do the same sort of thing. (ANZABI 1999b; Bruton 1998; Dowling 1997a). Generally, they provide accommodation, shared office services and facilities,

access to professional advice as and when needed, and the opportunity for tenants to learn from each other's experiences (Allen 1989). A number of authors (Carroll 1986; Brown 1998; Dowling 1997b; Hayhow 1996; Kalis 1996e; Rice & Matthews 1995; Schuyler 1997) outline these service offerings as:

- *professional services* including assistance and counselling on legal, marketing and sales, exporting, government contracting, human resource management, product supply, production, financial planning, seeking finance, accounting and intellectual property issues;
- *facilities services* such as reception areas, meeting rooms, library, audio-visual equipment, computer equipment and conference rooms; and
- *office services* such as word processing, copying, clerical aid, bookkeeping and reception.

Although these common incubator services are listed, the literature does not appear to identify the services which are most beneficial. So the first research issue was:

RI 1: What range of services are offered by the various incubator models and do they contribute to growth and, possibly, eventual graduation?

Nor does the extant literature identify the apparent lack of congruity between the incubator managers and their tenants regarding the services tenants recall using and the most beneficial services identified by the incubator managers.

For example, a US research study asked tenants to performance rate a number of services, but, apart from indicating the percentage of respondents who used the services; this study did not identify those services which are most beneficial (Hayhow 1997). Shared administration and office services recorded the highest percentage (82.9 percent) of users, almost double the next most used service, of business plan development (46.7 percent).

Australian research (Dowling 1997b) reported on tenants' ranking of the top five ways an incubator beneficially assisted them in their business. The following were listed: saved money overall; accelerated development of the business; saved on renting/lease costs; increased their management skills; and, increased their confidence. However, the literature also states that the manager's 'value-adding strategies and objectives' should include: counselling – working one-on-one with tenants; establishing and maintaining external business networks and organising external sources of advice for tenants where required; developing, arranging and delivering training programs; and developing and promoting opportunities for tenant interaction (Dowling 1997a, p.2-24; Rice 1992).

Finally, the literature identifies a problem concerning graduating tenants and moving them out of the incubator, particularly if time-related graduation policies are strictly adhered to. Not all companies grow and develop at the same rate, therefore a flexible graduation policy is necessary (Gerl 1996e). The average time for a firm to stay in an incubator is two to three and a half years, but some stay from seven to nine years. Tenants form networks and support services inside of the incubator and these are a main motivation for staying. In addition there are the financial and disruption costs

associated with relocation. Businesses tend to graduate only when *they* are ready to leave (ANZABI 2001; Gerl 1996e). The key question is: 'Does the client benefit from being in the incubator for a further period of time and will the incubator also benefit from retaining the client' (Gerl 1996e, p. 185).

In brief, while some services issues have been raised in the extant literature, little data exists about their relative importance in an Australian context. Therefore the second research issue in this case research is:

RI 2: Do the services assist or influence business skills development?

The literature tends to link business skills development with training, and training is seen to be one of an incubator's services organised by the site manager (ANZABI 1999b; Brown 1998; Guglielmo 2000; Kalis 1996e; Manecksha 2002). It is one of the 'intervention' services provided (Rice 1992) and the business survival rate in incubators may be attributable to the training and mentoring provided (Nolan 1999). This view is supported by longitudinal research undertaken in Australia by Williams (1986, p.20) in which he found a positive and significant correlation between business survival and business management courses undertaken by the owner-managers.

However, owner-managers of developing businesses have little time to spare for off-the-job training, and that skill development must be linked *directly* to the current needs of the business and addressed through mentoring (Autio, Erkkö and Klopsten 1998). One objective and role of business incubators is to provide training and one-to-one counselling, the latter being a more focused and need specific form of training. Furthermore, tenant (peer) networking and sharing of experiences is also found to be a significant source of learning and skill development (Adkins 1996a & 1996b; Kalis 1996d).

Increased management skills have been ranked as one of the top five benefits ranked by tenants (Dowling 1997b). This benefit applied regardless of the type of incubator. However, there is a difference between seeking responses to questions by offering stated choices for ranking purposes, and asking open ended questions in an in-depth interview without any structured response format, and so that was done in this research. Moreover, little data exists about the Australian situation. Therefore the third research issue in this case research is:

RI 3: Do the services increase the probability of survival?

Survival: Next, turning to survivability of businesses in incubators, studies cited by the by the OECD (1998) and Pinfold (2000) show that the closure and failure rates for businesses that start out unassisted are significantly higher than 10 percent and are cited to be well in excess of 50 percent. Conversely, the literature indicates that the closure and failure rate of tenants housed in incubators is approximately 10 percent or less (Dowling 1997b; McKee 1992). In addition, the rate for businesses which have started out in incubators, and have now been operating for more than five years, is from six to nine percent (Dowling 1997b).

The above data suggest that the intervention strategies of business incubators do play a vital role in business survival and success. However, survival rates may also be influenced by the screening process undertaken by incubator management prior to acceptance of clients for incubation (Brissett 2001; Sakata, Nobuhara & Fujisue 2002; Thierstein & Beate 2001), so that the tenants may have had higher survival rates even if they had not been in an incubator.

The literature indicates that the two major criteria to be considered in the screening process are the business owner-manager and the business itself. Kalis (1996b) recommends that the following items should be included in a screening checklist of prospective tenants:

- What are their motivations?
- Do they have a business plan?
- Are they open and honest – particularly with themselves?
- Do they have a viable business or business idea?
- Do they have adequate finance or access to finance?
- Will they be open to receive advice and assistance?

Lavelle (1996, pp. 161–164) outlines a similar range of factors to those listed immediately above, and takes the recommended screening process into greater depth.

However, at the establishment phase of an incubator, the focus is on attracting tenants. In striving to prove early success and earn income, the *risk* is to admit tenants who may not be appropriate for the incubator and who may not benefit from, or participate in, the services provided (Dalton 2000; Rice & Matthews 1995). In short, some applicants will not benefit from the incubator and conversely, the facility will not benefit from having them as tenants. Therefore, it should be recognised that the central role of an incubator is to assist willing and able clients to survive and grow, and that admission criteria must be established to screen out those businesses that are unlikely to succeed. This implies that the temptation to increase occupancy rates, and thus generate income by accepting inappropriate tenants, is contrary to the core purpose of an incubator.

Based on the above recommended screening process, part of the reason for low closure and failure rates in an incubator environment is the potential separation of businesses that are likely to succeed from those which are unlikely or less likely.

Finally, Autio, Erkkö and Klofsten (1998, citing Gibb 1996) point out that business education (skill development) should address the *immediate* needs of a business enterprise identified through monitoring. Given that many business owners start out unprepared, and lacking in the key management skills necessary for survival and success, early intervention, counselling and mentoring are often the key to survival (Rice 1992). Hence initial screening of the business owner and business concept, and timely advice provided through monitoring during the first two or three years of its life, is one of the primary roles of incubators and is frequently reflected in their goals (Allen 1988; ANZABI 1999b; CYBER Centre 1988; DEWRSB 2001; Kalis 1996a; Lavelle 1996; Pricewaterhouse Coopers 1999). Successful client monitoring and

mentoring includes a focus on proactive counselling to identify issues and problems before they reach crisis point (Rice & Matthews 1995).

However, while these issues about services and survivability have been raised in the extant literature, little data exists about the Australian context. Therefore the fourth research issue in this case research is:

RI 4: Do the services facilitate or foster innovation and commercialisation of technology?

Technology: Whereas general purpose incubators have the priority of supporting fledgling businesses, with the objective of achieving growth and employment outcomes, technology incubators seek to commercialise new products and services (ANZABI 2002). However, the literature suggests that technology focused clients may suffer a number of business deficiencies including: a focus on the innovation without first checking customer needs and market viability; they may fail to assess the direct and indirect competition; fail to determine whether the innovative product or service can be developed into a profitable line or venture; tend to underestimate the time it takes to get the product or service to market and win market acceptance and recognition; as a result, cash flow forecasts are often over optimistic; they may not understand the importance of market positioning (niching); not know what resources to tap for funding; and over estimate their personal capacity and management abilities (Rice 1996, p. 101). It is therefore, the role of the incubator to identify these potential marketing and management deficiencies and provide the necessary mentoring and support.

However, while these issues about technology have been raised in the extant literature, little data exists about innovation and commercialisation in the Australian context. Therefore the fifth research issue in this case research is:

RI 5: What distractions, demands or other issues arise which impact on, or contribute to, the provision of client services?

Other issues: The final research issue concerns additional issues to the four major ones above. The literature found that some incubator managers prefer to spend time on tasks associated with administration and building maintenance rather than on direct consultation with tenants (Adkins 1996a; Rice 1992, 1996). Managers are under considerable time pressures and as a result only a small amount of time, from 23 to marginally greater than 55 percent, is available for in-depth advice and assistance to individual tenants (Allen 1988; Rice 1992, Rice & Matthews 1995). This compares to a minimum best practice standard of 60 percent (Dowling 1997a; Rice 1996). Due to the time pressures they experience, some managers prefer to identify a tenant's needs and direct them to external sources of assistance (Rice 1992).

In order to re-focus on an incubator's primary objective of client advice and mentoring, the following three actions may be necessary. Firstly, other staff may need to be allocated administrative tasks, and board members made primarily responsible for marketing and communication with incubator sponsors and stakeholders. Secondly, clients need to be prepared and responsive to assistance and intervention

when necessary, and finally the counselling (people) skills of the incubator manager may need to be improved (Adkins 1996a; Rice 1992).

In the literature, incubation is cited as an effective business development tool, requiring modest investment and providing returns to the regional economy (Adkins, 1996b; Bearse 1993; Carroll 1986; DEWRSB 2001; Dowling 1997a; Forst 1996; Hayhow 1997; Matlock 1996; Meeder 1996a; NBIA 1996; Sherman & Chappell 1998, p. 2). Whettingsteel (2000, p. 44) citing UK Business Incubation, lists six strengths, or outcomes, of incubation: higher survival rates amongst start-ups; encourages faster growth; helps identify investment opportunities; facilitates the commercialisation of university or corporate research and ideas; helps create new businesses and jobs; and assists with specific urban or rural economic development problems.

However, the Commonwealth Department of Employment, Workplace Relations, and Small Business (DEWRSB 2001) identified a number of factors that militate against their success. For instance they:

- cannot be self-sufficient in the short term and require support and commitment over a long period of time – up to ten years;
- are not normally commercially viable if they are required to pay commercial rent or a commercial return on investment;
- need better than a 60 percent, and consistently closer to 70 percent, occupancy ratio to be viable; and
- are not likely to be viable in areas where the catchment population is below a certain threshold or where there are no suitable / affordable buildings available on appropriate terms.

The implication behind all of the factors listed above by DEWRSB is finance and access to finance in order to survive and provide beneficial services to their clients. Financial constraints appear to be the most significant issue that impacts on the provision of tenant (client) services. As noted above, incubators cannot be self-sufficient in the short term and require support and commitment over a long period of time.

Methodology

The research was undertaken using a multiple-case research methodology. Because the research seeks to establish an understanding of the realities surrounding the role of business incubators in the survival of fledgling businesses and the development of business acumen of their tenants and clients, the methodology was the most appropriate for four reasons. First, it allows the researcher to be an observer with little control over events rather than an involved participant and focused only on understanding the dynamics present. (Yin 1994) Second, it allows the investigation of a contemporary phenomenon where the boundaries between the phenomenon and context are not clearly evident. Third, it probes deeper than qualitative techniques allowing theory construction and theory building rather than theory testing and verification. (Perry, Reige & Brown 1999) Finally, it enables greater flexibility and allows data and theory to interact providing a more data rich framework.

To investigate these research issues qualitative studies were conducted. Initial interviews were undertaken with experienced people in the subject area to assist in the development of relevant case study questions and the protocol used to guide the subsequent conduct of the research. Then *six* case studies were used to investigate the business support services of incubators and their contribution to development of management skills, survival and business growth. The cases were restricted to the state of South Australia because the different regulations, government funding and practices in other states may have confounded findings. The six cases, listed in Table 1.2 included three general purpose, two technology and one unique 'virtual incubator' concept, designated as site G, that became evident at the post methodology stage of the study.

Table 1.2 Summary of interviews conducted in this research

Incubator sites and alpha reference:	Manager interviewed?	Tenant interviews
Site A General purpose	Yes	Four
Site B General purpose	Yes	Four
Site C <i>found not to be operating.</i>	No	NA
Site D Technology	Yes	None
Site E Technology	Yes	None
Site F <i>not operating yet</i>	Yes, but excluded	NA
Site G Virtual	Yes	Four
Site H General purpose	Yes	Four

Source: developed for this research

In-depth interviews were conducted with the incubator managers from each of the six sites, followed by four tenant interviews on each of *three* sites where permission was given for their involvement in the study. Permission was not granted at either of the technology incubator sites, and the Program Manager at site G arranged for four participants to complete self-administered questionnaires which limited the data richness of the information from this site. Although the total contribution of tenants was limited to 12 interviews and four questionnaire responses, the data obtained was adequate for subsequent and meaningful within-case and cross-case analysis.

Triangulation of the data was achieved from questions and observations made by two people undertaking the interviews, cross checking by means of tenant interviews, by asking questions of participants to clarify issues identified during the cross-case analysis, and by information supplied by the various participants in the field of SME support services.

During the initial interview with the manager of Business Enterprise Centres SA Inc., it appeared that the BECs were operating as virtual incubators. Interviews were subsequently conducted with the five regional managers of BEC 1 to 5 , but it was

found that, due to lack of funding and thus resources, they were not fully able to operate as virtual incubators, even though the managers are each very dedicated and performing an important role within their funding constraints.

Within-case and cross-case data analysis techniques were used (Eisenhardt 1989). First, all of the individual responses from the six incubator managers were consolidated, question by question, to identify similarities and differences in their responses. Similarly, consolidations were prepared of the responses from incubator tenants to identify similarities and differences. Next, a key point summary was then made for both sets of data, namely that of the managers and the tenants. Then the similarities and differences between manager and tenant responses were identified and analysed. Finally, due to the amount of data and its complexity, a table of key findings of similarities and differences was prepared.

Four criteria were used to ensure validity and reliability appropriate to the realism paradigm: construct validity, internal validity, external validity and reliability. Construct validity was ensured by providing opportunities of participants and informants to review and comment on their draft case (Reige & Nair 1996). Internal validity was ensured by pattern matching and explanation building (Reige & Nair 1996, Yin 1994). External validity was ensured by using a multiple-case design (Yin 1994). Finally, reliability was ensured by detailed documentation of the methodology so the findings could be sustained without contradiction if the study was replicated (Yin 1994).

Finally, the research was conducted within ethical guidelines in order to protect participating individuals and organisations from any harm or adverse consequences that may result from research activities (Emory and Cooper 1991; Miles and Huberman 1994; Patton 1990). Two major steps were taken. First, informed consent was obtained from all participants. Secondly, the privacy and confidentiality of the respondents was protected in the manner in which data was collected, managed and presented (Miles and Huberman 1994).

Research findings

Research Issue 1 asks: *What range of services are offered by the various incubator models and do they contribute to growth and, possibly, eventual graduation?*

The above led to the examination of four sub-issues. Firstly, what are the most important services from the viewpoint of both tenants and managers? Secondly, what is the manager's role in provision of these services? Next, the growth in the incubating businesses and importance of the incubator to their success; and finally, the issue of graduating tenants from the incubator site.

Finding 1 (1): tenant and managers' recognition of the most important services

The research found that services most commonly recalled by tenants are:

- pre-entry client assessment;
- mentoring;
- shared administration/office services; and
- networking with other tenants.

The services identified by managers as being most beneficial to tenants were found to be:

- developing business plans or strategic plans;
- mentoring (from which business management skills are developed);
- cash flow/financial management;
- marketing and sales assistance; and
- Networking opportunities encouraged by incubator management.

The additional services identified by the technology incubator managers included:

- commercialising technology;
- intellectual property management; and
- assistance with government grants or loans.

Whereas tenants recollect consistently using shared administration and office facilities, the incubator managers did not consider this to be of most benefit to tenant businesses.

Finding 1 (2): incubator managers' role in providing counselling and support services

This research found that incubator managers separated their support role into three distinct areas:

Assistance and intervention driven by the identified needs of each individual business. On-site counselling was a day to day activity carried out both informally and formally at business planning and review meetings.

Referrals identified and made to an established network of professionals for 'in-depth' advice and expertise to address specific tenant needs such as taxation and legal matters.

Networking fostered and encouraged between tenants. Tenants learned from, and placed significant credence in, the experiences of their peers. Networking may be informal, such as a chance meeting in the incubator kitchen, or at a formal networking function organised by, and within, the incubator.

In addition, managers also identified the organising of group business skills development workshops and seminars as part of their role. However, two of the six managers were frustrated over the lack of tenant interest and attendance at these organised sessions. It would appear that tenants prefer one-to-one mentoring assistance *as and when* a need is identified rather than attending a management training event.

Finding 1 (3): growth in the incubating businesses and importance of incubator to their success

This research found the responding tenants all advised that they had increased their sales turnover and profit performance since entering the incubator. Also, most tenant respondents stated that the incubator had assisted them in their growth and/or business performance. In addition, getting out of their 'home base' was seen to be beneficial

for the development of some of these tenant businesses because owner-managers tended to become more focused on their business and more disciplined in their time management.

Finding 1 (4): graduation of tenants

This research found that the two technology incubators, sites D and E, did not have a graduation policy. Both had a long term involvement with their tenants and were developing a cluster of technology related businesses.

Site G had a graduation policy. On completion of all the graduation requirements, participants in the program are recognised as being business ready. Because it acts as a virtual incubator, with participants housed in their own separate place of business, there is no requirement for graduates to relocate.

The three general purpose incubators (sites A, B and H) also had a graduation policy. However, it was not strictly followed. If the tenant continued to benefit from the incubator and its services they were not forced to leave. Furthermore, if the incubator had a regional economic development role, it would prefer to retain a tenant rather than lose them to the region or, if the cost of relocation is significant, the tenant may remain and the 'saving' in the cost of relocation invested in further growth of that business. Anchor tenants were also encouraged to remain in the facility.

Research Issue 2 asks: *Do the services assist or influence business skills development?*

The above led to the examination of two sub-issues. Firstly, what are the views of incubator managers and tenants regarding business skills development? Secondly, do tenants recognise business skills development?

Finding 2 (1): the incubator managers and tenants views

This research found all incubator managers in agreement that incubation does develop client business skills. How these skills are developed was summarised by the manager of site A which is paraphrased as follows. Development of management skills leads to confidence in managing and hence motivation to manage. This is an evolutionary mentoring process spread over the time that tenants spend in the incubator. However, because tenants learn from day-to-day, often by discussing their problems and opportunities, and sharing experiences with their fellow tenants, they do not 'recognise' the contribution made by the incubator to their business skill development.

Finding 2 (2): the issue of tenant skill development recognition

In this research, when asked if the services assisted in the development of their business skills one third responded with 'no'. However, during subsequent follow up with site managers and these tenants, it was found that the tenants had gained significant commercial understanding and benefit from the incubator through both mentoring and networking. This led to an important finding of this research, namely that business management knowledge is gained day by day (analogous to the process of osmosis) without conscious recognition of the learning or its source. Learning how to manage appears to be inculcated over the months and years in the incubator. Importantly, the tenants 'own' the experiential learning as distinct from consciously

being taught by an external source in isolation from the current reality existing in their particular business.

An alternative argument may put that certain tenants do have the necessary business management skills prior to entering an incubator, and see the entry benefits as being in a range of other services offered by the site – such as: secretarial and reception services; a more disciplined approach to their business not possible in a home based environment; avoiding the isolation factor; a more professional image presented to their customers; the reduced capital outlay; and the networking opportunities provided in an incubator setting. However, if they are starting out in their own business for the first time and, even if they have undertaken some formal management studies, they are unlikely to have all of the knowledge and skills required to successfully manage a business from the formation stage and achieve significant short term growth.

Research Issue 3 asks: *Do incubation services increase the probability of survival?*

There were three sub-issues to this question. Firstly, do these services assist in reducing closure and failure rates, thus increasing the probability of survival, and if so, how? Secondly, does the assessment and screening of prospective tenants, prior to acceptance, have an effect on the reported survival rates; and, finally, what role does monitoring play in survival and business performance?

Finding 3 (1): do these services assist in reducing closure and failure rates?

The data suggests that the intervention strategies of business incubators do play a vital role in business survival and success. In this research all of the incubator managers responded 'yes', the services do increase the probability of survival, and they referred back to the low business closure rates, ranging from 0 to 7.5 percent, experienced by tenants in their particular incubator. Based on the evidence from this study, it is suggested there are four reasons for the low closure rates. First, the incubators had a pre-entry screening process, and in some cases an initial probationary period, before final admission into the incubator program as a tenant. It is probable that the screening separates out the potentially unsuccessful businesses from those with the potential to succeed. Secondly, tenants were able to conserve their scarce capital by using the range of available services and equipment on site. This reduces their up-front capital expenditures on equipment and, in many instances, the recurrent cost of secretarial and other administration type services. Also rental and secretarial services may be provided to tenants at a rate below the current commercial rates for these services outside of the incubator environment.

Next, the tenants were in regular communication with their peers, sharing problems and experiences. In some instances, there was also joint venturing and trading between the tenants. Finally, the benefits of mentoring and monitoring were the common factor in the incubator managers' responses to the above question regarding closure and failure rates of firms whilst resident in their incubator.

Finding 3 (2): assessing prospective tenants prior to acceptance into the incubator program

In this research all six sites represented in the case studies had formal assessment and screening processes that were designed to check the business concept, its viability, and the motivation and experience of the prospective owner-managers prior to

deciding on admittance to the incubator. This is possibly a factor in the incubators' high success rates. As previously noted, regular mentoring and monitoring of tenants is also considered a key factor in reducing closure rates of businesses and this will be examined next.

Finding 3 (3): monitoring tenant business performance

In this research collection of data on tenant businesses, and the frequency and the type of data collected, varied considerably between the incubator sites. It appears that tenants are nervous about disclosing detailed financial performance information and was therefore only collected as a result of formal agreements entered into on sites A, E and G. The two common monitoring tools were skills audits and ongoing needs assessments based on the mentoring/monitoring function itself. The use of these tools would be considerably enhanced by the regular provision of financial information from the tenants.

Research Issue 4 asks: *Do the services facilitate or foster innovation and commercialisation of technology?*

This research found that services are designed to facilitate or foster innovation and commercialisation of technology in the technology oriented incubators, but are not seen as key objectives in the general purpose incubators, or by their respondent tenants as being important to their individual businesses. The technology based models provided similar intervention services to other models, with an additional emphasis on innovation, commercialisation and transfer of technical capabilities.

Research Issue 5 asks: *What distractions, demands or other issues arise which impact on, or contribute to, the provision of client services?*

This research led to two sub-issues namely, the percentage of the managers' time spent on various tasks, and the managers' identification of strengths and weaknesses in their programs.

Finding 5 (1): percentage estimates of managers' time spent on various tasks

This research found that from 40 percent (site H) to 90 percent (site E) of the incubator manager's time was spent mentoring and assisting tenants, in arranging education/training programs, and creating and maintaining networks. On sites B and H it was found that 30 percent and 50 percent of time respectively was spent on building management and administration matters.

Finding 5 (2): strengths and weaknesses of incubator programs

In this research, a study of incubator strengths indicates that they are consistent with, and support, the program objectives and service benefits. However, both managers and tenants identified improvements that could be made to their incubator programs.

A focus on the weaknesses reveals that sites A, B, G and H have identified the need for additional resources, and thus additional sources of finance, to better achieve or expand on their services. In particular sites B and H, where managers were below the value added tenant services benchmark of 60 percent, had identified a lack of staff as a constraint. Also, sites A, B and H generated income to cover all, or almost all, of their recurrent expenses even though they had been operating for a far shorter period

than ten years. It appears that they may have been forced to tailor their operations and services to match the finance available.

Conclusions and implications

Many of the findings of this research confirm the literature from other countries, primarily the United States, where experience with business incubators and incubation has a longer history. However, the findings in this in-depth research do contribute to the existing body of knowledge concerning Australian incubators. This section addresses *similarities* and *differences* between the study's conclusions and the literature.

Research Issue 1: What range of services are offered by the various incubator models and do they contribute to growth and, possibly, eventual graduation?

Conclusion 1 (1): Similar to the literature, the research provided a comprehensive analysis of the range of services offered by incubators (Brown 1998; Carroll 1986; Dowling 1997b; Hayhow 1996; Kalis 1996e; Rice & Matthews 1995; Schuyler 1997). In addition, the research examined and noted a *difference* between the perceptions of managers and tenants concerning which of the services are of benefit. Tenants tended to focus on the physical, tangible, services; whereas managers focused on services directly related to survival, growth, and development of tenant businesses. There is an apparent lack of congruity between the *perceptions* of tenants and managers regarding the services tenants recall using and the most beneficial services identified by the manager.

Conclusion 1 (2): The literature and the research *agree* on the extent of the manager's role in providing counselling and support services (Dowling 1997a, 1997b; Rice). However, because of time constraints and perceived lack of relevance, the research found that attendance at group workshops and seminars may not appeal to all tenants as an effective skill development strategy.

Conclusion 1 (3): The literature and the findings of this research *agree* that incubators do contribute to the growth and success of tenant businesses (Hayhow 1997; Jones 2001; Murphy 2000; Rice 1992; Roper 1999; Sherman 1999; Whettingsteel 2000; Wonnacott 2001).

Conclusion 1 (4): The research *confirms* findings from the literature that there are problems graduating and relocating tenants (Gerl 1996e). The literature and research also *agree* that graduation policies should not be strictly applied without regard to the specific tenant and their business situation (ANZABI 2001; Gerl 1996e). *In addition*, the research has identified a reluctance to move graduate tenants off the site if these tenants are likely to move from the region, and the incubator is charged with a regional economic development role.

Research Issue 2: Do the services assist or influence business skills development?

Conclusion 2 (1): Although the *literature* identifies training as being important for the development of business skills (Dowling 1997b; Nolan 1999; Williams 1986), the research identified problems associated with commitment to, and attendance at, organised, formal, management training programs. Tenants seek assistance to business issues *as they arise*, and thus day by day mentoring appears to be the most effective means of business skill development, together with discussing problems or issues, and sharing experiences, with their fellow tenants.

Conclusion 2 (2): The research findings are *consistent* with the literature. The majority of responses to research issue 2 indicate that incubators and their services do positively influence business skills development. However, as noted in 2 (1) above formal management training programs may not be an effective means of business skill development in some cases. Another significant *finding* of this case research is the observation that tenants do not always recognise, or identify, the day by day management skills being imparted as a result of mentoring by the site manager and other facilitators. Learning how to manage appears to be inculcated over the months and years in the incubator environment. It is learned by working through issues as they arise, often by seeking the assistance of the site manager and learning from the experiences of their fellow tenants.

Research Issue 3: Do the services increase the probability of survival?

Conclusion 3 (1): The literature and research *agree* that the services do assist in reducing closure and failure rates during the incubation period (Dowling 1997b; McKee 1992).

Conclusion 3 (2): The literature recommends that incubators undertake pre-entry screening (Brisssett 2001; Dalton 2000; Kalis 1996b; Lavelle 1996; Sakata, Nobuhara & Fujisue 2002; Rice & Matthews 1995; Thierstein & Beate 2001), but does not specifically identify screening as a possible reason for the low level of closures and failures. Although this research is not able to provide supporting numeric data, the incubator managers agree that such screening does contribute to the low rates experienced due to acceptance of potentially successful businesses rather than those with little chance of survival or success.

Conclusion 3 (3): Although there are no studies identified in the literature that correlate monitoring with business performance, the incubator managers agree that the pre-entry assessment, combined with ongoing monitoring, do reduce the likelihood of business failure and closure. The pre-entry assessment is used to identify tenant weaknesses and needs, and monitoring assesses progress towards meeting these needs.

Research Issue 4: Do the services facilitate or foster innovation and commercialisation of technology?

Conclusion 4 (1): The research findings were consistent with the literature. Technology incubators do provide a similar range of services to other models (ANZABI 2002; Rice 1996), but there is an additional *emphasis* on innovation, commercialisation of products and services, and transfer of technology.

Research issue 5: What distractions, demands or other issues arise that impact on, or contribute to, the provision of client services?

Conclusion 5 (1): An incubator manager's key role is to proactively identify client needs before they evolve into major problems, and to assist them in the development of their opportunities. Indeed, the *literature* recommends that at least 60 percent of their time should be invested in client support activities (Dowling 1997a; Rice 1996). However, this *research* found that this target is not always attainable due to the competing demands of building management and administration tasks.

Conclusion 5 (2): Although business incubators have demonstrated their effectiveness in supporting fledgling businesses and assisting in their viability and growth (Adkins 1996b; Barse 1993; Carroll 1986; DEWRSB 2001; Dowling 1997a; Forst 1996; Hayhow 1997; Matlock 1996; Meeder 1996a; NBIA 1996; Sherman & Chappell 1998; Whettingsteel 2000), the three general purpose incubators in this case study research do have financial constraints which impact on their performance and effectiveness. A search of the literature could not identify similar constraints in overseas incubator programs.

Discussion

Although most incubators in this South Australian study are still relatively young and developing in experience, the research found that the services they provide to fledgling businesses does significantly increase the latter's chances of survival, contributes to their growth and improves their managers' business skills. In addition to the mentoring and provision of specific management function services provided by the site manager or by external advisors/mentors, it appears that one benefit of 'with walls' incubators is the learning and management understanding achieved through the interaction and sharing of experiences with fellow tenants. This latter benefit is identified by tenants through recognition of services they use and their requests for greater networking opportunities.

Virtual incubators also appear to operate effectively, and avoid the problem of disrupting and moving graduate tenants off site. However, they are not able to provide: low cost support services such as secretarial services; access to shared equipment; subsidised rent; and, importantly, the benefit of consistent networking with, and learning from, fellow tenants.

Four of the six incubators in the sample suffered from financial constraints and therefore constraints on the beneficial services they wish to provide. One difficulty

they face in justifying additional funding is the measurement of beneficial outcomes to the community in dollar terms. Pricewaterhouse Coopers (1999, p. 9) noted in the key conclusions to their Australian incubation study that there is a need for 'improved performance monitoring and reporting'. They stated that their study was constrained due to a lack of reliable data, particularly on the survival rates of, and employment creation in, graduate businesses.

However, consistent with Pricewaterhouse Coopers (1999, p. 3) study, our key conclusion is that 'small business incubators are a worthwhile concept'. Furthermore, *there is evidence that they do contribute to the achievement of employment outcomes and can be effective in the development and survival of new small businesses around Australia.*

Implications for practice

There are eight implications of this research for management practice. First, one of the most significant and consistent findings of this study is the importance of tenant to tenant networking, both as a means of experiential learning and the joint marketing or trading relationships that may develop. The ability to share experiences and learn from each other is one major benefit that incubators 'with walls' has over a 'virtual incubator'. Many of the tenants interviewed expressed the desire for even greater interaction with fellow tenants and looked to the incubator manager to arrange formal networking sessions.

Second, it was also evident from tenant responses that their incubator provided them with a professional image and a more disciplined approach to their business that they were not able to develop at a home base. These are both important benefits that are not always recognised due to the focus on incubator services.

Third, the benefit of the incubator manager's intervention, and contribution to the skill development and success of incubator tenants tends to go unrecognised. Also, the managers' perceptions of services that are most beneficial to tenants vary from the tenants' perceptions of services that have assisted them. Some of the tenants interviewed even expressed surprise when shown the wide range of services provided by their incubator. A clearer understanding by tenants of what services are offered at their site and the site manager's role in providing or arranging them, would be of benefit. It may also assist in a mutual understanding of the services that are required by tenants at a particular time in their development.

Next, the primary role, and reason for existence, of an incubator is to assist in growing and developing businesses with the potential to succeed. Therefore, the temptations expressed by some incubator managers to admit prospective tenants for the sole purpose of increasing occupancy ratios, and thus gain immediate income, should be avoided. Screening is important in order to focus services and effort on those owner-managers and businesses that will benefit from the incubation experience.

Then, some incubator managers advised that it was not possible for them to obtain financial performance data from their tenants. It is suggested that incubator sites have a clause in their agreement, requiring tenants to provide regular financial reports for both mentoring and monitoring purposes. Although performance monitoring may be

based on a SWOT analysis and resulting action plan, the historic and forecast 'financials' are required to measure a tenant's progress and foresee emerging problems, rather than rely on the late warning of cash flow problems becoming evident in the business.

Also, this research found that one of the most difficult issues faced by 'with-walls' incubators concerned graduation and the requirement that the tenant leave the site on or soon after graduation. During the research, it became evident that time related relocation policies should not be automatically applied. Not only may a tenant continue to benefit from the services provided, but they would also be uprooted from the place where they have developed networks, and venturing relationships, with fellow tenants. In addition, the relocation and business disruption costs may have a severe impact on the cash flows required to survive or finance further business growth.

Furthermore, regarding the role of training workshops and seminars, it is evident from the research that a significant number of tenants do not see benefits in attending. They tend to focus on, and learn from, resolving issues as they arise from day-to-day. Therefore, one-to-one monitoring and mentoring appears to be a more beneficial approach. However, it may be possible to link *brief* skills development workshops with the desire of tenants for more peer networking and interaction.

Finally, the incubator manager's key role is to proactively identify tenant needs before they evolve into major problems, and to assist tenants in the development of identified opportunities. In order to achieve this outcome, a minimum of 60 percent of an incubator manager's time should be dedicated to client support activities as previously noted. This issue also highlights the underlying problem of resource constraints. If incubators were assured of longer term financial support, and could employ more staff, the manager could be freed up to invest more time in beneficial tenant support activities. Also one option not examined in this current research is the role of board members. Is it possible, as suggested in the literature, for board members to take over some of the marketing and administrative requirements to free up the incubator manager?

Limitations

The results of this study should be interpreted in light of several limitations with respect to the data richness of the information received from participants. First, the incubators in the sample had only been established for a relatively short period of time, from two to six years. The incubators had a relatively short operating life and 'track record'. Also, with one exception, the managers had only been in the role for a relatively short period of time.

Furthermore, the incubators cooperating in this research did not have reliable data on the subsequent survival, growth and performance of businesses that have graduated and left their incubator site. This has been recognised as a significant limitation in identifying the growth and performance of incubated businesses, and in identifying the possible ongoing benefits of business incubation.

Implications for further research

This in-depth research identified two sets of issues worthy of further investigation. The first relates to funding. The second is around the role of incubators themselves.

Funding: Lack of funding, and lack of assurances of longer term (future) funding, was identified as a weakness of both BECs and incubators in South Australia. Would assurances of finance over a three or five year time horizon assist them in assuring their long term plans, service effectiveness and outcomes? Further research is also required into how the role of BECs can be broadened into greater pro-active business assistance and the benefits and costs of doing so.

Furthermore, would it be synergistic to have incubators linked to each regional BEC as evidenced in one of the case studies? Or could they, with additional funding, become true 'virtual incubators' in their region? If so what would be the costs and quantified benefits?

Business incubators: First, if incubators were better funded and resourced, would it improve their programs of assistance and support to fledgling businesses? For example, one site was able to provide short term loans (access to capital) for program participants. Would it be possible and beneficial for incubators to have access to funding or close links to financial institutions that recognise the low closure (risk) and track record of tenants in incubation sites? Furthermore, what is the role of incubator board members? Are board members underutilised resources? Would it be possible for the board to take responsibility for some of the non-tenant support activities off the shoulders of the incubator manager? Further research is required to address these questions.

Secondly, incubator sites identified the potential for improvements in their performance measures. One of these measures is the need for an ongoing assessment of graduate businesses and their performance. This could make a valuable *longitudinal* study in two parts, namely: What performance measures should incubators use? What survival and growth is experienced by graduate tenants?

Then, based on the exploratory research outlined in this research, a more in-depth study of incubator managers' characteristics and performance in their roles could be a fruitful avenue of study. For instance, is there a possibility of site manager fatigue over time? Is the issue of long working hours, combined with lack of suitability for the role or lack of empathy with SME owner-managers relevant? What is the 'ideal manager' attributes and work roles?

Next, pre-entry screening of prospective tenants may be one reason for the relatively low level of business closures and failures experienced in an incubator environment. However, there appears to be no recent Australian research which identifies the impact of pre-screening on business survival and growth. Further research is required to address this issue.

Finally, the benefits and marketplace power of business clusters is well documented but beyond the scope of this research. Given the geographic proximity of businesses

in an incubator environment, is it possible that, through careful selection of tenants, networking incubators could be developed into industry specific business clusters and, if so, how? Would the purposeful development of industry clusters assist in realising the objective of regional economic development?

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