

Business incubator contributions to the development of businesses in the early stages of the business life- cycle

A research project submitted to the Gordon Institute of Business Science,
University of Pretoria, in partial fulfilment of the requirements for the degree of
Master of Business Administration

14 November 2007

Peter van der Zee - 241187

petevdz@gmail.com

+27 83 294 4606



ABSTRACT

This study investigated 157 business owners perceptions as to the importance of four value-added contributions to the development of their businesses through the early stages of their life-cycles. Literature suggested these value-added contributions to be: shared office services, business assistance, access to finance and business networks. The purpose of this research is to help business incubator managers solve the problem of how to allocate limited resources, in the form of value-added contributions, to multiple tenant businesses at different stages of growth. To do this an electronic questionnaire was used with a set of multiple choice questions that established the stage of growth that each business was in, and a constant sum exercise determined the perceived importance to each respondent of each of the four value-added contributions. Of the five early stages of growth proposed in the literature, these being existence, survival, growth, expansion and resource maturity, only four were represented in the data. Non-parametric tests for significance at a 95% confidence level showed that no significant difference existed in the perceived importance of any of the value-added contributions *across* stages of growth, however a clear indication of the relative importance of each value-added contribution *within* each stage of growth was identified.



DECLARATION

I declare that this project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before any degree or examination in any other university.

Peter van der Zee

Date



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I would like to thank my supervisor, Greg Fisher, from the Gordon Institute of Business Science for his valuable insights and thoughtful direction, his enthusiasm, and his availability and prompt response when his input was needed most.

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Next I would like to thank those business incubator managers who gave valuable input during the course for this research, and for their assistance in sourcing survey respondents from their pool of current and past tenant businesses. I would like to specifically thank Dr Jill Sawers from the Innovation Hub, Leon Lourens from Softstart Bti, Allon Raiz from Raizcorp and Odette Potter from Bandwidth Barn.

And finally I would like to thank those 157 business owners who took the time out of their busy lives to answer the research questionnaire. Without their input this research would not have been possible.



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(South African Journal of Economic and Management Sciences - SAJEMS)

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DECLARATION OF ADHERENCE TO JOURNAL ARTICLE GUIDELINES

This dissertation is prepared and presented as per the GIBS requirements for a journal article. The article will be submitted to the South African Journal of Economic and Management Sciences (SAJEMS) and is therefore formatted in the manner stipulated by the journal.

Peter van der Zee

Date



LETTER FROM THE SUPERVISOR

Greg Fisher

6534 4th Ave NE

Seattle

98115

19 September 2007

MBA Research Report submitted as a Journal Article: Peter van der Zee

In supervising Peter van der Zee's MBA I recommended to him that he consider submitting his work as a journal article. This recommendation was made for a number of reasons:

He came up with a focused and intellectually interesting research question that essentially explored the overlap between two theoretical models.

He did a solid review of the literature. This gave him a strong theoretical base off which to work.

He had ambitions of getting in a fairly large data set (sample of about 150 responses from entrepreneurs) from which to do his analysis, giving his research more credibility.

He proposed using some fairly advanced statistical techniques to analyze the data so that he could hopefully draw some significant conclusions.

This recommendation was discussed with Professor Margie Sutherland and Peter consulted with Professor Margie Sutherland in doing some of the



research design and statistical analysis. She agreed that it would be appropriate for him to submit his work as a journal article.

Peter has carried out the research as intended and although the findings may not be as clear cut or significant as one would have hoped, it is still a very solid piece of research with a good chance of being published in an academic journal. He managed to get a large data set, did some good statistical analysis and drew appropriate conclusions based on the data gathered.

I fully support the submission of the research report as a journal article. The article will be submitted to the Journal of Economic and Management Sciences by April 2008. I am satisfied that the article meets the requirements of this journal.

Greg Fisher

Research Supervisor



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JOURNAL ARTICLE



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Author

Peter van der Zee

Gordon Institute of Business Science
University of Pretoria

P O Box 787602, Sandton, South Africa, 2146

Co-author

Greg Fisher

Gordon Institute of Business Science
University of Pretoria

P O Box 787602, Sandton, South Africa, 2146



ABSTRACT

This study aimed to assist business incubator managers to solve the problem of how to allocate limited resources, in the form of value-added contributions, to multiple tenant businesses at different stages of growth. An electronic questionnaire with a set of multiple choice questions established the stage of growth that each business was in, and a constant sum exercise determined the perceived importance to each respondent of each of the four value-added contributions, these being: shared office services, business assistance, access to finance and business networks. Of the five early stages of growth proposed in the literature, only four were represented in the data. Non-parametric tests for significance at a 95% confidence level showed that no significant difference existed in the perceived importance of any of the value-added contributions *across* stages.

JEL M13



1. INTRODUCTION

A number of business incubators are in operation in South Africa today, with the primary purpose of nurturing and developing promising new ventures through the early stages of their business life-cycle until a point where they are able to run profitably on their own. The success of these South African business incubators in terms of graduated businesses is questionable, however literature from around the world suggests that business incubation can significantly impact the success rate of new businesses, so long as the configuration of the incubator and the processes therein are designed and managed effectively. It can be argued that considering South Africa's high unemployment rate, and the African National Congress' (ANC) drive towards growth via the Small and Medium Enterprise (SME) sector, that such development assistance would be valuable in contributing towards correcting South Africa's economic and social problems.

Assuming then a need for effective business incubation, one of the configuration dilemmas faced by these business incubators is how much of the limited resources made available by them should they contribute to each of their tenant businesses. Literature suggests that amongst others, four key value-added contributions should be made available by the business incubator to its tenant businesses. The first of these being access to shared office services such as shared office space, shared technology infrastructure and pooled support services such as a receptionist. Secondly, while new businesses are strong in some areas, they lack skills in other areas such as management accounting, bookkeeping or marketing, and it is believed that the business



incubator plays a key role in filling this gap for the entrepreneur. Next, early stage businesses frequently fail due to cash flow shortcomings or simply never get off the ground as a result of insufficient start-up capital. The business incubator can play a key role in assisting the new business by opening channels to equity, debt and public grant finance. Finally, the business incubator should play an active role in the business community, thereby creating the networks that can then be leveraged by the early stage businesses.

The question then arises as to how much of each of these limited value-added contributions should be available to an early stage business. At this point it is worth highlighting the basics of what constitutes an early stage business. Very little has been added to research by Churchill and Lewis (1983) which suggests that there are five stages that a business moves through before it graduates from being an early stage business. At first the business is merely in existence. From there it moves through the survival stage into the growth stage, at which point the business may decide to disengage or continue to grow. If the decision is to continue to grow, then the firm moves through an expansionary stage until it reaches the final early stage of growth, termed resource maturity. It is important to note that these are early days still for the new business and typically constitutes the very beginning of what will become the well documented s-curve for the business.

As a business moves through each stage of growth it will find that its needs will change. Therefore it is probable, for example, that a business in the first stage of growth will have different cash flow requirements to a business in its resource maturity stage. The question faced by business incubator managers is whether



a business in a certain stage of growth perceives a significantly different need for access to any of the value-added contributions to a business in any other stage. If this question could be answered, then it would be possible for businesses incubators to more effectively allocate their scarce value-added contributions.

This research therefore aims to answer this question by understanding the needs of businesses at each of the early stages of growth and then by determining whether there is a perceived difference in importance of any of the value-added contributions to businesses across stages.

2. LITERATURE REVIEW

Lalkaka (2002: 167) states that globalisation has arrived, this being evidenced by the rapid movement of ideas, lifestyles, learning, trade, business and finance. The net effect is that those already strong are prospering, while the rest are falling behind. To correct this inequality he proposes that innovation and entrepreneurship are the essential ingredients to generate the economic growth necessary to shorten the gap between nations that have, and those that do not. This imperative is supported by van Eeden, Viviers and Venter (2004: 46) who state that “the SMME sector is globally regarded as the driving force in economic growth and job creation”.

Lumpkin and Ireland (1989: 59) point out that the alarming reality, however, is that new ventures fail at a greater rate than they are created. This is shown by van Eeden *et al* (2003: 46) to be true in the South African context. This viewed against the backdrop of South Africa’s 25.6% unemployment rate (Statistics



South Africa, 2006) suggests a valid imperative for investigating ways of increasing the survival rate of new business ventures. One such mechanism is the business incubator. O'Neal (2005: 11) proposes that the incubator is an economic boon for the community, providing jobs and expanding the business base. Lumpkin and Ireland (1988: 59) and Voisey, Gornall, Jones and Thomas (2006: 455) support this notion and O'Neal (2005: 11) shows that nearly 90% of businesses that were started in a business incubator are still in operation three years after graduation.

Having highlighted the importance of business incubation to an economy, the remainder of this literature review will focus on two key themes. Firstly the early stages of the business life-cycle will be defined and the characteristics of businesses at each stage will be highlighted. Once this is done, the value-added contributions (VAC) offered by business incubators to their tenant firms will be established. With these two key themes clearly described a model will be proposed for understanding how business incubator contributions impact the development of businesses in the early stages of the business life-cycle.

2.1 THE EARLY STAGES OF THE BUSINESS LIFE-CYCLE

Churchill and Lewis (1983: 32) trace the evolution of the start-up life-cycle back to 1963 when McGuire formulated a model that saw companies moving through five stages of economic development. Churchill and Lewis (1983: 32) comment that the evolution continued in 1964 with Christenson and Scott who focused on plotting the start-up lifecycle based on organisational complexity as the business evolved in its product-market relationships. They suggested three phases that a company goes through as it grows in overall size, number of



products, and market coverage. Steinmetz (1969: 29) then proposed a theory of life-cycle growth that hinged on each stage ending with a critical phase that must be dealt with before the company could enter the next stage. Next Greiner (1972: 37) published landmark research that put forward a model of corporate evolution in which business organisations move through five phases of growth as they make the transition from small to large and from young to mature. Much like Steinmetz's (1969: 29) theory, each stage is distinguished by an evolution from a prior phase and then by a revolution or crisis, which precipitates a jump into the next phase.

Kazanjian and Drazin (1989: 1489) comment that a plethora of multi-stage models have been proposed, all with their own distinguishing characteristics, their own views on whether businesses pass sequentially through stages or not, and all with their own take on the number of stages of growth. In helping to isolate a helpful model, Masurel and van Montfort (2006: 464) comment that until 1983, the focus of life-cycle growth paid little attention to the critical early stages of company development, until Churchill and Lewis (1983: 30) applied Greiner's theory to the small business situation. Their theoretical model became a classic, featuring five growth stages: existence, survival, success, take-off and resource maturity. The most recent evolution of this five stage model is by Scott and Bruce (1987: 49) who draw extensively on the work of Churchill and Lewis in identifying a similar theoretical small business development model, calling the different stages inception, survival, growth, expansion and maturity.

More recent studies into the stages of growth have been conducted by amongst others d'Amboise and Muldowney (1988); Dodge, Fullerton and Robbins



(1994); Hanks *et al* (1993); Hill, Nancrow and Wright (2002); Kazanjian and Drazin (1990); however Masurel and van Montfort (2006: 465) comment that many of these publications draw heavily on the work of Churchill and Lewis (1983) and Scott and Bruce (1987). It is not the intention of this study to re-classify the stages of growth. Instead the classifications by Churchill and Lewis (1983) and Scott and Bruce (1987) will be reviewed in depth. Classifications by other authors will only be referred to for emphasis. Ring fencing a single framework in this way makes it possible for future research to easily swap out this stage of growth model for a more recent and revolutionary model, if one were to become available.

2.1.1 STAGE 1: EXISTENCE / INCEPTION

Stage one, termed existence by Churchill and Lewis (1983: 31) or inception by Scott and Bruce (1987: 49), is characterised by the business striving to obtain customers, delivering the product or service contracted for (Hanks *et al*, 1993: 5) and establishing a place for it in the market-place (Churchill and Lewis, 1983:32; Kazanjian and Drazin, 1989: 1491; Scott and Bruce, 1987: 49). The organisation is simple, with very little structure, and the owner does everything (Hanks *et al*, 1993: 9; Kazanjian and Drazin, 1989: 1491; Masurel and van Montfort, 2006: 464). The basic skills of the founder determine the functional emphasis. The owner directly supervises subordinates, who should be of at least average competence; systems and formal planning are minimal to nonexistent; and sources of funds will be limited (Steinmetz, 1969: 31; Kazanjian and Drazin, 1989: 1492) or haphazard and will place heavy demands on the founder, his friends and family. The level of uncertainty is high and the



company's strategy is simply to remain alive. The result will normally be a single operating unit with limited channels of distribution, and the major crisis at this stage is normally the inability of the owner to accept the demands that the business places on their finances, energy and time (Scott and Bruce, 1987: 49).

2.1.2 STAGE 2: SURVIVAL

In reaching the second stage, termed survival, the business has proven that it is a workable business entity. It has enough customers and is able to satisfy them (Masurel and van Montfort, 2006: 464). Churchill and Lewis (1983: 34); Kazanjian and Drazin (1989: 1501); Scott and Bruce, (1987: 49) and Steinmetz (1969: 31) concur that the owner is still central to the business and often supervises another manager. They state that growth is through market expansion, and expanded channels of distribution may be needed to reach the expanding market. The key goal is still survival; the owner and his capital remain central to the business; systems development is minimal; and formal planning is at best cash forecasting. Research by Kazanjian and Drazin (1989: 1500) show that most employees could be considered more as generalists than specialists, who perform multiple tasks, and attracting these capable personnel could become a problem for the business. The level of competition is uncertain and early success will normally attract new entrants (Steinmetz, 1969: 32), making success based purely on differentiation more difficult. "The most likely crises at this stage are overtrading, the increased complexity of expanded distribution models, change in the basis of competition and pressures for information" (Scott and Bruce, 1987: 50).



2.1.3 STAGE 3: GROWTH / SUCCESS

The growth (Scott and Bruce, 1987: 50) or success (Churchill and Lewis, 1983: 34) stage is characterised by a company that has “attained true economic health, has sufficient size and product-market penetration to ensure economic success, and earns average or above-average profits” (Churchill and Lewis, 1983: 34). Churchill and Lewis (1983: 34), Kazanjian and Drazin (1989: 1492) and Scott and Bruce (1987: 50) propose that the company has grown large enough in many cases to require functional managers. This will mean a more formal organization structure based on functional lines and some form of systems is now in place (Kazanjian and Drazin, 1989: 1501). A major crisis encountered by companies at this stage involves liquidity concerns, despite the fact that their products are being accepted by the market. Furthermore entry of larger competitors and the demands of expansion into new markets could cause problems (Kazanjian and Drazin, 1989: 1492).

Churchill and Lewis (1983: 34) identify two sub-stages that a company may pursue at this point. At the disengagement sub-stage the company is healthy and has decided to maintain the status quo and not to grow (Masarel and van Montfort, 2006: 464). The managers should be competent, but need not be of the highest calibre, since their upward potential is limited by the corporate goals. At this point the first professional staff members come on board (Masarel and van Montfort, 2006: 464). A main concern is to avoid a cash drain in prosperous periods to the detriment of the company’s ability to withstand the inevitable rough times. Planning is in the form of operational budgets. The owner, and to a lesser extent, the company managers, should be monitoring a



strategy to essentially maintain the status quo. As the business matures, it and the owner move increasingly apart.

The second sub stage, termed growth, sees the business owner marshalling resources for growth (Masurel and van Montfort, 2006: 464) and therefore it is likely that revenue will be used to protect the company from outrunning its sources of cash and to develop managers to meet the needs of the growing business. Managers with an eye to the company's future rather than its current conditions are those of choice, which means hiring for that purpose or training managers to meet the needs of a growing business (Masurel and van Montfort, 2006: 464). Normal accounting systems will now be in place and additional systems should be installed with an appreciation of forthcoming needs. At this sub-stage strategic planning is extensive and deeply involves the owner (Scott and Bruce, 1987: 50).

2.1.4 STAGE 4: EXPANSION / TAKE-OFF

In the fourth stage, termed expansion by Scott and Bruce (1987: 50) or take-off by Churchill and Lewis (1983: 40), "budgetary control, regular management reports and decentralized authority accompanied by formalized accounting systems are the order of the day. The need to systemize most administrative functions will be fundamental to survival through this stage" (Scott and Bruce, 1987: 50) and the net effect is that the systems, strained by growth, are becoming more refined and extensive (Churchill and Lewis, 1983: 40; Kazanjian and Drazin, 1989: 1491). At this stage the effective management of stock and working capital is essential to the business (Kazanjian and Drazin, 1989: 1501; Masurel and van Montfort, 2006: 464). Delegation is a critical issue, involving



the transfer of responsibility and control from the owner to others in order to improve managerial effectiveness (Masurel and van Montfort, 2006: 464). Furthermore the key managers must be very competent in order to handle the growing complexity in the business environment. These managers are involved in both operational and strategic planning. The owner and the business have become quite separate, yet the company is still dominated by the owner's presence and views. It is during this stage that company politics are likely to become a major issue for the first time. Other likely crises at this stage are distance of top management from the action and the need for external focus (Churchill and Lewis, 1983: 40).

2.1.5 STAGE 5: RESOURCE MATURITY

The final stage before moving out of being a small business is resource maturity. Here Scott and Bruce (1987: 51) state that "it is important to realize that unlike the conventional lifecycle concept the company is still growing in the maturity phase". Churchill and Lewis (1983: 40), Kazanjian and Drazin, (1989: 1501) and Scott and Bruce (1987: 51) propose that the key issues facing the decentralised and experienced management team are expense control, productivity, and finding growth opportunities. Kazanjian and Drazin (1989: 1491) add that at this stage the business is tasked with maintaining growth momentum and market position. The company normally has the staff (Masurel and van Montfort, 2006: 464) and financial resources to engage in detailed operational and strategic planning. "Systems are extensive and well developed [and] the owner and the business are quite separate, both financially and operationally" (Churchill and Lewis, 1983: 40). At this stage the shareholders



put pressure on the owner to ensure the future of the company. This hinges on succession, sometimes causing a conflict between the parties.

2.2 VALUE-ADDED CONTRIBUTIONS (VAC)

Having identified the key characteristics of companies at the various stages of early development, it is now important to focus on the business incubator and the value-added contributions that an incubator offers its tenants.

Hackett and Dilts (2004: 57), in their systematic review of business incubation, broadly define a business incubator as “a shared office space facility that seeks to provide its incubatees with a strategic value-adding intervention system of monitoring and business assistance”. Peters, Rice and Sundararajan (2004: 84) echo this view that the role of the incubator in the entrepreneurial process has changed from being just a business centre with office facilities to one offering value-added contributions to their tenants. From the literature reviewed four key contributions are identified: shared office services, business assistance, access to finance and business networks.

2.2.1 VAC 1: ACCESS TO SHARED OFFICE SERVICES

Aernoudt (2004: 127), Campbell, Kendrick and Samuelson (1985: 44), Chan and Lau (2005: 1226), Mian (1996: 325), O’Neal (2005: 18), Peters *et al* (2004: 86) and Voisey *et al* (2006: 455) site access to shared office services, including rental space, equipment, administrative and conference facilities as a key value-added contribution offered by an incubator. The logic behind this is that pooling resources together provides the critical mass necessary to organise central functions. This view is broadened and supported by Chan and Lau (2005: 1226)



who propose that the cost advantage from sharing resources is the most important benefit derived from incubator programmes.

2.2.2 VAC 2: ACCESS TO BUSINESS ASSISTANCE

O'Neal (2005: 12) believes that in certain cases business assistance is valued higher than a reduced cost of services or rent. Rice (2002: 171) further defines the concept of business assistance as the provision of some or all of the resources needed for common business processes; human resource management; market development; sales and distribution; and development and production of the firm's products or services. Aernoudt (2004: 127), Campbell *et al* (1985: 44), Chan and Lau (2005: 1227), Mian (1996: 325), Peters *et al* (2004: 85) and Voisey *et al* (2006: 455) concur that the business incubator can assist by offering these services.

2.2.3 VAC 3: ACCESS TO FINANCE

Berry, von Blottnitz, Cassim, Kesper, Rajaratnam, and van Seventer (2002: 65), in their investigation into the economics of Small Medium and Micro Enterprises (SMMEs) in South Africa, propose that the issue of access to finance is critically important, specifically for businesses that show entrepreneurial talent and skills to grow. Chorev and Anderson (2006: 167) agree by stating that "funding is the oxygen of start-ups". Hackett and Dilts (2004: 62) propose that incubators play a critical role in "assisting incubatees with financial matters". The importance of assisting new businesses in accessing finance is further supported by the research of Aernoudt (2004: 127), Chan and Lau (2005: 1225), Löfsten and



Lindelöf (2003: 62), O'Neal (2005: 20), Rice (2002: 171) and Richie and Lam (2006: 321).

2.2.4 VAC 4: ACCESS TO BUSINESS NETWORKS

Brüderl and Preisendörfer (1998: 213) note that “the network approach to entrepreneurship is a prominent theoretical perspective within the literature on entrepreneurship”. They go on to highlight that the “literature assumes that network resources, networking activities and network support are heavily used to establish new businesses (network founding hypothesis). Further, those entrepreneurs who can refer to a broad and diverse social network and who receive much support from their network are more successful (network success hypothesis)”. The importance of the incubator network is supported by the research of Aernoudt (2004: 127), Campbell *et al.* (1985: 44), Chan and Lau (2005: 1225), Mian (1996: 325), O'Neal (2005: 20), Peters *et al* (2004: 85) and Voisey *et al* (2006: 455).



2.3 SUMMARY AND PROPOSED MODEL

The literature reviewed has focused on two areas of new business creation, namely the early stages of new business growth (Table 1) and the value-added contributions (Table 2) provided by business incubators.

Table 1: The early stages of new business growth

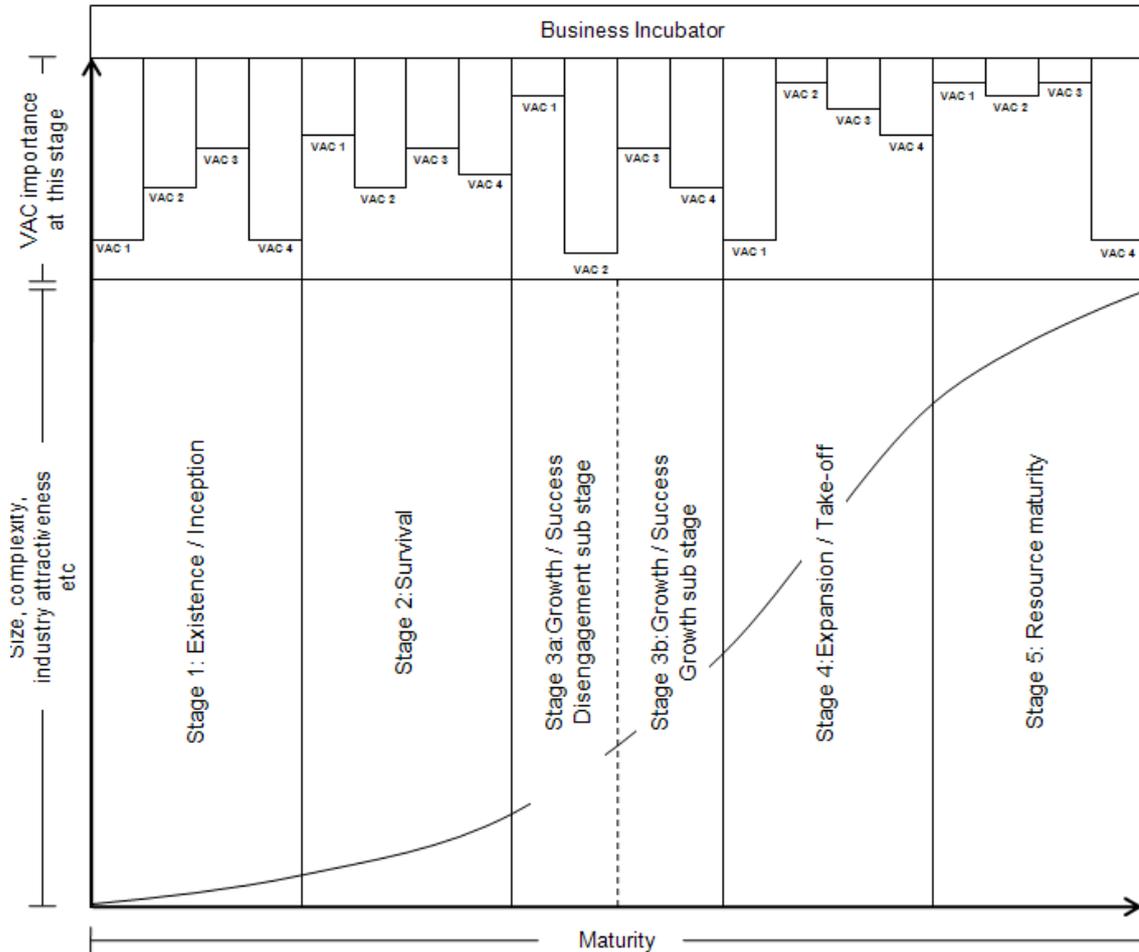
Stage key	Stage description
Stage 1	Existence / Inception
Stage 2	Survival
Stage 3	Growth / Success
Stage 3a	Disengagement sub-stage
Stage 3b	Growth
Stage 4	Expansion / Take-off
Stage 5	Resource maturity

Table 2: Value-added contributions (VAC)

VAC key	VAC Description
VAC 1	Shared office services
VAC 2	Business assistance
VAC 3	Access to finance
VAC 4	Business networks

A visual representation of the proposed relationship between stage of growth and incubator contribution is presented in Figure 1. This model is adapted from a model by Churchill and Lewis' (1983: 31) to include the value-added contributions proposed in the literature, and their possible relationship with each stage of growth.

Figure 1: A proposed relationship between value-added contributions and the early stages of business growth (adapted from Churchill and Lewis, 1983: 31)



In Figure 1 the x-axis represents the maturity of the business. Churchill and Lewis (1983) propose that in order for a business to mature to the next level it must move through a stage of growth. The y-axis is divided into two. The bottom two thirds represent a number of characteristics that help to classify a business into a specific stage of growth, including the size of the business, the complexity of the business, the attractiveness of the business environment to competitors etc. The top third of the y-axis proposes that as a business moves from one stage to the next, so the mix of value-added contributions may change. By way of example, if we imagine a brand new venture, we would start



on the bottom left of the s-curve. Here the business would probably be small, not very complex and its niche would be relatively unexplored and therefore unattractive to competitors (amongst other attributes described in the literature above). The hypothetical scenario proposed in Figure 1 illustrates that businesses in this stage find value-added contributions 1 and 4 to be more important than value-added contribution 2 and 3. As the company grows in size to take on more employees to manage the increasing complexity, so it matures, until the point where it can be classified to have moved from a stage 1 business to a stage 2 business. Here the complexity may increase, as could the number of employees, represented by the s-curve moving further up the y-axis, and the company maturing along the x-axis. As a stage 2 business, the proposed model indicates that this business would place a higher value on value-added contributions 2 and 4.

It is the potential difference in perceived importance of each value-added contribution by companies at different stages of growth that will be tested in this research.

3. RESEARCH HYPOTHESES

From the literature reviewed it is apparent that new businesses typically mature through five early growth stages. Investigation into business incubators highlighted four key contributions that they offered to their tenant firms. Because the goal of a business incubator is to nurture new businesses to the point where they no longer need assistance, it seemed important to determine whether any of these value-added contributions were viewed by the businesses to be



significantly more or less important than any of the other contributions. If this could be established then business incubator managers would have a tool at their disposal to allocate these finitely available value-added contributions more effectively, by taking into account the stage of growth that the business was in. This view resulted in the formulation of the following hypotheses (Table 3).

Table 3: Research hypotheses

<i>Hypothesis key</i>	<i>Hypothesis description</i>
H(VAC1) ₀	There is no significant difference in the perceived importance of shared office services (VAC1) to businesses in different stages of growth (across stages)
H(VAC1) ₁	There is a significant difference in the perceived importance of shared office services (VAC1) to businesses in different stages of growth (across stages)
H(VAC2) ₀	There is no significant difference in the perceived importance of business assistance (VAC2) to businesses in different stages of growth (across stages)
H(VAC2) ₁	There is a significant difference in the perceived importance of business assistance (VAC2) to businesses in different stages of growth (across stages)
H(VAC3) ₀	There is no significant difference in the perceived importance of access to finance (VAC3) to businesses in different stages of growth (across stages)
H(VAC3) ₁	There is a significant difference in the perceived importance of access to finance (VAC3) to businesses in different stages of growth (across stages)
H(VAC4) ₀	There is no significant difference in the perceived importance of business networks (VAC4) to businesses in different stages of growth (across stages)
H(VAC4) ₁	There is a significant difference in the perceived importance of business networks (VAC4) to businesses in different stages of growth (across stages)

4. RESEARCH METHOD

The previous sections have highlighted the theory on top of which the empirical study can be formulated. This section describes how the data for the cross-sectional empirical study was selected, collected, processed and analysed.



The target population is defined by Malhotra (2000: 352) as “the collection of elements of objects that possess the information required by the researcher”. In the case of this research the target population was all South African businesses. The unit of analysis was a person representing the business at a senior level, fulfilling the role of the owner, manager or both the owner and the manager. Having identified the unit of analysis, the next step was to select a sample. Convenience sampling led to the identification of 7 population groups. These comprised of businesses linked to the following institutions: SoftStart Bti, Bandwidth Barn, Maxum Business Incubator, Business Partners, Enablis, and Raizcorp. Managers from each of these institutions were contacted personally and asked whether they would be prepared to distribute a questionnaire to each of the businesses in their network. All of them agreed to participate. The seventh population group was an online social networking service for business minded people called MyGenius. The term business owner was searched for, resulting in a list of 247 people. An electronic request was sent to each of these people informing them about the research and asking them to complete a questionnaire.

The data was collected via an electronic questionnaire that was first pre-tested on a small sample and then posted on the Internet. The questionnaire consisted of: three multiple choice questions to identify the age of the business, the respondents role in the business, and to what degree the business focused on products or services; one constant sum question with a running total to determine the respondents perceived importance of each of the four value-added contribution to their business at its current stage of development; and five multiple choice questions to determine what early stage of growth the



business was in. The final five multiple choice questions were coded with option 1 representing the answer that the literature suggested a stage 1 business would theoretically provide, option 2 the answer that a stage 2 business would theoretically provide and so on.

The questionnaire was viewed 262 times, started 203 times and completed 157 times. The completion rate was 77.34%.

Because the data was captured electronically there was no need to do a manual to electronic conversion, thereby maintaining the reliability of the data. The design of the questionnaire assured that there would be no missing data after dropouts were excluded. The first step in manipulating the data was therefore to remove all drop outs. Next, box plots were examined for outliers. Due to the design of the survey instrument and the resulting legitimacy of the data, it was decided to include the outliers as they were one-time occurrences that realistically represented the opinion of the respondent (Osborne and Overbay, 2004: 6). The final step in manipulating the data was to determine which stage of growth each business was in. This was done by averaging the response coding for questions five to nine. No other manipulation of the data was required to prepare it for analysis.

The first step in analysing the data was to determine the reliability of the survey instrument, specifically how closely the first answer in a multiple choice question represented a business in the first stage of growth, how well the second answer in a multiple choice question represented a business in the second stage of growth and so on. Albright, Winston and Zappe (2006: 532) state that the Chi-Square Test for Independence should be used to test whether two attributes are



independent in a probabilistic sense. Accordingly this test was run on each of the 5 questions that were designed to determine the stage of growth that a respondent business was in, and in each case the null hypothesis (that the answers to each question were independent to the stage of growth) was rejected (Table 4). Of concern was that the minimum expected frequency of at least one of the cells in each of the cross-tabulations was less than five. Collapsing stages did not alleviate this concern. Roscoe and Byars (1971: 755) state that “occasionally evidence is presented which suggests that the common recommendations with respect to minimum expected frequencies is ultra-conservative and should be relaxed”. With this in mind, and looking at the extremely low probabilities for accepting the null hypothesis, it was concluded that the responses to questions 5-9 represented the stage of growth well, indicating a reliable survey instrument.

Table 4: Chi-Square Test for Independence on each of the survey questions 5-9

Question	Probability	Decision
Question 5: At present, the business' main concerns are (presented as a six answer multiple choice question)	0.000024	Reject H_0 – Question accurately represents stage of growth
Question 6: At present, which of the following best describes the managers in the business (presented as a six answer multiple choice question)	0.013310	Reject H_0 – Question accurately represents stage of growth
Question 7: At present, the level of planning in the business can best be described as: (presented as a six answer multiple choice question)	0.003161	Reject H_0 – Question accurately represents stage of growth
Question 8: At present, the systems in the business can best be described as (presented as a six answer multiple choice question)	0.000231	Reject H_0 – Question accurately represents stage of growth
Question 9: At present what is the major crisis that the business can be expected to have to face (presented as a six answer multiple choice question)	0.000231	Reject H_0 – Question accurately represents stage of growth



The next step in analysing the data involved assessing the variances in means across stages for each of the value-added contributions. Keselman, Huberty, Lix, Olejnik, Cribbie, Donahue, Kowalchuk, Lowman, Petoskey, Keselman And Levin (1998: 359) state that in analysis of variance (ANOVA) exercises, groups (stages) are compared to means on one or more linear composites of the outcome variables (value-added contributions). ANOVA may be performed on very small samples, such as 4 or 5 observations per group. However, in order to test assumptions and obtain reliable estimates of variation, at least 30 individuals per group are recommended. Taking this into consideration while looking at the sample sizes of the six stages (Table 5) it was apparent that a standard ANOVA would not be an acceptable test.

Table 5: Sample size per stage of growth

Stage	Count
Existence / Inception (Stage 1)	7
Survival (Stage 2)	55
Disengagement sub-stage (Stage 3a)	61
Growth (Stage 3b)	31
Expansion / Take-off (Stage 4)	3
Resource maturity (Stage 5)	0

Keselman *et al* (1998: 361) indicate that the ANOVA *F* test should be used only in instances where normality and homogeneity of variance assumptions are valid. Following this recommendation normality and variance assumptions were tested (Table 6). Due to unequal sample sizes across stages, and normality and equal variance assumptions being rejected, the suggestion by Keselman *et al* (1998) to use appropriate non-parametric testing was followed, in this case the Kruskal-Wallis One-Way ANOVA on Ranks test.



Table 6: Normality and equal variance assumptions at 0.05 level of significance

<i>Dependent variable</i>	<i>Skewness normality of residuals</i>	<i>Kurtosis normality of residuals</i>	<i>Omnibus normality of residuals</i>	<i>Modified-Levene equal variance test</i>	<i>Available test for significance</i>
Shared office services (VAC1)	Reject	Failed to reject	Reject	Failed to reject	Kruskal-Wallis
Business assistance (VAC2)	Reject	Failed to reject	Reject	Failed to reject	Kruskal-Wallis
Access to finance (VAC3)	Reject	Failed to reject	Reject	Failed to reject	Kruskal-Wallis
Business networks (VAC4)	Failed to reject	Failed to reject	Failed to reject	Failed to reject	Kruskal-Wallis

The next step in the methodology of this research was to filter the data to determine whether the respondents position in the business as the owner, manager, or owner-and-manager had any effect on the results. The same filtering exercise was then conducted to determine whether a focus on products or services affected the results in any way. Next, taking into account some vagueness in the literature reviewed as to whether the age of the business could be used instead of stage, the independent variable was switched to test for significance across age of business. Due to the lack of significant findings using either of the independent variables, the decision was made to run the Kruskal-Wallis Multiple-Comparison Z-Value test to determine whether there were significant differences between *pairs of stages*. Finally a Spearman's rank correlation coefficient was calculated to test the direction and strength of the relationship between the age of the business and the stage of growth that the business was in.



5. RESULTS AND DISCUSSION OF RESULTS

The first interesting result from the study was identified during the process of preparing the data for statistical analysis. Here it became apparent that of the five stages theorised in the literature, only four were represented in the data (Table 5). None of the companies surveyed were in the fifth stage (resource maturity), and only 1.9% were in the fourth stage (expansion / take-off). Considering that the companies surveyed were predominantly tenants of business incubators, and could therefore be considered a fair representation of early stage companies, it could be argued that the results from this study indicate that the early stages of the business life-cycle should not include the resource maturity stage, and should end in the expansion / take-off stage. Further studies could elaborate on this, however for the purposes of this research the inclusion / exclusion of the fifth stage was of little statistical consequence to testing the research hypotheses.

The second set of interesting results pertained to the relevant importance of each value-added contribution within each stage. An average of the scores (Table 7) for each value-added contribution enabled ranking the value-added contributions within each stage. As could be expected, access to finance was perceived to be the most important contribution to businesses in stage 1. Interestingly businesses in stages 2 and 3a and 4 perceived access to business networks to be the most important value-added contribution, while businesses in all stages perceived shared office services to be the least valuable contribution.



Table 7: Mean score (and rank) for each value-added contribution for each stage

	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Shared office services (VAC1)	13.57 (4)	15.33 (4)	14.69 (4)	11.55 (4)	10 (4)
Business assistance (VAC2)	16.71 (3)	27.55 (2)	26.87 (3)	32.39 (1)	21.67 (3)
Access to finance (VAC3)	39.71 (1)	27.36 (3)	27.67 (2)	32.16 (2)	33.33 (2)
Business networks (VAC4)	30 (2)	29.76 (1)	30.77 (1)	23.9 (3)	35 (1)

In assessing which value-added contributions were perceived to have no importance at all, the results (Table 8) indicated that almost one fifth of the respondents perceived access to shared office services to be of no importance to their business, while more than 90% of the businesses considered all of the other value-added contributions to have at least some importance to their business. The high percentage of respondents who perceived no importance for shared office services could possibly be explained if these businesses had managed to cope without the need for sharing office services, and therefore not being aware of the benefits of sharing and the associated cost advantages. Alternatively one of the main reasons for the existence of physical business incubators is questionable.

Table 8: Respondents who perceived zero importance in a particular value-added contribution

	<i>Count</i>	<i>Percentage of total</i>
Shared office services (VAC1)	30	19.1%
Business assistance (VAC2)	3	1.9%
Access to finance (VAC3)	10	6.4%
Business networks (VAC4)	4	2.5%



The primary hypothesis to be tested dealt with the question of whether a company at a certain stage of growth was perceived to require a significantly different amount of any of the value-added contributions to a company at a different stage of growth. Interestingly the results (Table 9) indicated that at a significance level of 0.05, the null hypothesis could not be rejected for all of the value-added contributions. Therefore there was not enough evidence to suggest a significant difference in the perceived importance of any of the value-added contributions across stages.

Table 9: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across stages

	Chi-squared (H)	Probability level	Decision (0.05)
Shared office services (VAC1)	2.164588	0.705517	Failed to reject H ₀
Business assistance (VAC2)	4.39924	0.354663	Failed to reject H ₀
Access to finance (VAC3)	0.3239498	0.988216	Failed to reject H ₀
Business networks (VAC4)	3.025123	0.553630	Failed to reject H ₀

Running the Kruskal-Wallis Multiple-Comparison Z-Value test for each of the value-added contributions (Table 10 to Table 13) enabled testing whether any of the *pairs of stages* yielded significantly different results. Using a regular test with a Z value of 1.96, a significant difference was found for business assistance (Table 11) between stage 1 and stages 2, 3a and 3b. Analysis of the medians in this respect revealed that stages 2, 3a and 3b perceived business assistance to be *more important* than businesses in stage 1. Significant differences in the perceived importance of business networks were found between stages 3a and 3b, with the medians revealing that stage 3b perceived business networks to be *less important* than businesses in stage 3a. This can



seem an intuitive result as businesses gearing up for growth would plausibly be looking to expand their network in light of expanding their business.

Table 10: Kruskal-Wallis Multiple-Comparison Z-Value Test (shared office services) across stages

<i>Shared office services</i>	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Existence / Inception (Stage 1)	0	0.3458	0.1312	0.686	0.5664
Survival (Stage 2)	0.3458	0	0.4648	1.8961	0.8933
Disengagement sub-stage (Stage 3a)	0.1312	0.4648	0	1.5388	0.7495
Growth (Stage 3b)	0.686	1.8961	1.5388	0	0.1717
Expansion / Take-off (Stage 4)	0.5664	0.8933	0.7495	0.1717	0

Table 11: Kruskal-Wallis Multiple-Comparison Z-Value Test (business assistance) across stages

<i>Business assistance</i>	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Existence / Inception (Stage 1)	0	2.0733	1.892	2.153	0.5359
Survival (Stage 2)	2.0733	0	0.4139	0.307	0.7795
Disengagement sub-stage (Stage 3a)	1.892	0.4139	0	0.6616	0.6514
Growth (Stage 3b)	2.153	0.307	0.6616	0	0.8784
Expansion / Take-off (Stage 4)	0.5359	0.7795	0.6514	0.8784	0



Table 12: Kruskal-Wallis Multiple-Comparison Z-Value Test (access to finance) across stages

<i>Access to finance</i>	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Existence / Inception (Stage 1)	0	0.9139	0.9645	0.5557	0.11
Survival (Stage 2)	0.9139	0	0.0976	0.5976	0.7466
Disengagement sub-stage (Stage 3a)	0.9645	0.0976	0	0.6908	0.7792
Growth (Stage 3b)	0.5557	0.5976	0.6908	0	0.5101
Expansion / Take-off (Stage 4)	0.11	0.7466	0.7792	0.5101	0

Table 13: Kruskal-Wallis Multiple-Comparison Z-Value Test (business networks) across stages

<i>Business networks</i>	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Existence / Inception (Stage 1)	0	0.3119	0.5032	0.6406	0.7789
Survival (Stage 2)	0.3119	0	0.4068	1.751	0.6954
Disengagement sub-stage (Stage 3a)	0.5032	0.4068	0	2.1258	0.5693
Growth (Stage 3b)	0.6406	1.751	2.1258	0	1.3323
Expansion / Take-off (Stage 4)	0.7789	0.6954	0.5693	1.3323	0

Having dealt with the primary hypotheses, the next step was to determine whether a respondents role in the business, and therefore their understanding of the business, altered the relative importance of any of the value-added contributions. Once again, at a significance level of 0.05 the null hypothesis could not be rejected for any value-added contributions (Table 14) when the test was run on owner results, manager results, and owner-and-manager results.



Therefore there was not enough evidence to suggest a significant difference in the perceived importance of any of the value-added contributions across stages when taking into account the respondents role in the business.

Table 14: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across stages filtered by position in business

	Owner (0.05)	Manager (0.05)	Owner & Manager (0.05)
Shared office services (VAC1)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business assistance (VAC2)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Access to finance (VAC3)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business networks (VAC4)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0

Considering the different requirements of a service business versus a business with a products focus, it was plausible that there may be a significant difference in perceived importance of some of the value-added contributions across stages, depending on the product or service orientation of the business. At a significance level of 0.05 this proved to be true for shared office services, but only for companies that offered both products and services (Table 15). This result was puzzling, as there was not enough evidence to suggest a significant difference in perceived importance of shared office services for companies that offered only products, and those that offered only services. Considering the relatively high upfront capital expenditure required for product oriented start-ups, it could be plausible to pre-empt that shared office services would be perceived to be more important at the earliest stages of such businesses,

however the results showed otherwise, with the mean scores for stages 1, 2 and 4 being almost identical, and with stages 3a and 3b scoring lower.

Table 15: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across stages filtered by product or service orientation

	<i>Products (0.05)</i>	<i>Services (0.05)</i>	<i>Products & Services (0.05)</i>	<i>Not product or service (0.05)</i>
Shared office services (VAC1)	Failed to reject H_0	Failed to reject H_0	Reject H_0	Failed to reject H_0
Business assistance (VAC2)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Access to finance (VAC3)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business networks (VAC4)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0

Considering the non-parametric nature of the data, and therefore analysing the Kruskal-Wallis Multiple-Comparison Z-Value test results (Table 16) on the medians, the difference between stage 2 and stage 3b contributed most to the overall significance across stages. The results for significance across stages depending on the product or service orientation of the business can be reduced to a significance in the perceived importance of shared office services between companies in stages 2 and 3b that are oriented to providing both products and services.

Table 16: Kruskal-Wallis Multiple-Comparison Z-Value Test (shared office services) across stages for businesses with both product and service orientations

<i>Shared office services</i>	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3a</i>	<i>Stage 3b</i>	<i>Stage 4</i>
Existence / Inception (Stage 1)	0	0.6892	0.0957	0.8616	0.1436



Survival (Stage 2)	0.6892	0	1.6852	3.1118	0.4971
Disengagement sub-stage (Stage 3a)	0.0957	1.6852	0	1.5353	0.2872
Growth (Stage 3b)	0.8616	3.1118	1.5353	0	1.0496
Expansion / Take-off (Stage 4)	0.1436	0.4971	0.2872	1.0496	0

The next point of interest was to determine whether the same tests for significance would yield anything different if the age of the business was used as the independent variable, rather than stage of growth. The results (Table 17) indicated that at a 0.05 level of confidence there was not enough evidence to suggest a significant difference in the perceived importance of any of the value-added contributions across age of the business.

Table 17: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across age of business

	<i>Chi-squared (H)</i>	<i>Probability level</i>	<i>Decision (0.05)</i>
Shared office services (VAC1)	15.60836	0.209839	Failed to reject H_0
Business assistance (VAC2)	2.48396	0.407635	Failed to reject H_0
Access to finance (VAC3)	7.692437	0.808680	Failed to reject H_0
Business networks (VAC4)	8.453545	0.748760	Failed to reject H_0

The data was then manipulated to run the same tests, however filtered by the respondent's role in the business (Table 18). Once again, at a level of confidence of 0.05 there was not enough evidence to suggest a significant difference in the perceived importance of any of the value-added contributions, for any of the roles in the business.

Table 18: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across age of business filtered by role in business

	<i>Owner (0.05)</i>	<i>Manager (0.05)</i>	<i>Owner & Manager (0.05)</i>
Shared office services (VAC1)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business assistance (VAC2)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Access to finance (VAC3)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business networks (VAC4)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0

Finally the data, already filtered by age of business, was further filtered by product or service orientation (Table 19). Again there was not enough evidence to suggest a significant difference in the perceived importance of any of the value-added contributions. Considering the small correlation between the age of the business and stage of the business, reflected in the non-parametric Spearman's correlation test result of 0.221770, the literature is supported that suggests little to no value in using the age of the business as the independent variable.

Table 19: Kruskal-Wallis One-Way ANOVA on Ranks (corrected for ties) across age of business filtered by product or service orientation

	<i>Products (0.05)</i>	<i>Services (0.05)</i>	<i>Products & Services (0.05)</i>	<i>Not product or service (0.05)</i>
Shared office services (VAC1)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business assistance (VAC2)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Access to finance (VAC3)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0
Business networks (VAC4)	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0	Failed to reject H_0



6. CONCLUSION

The significance of small business as an economic driver is seldom disputed. Unfortunately the success rate of these small businesses leaves a lot to be desired. Literature proposes that business incubation is an economic tool that can be leveraged to improve business survival rates. O'Neal (2005: 13) refines this view and suggests that it is the process of business incubation, rather than the configuration of the incubator that will offer the most meaningful insights into factors that contribute to successful incubation. This research therefore aimed to understand the key value-added contributions offered by business incubators to their tenant businesses, and to determine whether any of these contributions were perceived to be more or less important by businesses at varying stages of growth.

The results of the study indicated that no significant difference exists in the perceived importance of any of the value-added contributions *across* all of the stages of growth. In essence this result indicates to incubator managers the immateriality of taking into consideration the stage of growth that a business is in when configuring business incubation programmes. Instead, when a value-added contribution is scarce in any way, a case by case needs analysis should be performed on each of the businesses in question to determine the effective allocation of the resource. This being said, a clear indication of the relative importance of each value-added contribution *within* stages was established. These results (Table 7) will assist business incubator managers to determine which value-added contributions to focus on providing to individual businesses depending on the stage of growth that they are in. Of considerable interest in



this regard was the low value placed on shared office services, a value-added contribution often earmarked as a primary benefit of business incubation. This questions the relevance of physical premises for business incubation, and establishes a need to analyse the difference in effectiveness between physical and virtual incubation models.

In essence, planning the relative exposure of value-added contributions to tenant businesses, dependant on the stage of growth that the business is in, offers no significant value to the business incubator manager, and hence no significant value to their tenant businesses. This was shown also to be the case when the data was filtered to reflect the views of a business owner, business manager, and a person who was both the business owner and the business manager.

Swapping the stage of growth for number of years in business did not reveal any significant differences either. The only significant differences existed when pairs of stages were analysed independently. Businesses in stage 2, 3a and 3b perceived the importance of business assistance significantly differently to businesses in stage 1, and a significant difference also existed between businesses in stage 3a and 3b for the perceived importance of business networks.

This study has built on a recent research orientation termed by Hackett and Dilts (2004: 59) as 'studies theorising about incubators-incubation'. This approach to researching business incubation is fairly new, dating back to 1996, and accordingly relatively few studies exist, particularly in the South African context. What this study has done is to create a base on which further research



into business incubation efficiency and effectiveness can be built. The most significant point of interest in this respect, shown by this study, is that the configuration of value-added contributions to businesses in different stages need not be a major concern for business incubator managers, and that research should look elsewhere in trying to determine how best to drive economic growth through business incubation. What this research does not answer is whether or not businesses incubators are the most effective mechanism for doing so.

7. RESEARCH LIMITATIONS AND AREAS FOR FUTURE RESEARCH

The literature clearly identified four value-added contributions offered by business incubators to their tenant businesses. In some instances a particular value-added contribution was perceived to have absolutely no importance to a specific respondent business. Further research to qualitatively understand what type of businesses did not perceive any importance for a particular contribution could prove to be a valuable insight into the tenant selection process for business incubators.

The most recent significant developments in the literature supporting the five early stages of growth could be argued to be dated. We see that very little has been added to the work of Churchill and Lewis (1983), and the question must be asked as to whether their classification of the early stages of growth is still relevant. This notion is supported by the results of this study showing the existence of very few businesses in the first stage of growth, and zero in the last stage. It is possible that the sample did not fully represent businesses in all



these stages, and therefore the study could be repeated with a larger sample, from a broader population. Perhaps data from the company registration office could be leveraged for this study to increase the likelihood of a fair representation of businesses across all stages. This being said, there is the possibility that the data for this study accurately reflected the population, and that an outdated classification of the stages could be to blame. Further research could look to repeat Churchill and Lewis' (1983) study to refresh the classification of such stages.

South Africa has identified in its Accelerated and Shared Growth Initiative for South Africa (ASGISA) a number of key sectors that have been targeted by South African government and business in order to reach the economic growth levels required in order to significantly reduce poverty in the country. These themes include tourism, business process outsourcing, bio-fuels and agro-processing. Of particular interest would be to understand the needs of early-stage businesses in these sectors, to map out what constitutes the various stages that businesses in these sectors move through, and then to determine whether business incubators are geared to accommodate their needs, and if so, whether there is a significant difference in the perceived needs for any of the value added contributions across stages of growth, and across sectors.

Because of the limited number of businesses in South Africa that have moved through a business incubator, the perceived importance of value-added contributions was used as a proxy for actual importance. Further research should try to establish the actual value added to tenant businesses by each of the value-added contributions. This would provide the incubator manager with



valuable insights as to which contributions to establish as core incubator competencies.

In progressing through this research, one of the approaches considered was to measure how much of each value-added contribution each business received in relation to the perceived importance given by each business to each value-added contribution. Having established this metric, it would then be interesting to correlate it with a measure of success for each individual business, and then to aggregate these across business incubators to determine which configurations were most successful. In moving down this path it became clear that the business incubators were not prepared to divulge this type of information, even although a number of them were utilising public funds. Perhaps this approach could be re-kindled as the results could prove useful to the economy as a whole.

A further consideration worth investigating is whether South African business incubators actually create value to the economy as a whole, or whether the self selection bias is prevalent. What this means is that it is possible that due to the limited amount of funds and expertise available within an incubator, together with the financial milestones that need to be met by the incubator, that only those companies that would have been successful outside the incubator are granted entrance into the incubator, thereby increasing the chances of the business incubator perpetuating. The question that must be asked is whether the incubator is assisting those businesses that need help the most, or whether being successful as an incubator is of more importance than developing and



nurturing those businesses that need assistance the most, but that carry a high risk for the incubator.

Finally, it would be interesting to compare the business incubator concept to the eco-system that Silicon Valley has pioneered and so successfully created. Palo Alto seems to have pulled together all of the right ingredients to create what is in effect a region that acts as a natural business incubator. Further research could look at the possible benefits of a scenario where all of the South African business incubator efforts are clustered into a region, similar to the Palo Alto model, and comparing those symbiotic benefits to the individual benefits offered by isolated business incubators, as per the current model.



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FULL LITERATURE REVIEW



1. INTRODUCTION

A number of factors contributing to the relatively young discipline of business incubation exist, as do a number of theories about the business life-cycle. The purpose of this literature review is therefore twofold. Firstly, the essential value-added contributions offered by business incubators that assist in nurturing and commercialising new business start-ups will be identified and elaborated on. Next, the stages of the early business life-cycle will be identified and the characteristics of businesses in each stage will be highlighted.

2. BUSINESS INCUBATION

From their systematic review of business incubation Hackett and Dilts (2004) identify four distinct research orientations for business incubation. These are incubator development studies; incubator configuration studies; incubatee development studies; and incubator-incubation impact studies. This research will draw from all of these orientations to better understand the value-added contributions offered by business incubators to their tenant firms.

Early research by Campbell, Kendrick and Samuelson (1985, p. 48) shows that a “network of service providers brings business skills to new ideas, and access to capital and low overhead costs supports their developments into viable businesses”.

Smilor and Gill (1986) formalise the concept by defining business incubation as an environment that seeks to link talent, technology, capital and know-how to provide leverage for entrepreneurial talent, accelerate the development of new



companies, and thus speed up the commercialization of technology. This definition is limited to the commercialisation of technology, however the business incubator is more generally believed to provide “a nurturing environment for new business start-ups” (Mian, 1996, p. 325), encompassing a much broader range of business than technology start-ups alone.

Allen and McClusky (1990, p. 61) add findings from their configuration research to the definition and propose that a business incubator is “a facility that provides affordable space, shared office services, and business development assistance in an environment conducive to new venture creation, survival, and success”. Peters *et al* (2004, p. 84) echo this view, stating that “the role of the incubator in the entrepreneurial process has changed from being just a business centre with office facilities to one offering training, networking and consulting in all areas of expertise to start-up firms”.

Considering the possible confusion as a result of the plethora of available definitions, Hackett and Dilts (2004, p. 57) guide our thoughts by suggesting that “it is important to keep in mind the totality of the incubator. Much as a firm is not just an office building, infrastructure and articles of incorporation, the incubator is not simply a shared-space office facility, infrastructure and mission statement. Rather, the network is also a network of individuals and organisations including the incubator manager and staff, incubator advisory board, incubatee companies and employees, local universities and university community members, industry contacts, and professional service providers such as lawyers, accountants, consultants, marketing specialists, venture capitalists, angel investors and volunteers”.



With this all encompassing view in mind, Hackett and Dilts (2004, p. 57) broadly define a business incubator as “a shared office space facility that seeks to provide its incubatees (i.e. portfolio- or client- or tenant-companies) with a strategic value-adding intervention system (i.e. incubation) of monitoring and business assistance”.

In an attempt to make sense of the various definitions that have evolved over time, O’Neal (2005, p. 12) summarises that up to 1985 it was thought that “an incubator must have a physical plant with below market rents, shared services, logistical support, and business consulting services”. Then, having built on previous knowledge from the practice of incubation, O’Neal (2005) presents that new empirical evidence was incorporated in 1988 “to show that the industry had shifted its focus to value-added business services, away from site development and subsidized rents”. This is reflected strongly in the National Business Incubator Association’s description of business incubation as: “A dynamic process of business enterprise development. Incubators nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable. Incubators provide hands-on management assistance, access to financing and orchestrated exposure to critical business or technical support services. Most also offer entrepreneurial firms shared office services, access to equipment, flexible leases and expandable space—all under one roof” (O’Neal, 2005, p. 13).

A summary of the literature highlighting the constituent aspects of business incubation is presented in Table 20.



Table 20: Summary of literature highlighting aspects of business incubation

<i>Value-added contribution</i>	<i>Supporting literature</i>
Incubators support start-ups to become viable businesses	Allen and McClusky (1990), Allen and Rahman (1985), Campbell, Kendrick and Samuelson (1985), Mian (1996), Smilor and Gill (1986)
Incubators comprise of a network of interlinking and supporting factors	Allen and McClusky (1990), Campbell, Kendrick and Samuelson (1985), Peters et al (2004), Hackett and Dilts (2004), Smilor and Gill (1986)
Incubators as a strategic value-adding intervention system / process	Hackett and Dilts (2004), O'Neal (2005)

3. VALUE-ADDED CONTRIBUTIONS

The term value-added, employed in this paper, “has become part of the lexicon of the technology business incubation industry” (Mian, 1996, p. 325), which corresponds to those specific ways that an incubator program enhances the ability of its tenants to survive and grow in business (Allen and Bazan, 1990).

In their research into the critical success factors for start-up success, Chorev and Anderson (2006, p. 165) suggest that “there is no single dominant factor influencing the venture’s destiny and that several dimensions shape the probability of success”. Campbell *et al.* (1985), however, suggest that there are four areas where the incubation process creates value. These are in the diagnosis of business needs; the selection and monitored application of business services; the provision of financing; and access to the incubator network.



Mian, (1996, p. 325) proposes that “a typical business incubator program provides shared office services and business assistance including affordable rent and fostering connections with firms inside the incubator and in the local economy”. Rice (2002) extends this notion to include the time duration and intensity of incubator manager intervention, coupled with the breadth, readiness and fit of the incubator manager-incubatee dyad as an impact on the success of the incubatee”.

In the case study on the technology incubator at the University of Central Florida - the winner of the 2004 Incubator of the Year from the National Business Incubator Association - O’Neal (2005) notes that through business development services (e.g. strength and weakness assessment, business plan assessment, operations plan for the execution of the business plan, access to network of resources, general business advice); leasing arrangement services (flexible, extendable); and business assistance services (e.g. entrepreneurship boot camps, entrepreneurship certification courses, weekly seminars on business related topics, access to a business network via in-house networking events, legal counsel, human resource management, marketing and public relations, financing, executive lean identification), the incubator was able to achieve successes greater than that of any other incubator in the country.

O’Neal (2005, p. 20) continues by stating that in essence “to ensure success of the clients, the incubator focuses around a set of critical success factors: integrate clients in the larger technology development system; foster interactions between clients, incubator management, other staff, outside individuals, and the incubator advisory panel; and provide access to external



funding sources, university resources, community/local government economic development agencies, and other entrepreneurial support organizations”.

Peters *et al* (2004, p. 85) suggest that “while no two incubators are precisely alike, they do share the following traits: co-location of business, shared services, management assistance and networking”. “A true incubator therefore is not only office space with a shared secretary and a common fax machine. For, besides accommodation, an incubator should offer services such as hands-on management, access to finance (mainly through links with seed capital funds or business angels), legal advice, operational know-how and access to new markets” (Aernoudt, 2004, p. 127).

Cooper *et al* (1994) take a slightly different approach and specify four groups as predictors of new venture performance: general human capital, management know-how, industry-specific know-how and financial capital.

Based on past studies reviewed by Chan and Lau (2005, p. 1225), “nine sets of criteria are identified and incorporated in the assessment framework: advantages from pooling resources, sharing resources, consulting services, positive effect from higher public image, networking advantages, clustering effect, geographic proximity, cost subsidies and funding support”.

The available literature on the topic makes it apparent that although additional value-added contributions do exist, for example psychological support (Lichtenstein, 1992), the key contributions that business incubators make to the survival of their tenants are broadly categorised into: access to shared office



service; access to business assistance; access to capital; and access to business networks.

A summary of the supporting literature for each value-added contribution is presented in Table 21.

Table 21: Summary of literature supporting each value-added contribution

<i>Value-added contribution</i>	<i>Supporting literature</i>
Access to shared office services	Aernoudt (2004), Campbell et al. (1985), Chan and Lau (2005), Mian (1996), O'Neal (2005), Peters et al (2004), Voisey et al (2006)
Access to business assistance	Aernoudt (2004), Campbell et al. (1985), Chan and Lau (2005), Cooper et al (1994), Mian (1996), O'Neal (2005), Peters et al (2004), Voisey et al (2006)
Access to finance	Aernoudt (2004), Campbell et al. (1985), Chan and Lau (2005), Cooper et al (1994), O'Neal (2005), Voisey et al (2006)
Access to business networks	Aernoudt (2004), Campbell et al. (1985), Chan and Lau (2005), Mian (1996), O'Neal (2005), Peters et al (2004), Voisey et al (2006)

3.1 ACCESS TO SHARED OFFICE SERVICES

“Physical infrastructure includes rental space, equipment, administrative facilities like fax, phone, internet lines, in certain cases labs, conference facilities and so on” (Peters *et al*, 2004, p. 86).

In their research into a number of Hong Kong based technology incubators, Chan and Lau (2005, p. 1226) find that “sharing basic structural resources, (e.g. administrative support, office equipment, etc.) generally applied to all technology firms within the incubator programme”. The belief being that pooling



resources together provides the critical mass necessary to organise central functions like training and networking events for the young start-ups.

“Removing the necessity for investment in business-level information communication technology (ICT) meant that entrepreneurial students and graduates could ‘test the water’ without some of the financial risk normally associated with business start-up” (Voisey *et al*, 2006, p. 455). This view is broadened and supported by Chan and Lau (2005, p. 1226) who believe that “cost advantage in the form of rental subsidies and other expenses is found the most important benefit that technology tenants derive from the incubator programme”.

A summary of the literature further elaborating on the constituent parts of shared office services as a value-added contribution is presented in Table 22.

Table 22: Summary of the constituent parts of the shared office services construct

<i>Constituent part of shared office services</i>	<i>Supporting literature</i>
Rental space	Chan and Lau (2005), Peters et al (2004)
Equipment	Chan and Lau (2005), Peters et al (2004), Voisey et al (2006)
Administrative facilities	Chan and Lau (2005), Peters et al (2004)
Product specific facilities	Chan and Lau (2005), Peters et al (2004)



3.2 ACCESS TO BUSINESS ASSISTANCE

Rice (2002, p. 165) suggests that “business incubators offer the opportunity to deploy multiple modes of assistance, including continual (literally on a daily basis) interaction — because companies and the incubator staff are co-located in the same facility”.

Research by Chan and Lau (2005, p. 1227) reveals that “in the venture development process, technology founders are usually keen to seek business advice as it is the area that they do not know”. In fact, O’Neal (2005, p. 12) shows that “in the case of technology entrepreneurs, entrepreneurial training programs and networking opportunities are valued higher than a reduced cost of services or rent”.

Research by Voisey *et al* (2006, p. 455) into successful university based incubators shows that “a full-time business support manager provides immediate advice, guidance and signposting to appropriate external business support. Private sector sponsors provide entrepreneurs with initial advice (legal, accounting, human resources) without charge, and deliver seminars on current issues. University expertise is available for advice on good practice, manufacturing materials, product development and prototyping”.

Rice (2002, 171) comments that the venture may lack some or all of the resources needed for: common business processes (e.g. risk management, accounting, protecting intellectual property, negotiating legal agreements); human resource management; market development, sales and distribution;



accessing capital and financial management; and development and production of the firm's products or services".

Stemming from research into the impact of co-production on the incubation process, Rice (2002, p. 177) proposes that the mere availability of managerial intervention is not in itself a determinant of success, but that "delivered managerial intervention is the key in incubation support, and success is measured by proactive direct intervention" (Rice, 2002).

A summary of the literature further elaborating on the constituent parts of business assistance as a value-added contribution is presented in Table 23.

Table 23: Summary of the constituent parts of the business assistance construct

<i>Constituent part of business assistance</i>	<i>Supporting literature</i>
Common business administrative processes	Rice (2002), Voisey <i>et al</i> (2006)
Human resource management	Rice (2002), Voisey <i>et al</i> (2006)
Market development, sales and distribution	Rice (2002)
Access capital and financial market know-how	Rice (2002)
Product or service development	Rice (2002), Voisey <i>et al</i> (2006)
Co-production	Rice (2002)

3.3 ACCESS TO FINANCE

Berry, von Blottnitz, Cassim, Kesper, Rajaratnam, and van Seventer (2002, p. 65), in their investigation into the economics of SMMEs in South Africa, propose that the issue of access to finance is critically important, specifically for firms that show entrepreneurial talent and skills to grow. Chorev and Anderson (2006, p. 167) agree by stating that "funding is the oxygen of start-ups". Hackett and



Dilts (2004, p. 62) propose that incubators play a critical role in “assisting incubatees with financial matters”. Typically, most incubators do not maintain their own investment fund, serving instead as a broker that introduces incubatees to sources of capital when the need arises”.

Richie and Lam (2006) comment that improving access to finance for small businesses is one of the strategic themes proposed by the Small Business Service (SBS) framework for a government-wide approach to foster enterprise and help small business.

Löfsten and Lindelöf (2003, p. 53) “point out six factors that were important in Silicon Valley’s success: availability of technical expertise; availability of pre-existing infrastructure; availability of venture capital; job mobility; information exchange networks, spin-offs from existing firm’s”. They narrow the six factors considerably by proposing that the extent to which business incubation can help to overcome these constraints “depends partly on the quality of the on-site management resources and partly on access to appropriate sources of equity and loan funds”.

The importance of enabling access to funding is further acknowledged by Rice (2002, p. 182). This study finds that “25 of the 32 entrepreneurs and all eight incubator managers cited networking to external resources in general, or more specifically to sources of funding, as a co-production shortcoming”. This is supported in the research findings from Löfsten and Lindelöf (2003) which concur that the problem of obtaining finance is one of the major difficulties facing new enterprises.



A summary of the literature further elaborating on the constituent parts of access to finance as a value-added contribution is presented in Table 24.

Table 24: Summary of the literature supporting the importance of access to finance

Construct	Supporting literature
Access to finance	Berry <i>et al</i> (2002), Chorev and Anderson (2006), Hackett and Dilts (2004), Löfsten and Lindelöf (2003), Rice (2002), Richie and Lam (2006)

3.4 ACCESS TO BUSINESS NETWORKS

Brüderl and Preisendörfer (1998, p. 213) note that “the network approach to entrepreneurship is a prominent theoretical perspective within the literature on entrepreneurship”. They go on to highlight that the “literature assumes that network resources, networking activities and network support are heavily used to establish new firms (network founding hypothesis). Further, those entrepreneurs who can refer to a broad and diverse social network and who receive much support from their network are more successful (network success hypothesis)”.

“The central purpose of the incubator is to provide resources in those areas where entrepreneurs have gaps. If the incubator cannot provide the missing resources directly, then it must connect the entrepreneurs through its external network to those channels or parties that can provide the missing resources. Thus, developing and managing a networking infrastructure is a critical function of the incubator. Since the entrepreneurs lack credibility and a history of operations, the incubator allows them to overcome this liability by providing a networking infrastructure” (Rice, 2002, p. 175). Although the plausibility of this



view is accepted by Brüderl and Preisendörfer (1998, p. 224), findings from their research conclude that the “network compensation hypothesis stating that entrepreneurs compensate shortfalls of human and financial capital by resorting to network support, did not find confirmation”.

In their systematic review of business incubation, Hackett and Dilts (2004, p. 71) propose that “network relationships and institutionalised knowledge transfers enhance the likelihood of incubation success”. This is supported by Löffsten and Lindelöf (2003, p. 58) who believe that “the ready availability of external advice and support can be of crucial importance to the small technology business in its formative years”.

According to Peters *et al* (2004, p. 89), social networks play a significant role in many facets of organisational emergence. Furthermore they note that “all nascent entrepreneurs draw upon their existing social networks and construct new ones in the process of obtaining knowledge and resources for their organisation. Incubators can possibly fill in for an entrepreneur’s impoverished network”. Peters *et al* (2004) also state that “there are good and bad networks to entrepreneurial success”. They elaborate “that when it comes to the flow of information, the strength of ties is less important than whether they are non-redundant with other ties. This implies that being tied to a broad based loosely connected network is of great importance to entrepreneurs”. Brüderl and Preisendörfer (1998, p. 224) somewhat disagree by concluding that “support from strong ties seems to be more important than support from weak ties”.

Peters *et al* (2004, p. 89) propose that the enveloping theory behind the incubation process may be related to the theory of ‘community of practice’. They



suggest that “the interaction among the tenants and owners of an incubator may help in shaping the learning of each entity in that group due to a shared sense of understanding of the overall objectives of their community”.

Rice (2002) elaborates on the concept of business networks by proposing that the effectiveness of the networking process needs to be taken into account, over and above base access to the network. In this respect Rice (2002, p. 82) suggests that “the effectiveness of the networking process is diminished when the incubator manager commits insufficient time and effort to the following tasks: evaluation of the commitment and the capability of the prospective know-how network expert to address the specific needs of the entrepreneur, development of the capabilities of the entrepreneurs to successfully participate in the networking co-production process, facilitation of the networking co-production relationship between the entrepreneur and the external source of expertise or resources”. Rice’s (2002) research concludes that networking is the most frequently cited co-production shortcoming.

The importance of business networking is seldom disputed, however research by Chan and Lau (2005, p. 1227) presents that “technology start-ups do not gain any benefits from networking and clustering”, stating that “perhaps the theories are over emphasised or the application is subject to specific contexts, e.g. western model of science parks”.

A summary of the literature further elaborating on the constituent parts of access to business networks as a value-added contribution is presented in Table 25.



Table 25: Summary of the constituent parts of the business network construct

<i>Constituent part of business network construct</i>	<i>Supporting literature</i>
Filling gaps in entrepreneurs network	Brüderl and Preisendörfer (1998), Rice (2002), Peters <i>et al</i> (2004)
Establishment of the right kind of network	Brüderl and Preisendörfer (1998), Peters <i>et al</i> (2004), Rice (2002)
Business network as a community of practice	Peters <i>et al</i> (2004)
Relevance of the business network is dependent on the context	Chan and Lau (2005)

4. STAGES OF THE BUSINESS LIFE-CYCLE

4.1 INTRODUCTION

Greiner (1972) proposes that the crisis associated with growth must be understood and challenged by the entrepreneur. This is supported by Hanks, Watson, Jansen and Chandler (1993) who believe that understanding the organisational life cycle and associated management imperatives could aid entrepreneurs through the uncharted stages of company growth, thereby significantly impacting sustained value and job creation.

Despite the need to clearly understand the company life cycle, a plethora of models exist. Scott and Bruce (1987) group earlier research into 5 distinct categories: Industry growth models that use the product lifecycle concept to illustrate how industries develop and how businesses react to these pressures; large business growth models which show the characteristic changes in businesses as they grow into large multidimensional units which become



geographically decentralized; general growth models that can be applied to businesses of all sizes; and small business growth models.

Hanks *et al.* (1993) does well in identifying the number of stages implicit in all these previous models. Despite the broad variance in number of stages, they identify a fairly consistent pattern of organization evolution with five stages being selected in the interest of parsimony and ease of comparison.

4.2 EVOLUTION

Landmark research on the evolution of the start-up life cycle can be traced back to 1963 where McGuire built on the economics based research of Rostow to formulate “a model that saw companies moving through five stages of economic development, namely: Traditional small company; planning for growth; take-off or departure from existing conditions; drive to professional management; and mass production marked by a diffusion of objectives and an interest in the welfare of society” (Churchill and Lewis, 1983, p. 32).

A year later, in 1963, Christenson and Scott focused on plotting the start-up lifecycle based on organisational complexity as the business evolved in its product-market relationships. They proposed three phases that a company goes through as it grows in overall size, number of products, and market coverage, namely: “One-unit management with no specialised organizational parts; one-unit management with functional parts such as marketing and finance; and multiple operating units, such as divisions, that act in their own behalf in the marketplace” (Churchill and Lewis, 1983, p. 32).



A few years later Steinmetz (1969) created a theory of life-cycle growth that hinged on each stage ending with a critical phase that must be dealt with before the company could enter the next stage. His stages and phases are as follows: “direct supervision, which is the simplest stage, at the end of which the owner must become a manager by learning to delegate to others; supervised-supervision, [where] to move on, the manager must devote attention to growth and expansion, managed increased overhead and complex finances, and learn to become an administrator; indirect control [where] to grow and survive, the company must learn to delegate tasks to key managers and to deal with diminishing absolute rate of return and overstaffing at the middle levels; divisional organisation, at [which] stage the company has arrived and has the resources and organisational structure that will enable it to remain viable” (Churchill and Lewis, 1983, p. 32).

Next Greiner (1972) published landmark research that proposed a “model of corporate evolution in which business organisations move through five phases of growth as they make the transition from small to large (in sales and employees) and from young to mature” (Churchill and Lewis, 1983, p. 32). Much like Steinmetz’ theory, each stage is distinguished by an evolution from a prior phase and then by a revolution or crisis, which precipitates a jump into the next phase.

Until 1983, the focus of life cycle growth paid little attention to the critical early stages of company development, however Churchill and Lewis (1983) applied Greiner’s theory to the small business situation; and their theoretical model became a classic. Where the traditional model states that a company must grow



and pass through all stages of development or die in the attempt, they point out that this is not necessarily true to small businesses. In identifying that the traditional model fails to capture the important stages in a company's origin and growth, "they introduce an alternative framework for small businesses, which features five growth stages: existence; survival; success; take-off; and resource maturity" (Masurel and van Montfort, 2006, p. 464).

Drawing extensively on the work of Churchill and Lewis, "Scott and Bruce identified a similar, theoretical small business development model, calling the different stages inception, survival, growth, expansion and maturity. Following in Greiner's footsteps they saw each stage as one preceded by a crisis" (Masurel and van Montfort, 2006, p. 464). Scott and Bruce (1987, p. 51) propose that "it is the anticipation of these crises and the successful management of the change that they cause that ensures the survival of the growing small business. Small businesses may not follow all of the paths suggested and may in fact appear to be a hybrid of two or more stages". They propose this to be perfectly plausible "if the firm is in a stage of transition, or if it has an operating environment peculiar to itself which indicates that such courses may be correct".

4.3 STAGE CHARACTERISTICS

In examining businesses, researchers have traditionally used "business size as one dimension and company maturity or stage of growth as a second dimension" (Churchill and Lewis, 1983, p. 31). Churchill and Lewis (1983) and Scott and Bruce (1987) agree that these earlier models characterise company size largely in terms of annual sales or number of employees, and "ignore other factors such as value-added, number of locations, complexity of product line



and rate of change in products or production technology” (Churchill and Lewis, 1983, p. 31). The remainder of this section will distil a range of characteristics that the most recent research suggests should be used to determine the stage of growth that a business is in.

4.3.1 STAGE 1 – EXISTENCE / INCEPTION

Stage one, termed existence by Churchill and Lewis (1983) or inception by Scott and Bruce (1987) is characterised by the business obtaining customers and delivering the product or service contracted for (Churchill and Lewis, 1983). Scott and Bruce (1987) agree that the main efforts will hinge around developing a commercially acceptable product and establishing a place for it in the market-place. The organisation is simple, where the owner does everything (Churchill and Lewis, 1983) and the basic skills of the founder determine the functional emphasis (Scott and Bruce, 1987). In this stage the owner directly supervises subordinates, who should be of at least average competence (Churchill and Lewis, 1983; Scott and Bruce, 1987). The level of uncertainty is high (Scott and Bruce, 1987), systems and formal planning are minimal to nonexistent (Churchill and Lewis, 1983; Scott and Bruce, 1987), and the company’s strategy is simply to remain alive (Churchill and Lewis, 1983). The result will normally be a single operating unit with limited channels of distribution (Scott and Bruce, 1987). Sources of funds will be haphazard and will place heavy demands on the founder, his friends and family (Churchill and Lewis, 1983; Scott and Bruce, 1987). The major crisis at this stage is the inability of the owner to accept the demands that the business places on their finances, energy and time (Scott and Bruce, 1987).



4.3.2 STAGE 2 – SURVIVAL

In reaching the second stage, the business has proven that it is a workable business entity (Churchill and Lewis, 1983; Scott and Bruce, 1987). It has enough customers (Churchill and Lewis, 1983) which it satisfies through a single or at least simple product or service offering (Churchill and Lewis, 1983; Scott and Bruce, 1987). The owner is still central to the business and often supervises another manager (Scott and Bruce, 1987). Growth is through market expansion, and expanded channels of distribution may be needed to reach the expanding market (Scott and Bruce, 1987). The key goal is still survival (Churchill and Lewis, 1983), the owner and his capital remain central to the business (Churchill and Lewis, 1983; Scott and Bruce, 1987), systems development is minimal (Churchill and Lewis, 1983), and formal planning is at best cash forecasting (Churchill and Lewis, 1983) and working capital management (Scott and Bruce, 1987). The level of competition is uncertain and early success will normally be attracting new entrants, making success based purely on differentiation more difficult (Scott and Bruce, 1987). “The most likely crises at this stage are overtrading; the increased complexity of expanded distribution models; change in the basis of competition and pressures for information” (Scott and Bruce, 1987, p. 49).

4.3.3 STAGE 3 – GROWTH / SUCCESS

The growth (Scott and Bruce, 1987) or success (Churchill and Lewis, 1983) stage is characterised by a company that has “attained true economic health, has sufficient size and product-market penetration to ensure economic success, and earns average or above-average profits” (Churchill and Lewis, 1983, p. 34).



The company has grown large enough in many cases to require functional managers (Churchill and Lewis, 1983; Scott and Bruce, 1987). This will mean a more formal organization structure based on functional lines and some form of systems are now in place (Scott and Bruce, 1987).

Churchill and Lewis (1983) identify two sub stages that a company may pursue at this point.

At the disengagement sub stage the company has decided to maintain the status quo. It can stay at this stage indefinitely, provided environmental change does not destroy its market niche or ineffective management reduce its competitive abilities (Churchill and Lewis, 1983). “The managers should be competent, but need not be of the highest calibre, since their upward potential is limited by the corporate goals. Cash is plentiful and the main concern is to avoid a cash drain in prosperous periods to the detriment of the company’s ability to withstand the inevitable rough times...Planning in the form of operational budgets supports functional delegation. The owner, and to a lesser extent, the company managers, should be monitoring a strategy to essentially maintain the status quo. As the business matures, it and the owner move increasingly apart” (Churchill and Lewis, 1983, p. 34).

The growth sub stage sees the business owner marshalling resources for growth (Churchill and Lewis, 1983); therefore it is unlikely that the business is generating cash for the owner (Scott and Bruce, 1987). Instead the cash will be used to protect the company from outrunning its sources of cash (Churchill and Lewis, 1983; Scott and Bruce, 1987) and to develop managers to meet the needs of the growing business (Churchill and Lewis, 1983). Managers with an



eye to the company's future rather than its current conditions are those of choice (Churchill and Lewis, 1983). Normal accounting systems will now be in place (Scott and Bruce, 1987) and additional systems should be installed with an appreciation of forthcoming needs (Churchill and Lewis, 1983). At this sub stage strategic planning is extensive and deeply involves the owner (Churchill and Lewis, 1983). Sources of cash will include company reserves, company earnings (Churchill and Lewis, 1983; Scott and Bruce, 1987) and long term debt (Scott and Bruce, 1987).

A major crisis encountered by companies at this stage involves liquidity concerns, despite the fact that their products are being accepted by the market. Furthermore entry of larger competitors and the demands of expansion into new markets could cause problems (Scott and Bruce, 1987).

4.3.4 STAGE 4 – EXPANSION / TAKE-OFF

In this stage the organisation is decentralised, and organised into either sales or production divisions (Churchill and Lewis, 1983). For this reason “budgetary control, regular management reports and decentralized authority accompanied by formalized accounting systems are the order of the day. The need to systemize most administrative functions will be a fundamental to survival through this stage” (Scott and Bruce, 1987, p. 50) and the net effect is that the systems, strained by growth, are becoming more refined and extensive (Churchill and Lewis, 1983). Long term funds in terms of retained earnings, access to long term debt finance, and equity structures will be used to finance the business (Scott and Bruce, 1987). Effective management of stock and working capital is essential (Churchill and Lewis, 1983). The key managers



must be very competent to handle the growing complexity in the business environment (Churchill and Lewis, 1983). These managers are involved in both operational and strategic planning (Churchill and Lewis, 1983). The owner and the business have become quite separate, yet the company is still dominated by the owner's presence and views (Churchill and Lewis, 1983). It is during this stage that company politics are likely to become a major issue for the first time, predominantly because new managers do not have the commitment to the business that those who were with the business from the early stages had, and that they are not being prepared to make the same sacrifices for the sake of the business. This is essentially a crisis of culture (Scott and Bruce, 1987). Other likely crises at this stage are distance of top management from the action and the need for external focus (Scott and Bruce, 1987).

4.3.5 STAGE 5 – MATURITY / RESOURCE MATURITY

Scott and Bruce (1987, p. 51) state that “it is important to realize that unlike the conventional lifecycle concept the company is still growing in the maturity phase. Most companies in this stage are on the verge of moving out of being small businesses”. The key issues facing the decentralised and experienced management team (Churchill and Lewis, 1983) are expense control, productivity, and finding growth opportunities (Scott and Bruce, 1987). At this stage the company normally has the staff and financial resources (Churchill and Lewis, 1983; Scott and Bruce, 1987) to engage in detailed operational and strategic planning (Churchill and Lewis, 1983). The lines of authority may continue along functional lines or be reorganized along product lines (Scott and Bruce, 1987). “Systems are extensive and well developed [and] the owner and



the business are quite separate, both financially and operationally” (Churchill and Lewis, 1983, p. 40). At this stage the shareholders put pressure on the owner to ensure the future of the company. This hinges on succession, sometimes causing a conflict between the parties (Scott and Bruce, 1987).

A summary of the characteristics of each stage of growth, adapted from Scott and Bruce (1987: 48), combining the characteristics of each stage as identified in the literature is presented in Table 26.

Table 26: A summary of the characteristics of each stage of growth as identified in the literature reviewed (adapted from Scott and Bruce, 1987: 48)

	Stage 1 <i>Inception / Existence</i>	Stage 2 <i>Survival</i>	Stage 3 <i>Growth / Success</i>	Stage 4 <i>Expansion / Take off</i>	Stage 5 <i>Maturity</i>
<i>Key issues and goals</i>	<i>Customers; delivering product or service; survival</i>	<i>Revenues and expenses; survival</i>	<i>Managed growth; ensuring resources</i>	<i>Financing growth; maintaining control; politics</i>	<i>Expense control, productivity</i>
<i>Top management role</i>	<i>Direct supervision</i>	<i>Supervised supervision</i>	<i>Delegation; co-ordination</i>	<i>Decentralised</i>	<i>Decentralised</i>
<i>Owner business orientation</i>	<i>Central to the business</i>	<i>Central to the business</i>	<i>Apart (disengagement sub phase); central (growth sub stage)</i>	<i>Separate but owners views still dominate</i>	<i>Separate</i>
<i>Organisation structure</i>	<i>Simple; single operating unit; subordinates of average competence</i>	<i>Simple; single operating unit; competent management</i>	<i>Functional; centralised; competent managers (disengagement sub stage); inspired management (growth sub stage)</i>	<i>Decentralised; functional divisions</i>	<i>Decentralised; functional / product divisions</i>



	Stage 1 <i>Inception / Existence</i>	Stage 2 <i>Survival</i>	Stage 3 <i>Growth / Success</i>	Stage 4 <i>Expansion / Take off</i>	Stage 5 <i>Maturity</i>
<i>Systems and control</i>	<i>High uncertainty; minimal to no systems</i>	<i>Minimal to no systems</i>	<i>Basic systems (disengagement sub stage); new systems for the future (growth sub stage)</i>	<i>Formal; refined; extensive</i>	<i>Formal</i>
<i>Major source of finance</i>	<i>Haphazard; friends, family, owner</i>	<i>Friends, family and owner</i>	<i>Banks; retained earnings</i>	<i>Retained earnings; long term debt; equity structures</i>	<i>Retained earnings; long term debt; equity structures</i>
<i>Product-market</i>	<i>Single line and limited channels</i>	<i>Single line and market but increasing scale and channels</i>	<i>Single market; multiple channels</i>	<i>Extended range; increased markets and channels</i>	<i>Contained lines; multiple markets and channels</i>
<i>Planning</i>	<i>Minimal to non-existent</i>	<i>At best cash forecasting</i>	<i>Monitor current strategy (disengagement sub stage); develop future strategy (growth sub-stage)</i>	<i>Operational and strategic planning</i>	<i>Detailed operational and strategic planning</i>
<i>Level of competition</i>	<i>Low</i>	<i>Uncertain</i>	<i>Increasing</i>	<i>-</i>	<i>-</i>
<i>Major crises</i>	<i>Inability of owner to manage personal demands</i>	<i>Overtrading; increased complexity of distribution mode; change in competition</i>	<i>Liquidity; entry of large competitors; demands of expansion into new markets</i>	<i>Cultural crisis; Lack of management focus</i>	<i>Succession; owner-shareholder conflict</i>



5. SUMMARY OF THE LITERATURE

This literature review has focused on two areas of new business creation, namely the business incubator and the early stages of new business growth.

From a business incubator perspective focus was on the value-added contributions that these incubators provide to their tenants, virtual or resident. The available literature spanned from early definitions of business incubation in the 1980s to recent findings in 2006. Those value-added contributions that appeared to be the most important in the literature reviewed were shared office services, business assistance, access to finance and business networks (Table 27).

Table 27: Value-added contributions (VAC)

<i>Value-added contribution (VAC) key</i>	<i>VAC Description</i>
VAC 1	Shared office services
VAC 2	Business assistance
VAC 3	Access to finance
VAC 4	Business networks

With respect to the early stages of new business growth, the available literature on the subject was limited to the 1980s. From this literature five significant stages emerged (Table 28), namely inception (or existence), survival, growth (or success), expansion (or take-off) and maturity (or resource maturity).

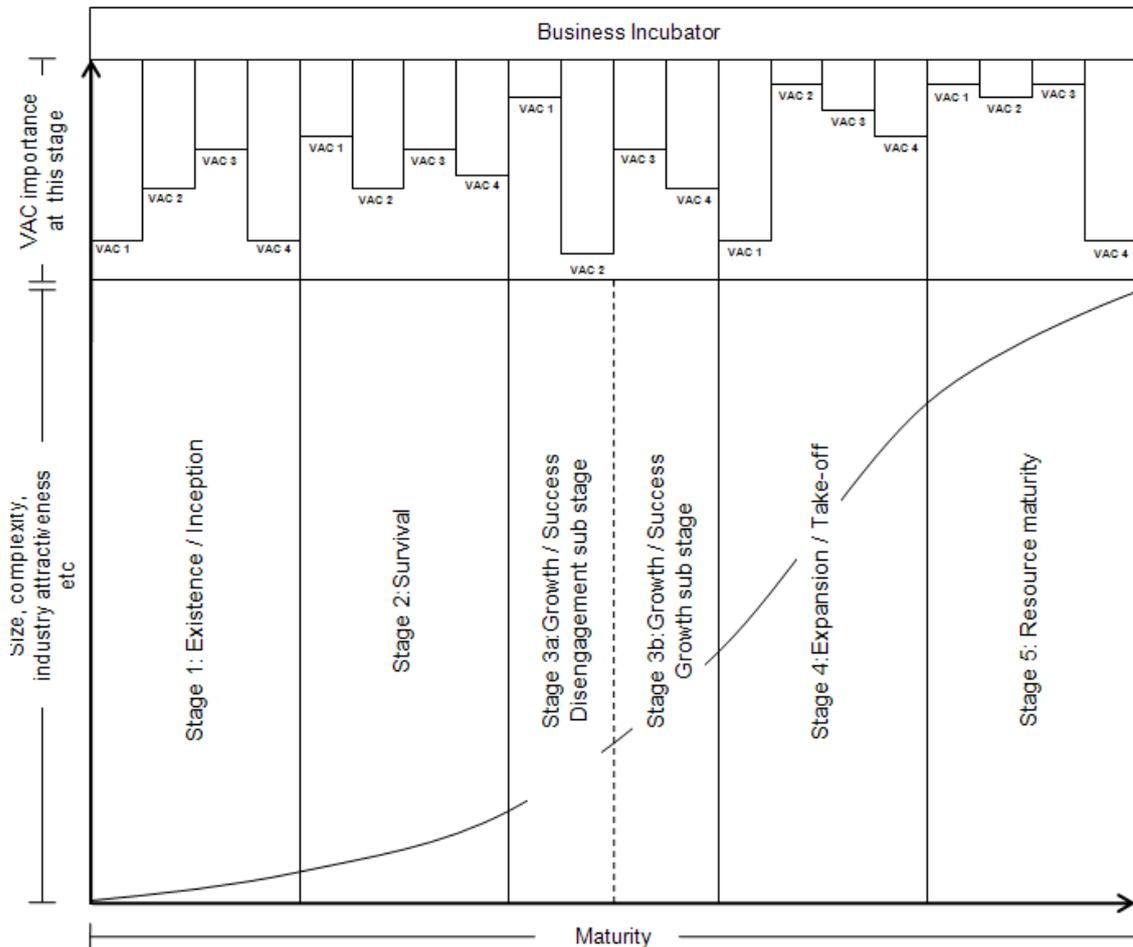


Table 28: The early stages of new business growth

Stage key	Stage description
Stage 1	Existence / Inception
Stage 2	Survival
Stage 3	Growth / Success
Stage 3a	Disengagement sub-stage
Stage 3b	Growth
Stage 4	Expansion / Take-off
Stage 5	Resource maturity

A visual representation of the proposed relationship between stage of growth and incubator contribution is presented in Figure 2. This model is adapted from Churchill and Lewis' (1983: 31) model to include the value-added contributions proposed in the literature, and their possible relationship with each stage of growth.

Figure 2: A proposed relationship between value-added contributions and the early stages of business growth (adapted from Churchill and Lewis, 1983: 31)



In Figure 2 the x-axis represents the maturity of the business. Churchill and Lewis (1983) propose that in order for a business to mature to the next level it must move through a stage of growth. The y-axis is divided into two. The bottom two thirds represent a number of characteristics that help to classify a business into a specific stage of growth, including the size of the business, the complexity of the business, the attractiveness of the business environment to competitors etc. The top third of the y-axis proposes that as a business moves from one stage to the next, so the mix of value-added contributions may change. By way of example, if we imagine a brand new venture, we would start



on the bottom left of the s-curve. Here the business would probably be small, not very complex and its niche would be relatively unexplored and therefore unattractive to competitors (amongst other attributes described in the literature above). The hypothetical scenario proposed in Figure 2 illustrates that businesses in this stage find value-added contributions 1 and 4 to be more important than value-added contribution 2 and 3. As the company grows in size to take on more employees to manage the increasing complexity, so it matures, until the point where it can be classified to have moved from a stage 1 business to a stage 2 business. Here the complexity may increase, as could the number of employees, represented by the s-curve moving further up the y-axis, and the company maturing along the x-axis. As a stage 2 business, the proposed model indicates that this business would place a higher value on value-added contribution 2 and 4.

It is the potential difference in the perceived importance of each value-added contribution across stages that will be tested in this research.



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QUESTIONNAIRE



INTRODUCTION

First of all, thank you. We really do appreciate you taking the time to complete this short survey. The survey is made up of 9 questions, and should not take you more than 10 minutes to complete. Please take the time to think carefully about each question.

This survey should be answered by owners or managers of businesses that are less than 10 years old (i.e. started after 1996). The survey aims to demystify the relative importance of various types of business assistance to businesses as they move through the early stages of the business life-cycle. Output from this research will help to positively impact the success rate of new and maturing businesses in South Africa.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Peter van der Zee by email at the email address specified below.

Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Please contact petevdz@movinghome.co.za if you have any questions regarding this survey.



QUESTION 1

Please select the ONE option that best answers the following question.

In what year did the business start operating?

1. 2007
2. 2006
3. 2005
4. 2004
5. 2003
6. 2002
7. 2001
8. 2000
9. 1999
10. 1998
11. 1997
12. 1996
13. Prior to 1996

QUESTION 2

Please select the ONE option that best describes the following.

Which of the following best describes your role in the business?

1. Business owner
2. Business manager
3. Business owner and manager

QUESTION 3

Please select the ONE option that best answers the following question.

Which of the following broad categories would you consider to be the business' main focus?

1. The provision of products (e.g. gas heaters; microwaves; ink cartridges)
2. The provision of services (e.g. freight logistics; vehicle repair; bookkeeping)
3. The provision of both products and services
4. None of the above



QUESTION 4

For the following question, please allocate 100 points as you see fit between the following options. Example: If you were asked to allocate 100 points between a Range Rover, Land Rover and a Toyota Hilux, based on which one you would most like to drive, then you may give the Range Rover 45 of the 100 points, the Land Rover 40 of the 100 points, and the Toyota Hilux the remaining 15 of the 100 points. This would indicate that you would most like to drive the Range Rover, followed by the Land Rover, with the Toyota Hilux being the vehicle you would least like to drive out of the three.

Consider the business as it stands today. Which of the following do you consider the most important to the business at this point in time? Please think hard about the business as it stands today and try to consider to what degree the following 4 points are important to the business. Please take some time to allocate 100 points as you see fit between the following.

- The opportunity to share office services with other businesses. Sharing office services (e.g. physical office space, local area networks, Internet connectivity, telephony services, conference rooms, receptionist services and cleaning staff) with other businesses can significantly reduce the business operating costs, and because the management of these office services is not the responsibility of each individual business, it enables each business to focus on its core revenue generating activities.
- Assistance from people experienced in dealing with the issues faced by the business. Business assistance may take the form of assistance in crafting a business plan, bookkeeping, or preparing monthly management reports, as well as advice in issues such as broad based black economic empowerment, taxation, contract law, strategic planning, general operations, human resources, marketing and sales.
- Access to finance. Depending on the stage that the business is in, this could mean accessing 'angel investors' who are willing to provide the business with money in its early days in return for some ownership of the business. It could mean access to venture capital for larger sums of money to assist the business, also in return for a share of the ownership of the business. It could mean access to government grants and publically available funds. Access to finance may also be in the form of short or long term bank loans, and access to finance could also mean partnerships with another business that will provide the necessary finance.



- The opportunity to be part of a network. This network may assist in filling the gaps that the business is struggling with. These gaps may include the business not being unable to generate the sales leads it requires, the business not being able to find the resources it requires, or the business not being able to find the correct partners that it is looking for.

QUESTION 5

Please select the ONE option that best describes the following.

At present, the business' main concerns are:

1. Developing a commercially acceptable product and obtaining customers.
2. Expanding its distribution channels and managing cash flow.
3. Avoiding a cash drain in prosperous periods to the detriment of the business' ability to withstand the inevitable rough times.
4. Marshalling resources to prepare for expansion.
5. Ensuring growth, maintaining control over operations and managing internal politics.
6. Expense control and productivity among the workforce.

QUESTION 6

Please select the ONE option that best answers the following question. Please read the options carefully as they may seem quite similar, when in fact they are not.

At present, which of the following best describes the managers in the business?

1. The owner manages the business without a management team.
2. The owner and a small complement of competent managers manage the business.
3. The owner does not play an active management role and the business is run by competent managers whose goal it is to maintain the current business conditions.
4. The owner plays a central management role and the business is run by competent managers with an eye to the business' future rather than its current conditions.
5. The owner does not play a role in managing the business and the business is run by competent managers capable of handling the growing complexity in the business environment.
6. The owner does not play a role in managing the business and the business is run by a competent and experienced management team.



QUESTION 7

Please select the ONE option that best describes the following.

At present, the level of planning in the business can best be described as:

1. Minimal to non-existent.
2. At best forecasting the cash requirements of the business for the next couple of months.
3. Monitoring the current strategy.
4. Developing the future strategy.
5. Basic operational and strategic planning.
6. Detailed operational and strategic planning.

QUESTION 8

Please select the ONE option that best describes the following.

At present, the systems in the business can best be described as:

1. Non-existent.
2. Basic and only addressing a very small number of areas in the business.
3. Basic and addressing a larger number of areas in the business.
4. New systems are being put in place to in view of the future requirements of the business.
5. Extensive and constantly being refined to meet the requirements of the business.
6. Extensive and well established catering well for the requirements of the business.

QUESTION 9

Please select the ONE option that best answers the following question.

At present what is the major crisis that the business can be expected to have to face?

1. Liquidity concerns and the inability of the owner to handle the demands that the business asks of them personally.
2. Liquidity concerns and the entry of niche competitors into the market.
3. Liquidity concerns and the entry of large and powerful competitors into their market.



4. Liquidity concerns and the demands of expansion into new markets.
5. A cultural crisis.
6. A crisis of succession where the shareholders require that the owner be replaced with new management to ensure the future of the business.



SURVEY DATA



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
1	3	3	3	5	25	55	15	1	1	4	2	1
2	4	1	1	0	60	0	40					
3	2	1	1	0	40	0	60	2	1	5	3	4
4												
5	3	3	2	10	25	35	30	2	1	2	2	1
6	6	3	2	35	15	10	40	1	1	6	5	3
7	8	3	1	0	20	50	30	2	4	6	5	4
8	6	1	2	100	0	0	0	5	4	6	6	
9	7	3	3	0	70	0	30	6	2	5	4	4
10	4	1	1									
11												
12	6	2	3	25	25	25	25	4	4	6	5	4
13	4	3	3									
14	3	3	2	25	25	25	25	1	1	5	2	1
15	1	3	3	20	30	10	40	1	1	2	4	1
16	2	3	1	15	25	30	30	2	1	5	5	4
17	2	3	2	0	30	40	30	1	1	5	3	1
18	2	3	1	10	10	70	10	3	1	1	2	2
19	8	3	2	25	30	10	35	5	1	1	2	1
20	3	3	2	10	20	20	50	5	1	5	3	6
21	3	3	2	41	11	39	9	2	1	6	2	4
22	4	1	3	15	20	15	50	1	1	6	3	3
23	3	3	3	25	25	25	25	6	1	5	4	4
24	7	3	3	5	35	20	40	3	1	5	3	3
25												
26	6	1	3	10	25	25	40	5	2	1	3	3
27	5	3	2	10	30	30	30	1	1	5	2	3
28	7	3	3	10	40	20	30	3	1	1	3	1
29	13	2	2	0	50	15	35	2	3	5	3	4
30	4	1	2	0	50	50	0	5	2	5	5	2
31	2	3	2	10	60	0	30	1	1	4	2	1
32	6	3	3	15	50	5	30	5	1	6	5	1



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
33	1	3	2	5	20	25	50	1	1	1	2	2
34	2	3	3	10	20	20	50	1	1	6	5	1
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36	4	3	3	10	40	30	20	2	1	4	2	2
37												
38	5	3	2	30	20	30	20	5	1	2	2	4
39	2	3	2	10	25	20	45	1	1	5	2	3
40	7	1										
41	7	3	2	30	30	0	40	4	1	1	2	1
42	6	3	2	5	35	10	50	1	1	5	6	4
43	1	3	2	20	20	10	50	2	1	6	4	2
44	2	3	2	0	5	75	20	5	1	2	3	1
45	6	3	3	5	70	5	20	5	2	5	5	4
46	1	1	1	0	50	0	50	2	1	5	2	1
47	13	3	2	30	10	10	50	4	1	2	2	1
48	6	3	2	20	20	40	20	4	1	1	2	5
49	6	2										
50	3											
51	4	1	3	0	50	0	50	2	1	5	6	4
52	11	3	2	5	50	15	30	1	1	2	3	4
53	3	3	2	0	50	0	50	2	1	5	3	2
54												
55	11	3	2	5	40	20	35	1	1	4	4	1
56	1	3	2	5	10	25	60	1	1	3	3	1
57	2	3	2	20	20	40	20	1	1	4	5	2
58	5	3	2	25	22	18	35	1	1	2	2	1
59	7	3	4	15	35	30	20	4	1	1	2	1
60	2	3	2	15	20	40	25	2	4	6	6	4
61	3	3	4	10	20	30	40	1	1	4	4	3
62	8	1	2	0	20	50	30	6	1	5	2	1
63	1	3	2									
64	1	3	2	10	40	20	30	3	1	5	4	1



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
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66	11	3	2	10	10	50	30	4	2	5	3	1
67	9	3	2	10	60	20	10	3	1	5	5	4
68	7	3	3									
69												
70	1	3	1	0	25	25	50	1	1	6	5	3
71	6	3	1	20	45	5	30	1	1	6	5	3
72	13	3	2	0	25	25	50	6	4	6	6	4
73	13	3	3	10	10	60	20	1	1	4	3	1
74	2	3	4	10	30	20	40	2	1	5	3	4
75	1	1	4	10	10	70	10	1	2	4	3	2
76	3	3	2	40	20	20	20	6	1	2	5	4
77	4	3	2	35	25	20	20	1	1	6	2	1
78	7	1	2	30	50	5	15	1	1	1	4	1
79	5	3	2	0	65	10	25	5	2	2	2	2
80	5	1	2	10	40	10	40	3	1	4	5	2
81	10											
82	1	3	3	40	10	30	20	3	2	3	2	1
83	5	1	3	10	20	50	20	2	1	5	2	2
84	5	3	2	40	20	20	20	1	1	4	5	3
85	11	3	2	0	20	30	50	5	1	6	6	3
86	9	3	2									
87	2	1	2	10	10	80	0	2	1	4	5	1
88	7	3	2	5	50	35	10	3	1	2	2	1
89												
90	1	3	2	5	15	5	75	1	1	2	2	1
91												
92	9											
93	1	3	2	40	20	10	30	2	1	1	2	2
94	7	3	2	0	85	0	15	5	1	6	5	4
95	6	3	3	10	30	50	10	5	1	2	3	2
96	2	3	3	5	30	60	5	2	4	4	4	4



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
97	10	3	3	0	25	65	10	2	4	6	5	5
98	5	1	3	15	50	10	25	5	1	2	2	1
99	9	3										
100	2	3	4	0	20	80	0	4	1	5	5	4
101	10	3	3	0	33	34	33	3	1	4	5	1
102	11	3	2	10	40	20	30	1	1	6	6	1
103	3	3	2	0	20	20	60	2	1	5	4	2
104	1	1	2	10	40	30	20	5	1	1	2	1
105	13	1	2	10	45	10	35	4	1	4	3	1
106	2	1	3	25	30	25	20	1	1	6	5	1
107	2	3	2	10	25	5	60	4	2	3	2	1
108	9	1	3	0	10	80	10	4	2	4	4	4
109	5	3	3	10	40	30	20	2	1	4	2	4
110	12	3	3	0	0	40	60	2	4	6	4	1
111	2	3	2	20	30	10	40	1	1	6	3	1
112	13	3	3	10	10	70	10	2	1	6	5	1
113	8	3	2	10	40	30	20	5	4	5	5	3
114	7	3	1	15	25	25	35	2	1	3	2	4
115	2	3	2	20	20	50	10	1	1	1	2	1
116	9	3	2	0	35	20	45	3	1	3	4	1
117	2	3	3	10	30	40	20	2	1	2	2	4
118	6	3	1	20	20	40	20	3	1	5	3	1
119	2	1	3	20	25	30	25	1	1	5	2	2
120	5	3	2									
121	2	3	2	10	10	10	70	4	2	6	5	4
122	2	3	2	40	30	10	20	2	2	4	4	1
123	2	3	1	10	30	40	20	2	1	6	2	4
124	3	3	3	10	10	70	10	1	1	4	5	
125												
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127												
128	5	1	2	10	10	70	10	1	4	4	4	4



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
129	4	3	3	15	20	50	15	1	1	5	3	3
130												
131	1	3	3	30	30	30	10	1	1	2	2	1
132												
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134	2	3	2	15	45	20	20	5	2	6	4	1
135	4	3	4									
136	3	3	2	30	30	30	10	2	4	6	4	4
137	2	3	2	20	40	10	30	1	1	5	2	5
138	7	1	1	30	30	20	20	2	2	2	1	4
139												
140	1	1	3	10	30	20	40	1	2	3	2	3
141	2	3	2	0	20	20	60	2	1	5	3	4
142	1	3	1	10	30	30	30	1	2	4	1	5
143	3	1	3	50	30	10	10	1	4	5	2	1
144	5	1	2	50	20	20	10	2	1	1	3	1
145	1	2	1	10	10	75	5	4	4	5	4	4
146	2	3	3	25	15	15	45	2	1	2	2	3
147	8	1	4	45	15	20	20	6	2	5	3	4
148	3	3	3	10	30	30	30	2	1	1	1	4
149												
150	1	3	2									
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152	2	3	3	5	25	40	30	5	1	4	4	3
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154	4	3	2	5	30	50	15	3	1	5	2	1
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156	2	3	2	25	35	25	15	3	4	3	2	2
157	2	1	2	25	15	25	35	5	1	4	4	4
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159	7	3	3	10	10	40	40	2	3	2	2	5
160	10	3	4	50	20	20	10	4	1	6	2	5



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
161	9	3	3									
162	2	3	3	40	10	10	40	2	1	2	3	4
163	2	3	2	10	10	70	10					
164	2											
165	2	3	2	10	10	70	10	2	1	5	4	1
166												
167	1	1	2	10	10	50	30	1	1	1	2	1
168	3	2	1	10	30	45	15	1	2	6	4	3
169	1	3	2	3	40	45	12	1	1	5	1	1
170	2	3	2									
171	5	1	2	30	0	60	10	1	1	4	4	1
172	11	3	3	0	0	100	0	3	1	1	1	1
173	1	1	4	5	15	50	30	5	2	6	2	1
174	1	1	4	50	30	0	20	1	1	6	5	1
175	7	3	2	50	20	20	10	4	1	5	2	1
176	2	3	4	10	50	20	20	1	2	4	3	2
177	7	3	3	5	35	35	25	1	4	5	5	4
178	3	3	2	20	50	5	25	2	1	6	3	4
179	3	3	3	10	50	10	30	1				
180	1	1	3	20	30	30	20	1	1	6	2	1
181												
182	3	3	4	0	20	30	50	1	1	3	2	4
183	1											
184	5	2	2	5	25	30	40	2	2	1	2	1
185	4	3	2	20	20	20	40	1	1	5	2	4
186	3	3	4	20	25	30	25	1	1	5	2	2
187	3	3	3	10	40	15	35	2	1	6	5	4
188	3	3	3	10	20	40	30	4	2	4	4	4
189												
190	5											
191	2	3	2	20	35	10	35	4	1	5	2	1
192	1	3	3									



Respondent	Question											
	1	2	3	4a	4b	4c	4d	5	6	7	8	9
193												
194	4	3	3	15	15	20	50	6	1	1	2	1
195	2	1	1	40	20	10	30	1	1	6	2	3
196												
197												
198	1	3	3	25	25	30	20	2	1	4	2	3
199	6	3	2	0	30	20	50	4	1	2	2	1
200	3	3	3	10	20	20	50	2	2	4	5	1
201	2	1	2									
202	11	3	3	5	15	50	30	5	4	6	5	4
203	11	3	4	0	20	60	20	2	4	6	4	2