Incubator Support Programme

Evaluation Report

May 2008

Ministry of Economic Development
Industry and Regional Development
Research, Evaluation and Monitoring
Level 10, 33 Bowen Street
P O Box 1473
Wellington 6140
New Zealand

Contents

PART THREE: THE FUTURE ROLE OF GOVERNMENT IN INCUBATION

Executive Summary

Background

Why are Business Incubators important?

Business incubators are an economic development tool to facilitate enterprise creation and development. The aim of a business incubator is to achieve better outcomes for small, young, innovative firms, and reach these outcomes more rapidly than would otherwise occur. These outcomes encompass both accelerated growth and success of entrepreneurial companies and the containment of costs arising from potential failure.

Incubation offers an intensive approach to business development that is hard to replicate and is about taking a 'whole of business' approach. Business incubators nurture companies during their formative years by providing both business premises and a strategic, value add system of business assistance. Critical is on-site incubator management which assists companies with their resourcing, management capability, finance raising, product development, marketing, and technical expertise. Business incubators are essentially a network of individuals and organisations. Synergies are fostered between tenant companies in an incubator, and also with outside networks.

Through expanding the business base and diversifying the regional economy, business incubators have the potential to move the New Zealand economy to more sophisticated and demanding paths of development. These changes come about when business ideas are turned on their head and taken from one area to a significant new area. Business incubators can stimulate such entrepreneurship, particularly in sectors of high technological intensity. Technology companies tend to have a high degree of uncertainty in developing and commercialising a product and are therefore more risky endeavours. With the right connections and relationships business incubators can bring a new market-oriented way of thinking to these companies. As a result, innovative ideas are less likely to fail, to be shelved, or to be undersold.

Incubation in New Zealand

The Incubator Support Programme was established by government to develop and support business incubators in New Zealand and, in doing so, enhance the survival and growth of early-stage businesses. There are two components to the programme:

(i) *incubator awards*: merit-based financial assistance for incubators that meet certain criteria, including a focus on start-up and early-stage companies with high growth potential and international aspirations; and

(ii) *the Incubator Development Unit (IDU)*: which has responsibility for the delivery of the programme. The IDU resides within New Zealand Trade and Enterprise.

Since the programme began in 2001 a total of 19 incubators have been awarded $17.17 million in funding (ex GST) in the form of incubator awards and project funding.

There is no standard model of business incubation accepted internationally nor is there one 'typical' incubator model in New Zealand. New Zealand incubators vary in terms of

their ownership structure, the pre-and post-incubation programmes they run, their relationships with stakeholders, the tenant companies that they work with, and their financial model. Essentially each model reflects an incubator's area of commercial advantage, regional strengths, and affiliations with universities or research institutions.

Conclusions

Is the Incubator Support Programme effective?

Evaluating the performance of incubators or an incubation programme is not straight-forward. Internationally, there is no agreed framework for measuring performance and different measures of success may apply at different stages of incubator development. Some of the benefits of incubation are also intangible.

Our evaluation of outcomes for the Incubator Support Programme is based upon information collected via a survey of client companies of incubators and interviews with stakeholders in the New Zealand incubation industry. Where possible, industry benchmarks were also used.

As a result of this evaluation we conclude that the Incubator Support Programme has been effective in both building appropriate incubator arrangements in New Zealand and delivering outcomes in the form of firm growth.

The programme has seen a process of evolution in the quality and number of incubators in New Zealand. The number of business incubators operating in New Zealand peaked at 21 but now number eight. Seven of these incubators incubate companies with high growth potential and international aspirations and are recipients of programme funding. The programme needs to continue to consolidate and extend the gains made.

From our analysis we found that programme incubators have contributed to the success of their client companies and have helped to increase their survival rates. In comparison to industry benchmarks, and in the absence of better information, our analysis also indicates that incubated companies achieve considerably better growth than their counterparts.

Our research indicates that most incubated firms have not yet achieved the 'high growth' targets set for the programme. This appears to reflect the fact that most firms are relatively young and their products are still early on in the process of gaining market recognition. A number of the incubated firms have ambitious internationalisation objectives that need a substantial time to develop and bear fruit.

Incubators can, and do, make a difference to high growth technology firms. An outstanding example of a successful incubated company is Auckland-based Biomatters. Biomatters started just four years ago yet has sold its software into 43 countries and 50 states in the U.S. The incubation process helped Biomatters to raise capital, grow their sales and to develop effective business connections and relationships. Since exiting their incubator two years ago Biomatters has continued to grow rapidly. Biomatters continues to be involved with their incubator as a guest speaker and participant in 'graduate' forums and get-togethers.

Programme incubators have also been able to connect different parts of the innovation system (i.e. angel investors, universities, Crown Research Institutes, and the development of business skills). Such connections, elsewhere, are relatively rare.

The value proposition of an incubator ultimately relies on two things: the quality of its management and the effectiveness of its networks.

The U.S National Business Incubators Association believe that well managed incubators have staff that are appropriately remunerated, have the skills to help companies grow, are proactive, entrepreneurial and non bureaucratic, and engage in continual learning and networking. As incubators in New Zealand rely on a small number of quality managers, it is important that we recognise and encourage these people.

Incubator networks encompass qualified local and international business advisors, mentors, and investors, and typically involve incubators acting as a link with centres of research and development, and with community and industry organisations. The networks surrounding an incubator can help client companies to obtain resources and partners more quickly, enabling them to establish themselves in the market ahead of their competitors. In the first instance, they can also help incubators to generate deal flow.

Are our incentives right?

While the Incubator Support Programme has encouraged positive outcomes in terms of financial planning and best practice, it is our view that more could be done to incentivise the right behaviours and innovate further.

Maintaining a degree of pressure on incubators in terms of financial sustainability is important. However, until the financial plans of incubators are fulfilled, incubators supported under the programme need surety of funding. We also need to recognise the long term commitment for incubation as a pipeline of firms with high growth international potential.

It is recognised internationally that the more developed and mature an incubator is, the more likely it is to contribute value. It is our view that, as New Zealand incubators grow and mature, greater attention should be placed on both the front and back end of incubation, i.e. ensuring that incubators are able to get quality deal flow in the first place and directing activity to help firms to continue to grow once they have exited their incubator.

Recommendations

Policy recommendations

We recommend that the agreement of the Minister of Economic Development be sought:

i. To continue support for the Incubator Support Programme up to and including 2014/15. Such support would be used to incentivise quality in incubation and generate greater quantities of high growth international companies.

ii. To move from an annual grant process to committing funding to incubators on a multi-year basis. Multi-year funding would lower the transaction costs of incubators and provide greater stability to incubators. We recommend there be two three year terms of multi-year funding, with funding paid out to incubators annually.

iii. To direct NZTE to:

- determine the exact mix of fixed versus flexible funding under a system of multi-year funding. A fixed level of base funding could be used to retain key personnel in incubators. A flexible amount of funding could be performance related; and

- establish new funding contracts with incubators. As all incumbent incubators have already been through a number of years of fully contestable funding we recommend that contracts with these incubators be on a negotiated basis. However, contracts with any additional incubators to the programme should continue to be on a contestable basis.

iv. As more funding may be needed to effect the transition of incubation under the Globally Competitive Firms (GCF) theme of the economic transformation agenda, direct NZTE to investigate and propose options for a revised structure to the funding of incubators. This work would include determining the optimal structure in terms of:

- set thresholds for investment in each incubator (with a possible increase in total award funding), or a sliding scale of funding (which is fiscally neutral but with possible front loading);

- the optimal term for funding (i.e. should funding be fixed for six years or should there be six years of sustained funding and then migration to other forms of NZTE support in year seven and beyond); and

- funding incubator projects from a distinct source, to encourage flexibility of funding.

We recommend that NZTE submit a proposal for a revised funding structure of incubators to the Minister by 30 September 2008 to be considered for the 2009/10 budget round. Such a business case should include ways to connect incubation to GCF, re-prioritisation options and specify the annual amounts of funding for each year of a multi-year funding term.

v. Agree to a future evaluation of the Incubator Support Programme to be undertaken in 2012. Such an evaluation should focus on the financial performance and survival rates of company exits.

In preparation for such an evaluation we recommend that the Minister direct MED and NZTE to agree and set performance measures for incubators supported under the programme by 31 October 2008. Realistic metrics are needed to drive a continual improvement in incubator performance.

vi. Following the review of the Pre-Seed Fund by MoRST, direct a joint report back by MED and MoRST on issues on pre-incubation. Technology pre-incubation helps to test a new technology idea in unproven markets. While this is an important area for generating deal flow for incubators, undertaking such pre-incubation is a costly and time consuming process.

vii. If the government wishes incubators to further develop relationships with universities and CRIs to encourage technology transfer and commercialisation the right incentives need to exist. To alleviate any disconnect between these organisations we recommend that policy advice be developed for the Minister for Economic Development on how incubators can link into innovations from New Zealand universities and CRIs. Specifically policy should:

- obtain a greater understanding of the role of universities and CRIs and some of their behaviours; and
- review the overall effectiveness of funding instruments and related policies to incentivise innovations.

Recommendations to improve operation of the Incubator Support Programme

In seeking improvements at an operational level to the Incubator Support Programme we recommend that NZTE:

- re-consider the definition of high growth companies as it applies to incubated companies;
- enhance the transparency of incubator awards;
- review the system of tracking company exits from incubators; and
- socialise the outcomes of incubator projects more widely.

1. Introduction

The purpose of this report is to present the findings and recommendations from the second evaluation of the Incubator Support Programme.

The Incubator Support Programme was established by Cabinet in April 2001 with the intention of developing and supporting business incubators in New Zealand. Since its inception, the Programme has been administered by New Zealand Trade and Enterprise (NZTE). $2.76 million (GST exclusive) is currently appropriated for the Programme annually.

1.1 Context

The Incubator Support Programme was first evaluated in 2004, with findings and recommendations reported to Ministers in February 2005. The aim of that evaluation was to assess the efficiency and effectiveness of the programme in achieving its intermediate objectives. At that stage it was not possible to evaluate the long term effects, or ultimate objectives, of the Incubator Support Programme due to the early stage of the programme and the incubator industry.

Cabinet agreed to continue to fund the Incubator Support Programme until the longer term effects could be evaluated. A subsequent evaluation of the Incubator Support Programme was scheduled for 2007.

1.2 Evaluation scope

It was noted by Cabinet (refer to EDC (05)105) that the second evaluation of the Incubator Support Programme will assess:

i. the contribution of the programme to the survival and growth of early-stage businesses via the development of high quality incubators;

ii. how to send a stronger signal to incubators that they should become financially self-sustaining;

iii. the ongoing role of the Incubator Development Unit (IDU) within NZTE in the future delivery of the programme; and

iv. the future role of government in support for incubator development in New Zealand and the level of that support.

Subsequently, MED and NZTE agreed that an update of the delivery of the programme and the achievement of intermediate objectives will also be provided in the second evaluation. The co-dependencies between the Incubator Support Programme and other government programmes will also be explored.

1.3 Method of study

The work for this evaluation included:

- a file review of policy documents and NZTE records;
- a literature review of incubation and international evaluations of incubator programmes;
- a survey questionnaire of exited companies from incubators supported under the programme. The design of the survey was informed by an open discussion with current and exited tenant companies;
- the use of industry benchmarks;
- on-site interviews with managers of incubators, both supported and not supported by the programme; and
- interviews with other stakeholders to the New Zealand incubation environment including the programme manager at NZTE, other NZTE decision makers, founding partners of incubators, commercialisation offices of universities, Crown Research Institutes (CRIs), and Incubators NZ (the industry association).

Full details of our methodology and reasonings appear in Appendix 14.1.

1.4 Structure of this report

This report is presented in three parts.

In **Part one** we discuss the Incubator Support Programme and incubation in New Zealand.

In **Part two** our evaluation findings are reported.

In **Part three** we discuss the future role of government in incubation.

PART ONE

THE INCUBATOR SUPPORT PROGRAMME AND

INCUBATION IN NEW ZEALAND

2. The Incubator Support Programme

In this section we discuss the policy framework for the Incubator Support Programme, outline the design of the Programme and present data on programme reach.

The following questions are addressed:

- What is business incubation?
- What is the rationale for the programme?
- What are the programme objectives?
- What are the programme mechanisms?
- What has been the demand for incubator awards and how much award funding has been dispensed?

2.1 Policy framework

2.1.1 What is business incubation?

Business incubators are designed to enhance the success of early-stage entrepreneurial companies and speed the establishment of self-sustaining companies. They provide a range of business support resources and services developed and orchestrated by incubator management and offered within the incubator and/or through its network of contacts. These services include access to finance, assisting companies with the management of their business, and access to technical and market information. Business incubators usually also provide business premises where companies can interact with each other. The facilities and services provided by business incubators support companies through their initial growth phase and seek to reduce their failure rate.[1]

The U.S.-based National Business Incubation Association (NBIA)[2] estimates there are about 5,000 business incubators worldwide. However, internationally, there is no standard model of business incubation. Businesses incubator models around the world each tend to reflect local, regional, and national circumstances and priorities. According to the META Group, incubators will always differ in terms of their: specific objectives, the types of projects they are involved with, the services they offer, their financial model, their environment, and their promoters. Critical to the definition of an incubator is on-site management.

[1] Business incubators should be distinguished from managed workspaces and research and technology parks. According to Hackett and Dilts (2004) managed workspaces accept businesses already in existence and do not require most of the services an incubator offers. While the activities of research and technology parks can overlap with that of business incubators, they are larger property initiatives that house corporate, government, and university labs, to very small companies. Their primary purpose is the commercialisation of academic research.

[2] The NBIA is a private, non-profit membership organisation based in the United States. It's mission is to provide training and a clearinghouse for information on incubation management and developmental issues and on tools for assisting start-up and fledgling firms. Refer to www.nbia.org.

2.1.2 Programme rationale

Incubators supported under the Incubator Support Programme target a particularly sensitive group of firms: start-up and early-stage innovative companies with high-growth international potential. These firms usually seek to develop unproven markets or technology. Their value proposition can, therefore, be difficult to quantify (which can lead to capitalisation problems) and they find it difficult to get their business off the ground. The market approach and the environment of entrepreneurship that is cultivated within an incubator help to reduce the system and market risks that affect these firms.

Business incubators increase the likelihood that high growth technology firms are viewed as good investment opportunities.[3] Through their developing relationships with universities and Crown Research Institutes (CRIs) they also help in the discovery of new processes and products and the transfer of such knowledge to the marketplace.

The rationale for incubating other types of firms in New Zealand is less convincing. These start-up companies have access to general (versus technology) management support programmes and their business concepts are more likely to be previously tested and accepted by the market. Perhaps what an incubator offers to these firms is a co-ordinated effort of business assistance which reduces their cost of entry to business and whose benefits are greater than the sum of the parts existing independently in the market (i.e. it is a matter of quality).

2.2 The design of the programme

The form of government support for incubators was driven by consultation with the incubation industry at the time the Incubator Support Programme was established.[4]

2.2.1 Programme objectives

The ultimate objective of the Incubator Support Programme is to enhance the survival and growth of early-stage businesses via the development of high quality incubators.

[3] Business incubators reduce the asymmetric information problems that exist for high growth innovative firms and technology intensive firms when seeking financing. These information problems arise as such firms have little or no record of performance for investors to assess them against and lack readily-available collateral. Through the incubation process, investors are able to gain more information about the prospects for the success of a business. Firms also become more aware of financing options available to them, understand the requirements of investors, and learn how to make an attractive investment pitch to potential investors.

[4] In early 2001 consultation with the industry indicated that incubation in New Zealand was relatively new, performance across existing incubators was varied and networking among incubators to achieve best-practice was sub-optimal. Business incubators were also finding it difficult to raise the necessary funds for the development and operation of their programmes, particularly in the initial stages.

The programme's intermediate objectives are to:[5]

- promote best practice among incubators in New Zealand;
- enhance networking among incubator managers and with organisations that have an interest in incubation and incubated businesses (i.e. angel investors, venture capitalists); and
- enhance networking between incubators and CRIs and universities to encourage technology transfer and commercialisation.

2.2.2 Programme mechanisms

There are two components to the programme:

i. Incubator awards

Incubator awards provide annual merit-based financial assistance to approved incubators. Incubator awards are used to encourage incubators to develop and deliver best practice processes and services. To be eligible for an award, an incubator must:

- have a clear exit strategy for resident businesses;
- have a physical location that is fit for the purpose of incubation;
- be a legal entity;
- demonstrate that award funding can add value;
- provide, or are working towards, best international standards in the provision of value added services and access to market and investment networks;
- focus on start-up and early-stage companies with high growth international potential;
- have a financial sustainability plan which implements measures to reduce dependence on central government funding; and
- be a member of Incubators NZ, the industry association.

ii. The Incubator Development Unit (IDU)

The IDU resides within NZTE and is responsible for:

- establishing and servicing an incubator network to share learning from best practice (the members of the network include incubator management, support services, and organisations with an interest in incubators);
- identifying and supporting opportunities to develop best practice in business incubation; and

[5] When the programme was established it also had an intermediate objective of facilitating access among incubator tenants to other government programmes, where appropriate. However, as a result of the 2004 evaluation this was no longer considered to be a role of the programme.

- administering incubator awards.

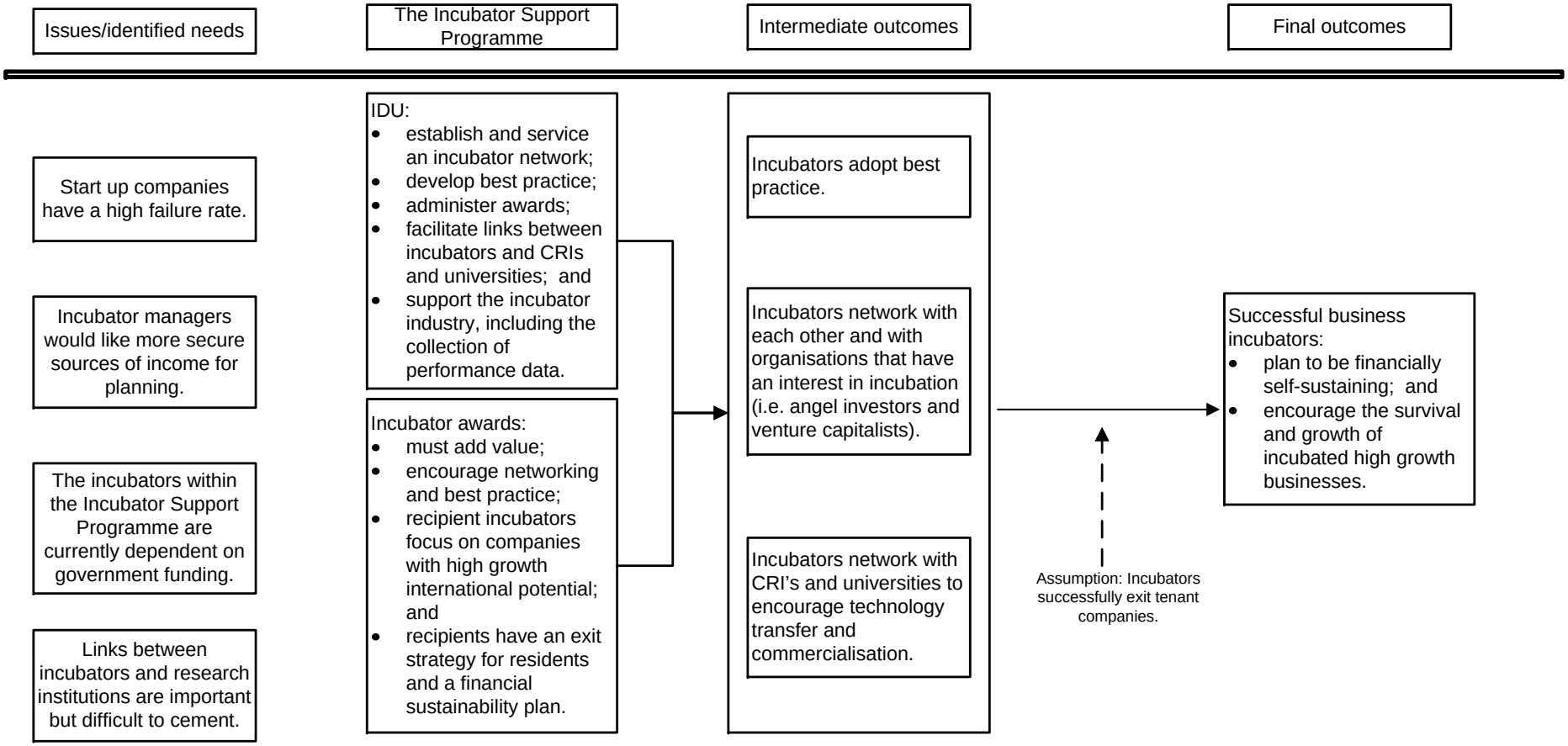
Following the first evaluation the IDU was also tasked with:

- undertaking work to facilitate stronger links between incubators and universities/CRIs, in order to encourage technology transfer and commercialisation; and

- encouraging incubators to collect performance data from former incubator tenants.

The programme intervention logic model, following, represents the views of MED and NZTE as to how the Incubator Support Programme is designed to address identified needs and lead to desired outcomes.

ISP Intervention Logic Model



2.3 Programme reach

Over the period 2000/01 to 2007/08 a total of 19 incubators have been allocated $16.73 million in funding (ex GST) in incubator awards. (A further $439,000 of award funding has been paid to incubators in the form of individual projects – refer to section 9.1.)

Table 2.3(a) shows that the number of applications for incubator awards and number of awards approved have both decreased over time. In NZTE's view this reflects improved capability of a core group of incubators. In turn, the bar for incubator awards has risen.

Selection criteria for incubator awards are by way of an assessment matrix, covering the operation and potential impact of incubators, and an assessment panel process. Recommendations for awards are made on the basis of results and achievements, structure and management, facilities provided, stakeholder relationships, quality of incubation services and practices, incubation potential, and scale.[6]

To date, the value of awards granted has varied between the incubators. What an incubator has received has been dependent upon their ranking via the award process and how much money they seek.

Table 2.3(a) Incubator awards: applications and approvals, 2000/01 – 2007/08

Years	Number of applications	Number of awards	Number of unsuccessful applications
2000/01	13	12	1
2001/02	15	15	0
2002/03	14	11	3
2003/04	14	11	3
2004/05	11	10	1
2005/06	9	9	0
2006/07	9	8	1
2007/08[7]	9	8	1
Total	**94**	**84**	**10**

Source: NZTE

Table 2.3(b) shows that the total value of incubator awards available annually and the median value of awards have both increased over time. (Note: the budget for incubator awards was increased in 2003/04). Every year there has been excess demand for incubator awards, thus scaling has been necessary. E.g. in the 2007/08 funding round demand for incubator awards exceeded available funding by 23 percent. The IDU aims to keep individual awards to within 50 percent of an incubator's operating budget.

[6] The assessment process is continually being fine-tuned by the IDU. For example, as incubators mature, progressively more emphasis is being placed on outcomes.

[7] In 2007/08 one incubator submitted two applications – one for their core incubator and another for a proposal to establish a satellite incubator. Both applications were approved and are counted separately.

Table 2.3(b) Value of incubator awards, 2000/01 – 2007/08 (GST exclusive)

Years	Number of awards	Total value of awards ($ million)	Median value of awards	Range of awards
2000/01	12	0.85	$84,500	$9,000-116,000
2001/02	15	1.33	$84,000	$36,000-178,000
2002/03	11	1.58	$133,000	$80,000-240,000
2003/04	11	2.40	$231,000	$89,000-311,000
2004/05	10	2.46	$250,000	$150,000-300,000
2005/06	9	2.61	$285,000	$170,000-475,000
2006/07	8	2.76	$350,000	$190,000-485,000
2007/08	8	2.76	$371,000	$220,000-450,000
Total	**84**	**16.73**	**n/a**	**n/a**

Source: NZTE

Notes: These figures exclude project funding and funding to Incubators NZ, both of which can be allocated out of award funding. Totals may not add due to rounding.

3. Incubation in New Zealand

At the beginning of 2001 when the Incubator Support Programme was introduced there was one business incubator open with tenants and approximately another eight incubators either established or in the process of being established. Since then twelve more incubators have been set up. However, eight incubators have been disbanded, have failed, or have been incorporated into other incubators.[8] Additionally, five organisations that were originally classified as incubators we no longer deem to be incubators.[9] Bringing all the above together, there are now eight business incubators operating in New Zealand. Seven of these incubators currently receive funding under the Incubator Support Programme.[10]

While New Zealand incubators have similar overall objectives and at least seven are known to offer best-practice incubation services, there is no 'typical' model of incubation in New Zealand. As noted by Dickson (2004) New Zealand incubators appear to be situational and each incubator might stand alone as a separate identifiable type. New Zealand incubators vary in terms of their ownership structure, the pre- and post-incubation programmes they run, their relationships with stakeholders, the tenants they work with, and their financial model. Some of these differences will be explored in part two of this report. However, for comparative purposes, a regional and sectoral breakdown of incubators in New Zealand is provided in table 3(a).

Incubation is currently confined to the main cities but looks set to spread more widely. The Christchurch incubator has recently established a satellite incubator at Lincoln University (this incubator is not counted as a separate incubator). Three other incubators are also looking at the possibility of establishing satellite incubators within their greater region in the future.

The sectoral focus of a New Zealand incubator is commercially driven and reflects the relative regional strengths and/or affiliation with a university or research institution. Three incubators are sector specific, i.e. they specialise in incubating businesses in a particular sector. Five incubators accept tenant businesses from more than one sector. The seven incubators supported under the Incubator Support programme all incubate technology companies. (Note: while the ICT and biotech sectors could also, strictly

---

[8] There have been two known incubation failures (one of which was due to the exit of management), two incubators incorporated into a new incubator, and four incubators disbanded (upon the removal of government funding). Government funding was removed from the latter incubators due to a lack of high growth tenants, lack of best practice incubation and/or ineffective relationships with stakeholders.

[9] The five organisations we no longer deem to be incubators include: an angel investor network; an organisation focusing on commercialising research; a real-estate incubation model; an organisation that offers incubation as part of a business course; and an organisation mainly offering incubation services 'virtually'. Hackett and Dilts (2004) assert that virtual incubators should not be considered as incubators as then any organisation providing business assistance can be included.

[10] The incubator that does not receive support from the programme has only recently been established and does not focus on high growth businesses. The Generator is situated in Auckland and currently offers free rent to two internationally recognised businesses in exchange for the mentoring of small creative companies. Other business services are outsourced to the wider business community. Tenant companies have to be graduates from design schools.

speaking, be classified as technology sectors, technology is broader than just these sectors).

Table 3(a) Incubators in New Zealand, by region and sector [11]

Region	No. of incubators	Sector specialisation			
		ICT	Technology	Creative	Biotech
Auckland	4	x	x	x	x
Palmerston North	1		x		x
Wellington	1	x	x	x	
Christchurch	1	x	x		x
Dunedin	1		x	x	

Source: NZTE, incubators

Table 3(b) highlights that all New Zealand incubators have linkages with universities (all but two of these incubators also have a specific affiliation with the commercialisation office of a university). Three incubators have links with CRIs, polytechnics and/or other research institutions. These relationships are discussed in section 7.

Table 3(b) Links between the eight New Zealand incubators and universities, polytechnics, CRIs, and research organisations

Incubator links with:	Frequency
Universities	8
CRIs	2
Polytechnics	2
Other research organisations	1

Source: Interviews of incubator managers – MED, 2007, NZTE

The status of businesses incubated from January to June 2007 across the incubators that are currently supported under the Incubator Support Programme is shown in table 3(c). Also shown is an estimate of the number of businesses that have graduated from these incubators. In recent years all these incubators have started to offer pre-incubation services alongside full incubation services. Pre-incubated businesses are in the nascent stage of their development and are not yet ready for incubation (i.e. they are pre-business plan and often little more than an idea or concept). A pre-incubation facility assists spin-out and start-up businesses through the pre-company formation period. According to the META Group the feature of pre-incubation is that academics can test their ideas and gain business experience without having to own a company, and entrepreneurs can explore the market demand for their product/service and the potential of their business plans.

[11] The incubator housed within the Waikato Innovation Park in Hamilton has recently closed. Waikato Link, the university commercialisation office, may look to offer incubation services in the future within the Waikato region. Silicon Welly, a community of Wellington owned technology and creative businesses, individuals and organisations, may also look to formalise an incubation concept in the future. Their model of incubation would incorporate physical space for web-based companies selling on-line products, connections to international networks and mature, successful companies mentoring younger businesses in the same industry. All tenant companies, regardless of stage of development, would pay rent.

Dickson (2004) found that time spent in a pre-incubation facility is usually limited and referred to as a 'probationary period'. It may be expected that if, as a result of pre-incubation, a company is formed and has a good business proposition, such a company will then progress from a pre-incubation facility into an incubator. Pre-incubation, therefore, is an important filtering mechanism for incubators and helps to encourage deal flow. Prior to pre-incubation facilities, such prospective tenant companies were turned away from incubators.

Table 3(c) Status of tenant companies from the seven New Zealand incubators currently supported under the Incubator Support Programme

Categories	Frequency
Businesses pre-incubated: 1st half of 2007	30
Businesses in full incubation: 1st half of 2007	87
MED's estimate of graduate businesses from the 7 supported incubators	155

Source: NZTE portal, MED
Note: the status of tenant businesses varies over time

The conversion rate of applications into incubator tenants is not a measure of success of incubation. However, out of interest, in the first half of 2007 of the 260 businesses interviewed by incubators in existence at the time, 9.2 percent were accepted for incubation.

Further details of New Zealand's incubation landscape – past and present appear in Appendix 14.2.

PART TWO

EVALUATION FINDINGS

4. Findings: Performance measures

In part two of this report we evaluate the achievement of programme outcomes and provide an update of the delivery of the programme. A previous evaluation of the Incubator Support programme was conducted in 2004. The conclusions and subsequent progress from that evaluation are summarised in Appendix 14.3.

In terms of programme outcomes we focus primarily on the ultimate objective, or outcome, of the programme: the survival and growth of early-stage businesses via the development of high quality, financially self-sustaining incubators. Subsequent to the first evaluation, we also provide an update of intermediate objectives. A summary of our findings on the achievement of programme outcomes can be found in section 8.

Within each section that follows we present a range of indicators of success. However, it is useful to first discuss what measures are used internationally to evaluate incubation programmes.

4.1 International success measures

In the international literature there is neither an agreed foundation nor conceptual framework for measuring the performance of incubator programmes. As a result, all measures of success are open to a certain degree of criticism and there is no consensus as to which are the most appropriate.

In assessing business incubation programmes, it is common to use multiple criteria.[12] Such criteria include:

- *Statistics on incubated businesses.* These statistics include enterprises and employment created, taxes generated, revenues earned, exports, and capital raising.

- *Self-reported measures.* These measures endeavour to gauge the impact of incubation on firms. They are also referred to as utility measures.

- *Sustainability measures.* These measures cover the financial sustainability of incubator operations and the durability of outcomes achieved (i.e. firm survival rates).

- *A comparison of statistics to benchmarks.* Survival rates and sales figures of incubated businesses are commonly compared to national averages, sector data, and/or data on non-incubated businesses.

- *Less quantifiable, but relevant, benefits.* These measures include social benefits and cultural and attitudinal changes. E.g, changed attitudes towards entrepreneurship, enhanced networking of organisations involved in local economic development, skill development, the sensitisation of academics to

[12] In evaluation, multiple measures are used when a concept is not straight forward and the quality of measurement is of central importance.

incubators, and increased optimism and self-esteem with respect to the future.[13]

- *Data on programme delivery.* Relationships between the financial inputs and outputs of a programme and value for money.

In our assessment of the Incubator Support Programme we use a combination of these criteria.

4.2 Incubator lifecycles

Incubators have a lifecycle. Therefore, different measures of outcome success may apply at different phases. The three key phases in the life of an incubator are:

i. *The start up phase*. In this phase the focus is on setting up an appropriate structure, putting systems in place, and the potential impacts that an incubator can have. Statistics Canada (2006) asserts that incubators in the start-up phase tend not to strictly enforce entry criteria and incubated businesses are less likely to receive the attention they expect. The start-up phase can last up to five years.

ii. *The growth phase*. In this phase the emphasis shifts from recruitment policies to admission criteria, and entrepreneurial development. The focus is on generating networks, building relationships, attracting capital and export contracts, and making progress on financial sustainability. Occupancies are at, or near to, capacity.

iii. *The maturity phase*. This phase is concerned with graduating companies and achieving outcomes. The incubator is well established and it contemplates expansion. The maturity phase is usually reached after eight to ten years of operation.

In terms of incubators currently supported under the Incubator Support Programme, it is our view that two incubators are in a growth phase, and five incubators are on the cusp of maturity. As these incubators are between three and seven years of age, they have developed relatively quickly.

We did not find any studies relating phases of life cycle to outcomes. However, both the international literature and the NBIA suggest that well developed and well-managed incubators are more likely to contribute value than incubators in the early stages of development. Allen and McCluskey (1990) found that approximately half of the variation in the outcomes of incubators that they analyzed could be explained by age (and, age can be a proxy for experience).

The benefits generated by an incubator are not usually realised in the same financial year in which the investment is made. Perhaps for this reason, the Centre for Strategy

[13] Refer to Nolan (2003) and Lalkaka (1999). These measures encompass the situation where an incubated business venture fails but, through learned skills and changed attitudes, the respective entrepreneur creates a successful business at a later date. The NBIA refer to such measures as 'ripple effects'.

& Evaluation Services (2002) states that incubator performance should be determined in terms of the long term impacts achieved, rather than short term measures such as occupancy or company failure rates. "Evaluation can only be meaningful after a period of several years and preferably after the incubator has reached a steady state (i.e. roughly constant rates of incoming and graduating companies)."

5. Survival and growth of high growth firms

This section draws heavily on the results of a survey of exited companies from incubators. The incubators used for the survey were the eight incubators that received an award in the 2006/07 funding round (subsequently one of these incubators has closed down). As NZTE did not have a list of graduate companies and exit data provided by some incubators was inconsistent, the list of exited companies was derived by MED from various sources.

At the time of the survey we estimated that 143 companies had graduated from eight incubators supported under the programme. Of these companies, we were able to survey 122 and we received a total of 82 responses (this is a response rate of 67 percent). As not all respondents answered every question, sample sizes are reported where relevant.

The methodology of the survey is detailed in appendix 14.1. Survey results were quality checked and were supplemented, where possible, with data from the NZTE portal and with data from award applications. Since the survey was completed, we have learnt of additional graduate companies from these incubators – taking our current estimate of graduate businesses from incubators supported in 2006/07 to 159.

While we report the number of company exits by incubator (refer appendix 14.2), it is not our intention to provide more detailed results by incubator.

5.1 Graduate companies

An overview of graduate businesses is shown in table 5.1(a). Most company exits from incubators have occurred since 2005. This result accords with the time that most incubators were in a growth phase. Businesses exit their chosen incubator when they are ready, versus after a set timeframe. However, NZTE report that the average incubation time of two to three years is starting to lengthen as incubators mature and extend their own capability and value they can add to a company.

The Incubator Advisory Group set a performance measure for the programme of graduating at least 20 high growth companies per annum from the incubator network by 2006. In terms of number of companies exited, this measure was achieved in both 2005 and 2006 (and most likely, 2007, as the data for this year is incomplete). At least 31 companies exited incubators in 2005 and at least 44 companies exited incubators in 2006. An effort was made to match this data with NZTE portal records, in terms of whether incubators deemed each company to be 'high growth'.[14] However, the portal data was found to be incomplete: on the data supplied we know that at least 13 of the

[14] In 2001 the Advisory Group defined high growth companies as having:

- the potential to double full-time equivalent employees (FTEs) during incubation;
- the potential and ambition to generate revenue of $0.5 million within two years of entry;
- the potential to raise external capital of $0.5 million during incubation; and
- the potential and ambition to generate revenue of $5 million within three years of exit.

The IDU are contemplating reviewing this definition of high growth companies.

graduate companies exiting in 2005 and at least 26 of the companies exiting in 2006 were recorded as high growth companies (hence in 2006, at least, this measure was achieved). [15]

Table 5.1(a) Company exits from supported Incubators

Year of exit	MED's estimate of total exits	Data from survey		
	(n=159)	Number of exits (n=82)	No. of companies still in business (n=82)	No. of companies which have since changed ownership (n=80)
Before 2003	3	2	1	1
2003	5	2	2	1
2004	6	3	3	1
2005	31	24	21	11
2006	44	30	28	10
2007	19	17	17	6
Don't know	51	4	2	1
Total	**159**	**82**	**74**	**31**

Source: MED, NZTE portal, incubators, survey of incubated companies – MED, 2007
Note: 2007 data is not for a full year.

One measure of success of graduate companies is how many are still in business, and for how long. 74 companies or 90.2% of respondents to our survey were still in business at the time of the survey. According to the Allen Consulting Group (2003) company survival rates should be measured three years after graduation. However, our sample of businesses exiting an incubator prior to 2005 is too small to be of use. If we were to use a survival rate of two years after graduation, 87.1% of companies from our survey were still in business two years after exiting their incubator. This result compares very favourably with data from Statistics New Zealand's Longitudinal Business Frame (LBF). According to the LBF, 69 percent of New Zealand businesses born in 2001 survived at least two years and 52 percent were still in business five years later. However, Nolan (2003) asserts that, it can be difficult to gauge the significance of changes in survival rates if firms enter incubation after a selection process, i.e. the

[15] While it is intended that all incubator exits be high growth companies, in reality this does not always occur. A less quantitative definition of a successful exit is as follows:

- the exit is by mutual agreement on the basis that the company has developed its capabilities, structure and systems. It has an effective governance and management structure in place and there is limited further value to be added through being part of the incubator;
- the company has established a reasonable trading record, is showing steady growth in turnover and, if it is not already profitable, it has the potential to trade profitably or be cashflow positive within a timeframe appropriate to the business or the industry it operates within;
- the company may not yet be generating export revenues but will have products with identified export potential and actively targeting international markets; and
- the company may not have attracted equity investment but will be investment ready.

The NZTE portal records that at least 14 companies exiting in 2005 and at least 30 companies exiting in 2006 were deemed to be 'successful exits' by their incubator.

success of such companies may be attributable to intrinsic characteristics rather than the effect of incubation.[16]

31 companies responding to our survey (38.75%) had experienced a change in ownership since they had exited their incubator. The reasons for changes in ownership are noted in table 5.1(b). Increased shareholdings, buyouts, and company mergers can be indicative that a business is doing well and others see the value proposition of a business. Two companies that experienced a decrease in shareholders later closed down. We are unable to cross reference whether increases in shareholders were due to the entry of angel investors although, in our view, this seems very likely.

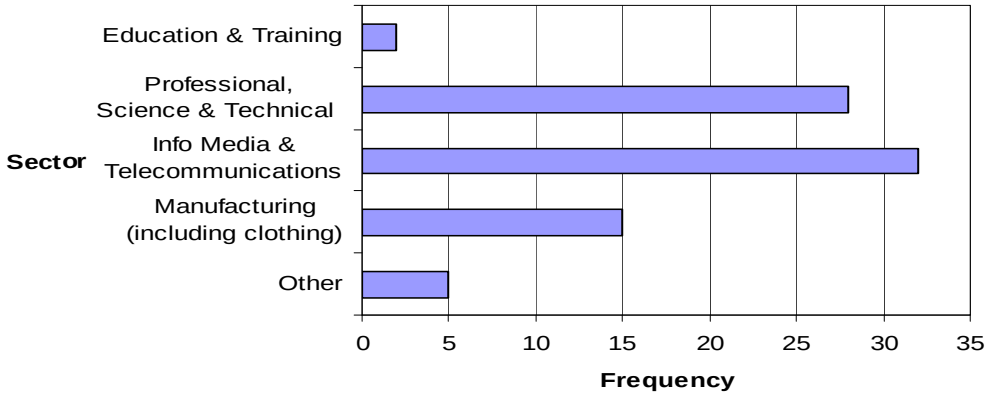
Table 5.1(b) Reasons for changes in ownership of surveyed exits (n=80)

Categories	Frequency
Increase in no. of shareholders	17
Decrease in no. of shareholders	8
IP buyout/licensing	3
New company formed/merger	3
Total	**31**

Source: survey of incubated companies – MED, 2007

Companies were asked to nominate the sector they operate in from a pre-defined list. As shown in graph 5.1(c) the two most common sectors of business for survey respondents were professional, science and technical, and info media and telecommunications.

Graph 5.1(c) Sectoral breakdown of surveyed exits (n=82)[17]



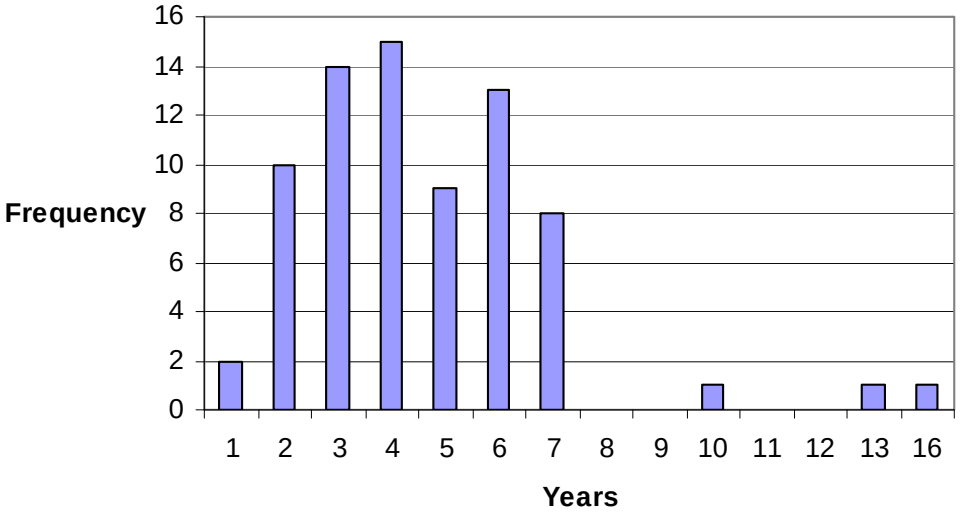
Source: survey of incubated companies – MED, 2007

[16] Nolan (2003) also notes that high rates of business survival may not be a good indicator of success if a major share of the surviving firms are marginal survivors or lifestyle enterprises. While companies in New Zealand incubators are unlikely to be lifestyle enterprises, many incubated companies are unable to return a profit until the market has validated their business proposition. Ideally, data on business survival should be interpreted in conjunction with turnover data.

[17] Companies that specified 'other' sector included: a fashion wholesaler/manufacturer, two retailers/designers, a technology and retail business, a computer game developer, and a new media consultancy company.

The distribution of company exits, by age, is shown in graph 5.1(d) (companies no longer in business do not form part of this sample). Most companies, who were still in business at the time of the survey, were seven years of age or less. Three companies were aged ten years or older. While older companies could be seen as a concern, incubation is not just about helping start-up companies. It is also about helping existing businesses become more successful, more quickly.

Graph 5.1(d) Current age of surveyed exits (n=74)



Source: survey of incubated companies – MED, 2007

By considering the time spent in incubation for each company that we had data for we were able to determine how old each company tended to be when they entered their incubator. The results are presented in table 5.1(e). It appears that there has been a trend over time for incubators to incubate younger companies.

Table 5.1(e) Company age at start of incubation

Current age of surveyed exits	Approximate age at entry to incubation
7 years	4 years
6 years	3 years
5 years	3 years
4 years	Just under 3 years
3 years	Just over 2 years
2 years	Just under 1 year
1 year	6 months

Source: MED calculations using data from survey of incubated companies – MED, 2007

As shown in table 5.1(f) the majority of companies surveyed (54%) were private start-ups when they entered their incubator. 28 percent of respondents were existing businesses with turnover prior to incubation (which is consistent with our sample having some older companies).

Table 5.1(f) Origin of surveyed exits at time of entry to incubator (n=82)

Categories	Frequency	Percentage of sample
Private start-up	44	54%
An existing business with turnover	23	28%
A new start-up or spin-out from a tertiary institution or research organisation	11	13%
Spinout from an existing business	4	5%
TOTAL	**82**	**100%**

Source: survey of incubated companies – MED, 2007

5.2 Capital raising

Capital raising is a marker of belief in a business and therefore a key measure of success. Company exits were asked whether the advice, information or learnings that they had received from the incubation process had affected their ability to raise capital. Their responses are shown in table 5.2(a).

Table 5.2(a) Perceived impact of incubation on ability to raise capital (n=80)

Ability to raise capital:	Frequency
Increased	50%
No impact	29%
Reduced	5%
Not applicable	16%
TOTAL	**100%**

Source: survey of incubated companies - MED, 2007

50 percent of respondents thought that the incubation process had enhanced their ability to raise capital. Incubators have paid a lot of attention to this area in recent times. Five incubators have established angel investment groups. These relationships can be mutually beneficial. Incubators gain new start-ups for incubation from angel networks and capital for their tenants that warrant it. Angel investors gain access to new investment deals from incubators that are investment ready. As incubators undertake much of the due diligence on a new company, in as sense, they offer an accreditation service to angel investors.

Actual data on capital raising from our survey, shown in table 5.2(b), is consistent with company perceptions of capital raising. 54.4 percent of our sample reported new equity in their business. Across the different forms of capital raising, equity yields the largest amounts. On average $273,064 equity was raised per company.

Table 5.2(b) Capital raising since business started (n=77 to 79)[18]

Categories	No. companies reporting capital raising	Total capital raised ($)	Average capital raised ($)	Maximum capital raised ($)
Equity	43	21,572,063	273,064	2,500,000
Government grants	49	6,650,527	85,263	700,000
Debt	28	4,387,196	56,977	800,000
TOTAL	**56**	**32,609,785**	**n/a**	**2,500,000**

Source: survey of incubated companies – MED, 2007

Eight company respondents had each raised in excess of $1 million in equity since their business had started and 19 companies had individually raised a minimum of $500,000. We were unable to quantify how much of this equity was raised during their time in incubation versus after exit from their incubator. According to the Advisory Group a high growth company has the potential to raise external capital of at least $500,000 during incubation. However, regardless, we know that at least 75 percent of the companies from our survey were not 'high growth' under this definition.[19]

On the basis of the information presented, it is our view that, to date, exited companies have been quite successful in raising capital for their business and incubators have contributed to the capital raising process. We would expect this success measure to improve substantially in the future with the recent connections between incubators and angel investment groups.

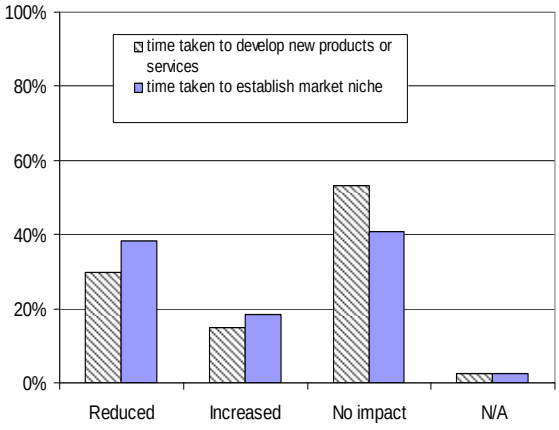
5.3 Incubation processes

Company exits were asked for their opinion of other incubation processes on their business and their responses are shown in graphs 5.3(a) and 5.3(b). The majority of respondents thought that incubation processes had had no impact on either the time taken to develop new products or services (53%) or the time taken to establish a market niche (41%). These results indicate that timing factors are more dependent upon individual company factors versus incubation processes. There did not appear to be any particular trend across sectors.

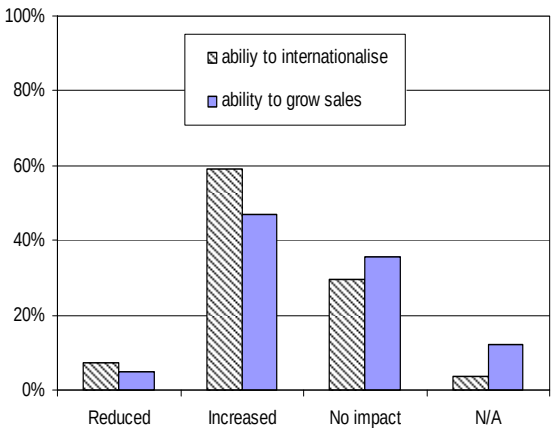
[18] One company objected to this question and another only provided data on debt raised. Two company responses were excluded as the numbers looked suspect.

[19] For quality control a comparison of survey results was made against data on the NZTE portal. Although dollar amounts differed, overall percentages were broadly similar. According to data on the NZTE portal the value of government grants were approximately 26 percent of equity raised (versus our 30 percent) and for the 1st half of 2007 equity was approximately 72 percent of total capital raised (versus our 66 percent over the life of the business).

Graph 5.3(a) Perceived impact of incubation on market development (n=81)



Graph 5.3(b) Perceived impact of incubation on the ability to grow sales and internationalise (n=81)



Source: survey of incubated companies – MED, 2007

15 percent of respondents reported that the time taken to develop a product/service had increased as a result of incubation. 19 percent of respondents reported increased lead times in establishing a market niche as a result of incubation. These results are consistent with the fact that incubators, if need be, will hold back a company from entering a market until its business proposition is sound. Thus, increased lead times could ultimately improve the prospects of a company.

In terms of their ability to grow their sales and internationalise, the majority of respondent companies perceived that the incubation process had helped them (59% and 47% respectively). It is encouraging that only a small number of respondents felt that the process of incubation had hindered them in this respect.

Company exits were asked whether the advice, information and learning's that they had received from the incubation process had affected their ability to establish effective business connections/relationships. As shown in table 5.3(c) the majority of respondents (83%) perceived a positive impact from incubation in terms of business connections/relationships.

Table 5.3(c) Perceived impact of incubation on ability to establish effective business connections/relationships (n=80)

Ability to establish business connections/relationships:	Frequency
Increased	83%
No impact	11%
Reduced	6%
Total	**100%**

Source: survey of incubated companies – MED, 2007

Incubation best practice, as defined by the NBIA, recommends that incubator tenant companies have the opportunity to network with others. Such networking includes, but is not limited to, other tenant companies within their incubator and qualified business advisors and investors. New Zealand incubators encourage contact between tenant companies to create role models, share experiences, and generate a culture of

entrepreneurship. Two incubators have tried to establish networks between tenant companies across incubators. However, to date, this initiative has not gained traction.

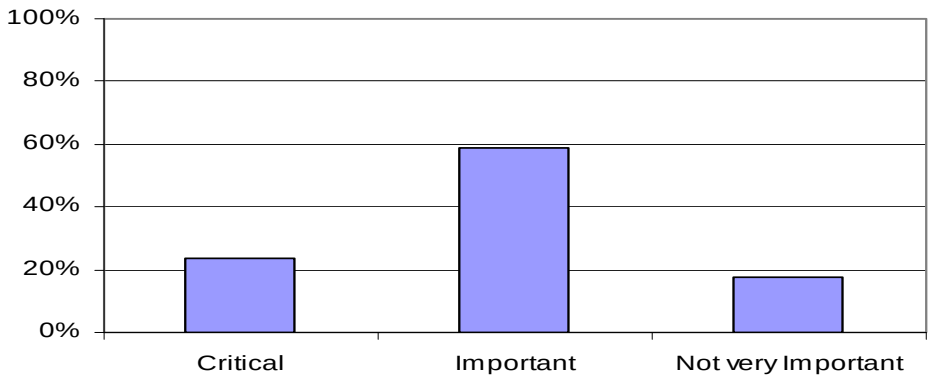
The type of business support offered to companies varies between incubators. On a case by case basis, some incubators refer tenant companies to external advisors for specific business advice. The incubators that use external advisors help their tenant companies to synthesize this advice to ensure that it is relevant and meets the needs of the business concerned. However, as New Zealand incubators have developed their own expertise and a better understanding of tenant needs, it is becoming more common for incubators to offer business support in-house.

Other relationships developed by incubators that benefit business connections are discussed in section 7.

In order to gain an overall measure of the net effects of incubation, or additionality, respondents were asked how important the support provided by their incubator was to the development of their business. Their responses are shown in graph 5.3(d). 24 percent of respondents said incubation support had been critical to their business (we could interpret this as 'full additionality'), 59 percent said incubation support had been important ('partial additionality'), and 22 percent said incubation had not been very important (i.e. 'limited additionality). These results indicate that incubation is adding value to start-up and early-stage companies.

However, as with other stakeholder perceptions of incubation, these results run the risk of bias. The Centre of Strategy & Evaluation Services note that recent inductees are likely to overstate the importance of incubation, while those at the end of the process ascribe success to themselves, rather than incubation (the opposite can also occur).

Graph 5.3(d) Importance of incubation to development of business (n=80)

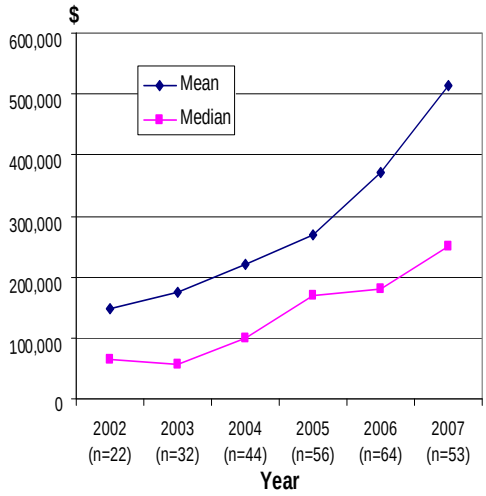


Source: survey of incubated companies – MED, 2007

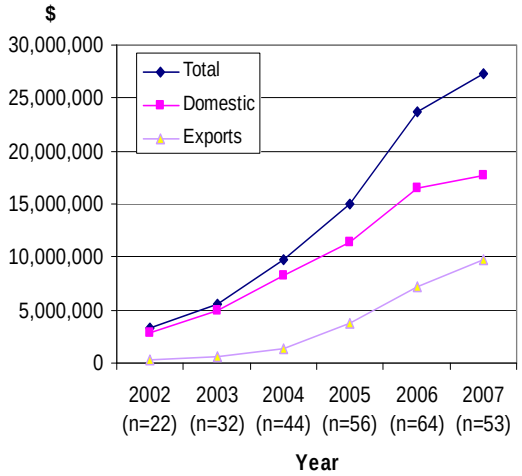
5.4 Turnover and growth

In the graphs below, stakeholder perceptions of incubation are compared to actual turnover for company exits. Graph 5.4(a) shows, in terms of total (i.e. domestic and export) turnover, there has been an upward trend in both the average turnover per company and the median turnover per company over time. Average data is affected by three outliers.[20] As shown by graph 5.4(b) turnover is mostly comprised of domestic sales. Over the years 2002 to 2007 domestic sales totalled $61.9 million for our company respondents versus exports of $22.9 million.

Graph 5.4(a): Total turnover by year mean and median[21]



Graph 5.4(b) Total turnover by type



Source: survey of incubated companies – MED, 2007
Note: 2007 data is incomplete

The criteria for award funding includes a focus on companies with high growth international potential. Using data for 2006 (the most complete year), 34 percent of our sample, or 28 companies, were exporters. This result is promising and is consistent with data from the NZTE portal.[22] However, comparing this result to perceptions of incubation on the ability to internationalise (see graph 5.3(b)), while most company exits aim to export, the majority fail to make progress in this regard. Ways to improve this result are explored in section 10. The three main sectors in graph 5.1(c) were equally likely to be exporters.

For interest, each type of turnover is detailed further in table 5.4(c). Apart from the year 2006, median values for export turnover were zero. Therefore, for comparative purposes, averages have been reported. (Average values for domestic turnover are

---

[20] One company reported a total turnover of $2.5 million in 2006. In 2007 two companies reported total turnover of $5 million or more.

[21] Reflecting differing company ages, the number of respondents in terms of turnover data varies across the years. In the graphs n equals the number of companies reporting turnover of 0 or more. Included are companies that may no longer be in business but were in business for the year of reporting.

[22] The NZTE portal records 23 successful tenant companies in 2006. As noted in footnote 14 these companies at least have the potential to export.

$60-150,000 larger than median values.) Average values from our survey were significantly below average values reported on the NZTE portal and in award applications. This result may indicate that, either our data is not representative of company exits, or that incubators are only able to produce trading reports on successful company exits.

Table 5.4(c) Survey turnover statistics by year (sample size varies between domestic turnover and exports each year)

Year	Domestic turnover ($)		Export turnover ($)	
	Average	Max	Average	Max
2002	138,074	729,000	19,645	300,000
2003	166,420	1,142,000	21,286	300,000
2004	193,159	1,532,000	38,190	500,000
2005	203,377	1,000,000	76,811	1,000,000
2006	263,026	2,000,000	130,900	2,000,000
2007	327,836	3,500,000	201,828	5,000,000

Source: survey of incubated companies – MED, 2007
Note: 2007 data is incomplete

The Incubator Advisory Group define a high growth company as having the potential and ambition to generate revenue of $0.5 million within two years of entry, and the potential and ambition to generate revenue of $5 million within three years of exit. Over the years 2002 to 2007, 25 company respondents achieved total revenue of at least $0.5 million in any one year and just one of these companies reported a subsequent fall in revenue below $0.5 million in a subsequent year. Reflecting the number of exits over time, this target was more likely to be achieved in later years.[23] We are unable to accurately determine how many companies achieved this result within two years of entry to their incubator. However, using data on years since exit, and assuming most companies spend approximately two years in incubation, we estimate that 14 of the 25 companies achieved this result within that timeframe. Only two company respondents achieved a minimum total turnover of $5 million within three years of exit. [24]

From these results it is evident that it is not the norm for high growth 'potential', as defined by the Advisory Group, to translate into actual high growth outcomes. While the number of companies attaining a minimum of $5 million within three years of exit is very low, most of our respondents are yet to reach a three year anniversary since they had exited their incubator. Even then, it may be the case that three years is too early to properly assess financial performance, particularly given that most of the current exits emerged when the incubators themselves were in a start-up or growth phase. As noted

[23] Companies in our survey that achieved $0.5 million in a particular year as a percentage of those reporting financial data were as follows:

2003	13%
2004	16%
2005	16%
2006	25%
2007	38%

[24] On a cumulative basis, 35 company respondents (representing 66% of companies who reported their financial data) achieved total revenue of at least $0.5 million over a period of five years and four company respondents achieved a minimum cumulative total turnover of $5 million.

previously, mature incubators are more likely to offer the greatest value in terms of incubation processes. Hence, it is hoped that the most successful company exits are yet to come. (If a lower dollar value threshold is used, 13 and 24 respondents achieved a minimum total turnover of $2 million and $1 million respectively within three years of exit.)

A successful exit includes a company that is showing steady growth in turnover and, if it is not already profitable, has the potential to trade profitably or be cash flow positive within a timeframe appropriate to the business or the industry that it operates within. As shown in graph 5.4(a) overall turnover has increased, on average, over time.

Although not statistically robust, in table 5.4(d) we show turnover data for as many companies as we can by years since exit (we have excluded six companies that are no longer in business and three companies whose exit date are unknown). The results are encouraging – in that, on average, turnover has increased the further out from incubation, i.e. firms continue to grow.

Table 5.4(d) Turnover by years since exit

Years since exit	No. of respondents	Average cumulative revenue 2002 -2007 ($)
0	17	825,603
1	29	1,135,271
2	21	1,200,433
3	3	1,782,000
4	2	1,887,500

Source: MED calculations from survey of incubated companies – MED, 2007

This result is also reflected in turnover data by company age. In almost all cases, turnover data for 2006 is larger than the five year average – indicating that turnover has increased over time – refer to graph 5.4(e). Through their study of turnover growth of a cohort of New Zealand firms Hull and Arnold (2007) found that a five year period is required to distinguish high from medium growth. And the most common growth behaviour is to remain stable.

Graph 5.4(e) Survey turnover by age of company

Source: Survey of incubated companies – MED, 2007

Out of interest we looked at turnover by sector. We wanted to test the view of stakeholders that scientific sectors take longer to get their product/service to market. However, our data was not detailed enough at a sector level or the sample large enough to come to any conclusions. From their research Hull and Arnold (2007) found for the year 2000 turnover across the major ANZSIC sectors was similar.

NZTE has developed its own high growth definition of either 20 percent per annum growth sustainable over five years (i.e. 150% over five years), or revenue growth of $5 million within five years. We were unable to accurately determine success in this regard owing to most of the company respondents to our survey being less than five years old. However, using growth rates over five years or less, 36 company exits from our survey achieved an average growth rate of 20 percent or more – refer to table 5.4(f). This translates into 55 percent of all companies that reported financial results and 44 percent of our sample of 82 surveyed companies. A smaller number of companies (26, or 40% of companies reporting financial results in our survey) achieved 150% total growth within a five year period.[25] As indicated earlier the timeframe for a revenue growth target of $5 million is too ambitious.

Table 5.4(f): Changes in turnover

	Frequency	% of companies reporting turnover in survey	% of total survey sample
Average 20% growth p.a. within 5 years	36	55%	44%
150%+ growth within 5 years	26	40%	32%

Source: MED calculations from survey of incubated companies – MED, 2007

For a comparison to a control, we used Hull and Arnold (2007). In their study of 425,211 firms with $1 turnover or more, 11 percent achieved 150 percent turnover growth over five years and 0.3 percent achieved $5 million turnover within five years.[26] In later research, Hull and Arnold (2008) find that only 1 percent of firms will experience strong growth. In the absence of better information, our analysis indicates that incubated companies achieve considerably better growth than industry benchmarks. We would expect such a result, given that incubator firms have to undergo a selection process before being accepted for incubation. While stakeholder perceptions indicate that the incubation process has further assisted firms, we are unable to quantify how much of this extra growth is directly attributable to the incubation process.

In their most recent research, Hull and Arnold (2008) suggest that the growth of start-up companies tends to decrease in large proportions five to nine years after birth and that most growing firms do not grow for more than five years. They found that a firm's

[25] The different results for these growth rates reflect the fact that many firms were not in operation for the full five years.

[26] The control group is not a strict control. In our analysis we included firms with nil or positive turnover. Also, companies between the two groups are not matched in terms of goods and/or services.

turnover is much more likely to fall following a period of growth than to increase again. And, firms who experience increased turnover growth in the second five year period are more likely to have experienced stable or volatile growth in the first five years of business, rather than rapid growth. These results suggest that we should not necessarily dismiss lower, less stable growth outcomes in the first five years. Also, to gain an accurate picture of incubator outcomes, financial data may need to be analysed at ten years of age – which corresponds with evaluating company performance in another four to seven years (i.e. from 2012).[27]

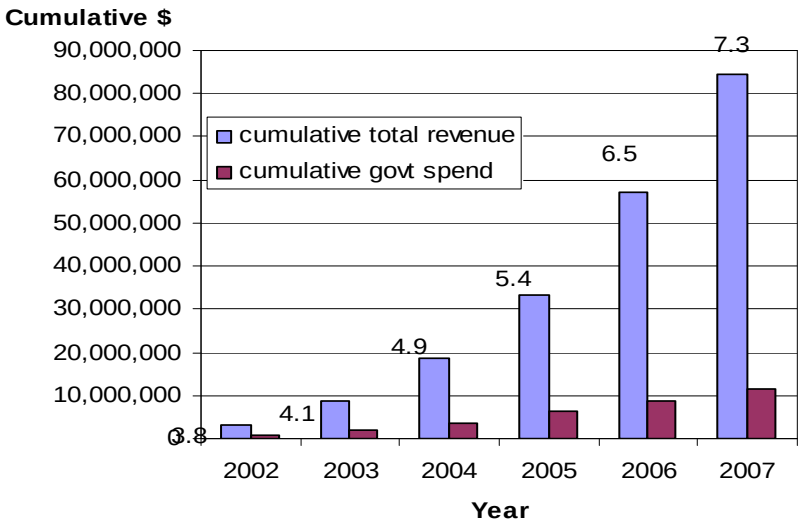
Internationally, employment created has been used as a measure of success of incubation. In our view, employment can be an *indicator*, but is not a measure of success. More important are commercial outcomes achieved. If such outcomes are deemed successful, then one might expect employment growth to follow, not necessarily vice versa.[28] Nolan (2003) notes that the bulk of jobs in incubated firms are created after they graduate from their incubator. He asserts that this finding means that sizeable short term employment gains are unlikely from incubator programs. Whether or not this is true, it is our view that employment gains would be difficult to attribute to incubation and, accordingly, we do not report employment statistics.

We provide an indication of the size of government intervention in relation to turnover data from our survey in graph 5.4(g) overleaf – the ratios of turnover to government dollar input are noted. However, we do not know what the counter factual is, or in other words, to what degree the Incubator Support Programme has directly contributed to revenues of company exits.

[27] Hull and Arnold (2008) also suggest, relative to New Zealand firms overall, a 'high growth' firm should be defined as achieving 50 percent growth per annum, sustainable over five years.

[28] This view can be contrasted to that of Hull and Arnold (2007) who found that employee size distribution is not a good indicator of firm size in terms of turnover.

Graph 5.4(g) Cumulative survey turnover versus government spend



Source: MED, survey of incubated companies – MED, 2007
Note: 2007 data is incomplete.

6. Financial sustainability

Progress towards financial sustainability of incubators is a measure of success of the Incubator Support Programme and a key question for this evaluation.

Lalkaka and Shaffer (1999) define the concept of financial sustainability as being able to continue to achieve positive cash flows in the future. From the perspective of sponsors of incubators, financial sustainability is the ability of an incubator to survive and perform effectively after external support has declined to stipulated levels or ceased. In the context of this evaluation we are concerned with the financial independence of incubators from central government funding. This does not preclude them from accepting sponsorship, funding and services from other organisations.

As shown in table 6(a) New Zealand incubators continue to be heavily dependent on central government funding. The attrition that has occurred within the incubator industry has meant that, while the pool of government funding has remained finite, the portions allocated to the remaining incubators have increased. On average, central government financial support was the largest portion in income for incubators in the 2006/07 financial year (at 43%). In light of the fact that central government funding accounts for such a large portion of incubator's budgets, any removal or reduction of such funding is likely to have a significant impact.

Table 6(a) Source of incubator income, 2006/07 (for eight award incubators)

Type of income		Proportion of total income			
	Average	0-25%	26-50%	51-75%	>76%
Incubator Support Programme	43	0	7	1	0
Private stakeholders and sponsorship	18	6	2	0	0
Local govt, EDAs and other government grants	12	7	1	0	0
Rents	12	7	1	0	0
Universities and research organisations	1	8	0	0	0
Other	7	7	1	0	0
Consultancy and training services	7	8	0	0	0
Interest	1	8	0	0	0
Capital raising brokerage	0	8	0	0	0
Investment income (e.g. royalties, equity stakes)	7	8	0	0	0

Source: incubators

Since the programme's inception, and particularly in the last three years, there has been a concerted effort by the IDU to encourage incubators to prepare for the eventuality that central government funding may one day cease. (The IDU have advised incubators that funding will most likely cease by 2011). However, the end goal of financial sustainability is yet to be articulated in policy.

The feasibility and likelihood of attaining financial self-sustainability was canvassed with incubators in the previous evaluation. At that time 10 of the 13 incubators operating had in place a plan for financial independence, although the majority of them did not consider such plans to be viable.

Following, we examine the policy rationale for financial sustainability, review overseas models and examine the plans each award incubator has in place for financial independence from central government. We also consider the opinions of stakeholders as to whether financial sustainability is a feasible option.

6.1 Rationale for financial sustainability

One argument for financial sustainability of incubators is that business incubators should lead by example. An organisation established to mentor and guide start-up companies to a position of health and financial viability should itself be striving to achieve the same. Another argument is that government should not fund incubators unless a specific market failure exists.

According to a report commissioned by the European Commission which benchmarked business incubators,[29] incubators are more likely to succeed when supported by a broadly-based partnership of public and private sector sponsors. Particularly in the initial stages, public sector funding is critical to the viability of incubators. Further on, government funding can also influence incubators to bigger and better outcomes.

Ultimately, the decision to compel incubators towards financial sustainability must be based upon the agreed objectives of the intervention. The future direction of the Incubator Support Programme will be discussed in part three of this report. However, at this point we note that, while there has been evidence of success, if the government wants to maximise gains from the programme, we believe more could be done. And, funding may be required to catalyse these gains.

6.2 Overseas models of financial sustainability

According to a survey undertaken by the META Group there are 2,000 to 3,000 business incubators around the world (and most of these are in the U.S.). However, there are few examples of incubators having achieved financial self-sustainability.

In the technology boom of the late 1990s it was considered a viable option when market conditions were such that one successful IPO of a tenant company could fund an incubator for the next 20 years. Companies were often underwritten by VCs who took higher equity positions than an incubator would themselves in tenant companies. Such conditions fuelled the growth of 'incubators as a business', particularly in the U.S. and Israel. While Israel has, to some extent, continued to successfully run some incubators as stand alone enterprises, there are key factors that have played a role in their success.[30] Substantial sums of money were invested into the establishment of incubators at the outset (US$260 million over ten years), incubator tenants have ready and open access to the U.S venture capital funds and stock markets, and in the early 1990s there was an influx of highly trained, skilled and educated workers from the former Soviet Union.

---

[29] Refer to Centre of Strategy & Evaluation Service (2002).

[30] An example of a standalone incubator in Israel is ITEK. ITEK was once a non profit incubator and is now a publicly listed company that takes a 20 percent equity stake in its tenant companies.

At the opposite end of the spectrum is Finland where incubators are believed to provide a necessary service and a drive toward financial self-sustainability is considered to be contrary to the role of an incubator. The Finnish government contracts out its incubator services - the major supplier of such services is Technopolis which is a publicly listed company. Technopolis does not take an equity stake in its tenants.

In both Israel and Finland government funding goes directly to incubated companies, once they choose which incubator they wish to reside in.

Australia introduced an incubation model whereby incubators took up to 45 percent equity in their tenant companies. These incubators only incubated ICT companies (which are less capital intensive and are quicker to get to market) and were, essentially, a cross between an incubator and a VC.

Taking a middle position, and one similar to New Zealand, is China which has central government funding for their incubators but also take equity in their tenant companies.[31] However, New Zealand is unique in pushing for financial sustainability.

6.3 New Zealand Research

All incubators have mixed income streams which include: government funding, sponsorship, commissions, in kind commitments, charges for incubator services and facilities, consultancy and training services, and investment income. For comparative purposes financial plans of incubators can be split into three models – see Box 6.3(a) overleaf.

[31] Internationally, there are also cases where incubator staff share in the success of tenant companies by way of a success pool performance scheme.

Box 6.3(a) Incubator plans for financial sustainability

The Equity Model

Equity of between 2-6 percent is charged at entry to an incubator and then further equity of 1-2 percent may be added for each additional six months spent in the incubator. However, the current cap on equity in incubator's financial plans is 6 percent. The relative smallness of the incubator's shareholding means there are many opportunities for it to liquidate its position, e.g. via new investor buy-out, trade sale, listing or pre-listing funding and company buy-back. The incubator's position sits alongside that of the entrepreneur and is diluted with further investment.

Problems with the equity model may include difficulty in quantifying equity shares and the realisation of such shares. To circumvent the latter, one incubator advised that their tenant companies have to buy back the incubator's share at a particular point. There is also the risk of dilution by later stage investors. To work, the equity model requires scale and portfolio quality. Three incubators use the equity model and two others use a combination of this model and royalties. One incubator estimates that they will be financially independent under the equity model when their portfolio reaches a value of $4-5 million.

The Royalty Model

An agreement is entered into between the tenant and the incubator that any revenue earned by the tenant will incur a royalty payment to the incubator. The royalty payment is generally set at around 5 percent of revenue and is limited in time – usually to five years. While on paper this model will automatically generate cash when the royalties come in, this model may also carry the proviso that the implementation of royalties should not bleed the start-up of the necessary capital that it requires for growth. Thus, royalties are usually only paid when a company can afford to pay them.

The royalty model appears straight forward, is easy to pitch to a new tenant, and is more liquid than an equity based fund. However, an incubator's financial stake can be difficult to realise. The transaction requires trust and an excellent relationship between the parties.

Three incubators currently use a royalty model (two of which also use an equity model).

The Deferred Debt Model

Under the deferred debt model the incubator looks to recover the full cost of incubation from the tenant. Incubator services are valued on a per company basis and an overhead is added. However, the charges for incubator services may be dependent upon the tenant reaching a financial target. Tenant companies have up to ten years to pay back the debt to the incubator at an agreed price plus interest. The incubator crystallises the deferred debt and extracts repayments after the tenant has exited the incubator or as soon as the tenant earns a set revenue. This repayment can be in a lump sum or in partial payments.

One incubator currently uses this model. The fixed amount charged under the deferred model is easy to quantify if tenant companies later change ownership.

Source: incubators

In 2005 NZTE and Incubators New Zealand commissioned Jeremy Parsons to report on incubators' plans to achieve self-sustainability. He also investigated ways in which a move to such a regime may best be implemented.

Parsons (2005) found that incubators could be financially self-sustainable but made a number of key points:

- Due to the unique nature of each incubator within the programme, each incubator will follow a different funding model to achieve financial independence. E.g. the different industry sectors supported by incubators have quite different lead times and investment required.

- At a minimum any move to self-funding should be accompanied by a move to multi-year funding for the period remaining of central government support (see below).

- While, under the right circumstances, some incubators could achieve financial independence in six years from inception, a more realistic time frame for the exiting of central government funding is ten years.

- In order to make financial self-sustainability viable an incubator needs at least half of its tenants to achieve a minimum turnover of $5 million or each tenant to achieve turnover of at least $2 million. (Through our analysis in section 5 these results are unlikely.) [32]

- The management of each incubator's financial plans is likely to be resource-intensive. As a result management focus can be taken away from the process of incubation which may ultimately detract from, rather than enhance, income generation potential.

6.4 Multi-year funding

We canvassed the opinions of stakeholders on multi-year funding. Their views are presented in table 6.4(a). Presently incubators apply annually for award funding for the next financial year. Some, but not all, incubator managers report that the application process is resource intensive in terms of preparation time. Multi-year funding would reduce this administrative burden and provide incubators with greater certainty in the medium-term, thus allowing them greater scope when recruiting staff and in resourcing. Multi-year funding is also a way of cushioning the move to financial self-sustainability, especially if funding is reduced over time on a sliding scale.

We support the move to multi-year funding for the reasons above. It is our view that multi-year funding should operate for a period of at least six years to give incubators sufficient time to develop a track record of success. Although regular monitoring would be required, to reduce compliance costs incubators could be formally reviewed by the

[32] Parsons (2005) also advocates that, in order to achieve financial sustainability, incubators need to place a portion of their equity stakes or royalties in tenant companies into Sustainability Funds.

IDU, say every three years (rather than annually). [33] If the government wishes to further encourage a move towards financial sustainability, one approach is for multi-year funding to reduce over time. For example, assuming the current funding for the Incubator Support Programme remains unchanged, incubators could each receive $500,000 annually for two years, $350,000 annually for the next two years, and then $200,000 annually for the following two years. This model is a 'soft-landing' approach and gives the incubators the option of taking more funds up front to use at their discretion to build capability as they see fit. However, a constant multi-year funding model would be easier to implement, offers more stability to incubators, and does not discourage a movement towards financial sustainability.

Table 6.4(a) Multi-year funding: stakeholder views

Benefits of multi-year funding	Negatives of multi-year funding
• Allows better medium and long term planning on the part of incubators. • Enables incubators to better recruit and retain staff. • Enables incubators to evaluate and implement strategic initiatives with greater certainty. • Makes incubators a more attractive proposition for investment by other sponsors and stakeholders. • Serves as a means of implementing and enforcing the drive to financial independence.	• There is the possibility of reduced oversight and governance in how the incubators are performing. However, the attrition that has occurred within the industry means that the remaining seven incubators have significant experience and operate using best practice.

Source: interviews of stakeholders – MED, 2007

6.5 Feasibility of financial sustainability

There are arguments to be had on both sides of the self-sustainability debate. Arguments supporting a move to independence from central government include:

i. incubators should lead by example and building a robust business independent of government support is one such way;
ii. central government funding is never a given. Incubators need to plan ahead for the removal of such;
iii. by taking a stake in their tenant companies incubators are incentivised to pick the best companies and work hard to ensure their success; and
iv. incubators will be able to control their own destiny.

[33] Parsons (2005) recommends that incubators who are not awarded multi-year funding should continue to be able to apply for annual funding through the present annual funding process. Essentially, a two tier funding system would operate. We believe that just one approach should operate – preferably multi-year funding. Through natural attrition, the seven incubators currently supported under the programme are all seen to be achieving best practice in the delivery of their programmes. Hence, they would all continue to be eligible for multi-year funding. Parsons also recommends that, to ensure adequate monitoring, NZTE should seek a position on incubator boards. However, this proposal has the potential for conflicts of interest and is not in our remit.

Conversely, arguments against self-sustainability are:

i. as noted in section 2 incubators are currently meeting a market need. They also generate many intangibles and positive externalities which are not readily measured, i.e. the promotion of entrepreneurship in the community and a ready pipeline of new companies;
ii. the model for financial sustainability is predicated on the assumption that half of each incubator's tenants will achieve revenues of $5 million or greater. Investors such as angel investors and venture capitalists work under a rule of thumb that, out of ten investments, one or two will achieve returns of 10-100 percent on capital, two to four investments will yield reasonable returns, and the rest will suck capital from investors or fail. Their timeframe for their investments is eight to ten years. In comparison, we have set ambitious targets for our incubators that may be unrealistic, particularly given that incubator companies are further upstream in the business growth cycle than where most investments go.
iii. removing government support for incubators removes our ability to influence the management and direction of the incubators. It may also reduce connections with other complementary government programmes; and
iv. there is additional complexity and onus placed on incubators in having to ensure robust management and governance of their equity/royalty stakes.

A further consideration is the results achieved by the incubators thus far. While there has been success, it is difficult to argue that this success is overwhelming. But, if we take either an investor's model or research on the growth of New Zealand companies as our reference point, then it is still early days. If the results are still not there in another four to seven years then continued central government support will be difficult to justify.

7. Intermediate outcomes

To recap, the intermediate objectives of the Incubator Support Programme include:

- the promotion of incubation best practice;
- encouraging networking among incubator managers and with organisations that are interested in incubation and incubated businesses; and
- enhancing networking between incubators and universities/CRIs.

The achievement of these objectives was assessed in an evaluation undertaken in 2004. The conclusions from that evaluation are summarised in Appendix 14.3. In this section we note what further progress has been made in relation to these outcomes.

7.1 Progress since the first programme evaluation

From our research we have found that:

- incubation best practice continues to underpin incubation in New Zealand. Incubation best practice processes and services are an important requirement for programme funding;

- as relationships have been cemented, networking between incubator managers is now tending to occur on an informal basis (previously, such networking was more formal);

- some incubators have started to share intellectual property with other incubators. E.g. the Icehouse sold their intellectual property to establish an angel investment network to two other incubators;

- with an aim to pool knowledge and resources, organisations involved in incubation within the Wellington region have formed their own network. This network includes a CRI, an existing incubator, a virtual organisation offering incubation services, and an organisation offering incubation facilities; and

- since the first evaluation incubators have paid particular attention to developing better relationships with organisations within the wider incubation network. These organisations and the type of relationships established are shown in table 7.1(a).

An example of networking across the innovation system exists in Dunedin. Upstart, the resident incubator, meets on a weekly basis with key people in the Dunedin Chamber of Commerce, the Otago Polytechnic, the University of Otago, the Dunedin City Council, and an accountancy firm. Stakeholders report that this contact drives each organisation to think about creating companies and aids understanding in what sort of economic development initiatives will work.

While most incubators have nurtured international relationships interviews with incubator managers revealed that most incubators have neither the time nor money to take these relationships further. As a result, such relationships tend to be opportunistic.

Table 7.1(a) Relationships between New Zealand incubators and organisations within the wider incubation network

Type of organisation	Relationship
Community organisations i.e. EDAs, Chambers of Commerce, Local Councils	- Founding partners. - Help to generate deal flow (both ways). - Aim to achieve a common vision to creating companies in their community.
Industry organisations, i.e. sector associations, clusters, corporates.	- Create deal flow. - Develop networking opportunities for tenant companies. - Create role models. - Two incubators are considering contracting incubation to large corporates.
Investment groups, i.e. angel investors, VCs, and government investment programmes such as Escalator and Connect.	- To help fund their tenant companies and generate deal flow five incubators have established angel investment networks. However, investment deals from these networks are not exclusive to an incubator. - Incubators also take companies to the point of VC funding. - Angel investors and VCs seek advice from incubators. - Incubators also use the capital raising services of Escalator and Connect.
Commercial partners, i.e. accountancy and legal firms.	- Founding partners. - Promote deal flow. - Provide business services to incubators. - Help to build companies.
Alumni companies	- Contacts for future capital raising. - Data post incubation.
International organisations, i.e. the NBIA, international incubators, incubators' own international networks, beachheads programme.	- Networking opportunities (learn about incubation processes) - Aid understanding of value proposition of tenant companies. - Learn from international trends and relate to New Zealand industry. - International post-incubation services and facilities.
Universities, polytechnics and CRIs.	- Founding partners. - Pre-incubation on campus. - Incubators hold lectures, seminars and run education programmes at universities on entrepreneurship and business development. - Incubator companies offer internships to students. - Direct links with commercialisation offices (often via co-location). - Incubators hold business plan competitions on campus. - Incubators run workshops and clinics on commercialising research. - Incubators provide consultancy services (e.g. for Growth and Innovation Initiatives (GIPI) funded by the Tertiary Education Commission.

Source: interviews with stakeholders – MED, 2007

E-Centre, an incubator in Auckland that specialises in ICT has established a Technology Export Centre in a joint venture with a major Indian conglomerate. The centre helps New Zealand technology companies enter the Indian market and attract foreign direct investment and research capability.[34] The e-Centre has also recently signed a three year Memorandum of Understanding with Beijing's Hi-tech International Business Incubator (HTIBI) to provide a new in-road to China for technology-based New Zealand firms. The relationship will help to facilitate business match-ups, technology transfer, shared market information and provide easier access and support to New Zealand companies doing business in China. While the Memorandum of Understanding is between the E-Centre and HTIBI, the arrangement can be extended to other New Zealand-based incubators.

As noted previously, while incubators receiving programme funding focus on companies with international potential, the majority of incubated companies find it difficult to enter markets overseas. Targeted funding within the Incubator Support Programme to develop international relationships may be one way to ramp up New Zealand's incubation model and further support companies to internationalise.

7.2 Relationships between incubators and universities/CRIs

Relationships between incubators and universities/CRIs were cited as areas for improvement in the first evaluation. The objective behind the development of these relationships is to encourage the transfer of technology and the commercialisation of research. As shown in table 7.1(a) the type of links that incubators have with universities and CRIs are multi-faceted. However, all the approaches are concerned with introducing entrepreneurship into a learning environment and leveraging the talent that emerges.[35]

In an effort to understand how many and what type of companies are spun out of universities and CRIs into incubators we considered company linkages, by sector, with universities or CRIs. However, while research companies in the professional, science and technical area were more likely to have some connection with a university or a CRI, our sample was too small to draw any conclusions on this point.

From our interviews with stakeholders it appears that there is no one formula to cementing relationships between incubators and universities and CRIs. Rather, the development of these relationships is a long term endeavour and depends on the people and organisations involved. It is about building trust and having the incentive to forge such relationships. Some incubator managers suggest that universities and CRIs are more likely to have confidence in a relationship with incubators if there is frequent, quality interaction and after the incubator has essentially proved their worth.

One approach taken by the Canterbury Innovation Incubator (Cii) has been the development of a pre-assessment framework. This framework, which took two years to

[34] To date, six incubator companies have formed export agreements as a result of this venture.

[35] As relationships between incubators and universities/CRIs develop, tenant companies also gain easier access to qualified researchers and labs, and universities can use their relationship with an incubator as a recruitment tool for faculty members and students interested in entrepreneurial opportunities.

develop in partnership with the University of Canterbury and the New Zealand Institute of Crop and Food Research, has enabled the Cii to offer on-site pre-product market assessment directly to academic staff and masters and post-graduate level students.[36] The framework has enabled Cii to work on a number of ventures generated from research organisations, comprising a mix of researcher and student IP, and has helped to position them as an authority on new technology/new market assessment in their region.

Another approach, taken by the Bio Commerce Centre in Palmerston North (BCC) has been the creation of joint relationship managers with CRIs to encourage cross-fertilisation of ideas. The BCC has also co-located themselves alongside Massey University's commercialisation team.

New Zealand universities and CRIs operate independent offices or companies to manage IP and contract research. They are often referred to as technology transfer offices (TTOs). To commercialise research, TTOs either spin out the research into a company or (more commonly) licence the research. While TTOs can help to fund companies and build a business case, compared to incubators, their commitment to growing a business is at an earlier stage and mainly related to business structure. By creating further value and putting a network around business development, incubators are able to complement the efforts of these offices and speed up the commercialisation process.

Most incubators have spent time and effort developing relationships with TTOs. However, while some of these relationships are paying dividends, others are less effective. Interviews with parties on both sides highlight a number of issues that are preventing some of these relationships from developing further. These issues and potential remedies (some of which have already been put into practice) are shown in table 7.2(b). As shown, the quality of these relationships is dependent upon a range of incentives and engagements within the innovation system.

It is our view that if the government wishes to further develop relationships between incubators and universities/CRIs two things need to occur:

i. university mandates need to be re-focused to include the commercialisation of innovations, and

ii. we need a greater understanding of the role of universities and CRIs and some of their behaviours.

Incubators also need to build business cases around engaging with Universities and CRIs, in consultation with these organisations.

[36] While the Cii invested significant time and funds into developing this framework the pilot received seed funding from the Incubator Support Programme. The objective was to facilitate the creation of a model capable of being adopted and implemented by other incubators.

Table 7.2(a) Issues that impede relationships between incubators and TTOs

Issues	Possible remedy
It can be difficult for some TTOs to know whether to license IP or spin it out to a company.	• A robust, verifiable method to assess the potential of the technology concerned.
Incubators and universities/CRIs often disagree as to when is the best time to commercialise research. Some organisations prefer to hang onto research until it is fully developed. However, incubators believe that, to ensure relevance to market, research should be tested in the market before completion.	• A robust, verifiable method to assess the potential of the technology concerned, that is shared between incubators and universities/CRIs. • Funding for market testing.
Research institutions have a technology focus and lose sight of capital raising.	• Incubators can help to wrap investment around research.
Researchers usually want to remain in a research environment, rather than lead a company. They also tend to lack entrepreneurial capabilities.	• Incubators need to understand what drives inventors. The relationship can be delicate. • Incubators can help introduce entrepreneurial understanding into research environments. • Government IP policies do not incentivise researchers to make profits. • University courses are needed which offer a mix of research and commercialisation. • A professional with research credibility could be engaged to work alongside key research partners to help identify opportunities and develop a commercialisation pathway.
Universities are not incentivised to work with incubators. The Performance-Based Research Fund (PBRF) funds universities on the basis of their research and education achievements, not commercial outcomes. Universities are often seen to forward on only marginal commercial opportunities to incubators	• If the government wants to encourage the commercialisation of innovations the design of the PBRF needs to be addressed. • Need people within the university environment who want to build networks and a relationship with industry. • Consideration also needs to be given to integrating private sector commercialisation interests (and their financial contributions) with current university research mandates.
Universities and CRIs do not like losing researchers.	• Provision could be made to buy out the time of academics.
New Zealand focuses on commercial deepening IP.	• New Zealand could focus more on shallow IP.

Source: interviews with stakeholders – MED, 2007

8. Summary of outcomes

In table 8(b), overleaf we bring together the preceding analysis on the achievement of programme outcomes. Evaluating the achievement of these outcomes is not straightforward. Our conclusions as to success are dependent upon data which may or may not accurately represent the industry. Also, different measures of success may apply at different phases. To avoid making simple judgements we have tried to triangulate data, used a combination of measures of success, and used comparisons to industry benchmarks where possible.

It is our view that the Incubator Support Programme has:

- been successful in increasing the immediate survival of firms;
- has helped firms in incubation to grow but the majority of these firms are not achieving 'high growth' dollar targets as defined by either the Incubator Advisory Group or NZTE;
- created additionality;
- encouraged incubator managers to make progress on financial sustainability; and
- achieved its intermediate objectives of incubation best practice and networking. However, while good progress has been made in developing relationships between incubators and universities/CRIs there is scope to take these further.

We asked incubator and NZTE managers for their views on what are the key factors that affect the performance of incubators. Their responses are shown in table 8(a). Incubators first need to set up an appropriate structure and establish a profile in the market. The relative success of an incubator is then dependent upon the quality of incubator management, adequate funding and resources, a supportive network of individuals that share their vision, and quality deal flow.[37]

Table 8(a) Factors that contribute to the performance of incubators

Positive factors	Negative factors
Establishing a profile	Constraining structure and ownership
Good incubator management	Lack of funding and resources
Supportive network	Lack of alignment with other programmes
Quality clients	Lack of deal flow from research institutions

Source: Interviews with stakeholders

[37] The NBIA suggest that incubators are more likely to be successful if they: (1) have a business plan; (2) are a service programme versus a real estate model; (3) are well-managed which means staff are appropriately remunerated, have the skills to help companies grow, are proactive, entrepreneurial and non bureaucratic, and engage in continual learning and networking; (4) undergo regular evaluation; (5) integrate their programmes into community networks, resources, and economic development plans and strategies; and (6) follow incubation best practice.

Table 8(b) Summary of the achievement of programme outcomes

Outcomes	Comment
Survival and growth of firms	
- High growth company exits, as defined by the Incubator Advisory Group, > 20 by 2006	- Achieved in terms of number of exits and the 'potential' to be high growth. - Some success in the achievement of 'actual' $ values but not the norm. Targets may have been set too high.
- Survivability: 2 years post graduation	- 87% versus 69% control.
- Positive changes in ownership	- Observed.
- Capital raising	- Some success, expect more with introduction of angel networks.
- Export companies	- 34% sample – while most companies aim to internationalise, the majority find it difficult.
- Steady total turnover growth	- Increases with years from exit and with age of company.
- 20% average growth p.a.	- 55% of companies reporting turnover.
- 150% growth p.a. over 5 years	- 40% of companies reporting turnover versus 11% control.
- $5 million turnover within five years.	- Only 4 companies in survey achieved but still too early to determine outcome. Target may be too ambitious.
Incubation processes	
- Capital raising	- Observed.
- Time taken to develop product/services and/or market niche.	- The majority of exits stated no impact. Outcomes ultimately dependent on value proposition and market share.
- Grow sales	- Observed.
- Internationalise	- Observed.
- Business connections/relationships	- Observed.
- Overall additionality	- Observed.
Progress on financial sustainability	- Observed via incubator financial plans.
Intermediate outcomes	
- Best practice	- Achieved.
- Networking between incubator managers	- Achieved.
- Networking with the wider incubator network	- Achieved. Five incubators have established angel investment groups.
- Encouraging commercialisation	- A lot of work by incubators has been done. More could be achieved with better incentives for universities and CRIs.

9. Findings: Programme delivery

In the 2004 evaluation delivery of the Incubator Support Programme was evaluated as efficient. This conclusion was arrived at on the basis of the trend level of costs of operating the programme and what was known in terms of the quantity of output produced by the IDU and the quality of output delivered. Below, we provide an update of the cost of running the Incubator Support Programme and discuss the role of the IDU in programme delivery. We also highlight opportunities to improve the design and delivery of the programme.

9.1 Costs of delivery

Programme expenditure versus budget is detailed in table 9.1(a). There is some flexibility in terms of how the IDU spends award funding on incubators. Programme funding has been applied to the establishment of Incubators New Zealand, the industry association.[38] Award or operational funding (OpX) has also been allocated to industry projects.

Table 9.1(a) Programme funding – budgeted and actual spend (GST exclusive)

Years	Awards: actual spend ($ mill)			Awards: budget ($ mill)	OP X: actual spend ($ mill)		OP X budget ($ mill)
	Awards	Industry projects	Incubators NZ		Op X ex industry projects[39]	Industry projects	
2000/01	0.85			0.84	n/a		0.12
2001/02	1.33			1.33	0.30		0.31
2002/03	1.58			1.33	0.40		0.31
2003/04	2.40	0.17[40]	0.13	2.76	0.33		0.36
2004/05	2.46	0.17	0.13	2.76	0.40	0.03	?
2005/06	2.61	0.10	0.05	2.76	0.37	0.05	?
2006/07	2.76			2.76	0.33	0.05	0.39
2007/08	2.76			2.76	n/a	n/a	0.39
Total 2000/01 – 2007/08	**16.73**	**0.44**	**0.31**	**17.29**	**2.13**	**0.12**	**?**

Source: NZTE
Note: totals may not add due to rounding

[38] As incubators were not financially self-sustaining at the time it was not realistic for them to directly fund the set-up of the association.

[39] The operating costs of the Incubator Support Programme include an allocation for NZTE corporate overheads.

[40] A further $53,400 was set aside for project funding but the project was not crystallised by year end and so this funding was not paid out.

Due to accounting practices in place at the time, we are unable to accurately determine the operating budget for the Incubator Support Programme in 2004/05 and 2005/06. However, taking into account the trend increase in the budget, it is likely that operating expenses exceeded budget in both these years. As direct expenditure by the IDU was within their budget allocation this overspend was due to corporate overheads being greater than anticipated.

A breakdown of overheads for the programme as a proportion of OpX is shown in table 9.1(b). Personnel costs reduced in 2006/07 owing to reduced administrative support within the IDU and funding of this resource from elsewhere in NZTE. Subsequently, this administrative support has been re-assigned. International work undertaken by the IDU is funded out of OpX.

Table 9.1(b) Breakdown of programme overheads as a proportion of operating expenses

Years	Personnel	Direct Overheads	Corporate allocation
2004/05	0.47	0.19	0.34
2005/06	0.48	0.23	0.30
2006/07	0.43	0.30	0.27

Source: NZTE

The details of projects funded to date are shown in table 9.1(c). The scope of this evaluation does not include evaluating the relative merits of these projects – such an audit is at the discretion of NZTE. However, in our view, two projects that have had a key impact have been the projects on angel investment. Learnings from these projects contributed to the establishment of five angel investment groups. Early stage finance is vital to help tenant companies to grow.[41]

To encourage industry buy-in and involvement projects are funded, where possible, from incubator awards. However, excess demand for operational funding for incubators often precludes such funding. In such cases, if there is a need or an opportunity for a project, and funds are available, projects are funded out of OpX.

When projects are funded from OpX the IDU leads the project and any external contractors provide their services under a formal service provider agreement. When projects are funded from award funding incubator managers are required to lead these projects. The IDU report that the latter process is administratively cumbersome and, at times, taxing on incubators. The IDU favours a more open approach, whereby external consultants or the IDU itself can manage these projects, if required.

Projects funded from incubator awards are co-funded from a range of sources including incubator sponsorship and in-kind contributions. Incubator managers leading each project retain ownership of the associated IP. However, by virtue of receiving funds for

[41] The IDU believe that the two projects on incubator seed funds were influential in the establishment of the government's Seed Co-investment Fund and manager training and technology evaluation methodologies run by the Cii incubator have been valuable in sharing best practice amongst incubators. In their view most of the remaining projects have helped to create public awareness of incubation and helped to attract private sector sponsorship.

the project from the Incubator Support Programme they are required to publicise the results of the project to other incubators (usually via a report). It is up to other incubators whether they wish to introduce similar initiatives. There is no requirement nor funds targeted to discuss the outcomes of projects more widely within the industry, or to roll-out initiatives arising from these projects across incubators. This could be an opportunity for the IDU.

Table 9.1(c) Projects funded by the Incubator Support Programme

Years	Cost (ex GST)	Details	Sponsoring Incubator
2003/04	$26,700	Angel investment	Icehouse
	$40,000	Development of portal	Icehouse
	$22,500	Research into incubator seed funds	CII
	$44,500	Wild ideas business plan competition	Creative HQ
	$35,600	Incubator expo	Creative HQ
2004/05	$19,169	Development of capability assessment tool	n/a – from OpX
	$44,500	Angel investment	Icehouse
	$11,832	Reporting portal upgrade	n/a – from OpX
	$15,130	Incubator Seed Fund	CII
	$40,000	Manager training – deal flow	CII
	$25,810	Industry linking	Upstart
	$44,500	Make It Happen	T-Up
2005/06	$20,874	Parsons financial sustainability report	n/a – from OpX
	$50,000	Incubator expo	Icehouse
	$30,000	Pre-incubation pilot	n/a – from OpX
	$14,000	Technology evaluation methodologies	CII
	$36,000	NBIA learning journey for new incubator managers	CII
2006/07	$16,650	Reporting portal upgrades	n/a – from OpX
	$33,573	AABI[42] Assembly and New Thinking Conference	n/a – from OpX

Source: NZTE

Some of the projects above appear to be deliverables for the Incubator Support programme agreed within the annual output plan between NZTE and MED. These 'projects' should, therefore, be funded from OpX in the normal course of operations. Excluding these deliverables, funding for projects has varied between $100,000 and $200,941 per annum. If there was to be a specific budget allocation for industry projects, in our view, the maximum should be $100,000. However, such a proposal should be dependent on evidence of outcomes from projects undertaken thus far.

[42] The AABI = the Asian Association of Business Incubation. The AABI was formed in 2002 to promote business incubation activities through the facilitation of information exchanges among Asian incubators, incubator clients and related organisations. IDU management were invited to join the AABI in 2005 and are currently on the judging panel for the AABI Incubator of the Year. The 10th Annual Assembly of the AABI was held in Auckland. There are now 16 countries represented in the AABI membership.

9.2 The role of the IDU

As outlined in section 2 the IDU is tasked with administering incubator awards, supporting opportunities to develop best practice in business incubation and fostering an incubation network. Following the 2004 evaluation they were also tasked with undertaking work to facilitate stronger links between incubators and universities/CRIs and to encourage incubators to collect performance data from incubator tenants.

Key to achieving these tasks has been:

- using a contestable process to allocate award funding;
- collaborating with Incubators NZ to run summits,[43] conferences and workshops. Incubation summits are usually held two to three times a year and have a specific theme, often with external guests and international experts. Incubator managers appear to value the opportunity to get together and share experiences and problems at the incubator summits;
- the facilitation and funding of visits from international experts in business incubation, angel investment, and the World Class Programme. These visits have aided best practice education and have helped to enhance the international profile and exposure of New Zealand's incubation industry;
- ad-hoc mentoring and support to incubator managers;
- organising peer review capability assessments of incubators to focus on improving best practice principles;
- funding less experienced incubator managers to attend NBIA Conferences for direct learning opportunities;
- establishing a portal for the collection of firm performance data from incubators. This data covers both existing tenant companies and companies that have exited incubators;
- research into the issue of university/CRI linkages. At the IDU's request, Incubators NZ ran a summit dedicated to this topic in November 2005. The IDU has continued to stress the importance of this issue when working with, and assessing the activities of, NZTE funded incubators; and
- building extensive informal networks and contacts with national associations and incubator practitioners internationally (i.e. the NBIA, the AABI, the Science Park and Innovation Centre Experts Group and the Global Business Incubator Network) that ultimately help to facilitate market entry opportunities for incubator companies.[44]

[43] The overall responsibility of incubator summits rests with Incubators NZ.

[44] The Science Park and Innovation Centre Experts (SPICE) Group is a global network of incubation and science park professionals, founded and managed in Berlin. The IDU management were invited to join in 2004. The Global Business Incubation Network (GBIN) is an informal association of associations,

Although not mandated to, programme management have also:

- been an invited speaker, judge, and helped to run workshops at numerous international events, including the NBIA, the AABI, the UKBI[45], Pacific Island Forum and APEC conferences, World Bank Global Summits and regional workshops, and an international training workshop in Shanghai; and

- peer reviewed an infoDEV (World Bank) publication on business incubation on small island developing states. The publication contained extensive references to the New Zealand incubation model.[46]

Incubator managers are very happy with the level of information and interaction from the IDU. The programme management are well networked, domestically and internationally, and have an informed view of the industry. The management are accessible, approachable and knowledgeable, and offer professional support. The annual review process, whereby a comprehensive capability assessment of each incubator is undertaken, is regarded as very worthwhile. However, some stakeholders believe that the focus of the IDU has moved beyond its initial goals – specifically programme management have become the industry leader for incubation in New Zealand, rather than Incubators NZ.

Incubators NZ was established in May 2003 to promote the incubation industry and support incubators in New Zealand. The industry association is currently funded by sponsorship and member contributions and is run by practitioners. While Incubators NZ has played an important role in developing the incubation industry, various comments made in our interviews with stakeholders suggest that the voice and leadership of Incubators NZ has diminished over time. These changes, which are in contrast to what was originally intended, may reflect the direction and maturity of the industry. In our view, it also reflects the lack of funding and time that practitioners involved have to devote to the organisation.[47]

---

comprising members of national and regional incubation organisations. The association provides leadership and direction to the international incubation industry. IDU management joined the GBIN in 2005 and currently Chair the Research Working Group. Both the SPICE Group and the GBIN meet informally, usually in conjunction with international conferences such as the NBIA.

[45] The UKBI = the United Kingdom Business Incubation. The UKBI is the U.K.'s authority on the development and support of incubation environments. Their mission is to create successful new U.K. enterprises and entrepreneurs by leading and promoting the development of high quality business incubation throughout the U.K. Refer to www.ukbi.org.uk.

[46] InfoDEV is a World Bank programme established to encourage ICT enabled economic growth in developing countries. The programme includes an incubator initiative that has invested US$20 million into the establishment of incubators in developing countries. The IDU have provided occasional policy advice to InfoDEV and programme management have moderated and presented at its 2007 Global Summit and regional conferences in Asia and Latin America. The Business Incubation Toolkit for Small Island Developing States in 2007 has not yet been published.

[47] There is general agreement across stakeholders that, as the New Zealand industry is small, the New Zealand incubation industry needs a common voice. However, it is unclear if it needs an association. Rather, more cohesiveness between incubators themselves could achieve this.

9.3 Improvement opportunities for design and delivery

Interviews with stakeholders highlighted a number of areas where the design and/or delivery of the programme could be improved. These include:

i. *the definition of high growth firms:* as indicated by our analysis in section 5, despite incubators improving the growth of firms, the majority of incubated companies do not achieve high growth metrics. The IDU is currently considering replacing high growth quantitative definitions with a more qualitative perspective on what a successful incubator exit would look like. One idea they have suggested is to align the exit criteria of incubators to the eligibility criteria of the Beachheads Programme. While we are supportive of moves to encourage exited companies to enter markets overseas, we do not believe that the majority of company exits would be suitable candidates for the Beachheads Programme; [48]

ii. *referring to incubators as innovation centres:* the term 'incubation' is often viewed negatively by the market in that it suggests that firms are in their infancy and need lots of support. Reflecting the fact that incubation is part of a wider innovation system, stakeholders suggest incubators could be known as Innovation Centres and the Incubator Support Programme could be renamed accordingly. However, as Science and Technology Parks are often referred to as Innovation Centres, in our view a more appropriate name for incubators would be Accelerators. Internationally there is a trend to substitute other names for the term 'business incubation';

iii. *reducing transaction costs and improving transparency:* some incubator mangers report that the award system is competitive, time consuming, and lacks transparency. The allocation of incubator awards is at the discretion of NZTE and is influenced by how much funding each incubator seeks. In the last funding round NZTE introduced a weighted scoring system to rank applicants in terms of operational performance and perceived economic impact.[49] One could argue that, as all supported incubators are now achieving best practice, there is no problem in some incubators receiving more award funding than others, as long as it is clear that they are the better performers. Alternatively, one could argue that the original intent of the Incubator Support Programme was to develop and support incubation in New Zealand. Incubators that are in an earlier stage of development and less likely to be achieving outcomes may warrant more support to get them to a level whereby they are more likely to succeed. Regardless, it is our view that, if there are to

[48] The NZTE Beachheads Programme is designed for companies that need a direct presence in an overseas market. Specifically, a range of services are provided to accelerate market entry and international business growth. Typically the companies accepted into the Beachheads Programme are high growth companies, predominantly in the ICT or high-technology sectors, but also in specialised manufacturing, creative industries, and biotechnology. Most beachheads companies have revenues of at least $5 million and are aiming for $100 million plus. Occasionally smaller companies, with exceptional opportunities and the ability to fulfil them are accepted into the programme. Beachheads services operate in the Americas, Dubai, India, South East Asia, and the UK.

[49] These rankings are internal to NZTE.

be continued differentials in award funding, the award process could be more transparent. One way to achieve this could be to publish a successful case study of incubation for incubators to strive towards. Or, at least, widely celebrate what makes each incubator unique and individually successful. A process of multi-year funding whereby incubators each received the same level of support, would also reduce competition between incubators. A move away from annual reviews to two or three yearly audits under a system of multi-year funding would also help to reduce the time involved in applying for awards.

iv. *more connection to NZTE sector managers*: currently sector managers are assigned responsibility for maintaining contact with firms in incubators. However, while there are exceptions, typically incubated companies are below their radar. Sector managers find that incubated companies usually do not yet have the necessary attributes to be internationally competitive in their respective sector. Given that one of the aims of the Incubator Support Programme is to help companies export, this is an area that may need more support and direction. The IDU has been investigating the concept of using international business incubators to provide 'soft landing zones' or 'launchpads' for export ready New Zealand companies (refer to section 10 for more details);

v. *better co-ordination between the Incubator Support Programme and other relevant government programmes:* potential co-dependencies between the Incubator Support Programme and other programmes are a question for this evaluation and are touched on in section 10. However, at this point we note that an aspiration of the IDU is to have a dedicated NZTE client or business services manager work with growing technology companies within incubators. Such a person could be a central point for access to other relevant government programmes;[50]

vi. *Incubators NZ as the industry leader:* some stakeholders think that Incubators NZ should take a greater role in leading the industry. However, for this to effectively occur Incubators NZ needs to be re-structured, change its strategic direction, and be better funded. (In its current form, most stakeholders believe that such funding should not come from government.)[51] It is our view that the IDU is currently best placed to provide direction to the industry and can achieve this role within their current budget. Programme management have made a lot of headway in establishing good contacts, domestically and internationally. The delivery of this function should only be reviewed if this incubation competency is lost.

---

[50] The IDU believe that a dedicated NZTE client manager could also help to identify opportunities for collaboration between tenants of different incubators, which is something that incubators would value.

[51] As a result of sponsorship arrangements and reduced activity, Incubators NZ have not applied for operational funding support from the government since 2005/06.

vii. *scaling back the IDU*: at some future date the IDU's activities could be scaled back; e.g. best practice could occur via peer reviews, incubators' own international connections and other relationships. The IDU could be left to administer awards and direct incubators to the best advice. Alternatively, incubator services could be contracted out to a private sector organisation, such as occurs in Finland. We do not believe that either option would benefit the development of New Zealand's incubation industry in the foreseeable future. As noted above, the IDU management is creating value in its networks and is helping to test and expand the industry.

It is our own view that more emphasis should be placed on obtaining good quality data on company outcomes and less on the growth prospects of tenant companies. By being accepted for incubation all companies have the potential to be high growth. To fully understand the outcomes of the programme what is needed is an accurate record of actual results achieved by each incubator. In collecting data for this evaluation it became apparent that the quality of outcome information collected via the NZTE portal is often questionable. It would be useful if quality checks were made on such data and if a central database of company exits from incubators supported under the programme was maintained.

PART THREE

THE FUTURE ROLE OF GOVERNMENT IN INCUBATION

10. Scope of the Incubator Support Programme

In part three of this report we discuss the future role of government in support for incubator development in New Zealand including the level of such support.

10.1 Incubators supported under the programme

Currently there are eight incubators in New Zealand. Seven of these meet the eligibility criteria for award funding and receive financial support from the programme. This criteria includes a specific focus on assisting technology companies that have high growth international potential.

In both population terms and number of companies, New Zealand incubation numbers are small relative to the rest of the world.[52] However, stakeholders in our incubation industry believe that the number of high growth technology incubators operating in New Zealand is close to optimum. New Zealand has achieved a critical mass of these incubators and we should now focus on growing and optimising their quality, versus looking to develop more. Essentially, the success of New Zealand incubators is more important than the size of the industry.

It is our view that the New Zealand economy could support eight high growth technology incubators (i.e. one more such incubator than we currently have).[53] As some existing high growth incubators find it difficult to generate quality deal flow, any more of these incubators would likely result in increased and unconstructive competition. Much lower numbers and the high growth technology sector would likely be underserved, at least on a geographical basis. Our view does not preclude the potential for existing high growth technology incubators, on their own initiative, to establish satellite operations on a regional basis. As noted in section 3 one incubator has recently established a satellite incubator and another three incubators are looking at the possibility of setting up satellite operations.

There is no standardised model of incubation in New Zealand. However, stakeholders in our incubation industry believe that a range of incubator models best serves the different regional and commercial needs in New Zealand. People and relationships can not be replicated and individual successes should be celebrated. To encourage best performance and ensure local funding, each incubator also has to be able to survive on their own merits.

Underlying incubation best practice is seen to be more important than a particular type of incubator. However, to encourage commercial returns and meet a market need, it is our view that incubators receiving support through the Incubator Support Programme should continue to focus on high growth technology companies with international

[52] New Zealand currently has approximately one incubator per 500,000 population and 43,000 companies. In contrast Australia has approximately one incubator per 230,000 population and the U.S. has approximately one incubator per 250,000 population.

[53] Stakeholders believe that Auckland already has its full quota of high growth technology incubators, if one too many.

potential.[54] Such a focus is consistent with the government's economic transformation agenda.

10.2 Growing incubation

The initial focus of the Incubator Support Programme was to develop and support incubation in New Zealand by providing assistance to new incubators and building the capability of existing incubators. While incubators were in their start-up phase the emphasis was on the provision of quality core incubation services and facilities, i.e. 'the incubation process'. However, as incubators have grown and matured, incubation in New Zealand has become broader. Incubation now encompasses activity directed at ensuring good deal flow to incubators in the first instance, and also activity to help grow companies once they have exited an incubator. In our view, if the government wants to continue to grow incubation, these are the two areas that warrant further development.

At the outset, incubators can only be as good as the quality of commercialisable opportunities available. To encourage an active pipeline of companies incubators supported under the programme have endeavoured to deepen their relationships with universities/CRIs and have also introduced pre-incubation programmes.

As noted in section 7, the government may be able to help incentivise and further cement relationships between incubators and universities/CRIs. Some incubators could also put more effort into building a sound business case for engaging with universities/CRIs in the first place (i.e. pre-incubation activity appears to work best when an incubator has dedicated personnel/hot desk facilities on-site at such organisations).[55] Ideally, relationships between incubators and research organisations should be structurally, rather than informally, organised.

Incubators distinguish pre-incubation into two types: business and technology pre-incubation. The former is focussed on helping business entrepreneurs to explore the potential of their business ideas. This type of pre-incubation is within the scope of existing programme incubators. The latter is about testing research ideas or technology in unproven markets and is more complex, time intensive and costly for incubators to undertake. It is our view that, as most technology pre-incubation is conducted with academics and/or researchers, it should be considered as part of the role of the government's Pre-Seed Accelerator Fund.[56]

---

[54] There have been approaches from various regions and groups about potentially establishing additional incubators outside the high growth technology area. It is our opinion that, while these incubators are worthy causes, they do not meet the rationale for funding under the Incubator Support Programme. As these projects meet the criteria set by other grant programmes they should be able to access funding elsewhere.

[55] Incubator managers sometimes cite resourcing issues as preventing them from putting more time and effort into developing relationships with universities and CRIs. Whilst we acknowledge these difficulties, incubators who put the ground work into building relationships with these institutions, and present a good business case for engagement, are able to access programme funds for pre-incubation activity.

[56] The Pre-Seed Accelerator Fund provides funding to universities and CRIs to help academics test the commercial value of an idea. The Fund is currently under review by the Ministry of Research, Science and Technology (MoRST).

A key expectation of the programme is that incubators will exit companies that have products or services with identified export potential and are actively targeting international markets. However, as only approximately a third of the exited companies we surveyed were exporters, there is a gap in the ability of incubated companies to internationalise. Some incubators have tried to bridge this gap by individually developing relationships with major companies and incubators overseas. However, as noted in section 7, incubators often lack the time and money to develop such relationships. Where possible, the IDU has tried to nurture networks and connections between incubators and key international markets. Another way to lower the risks to incubated companies when entering new markets overseas could be for the New Zealand incubation industry to establish a formal international incubator network. The idea is that incubators in New Zealand could tap into such a network to help their exited companies get to their target markets at a time when they are likely to still be cash constrained and in need of business/mentoring support.[57]

Internationally, there is an enthusiasm for internationalisation and networking between incubators and other organisations to assist incubator clients to reach global markets. Methods adopted for internationalisation include: reciprocal in-market services and facilities in overseas incubators, international co-incubation (i.e. handing clients from one incubator to another for market expansion); affiliations of incubators and other, relevant organisations (for the facilitation of cross-border trade); and additional international services within incubators for out-going and in-coming international client companies. Formal relationships with overseas incubators are often referred to as 'soft landing zones' or 'launchpads'.

In recognition of the mutual benefits of incubators accommodating foreign businesses, both the AABI and the NBIA have introduced programmes to promote cross-border interaction between incubators and entrepreneurs. Incubators in the programmes must have the capability to support foreign enterprises to develop business in their local market.[58] If New Zealand incubators wish to participate in such programmes, they will need to have the capacity and resources to accommodate foreign companies.

In terms of a formalised international network the IDU estimate that a minimum of 30 international business incubators would be necessary to provide global reach to New

---

[57] International incubator networks not only benefit graduated clients from incubators (i.e. post-incubation), but also pre-incubation and incubation processes. For example, international entrepreneurs with specific expertise and experience can help to assess the international ambitions of prospective client companies and provide knowledge of the internationalisation process and market abroad to incubator tenants. In the case of a lack of active informal investors, investors can also be generated via international connections.

[58] Incubators in the AABI programme must meet the following criteria: (1) they must have a successful track record of incubating ventures and a strong domestic network of service providers for supporting them, both managerially and technically; (2) they should have smart workspace for three to five foreign enterprises offering the same lease and service terms as domestic clients; and (3) they must have a management team with the capacity to help foreign enterprises to establish and expand their business. There should be proficiency in foreign languages including English. The NBIA soft landing zone accreditation programme lets foreign firms know that the NBIA has identified an incubator as having specialised programmes and/or facilities for helping companies break into new markets. Both the AABI and the NBIA programmes are only open to member countries or incubators.

Zealand incubated companies. Where possible, they also think that such agreements should extend, not only to incubated companies, but also to other export ready companies that meet the entry criteria. In their view a formal international incubator network could encourage inwards investment through its reciprocal agreements and could complement, enhance and jointly promote other NZTE programmes, including the Beachheads Programme.[59] In our view any international networking should be relevant, dynamic, and not necessarily confined to incubator organisations.

NZTE is in the process of implementing an enhanced framework for business internationalisation under the Globally Competitive Firms (GCF) theme of the economic transformation agenda.[60] An international 'incubator' network, could be considered as part of this framework.

10.3 Co-dependencies with other government programmes

The Incubator Support Programme has, to date, been seen as a stand alone programme with only informal links only into other government programmes. However, as evidenced by capital raising data presented in section 5, incubated companies are able to access, and receive funding via, other government programmes.

Programmes which are complementary to the services of incubators include the business development range of programmes offered by NZTE[61] and the TechNZ Scheme offered by FRST. Stakeholders were asked for their views of the co-dependencies between incubation and other such government programmes. Common comments were that related programmes do not overlap in a tidy manner. There appears to be confusion in the market around differences between programmes and incubators are seen to compete for investment funds from angel investors. Also, there is a lack of an automatic accreditation system between overlapping programmes and, potentially, double dipping may be occurring.

---

[59] The IDU do not envisage an international incubator network competing with the Beachheads Programme for what is still a relatively small pipeline of quality high growth companies. They believe an international incubation network would be more fundamental and provide a wider range of options and geographic reach for companies than the Beachheads Programme. However, there would be no reason why, location and entry criteria permitting, a company could not avail itself of both the network and beachheads. Companies not deemed to be beachhead ready may also be able to achieve that status through a period in an overseas incubator – thus increasing the pipeline and enhancing the value of the Beachheads Programme.

[60] GCF was agreed to by Cabinet in March 2008. GCF initiatives are aimed at reducing the risks inherent in the internationalisation process and encouraging New Zealand firms to develop new internationally competitive products and enter new markets.

[61] The business development range of programmes includes: Enterprise Training (aimed at upskilling owners/operators of SMEs to help them develop and grow their business); Escalator (designed to help get firms investment ready and to assist innovative firms to raise capital through providing a training and brokering service); and the Growth Services Fund (offers support for high growth potential firms to reach their growth potential.) Tech NZ offers assistance by co-funding research & development projects, providing access to international networks of experts and funding fellowships.

The GCF may address some of these concerns. Under GCF[62] NZTE strategy is moving from a sectoral focus to a market led firm-based approach. To achieve economic development outcomes NZTE will ensure that the lifecycle of the firm is well understood and support provided at the most valuable points in that lifecycle. It is envisaged that, through this firm centric approach, NZTE will focus its efforts on firms in the most critical phases of their development. Core services such as management/business capability, regional economic development and provision of grants will continue but will be better aligned to the overall economic development strategy. The idea is to better streamline programmes and reduce the steps firms have to go through. Through GCF the aim will also be to streamline support between government agencies.[63]

In taking a firm centric approach NZTE has undertaken international research to assess models deployed in other economic development entities and find best practice examples for delivering added value growth services to firms. This research, along with the incentives built into the GCF and business internationalisation programmes, create a rationale for NZTE to reposition its investment in incubation services through the Incubator Support Programme and incubator awards.

Under the GCF strategy implemented at all levels of NZTE, incubation would be considered as a core service that supports the pipeline development of (potential) globally competitive firms. The programme would continue to operate through contract awards to third party incubators and would remain under the current output class.

10.4 Science and Technology Parks

Science and technology parks (STPs) go by a variety of names including research and technology parks, science parks, hi-tech parks, and bio-valleys. Like incubators they generally consist of both hard (e.g. building and labs) and soft (business management advice, network support) infrastructure. However, in contrast to incubators they are larger, spatial arrangements and cluster together corporate, government and large multi-national companies, as well as very small companies. STPs focus on science and technology organisations and are typically formally linked to a tertiary institution or research organisation. The Allen Consulting Group (2007) note that STPs reflect the basic assumption that innovation stems from scientific research and that parks can provide the catalytic environment for the transformation of 'pure' research into production.

---

[62] While GCF is about supporting internationalising firms it is also about ensuring other firms operating domestically or otherwise not internationalising still receive the support they need to make an effective contribution to increasing productivity.

[63] Distinct from GCF, in order to maximise return from its investments in economic development, tertiary education and the science system, the government is also looking to better align government expenditure and activity across the innovation system. To achieve this approach the government is considering a more targeted approach to innovation investment around six areas of focus. These areas of focus come under two overarching themes: bioeconomy and high-technology capabilities. The government is looking to better co-ordinate and align programmes to the areas of focus. There will be a growing emphasis on partnerships across government and converging support to these areas across Votes. Work will also be undertaken to identify the types of activity or projects that should be fostered and building scale within these areas.

The government has received a number of proposals to support the development of STPs in New Zealand. MED is currently testing these proposals and working with relevant stakeholders in order to develop more detailed business and economic development cases. Last year MED also commissioned a research project with an aim to identify lessons that could be learned from successful international examples of STPs.[64]

It is not part of the scope of this evaluation to determine the relative merits of STPs versus incubators nor form a conclusion regarding the integration of incubators with STPs. However, we note that the proposed models for STPs include the utilisation of business incubation services.[65]

One way for this to occur is for incubators already existing in the market to expand their model to include where appropriate the potential benefits of stronger research links and co-location achieved through STPs.

STPs may also be seen as the next stage for incubated companies, in that they have the facilities to carry out market testing and product runs and they have the grow-on space to accommodate companies.

[64] Refer to The Allen Consulting Group (2007).

[65] Internationally most STPs have business incubators. The Allen Consulting Group (2007) note that business incubators are believed to be crucial to improving the rate of commercialisation of ideas, research and development, and in assisting firms to reach their full potential. Hence, they are considered to be one of the key factors for the achievement of the objectives of STPs.

11. Programme funding

This section draws upon analysis and discussion presented in sections 5.4, 6, 9.3 and 10 of this report.

11.1 Length of support

It is our view that the government should continue to fund high growth technology incubators under the Incubator Support Programme for at least another six years. As the funding round for the 2008/09 year has already commenced, this equates to confirming funding for the programme from 2009/10 until the 2014/15 year. This next stage of funding should be used to incentivise quality outputs in existing incubators and to generate more income via successful company exits.

Points in support of this view include:

- incubators are unlikely to achieve financial self-sustainability within the timeframes expected under the current structure of the programme. Thin capital markets in New Zealand and the challenge for incubators to attract matching funding without moving to a "real estate" operating model mean that longer term support is warranted;

- the Incubator Support programme is meeting a market need. Incubators supported under the programme help to reduce the system and market risks that constrain start-up and early-stage innovative companies with high growth international potential;

- mature incubators are likely to offer the greatest value in terms of incubation processes. By 2014/15 all the incubators currently supported under the programme will have entered a maturity phase; and

- there is a need to recognise the long term commitment to incubation as a pipeline development for globally competitive firms.

Funding for incubation after 2014/15 should be dependent on a continued policy rationale, the successful achievement of agreed outcomes, the cost-effectiveness of incubator structures as opposed to other mechanisms for generating economic benefits, and also whether incubators are able to raise revenues.

Under GCF there may be an escalation of NZTE services to incubator clients and these other services could be used to support incubation in the future. Essentially, at some point, NZTE will be looking to move roles from that of a funder to being a partner in incubation.

11.2 Multi-year funding

If the government confirms programme funding for the next six funding rounds we believe that future funding should be approved to incubators on a multi-year basis. However, payments to incubators would continue to occur on an annual basis.

Multi-year funding would reduce time commitment and compliance costs in terms of the current annual funding process and would also introduce stability of funding for incubators. The certainty created by multi-year funding would enable incubators to better undertake medium and long term planning and implement strategic initiatives. Multi-year funding would also make incubators a more attractive investment proposition to others and can assist in implementing and enforcing a drive to financial sustainability.

To enhance the retention of staff and reduce unconstructive competition in the incubator award process it is our view that a core amount of funding per eligible incubator be guaranteed for each multi-year funding term. Such base funding could, for example, be earmarked for the salaries of key incubator personnel. A variable amount of funding would then be dependent on specified and agreed measures of performance. We also believe that there should be two lots of three year terms of multi-year funding to incubators.

A process for monitoring and review for multi-year funding and new funding contracts with incubators would need to be established by NZTE in consultation with MED. We believe that two types of contracts should exist: a contestable process for any new incubator and a negotiated process with existing programme incubators.

11.3 Amount of funding

Incubation is a catalyst for innovation. However, it can be difficult to measure what the right level of support is. In an OECD (2007) report New Zealand's current funding levels of incubation on an annual, per incubator basis are described as sub-optimal. And, when divided by the number of companies being helped in each incubator, the effective rate of assistance to incubated companies is described as being very small. The OECD believe that more government support would be cost-effective, given that New Zealand incubators appear relatively well ranked in terms of economic impact for funds invested.

Under GCF and the need for a solid pipeline of "born global" firms with the potential to internationalise the size of incubator awards will need to be reviewed. Further work is required to determine the exact threshold and mix of funding required.

At a minimum we could continue to fund the programme as is, i.e. with a maximum pool of $2.76 million, GST exclusive for incubator awards.

However, we believe that we could achieve bigger and better outcomes by broadening the intent and scope of the programme. Under this scenario two possible options for funding are:

(i) *a fiscally neutral adjustment to funding*: where a sliding investment scale is used to incentivise incubators to build alternative revenue streams. For example, $500,000 per incubator in year one, reducing annually over a fixed period to a minimum level of baseline funding. Under this option incubators could have the option of taking more funds up front to use to build capability. In accordance, the budget for the Incubator Support Programme would need to be frontloaded.

(ii) *increased funding from 2009/10:* to raise the baseline investment for each incubator to encourage ramped up activity. In this regard total funding of

$4 million (ex GST) has been suggested by a stakeholder. However, any increase in funding will need to be supported by an appropriate business case - it may be the case that funding should be higher than this. Administratively, this option is easier to implement and sends a clear signal of government's commitment to incubation.

Parsons (2006) recommends that any future decrease in programme funding should go hand in hand with what the government wants in return. He recommends that financial dependence of incubators on any one source should be a maximum of 20 percent, but preferably no more than 10 percent of incubators' core income.

12. Conclusions and recommendations

Our evaluation methodology used a combination of qualitative description, quantitative analysis and stakeholder perceptions.

12.1 Conclusions

The contribution of the Incubator Support Programme to the survival and growth of early-stage businesses via the development of high quality incubators

- The programme itself has collected some data on the survival and growth of businesses. However, this data is incomplete and the quality is sometimes questionable. Our evaluation of programme outcomes is based upon interviews with stakeholders in the New Zealand incubation industry, a survey of 82 graduate companies, and industry benchmarks.

- The incubation landscape in New Zealand has changed considerably since the Incubator Support Programme was established in 2001. Excluding a recent new entrant, incubation has become more stable with a core group of incubators – all of which incubate high growth technology companies. Best practice incubation processes have been adopted. Incubators network with each other. Incubators also network with other organisations within the wider incubation network.

- In our view there are eight business incubators now operating in New Zealand. Seven of these incubators are incubating high growth technology companies and currently receive funding under the programme. Most programme incubators are nearing maturity (i.e. they are concerned with graduating companies, achieving outcomes, and are expanding their programmes to pre- and post-incubation services).

- MED's estimate of graduate businesses from eight incubators supported in the 2006/07 funding round is 159. Most of these exits have occurred since 2005. A target established early on in the programme of a minimum of 20 company exits per annum with high growth potential was achieved in 2006.

- The Incubator Support Programme appears to have increased the immediate survival of firms. Using a sample of company exits, 87.1 percent of companies were still in business two years after graduating from an incubator (versus 69% of companies in a control group).

- Approximately 29 percent of our sample of company exits experienced a change in ownership as a result of increased shareholders, company mergers, the formation of a new company, or IP buyout/licensing. These positive changes in ownership lend support to the view that these companies are doing well and are good investment propositions.

- Company exits from incubators have been quite successful in raising capital for their business and incubators have contributed to the capital raising process. We expect this success measure to further improve with the recent establishment of angel investment groups by incubators. The availability of early-stage capital is a major factor impacting the future growth of businesses.

- Company exits report that the incubation process has contributed to their ability to grow their sales, to internationalise, and to establish effective business connections/relationships. In addition 81 percent of companies surveyed reported that incubation support had been critical or important to their business.

- Incubated company graduates have better growth outcomes than industry benchmarks. Aggregate turnover data on a sample of company exits showed an increasing trend over time and, on average, turnover increases the further out firms are from incubation. Of the companies reporting turnover in a survey, 59 percent had achieved an average growth rate of 20 percent over the last five years and 40 percent reported an overall growth rate of at least 150 percent. (These results represent 45% and 32% of total companies in the survey). In contrast, a control group recorded 11 percent of firms achieving a minimum of 150 percent turnover over five years.

- While company tenants have the potential to be 'high growth' companies, the majority of company exits surveyed have not recorded the expected high growth outcomes. Most are relatively new firms (less than five years old) with new products and a business profile that is still in early stages of gaining recognition in the market. (Consequently 78% of companies reporting turnover did not generate the target revenue of $500,000 within two years of entry and only two companies generated revenue of $5 million or more within three years of exit from an incubator). It is our view that the high growth targets are probably too ambitious[66].

- While most tenant companies aim to export, the majority find it difficult to enter overseas markets.

- Most incubators have been active in developing relationships with universities and CRIs with the aim of increasing the volume of IP commercialisation and improving the entrepreneurship culture within these institutions. However, the development of these relationships is a long term endeavour and depends on the people and organisations involved. The quality of these relationships is also dependent upon the range of incentives and engagements within the innovation system

How to send a stronger signal to incubators to become financially self-sustaining

- New Zealand incubators are heavily dependent on central government funding. The attrition that has occurred within the incubation industry and the increasing innovations of existing incubators has meant that, while the pool of central government funding has remained finite, the portions allocated to the remaining incubators have increased. Any removal or reduction of programme funding is likely to have a significant impact.

[66] It is also still too early to fully evaluate the performance of graduate companies. New Zealand research suggests that, to gain an accurate picture of performance, financial data on companies should be evaluated at ten years of age.

- There are few examples of incubators having achieved financial self-sustainability internationally.

- The requirement that, to be eligible for an award, each incubator have in place a plan for financial self-sustainability has generated positive outcomes in terms of financial planning and best practice. Although difficult to quantify, incubators' financial plans would seem to have had beneficial effects in terms of encouraging fiscal discipline and strategic planning. They also set incubators up with a fall back position should central government funding be removed. The introduction of multi-year funding would better enable incubators to leverage security of funding until their financial plans are fulfilled.

- Multi-year funding would also help to reduce the transaction costs for incubators and can be used to send a stronger signal to incubators to become financially self-sustaining.

- New Zealand research indicates that a realistic time frame for the exiting of central government funding from incubators is ten years (i.e. from 2011). However, to make financial self-sustainability viable incubators need to achieve ambitious turnover dollar targets that may be unrealistic. We believe that the government should continue to fund incubators under the Incubator Support Programme for a period of at least another six years. This timeframe would ensure that incubators have sufficient time to develop a track record of success.

- Any future move to financial self-sustainability would need to be articulated in policy.

The ongoing role of the IDU within NZTE in the future delivery of the programme

- It is our view that the IDU is best placed to deliver the Incubator Support Programme. Incubator managers rate their efforts highly and programme management have had a key role in developing the incubation industry. The role of the IDU should continue to encompass administration of award funding, supporting opportunities to develop best-practice in incubation, fostering both national and international networks, and overseeing the collection of performance data.

The future role of government in support for incubator development in New Zealand

- New Zealand has achieved a critical mass of incubators that focus on assisting technology companies with high growth international potential. In our view, the government could support a maximum of eight of these incubators, under the Incubator Support Programme. Assuming the incubators currently receiving programme funding continue to offer value, this view allows for funding of one more incubator in the high growth technology area.

- We encourage incubators working in the high growth technology space to establish satellite operations. However, rather than being government led, such initiatives should come from incubators themselves.

- There is no unique model for high growth technology incubation in New Zealand. A range of models have emerged in response to varying regional and commercial demands.

- If the government wishes to continue to grow incubation support should be focused on both the front and back end of incubation (i.e. deal flow and post incubation). Better relationships between incubators and universities/CRIs and the use of pre-incubation programmes can broaden the pool of commercialisable opportunities available to an incubator. In turn, core incubation processes will be further strengthened. After care and networking with firms that have left an incubator help company exits to further grow and are just as important as the provision of services to company tenants.

- Under GCF incubation will be considered as a core service which supports the pipeline of globally competitive firms.

- There is a strong international trend for incubators to pursue cross-border relationships with other incubators and entrepreneurs. The relationships, networks, and partnerships nurtured in key markets overseas provide in-market support, contacts, and market intelligence that are all critical factors in breaking into international markets.

- At a future date, the development of Science and Technology Parks in New Zealand may influence New Zealand's incubation industry.

- It is our view that the government should continue to provide funding support for incubators under the Incubator Support Programme until at least 2014/15 and that such funding is approved on a multi-year basis. Incubators under the Incubator Support Programme target a particularly susceptible group of firms whose growth is seen as critical overall to future economic growth.

12.2 Recommendations

12.2.1 Programme funding

i. To incentivise quality in incubation and to generate greater quantities of high growth international companies we recommend that the agreement of the Minister for Economic Development be sought to continue support for the Incubator Support Programme up to and including 2014/15.

ii. To lower the transaction costs of incubators and provide greater stability we recommend that the Minister's agreement be sought for future funding to be committed (but not paid out) to incubators on a multi-year basis. We recommend there be two three year terms of multi-year funding.

iii. Further, we recommend that the Minister direct NZTE to:

    - determine the exact mix of fixed versus flexible funding under a system of multi-year funding. A fixed level of base funding could be used to retain key personnel in incubators. A flexible amount of funding could be performance related; and

- establish new funding contracts with incubators. As all incumbent incubators have already been through a number of years of fully contestable funding we recommend that contracts with these incubators be on a negotiated basis. However, additional incubators to the programme should continue to be contracted on a contestable basis.

iv. More funding may be needed to effect the transition of incubation under GCF. We recommend that the Minister direct NZTE to investigate and propose options for a revised structure to the funding of incubators. This work would include determining the optimal structure in terms of:

- set thresholds for investment in each incubator (with a possible increase in total award funding), or a sliding scale of funding (which is fiscally neutral but with possible front loading);

- the optimal term for funding (i.e. should funding be fixed for six years or should there be six years of sustained funding and then migration to other forms of NZTE support in year seven and beyond); and

- funding incubator projects from a distinct source, to encourage flexibility of funding.

We recommend that NZTE submit a proposal for a revised funding structure of incubators to the Minister by 30 September 2008 to be considered for the 2009/10 budget round. Such a business case should include ways to connect incubation to GCF, re-prioritisation options and specify the annual amounts of funding for each year of a multi-year funding term.

12.2.2 Future evaluations and performance measures

In this evaluation a variety of data on the achievement of programme outcomes has been presented. However, to gain a more complete picture of the extent to which incubation increases the survival and growth of firms, financial data on company exits may need to be analysed when such companies are close to ten years of age. This corresponds with evaluating performance of companies exiting incubators supported under the programme some time from 2012. Evaluating performance at this time would also link in with a possible end to programme funding in the 2015/16 year.

We recommend that the agreement of the Minister of Economic Development be sought to agree to a future evaluation of the Incubator Support Programme to be undertaken in 2012. Such an evaluation should focus on the financial performance and survival rates of company exits.

In preparation for such an evaluation we recommend that agreement of the Minister be sought to direct MED and NZTE to agree and set performance measures for incubators supported under the programme by 31 October 2008. Realistic metrics are needed to drive a continual improvement in incubator performance.

12.2.3 Relationships with universities and CRIs

By creating value and putting a network around business development, incubators are able to complement the commercialisation efforts of universities and CRIs and speed

up the commercialisation process. However, the current structure within universities and CRIs creates an environment where the drivers for commercialisation are different to those for firms and incubators, leading to an inherent tension between the two groups.

If the government wishes incubators to further develop relationships with universities and CRIs to encourage technology transfer and commercialisation the right incentives need to exist. To alleviate any disconnect between these organisations we recommend that policy advice be developed for the Minister for Economic Development on how incubators can link into innovations from New Zealand universities and CRIs. Specifically policy should:

- obtain a greater understanding of the role of universities and CRIs and some of their behaviours; and

- review the overall effectiveness of funding instruments and related policies to incentivise innovations.

12.2.4 Technology pre-incubation

Technology pre-incubation helps to test a new technology idea in unproven markets. While this is an important area for generating deal flow for incubators, undertaking such pre-incubation is costly and time intensive. We recommend that, following the review of the Pre-Seed Accelerator Fund by MoRST, MED and MoRST develop a joint set of recommendations on issues on technology pre-incubation.

12.2.5 Recommendations to improve management of the programme

In seeking improvements at an operational level to the Incubator Support Programme we recommend that NZTE:

- *re-consider the definition of high growth companies:* while incubated companies achieve better growth than industry benchmarks our analysis indicates that the majority of incubated companies have yet to achieve metrics of 'high growth'. The high growth definition which is applied to incumbent incubated companies is also open to interpretation. It may be the case that thresholds and/or horizons to achieve high growth are too ambitious and that growth numbers achieved by incubated companies are in keeping with what should be expected. Independent research indicates that firms who grow in a second five year period are likely to experience stable or volatile growth early on rather than rapid growth. Therefore, we should not necessarily discount lower growth outcomes, at least initially. A measure of high growth needs to be relevant and achievable. With the focus on GCF an international dimension should also be built in.

- *enhance the transparency of incubator awards:* NZTE use a weighted scoring system to rank incubator applicants yet have not openly communicated an example of a successful incubator. The IDU could communicate what makes each incubator unique and individually successful more widely across the industry;

- *review the system of tracking company exits:* the IDU has established a portal for the collection of firm performance data. Through the portal incubators record

information on both current company tenants and companies exiting their incubator. To aid understanding of the outcomes of the programme it would be useful if more emphasis is placed on obtaining quality data on company outcomes and less on the growth prospects of firms. We also recommend that the IDU maintain a centralised database of company exits from supported incubators.

- *socialise the outcomes of incubator projects:* Over the years 2003/04 – 2006/07 approximately $439,000 in programme funding (ex GST) has been spent on projects to further develop New Zealand's incubation industry. Yet, it is not usual for the outcomes of such projects to be considered on an industry-wide basis. If the value proposition of a project warrants it, the IDU could play a role in socialising these outcomes.

13. References

Adkins, D, NBIA, 'Ten Keys to Incubation Success'

Allen, D.N. and R McCluskey, 'Structure, policy, service and performance in the business incubator industry', *Journal of Entrepreneurship Theory and Practice,* winter, 1990.

Centre of Strategy & Evaluation Services, 'Benchmaking of Business Incubators', 2002

DEV (01) 11, Incubator Support Programme, April 2001

DEV Min (01) 4/5, Incubator Support Programme

Dickson, A. Massey University, 'Pre-incubation and the New Zealand Incubation Industry', February 2004

EDC (05) 105, Incubator Support Programme: Evaluation Report, June 2005

EDC Min (05) 16/4, Incubator Support Programme Evaluation Report

Hackett, Sean M. and D.M. Dilts, 'A Systematic Review of Business Incubation research', *The Journal of Technology Transfer, 29*, June 2004, pp 55-82

Hull, L and Dr. R. Arnold, 'Size of turnover of New Zealand firms and 2000 to 2005 turnover growth of a cohort of New Zealand firms', MED, January 2007

Hull, L and Dr. R. Arnold, 'Base Rates For Industry Policy', MED, February 2008

MED, 'Incubator Support Programme Review of Efficiency and Effectiveness', 30 November 2004

MED, Incubator Support Programme Evaluation Report Back, 14 June 2005

MED, 'SMEs in New Zealand: Structure and Dynamics', July 2007

Lalkaka, R and D Shaffer, 'Nurturing Entrepreneurs, Creating Enterprises: Technology Business Incubation in Brazil', *International Conference on Effective Business Development Services,* March 1999

Meta Group, 'Incubation Schemes Survey'

Nolan, A, 'Public policy on business incubators: an OECD perspective', *International Journal of Entrepreneurship and Innovation Management,* Vol. 3, No. ½, 2003, pp22-30

OECD Reviews of Innovation: Policy New Zealand, 2007

Parsons, Jeremy, *Report to NZTE on Funding Incubators to Achieve Sustainability,* 1-33, June 2006

Statistics Canada, Science, Innovation and Electronic Information Division, 'Conceptualizing and Measuring Business Incubation' July 2006

The Allen Consulting Group, ‘BITS Incubator Program – Pilot Evaluation’, February 2003

The Allen Consulting Group, ‘Science and Technology Parks’, September 2007

www.nbia.org National Business Incubators Association Principles and practices of successful business incubation.

14. Appendices

14.1 Methodology

14.1.1 Data sources

Existing studies and data

The work for this evaluation commenced with a review of existing information. This included:

- a file review of policy documents and NZTE records; and
- a literature review of incubation and international evaluations of incubator programmes.

The file review added to our understanding of the policy environment existing at the commencement of the programme. NZTE records helped us to understand the implementation and delivery of the programme and the nature of support given to incubators. Data reported via the NZTE portal was also used to identify outcomes of the programme.

The literature review helped us to establish the methodology for the evaluation, to understand the issues associated with the measurement of outcomes and to learn about the development of the incubation industry, internationally.

Survey

To source data on programme outcomes and help ascertain the level of programme additionality, we endeavoured to survey all exited companies from incubators that received an incubator award in the 2006/07 funding round. The survey questions follow below. The design of the survey was informed by an open discussion with current and exited tenant companies. We focussed on exited companies as quantitative data for companies receiving incubation was often not reliable as it is open to extreme fluctuations. The survey was conducted in August 2007.

At the time of this evaluation, NZTE did not hold a list of graduate companies. We therefore derived our own list of graduate companies. This list was initially compiled from data provided by incubators. However, as a result of inconsistencies, this list was later supplemented by data from incubator websites, applications for incubator awards, and from NZTE portal data.

At the time of the survey we estimated that a total of 143 companies had graduated from incubators who had received incubator awards in the 2006/07 funding round. As shown in section 5.1, the exit dates vary. Of these 143 companies, we surveyed 122. (The remaining 21 companies included three companies that had been acquired or closed down, and 18 companies for which we were unable to obtain contact details for).

From our survey of 122 companies, we received 82 responses (a response rate of 67%). The remaining 40 companies included 29 companies that chose not to respond and 11 bounce backs to our server, indicating that contact details were incorrect.

Since the survey was completed, we have learnt of another 16 graduate companies from incubators in our chosen group (at least three of which are known to be no longer trading). This takes our estimated total number of graduate companies, from the eight incubators that received incubator awards in the 2006/07 funding round, to 159.

It is important to note that this number is MED's own estimate of graduated companies and differs from incubator's own records. Reasons for the difference most likely include some incubators not recording graduates unless they are deemed to be high growth, and incomplete records over time.

Control groups

To help ascertain the level of programme additionality we endeavoured to use two control groups: (1) companies that were accepted for incubation but chose not to enter an incubator and (2) incubated companies that left before graduation without the mutual agreement of the incubator and company. However, numbers for both control groups were statistically too small.

Instead, we relied upon industry benchmarks on the growth and survival rates of New Zealand firms.

Interviews

Interviews were conducted between May and July 2007 with the following key stakeholders in the incubator industry:

- 10 managers of incubators (eight of which received funding via the 2006/07 incubator awards);
- 15 founding and working partners of the above incubators (including members of incubator boards, key points of contact at polytechnics, universities, and CRIs, and local councils;
- six commercialisation managers of universities;
- the NZTE programme manager for the Incubator Support Programme;
- two senior NZTE managers associated with the Incubator Support Programme;
- two NZTE sector managers; and
- the head of Incubators NZ, the industry association.

The purpose of these interviews was to explore the future role of government in business incubation; to understand the links between business incubators and universities/research institutions; to explore models of financial sustainability; and to discuss the future scope of the Incubator Support Programme. Examples of the questions asked in the interviews follow.

The information from these interviews was supplemented by meetings with visiting international experts in incubation.

14.1.2 Data limitations

The information on programme outcomes is limited by the number of companies responding to our survey. From a total sample of 159 graduated companies from incubators, we were able to obtain data on 82 companies via the survey. This data was supplemented with data from the NZTE portal and incubators.

Some of the survey data had to be re-coded. For example, despite still being in business, 20 companies chose not to report turnover, as they viewed themselves as "non trading". In these instances, we recorded company turnover as "nil". Other turnover results were forced to "non trading" for companies that were not in existence in at the corresponding time.

Incubators report data on alumni companies in their applications for funding to NZTE. Where possible, we undertook a quality check on our survey data, by comparing it with unconsolidated data from the funding applications.

14.1.3 Survey

The following are the questions asked in the survey of exited companies:

Profile of business

1. Origin of business (5 options given).

2. Are you currently still in business? If not, when did you cease trading?

3. Since you exited the incubator has the ownership of the business changed? How?

4. What is the current age of the business?

5. How many staff does the business currently employ?

6. Please select the one option that best represents your main business activity (options given).

Impact of incubation

7. Did the advice, information or learnings you received from the incubation process change any of the following? (Options given for each).

    - time taken to develop new products or services
    - time taken to establish a market niche
    - ability to raise capital
    - ability to grow sales
    - ability to internationalise
    - ability to establish effective business connections/relationships

8. If there was no impact of the incubation process on any of the above categories can you explain why you think that was?

9. Looking back, how important was the support provided by the incubator to the development of your business? (3 options given).

Financial information

10. Please estimate the individual amounts of capital the business has raised, since it started in the form of debt, equity, and government grants.

11. What was the value of the business's domestic turnover for each of the last five financial years? If you were not trading domestically for any of these years, please write NT against that year.

12. What was the value of the business's exports for each of the last five financial years? If the business was not trading overseas for any of these years, please write NT against that year.

14.1.4 Example interview questions

Questions varied according to who was interviewed. The following is a sample of questions from across the interviews:

Background

1. What is the focus of your incubator? Has the focus of your incubator changed and why?

2. Why do you focus on these types of firms? (What are the unique characteristics of these firms. What are the needs and strengths of your region?)

3. How many companies do you currently support and in what capacity?

4. What were your objectives in founding an incubator? Are your objectives being met?

Incubation

5. What organisations do you engage with that have an interest in incubation (research and non research organisations). What organisations should incubators engage with?

6. For each of these organisations, how effective is this engagement and why? How were the links formed with these organisations and how are they maintained?

7. What are the problems/issues in commercialising research? What are you doing to help commercialise research? What can the government do to assist the commercialisation of research?

8. What initiatives do you have in place to help your tenant companies raise capital? How do you encourage networking amongst your tenant companies and is this important?

9. How do you monitor tenant company progress? What do you consider to be the key success factors of incubation?

10. What factors have contributed to the performance of your incubator: both positively and negatively.

Effects of government support

11. What is your financial plan/has your financial plan changed in the last year? What progress have you made in relation to this plan? What are the implications of managing your financial plan?

12. Have you been able to leverage support from the private sector? Are you considering new funding options?

13. Do you believe that incubators can be financially independent of central government. How and in what timeframe? What is the minimum needed to achieve financial independence? How can government assist incubators to reduce their reliance on central government funding?

14. How satisfied are you with the level of information/interaction from NZTE? Do you feel that they provide the support and understanding that is required for the programme to be effective?

15. Do you think that the Incubator Support Programme generates outcomes that would happen anyway? What about unintended outcomes? What are the strengths/weaknesses of the programme?

Policy development

16. Do you think that the government should support incubation development in NZ and why? Is the Incubator Support Programme the right solution to the needs of the market? To what extent could you have pursued your objectives without the support of the Incubator Support Programme?

17. What is the role of the IDU? What is the role of Incubators NZ?

18. Is the Incubator Support Programme the right scale, the right size? Are there changes, in design or delivery, that could be made to the programme to improve its effectiveness?

19. What is the future direction of your incubator? What are the constraints in moving in this direction and how can the government facilitate?

20. How should government incubator support policy be developed in the future? How can the government assist/facilitate?

21. What are the co-dependencies between incubation and other government programmes? What other government programmes should the Incubator Support Programme be aligned with and why?

14.2 New Zealand's incubation landscape

Incubator	Started	Founders	Primary objective	Sector focus	MED's estimate of company exits	No. of incubator awards 2000/01 – 2007/08	Total value of incubator awards (ex GST) 2000/01 – 2007/08
Auckland							
The Icehouse www.theicehouse.co.nz	June 2001	A collaborative partnership between the University of Auckland Business School, The Boston Consulting Group, Telecom New Zealand, the Bank of New Zealand, Ernst & Young, Hewlett Packard and Mircosoft.	To work with owners of start-up companies through to established multi-million dollar companies to accelerate growth and wealth creation.	ICT, creative & bio	41	8	$2,329,000
AUT Technology Park www.techpark.aut.ac.nz	Jan 2001	Auckland University of Technology	To provide opportunities for technology based start-up businesses to develop innovative high-tech ideas into commercial products.	technology	31	8	$1,673,000
e-Centre Massey www./e-centre massey.org.nz	Jan 2001	Massey University, Enterprise North Shore	To nurture and grow entrepreneurial high-tech companies.	ICT	16	8	$1,837,000
The Fashion Incubator Ltd (Auckland) Since failed.				creative	n/a	3	$160,000
Enterprise Waitakere (Westsmart) No longer exists.	2003?	Enterprise Waitakere and Waitakere City Council	To provide high quality support throughout west Auckland for all types and stages of business, assisting in wealth creation and success.	mixed	n/a	2	$151,000
Business Incubators NZ Ltd Since been disbanded.					n/a	2	$45,000
NZ Centre for Innovation and Entrepreneurship Since failed.		UNITECH – Centre for Innovation and Entrepreneurship			n/a	1	$89,000

Incubator	Started	Founders	Primary objective	Sector focus	MED's estimate of company exits	No. of incubator awards 2000/01 – 2007/08	Total value of incubator awards (ex GST) 2000/01 – 2007/08
The Generator	June 2007	UNITEC Design School		Creative	n/a	0	-
Waikato							
Waikato Innovation Park www.innovation waikato.co.nz Since been disbanded.	Feb 2004?	Hamilton's economic development agency and the Hamilton City Council.	To accelerate the development of technology companies in their early stages and to add value to those companies through the provision of a comprehensive programme.	agbio, technology	4	5	$10,780,000
Palmerston North							
The Bio Commerce Centre www.bio commerce.co.nz	Feb 2005	Established incorporated company. The Manawatu Bio Commerce Trust has a 100% shareholding.	Part of a wider initiative to increase the volume and value of the commercialisation of biologically related research and intellectual property being generated at Massey University, the CRI's and by other entrepreneurs in the Manawatu.	biotech and mixed	0	6	$932,000
Wellington							
Creative HQ www.creativehq. co.nz	Oct 2002	Operates as a business unit of Regional EDA Ltd.	To nurture, support and develop start-up small businesses within the creative sector.	ICT, creative	33	7	$1,807,000
NRG Trust Not classified as an incubator – incubation services mainly offered virtually.	2002?		An enterprise facilitator for NZ entrepreneurs aged 18-30 years.	Mixed	n/a	0	-
Innovation Greenhouse Porirua No longer in existence.	2003?	Porirua City Council, Whiteria Polytechnic and WINZ.	To deliver a start-up programme for a mix of businesses in the Porirua region.	Mixed	n/a	4	$338,000

Incubator	Started	Founders	Primary objective	Sector focus	MED's estimate of company exits	No. of incubator awards 2000/01 – 2007/08	Total value of incubator awards (ex GST) 2000/01 – 2007/08
Capital Innovations Ltd (T-Up) www.innovation greenhouse.co.nz No longer classified as an incubator as utilises a real-estate incubation model.	1999	VicLink (business arm of Victoria University)	Provides a nurturing environment for start-up businesses to grow.	ICT	n/a	5	$773,000
Industrial Research Limited (IRL) www.irl.cri.nz/ incubation No longer classified as an incubator – focuses on commercialising research.	2001?	Industrial Research Limited	Support advanced technology start-up companies while they reach financial viability.	technology	n/a	5	$745,000
Christchurch							
Canterbury Innovation Incubator www.cii.co.nz	Aug 2001	University of Canterbury, Lincoln University Christchurch Polytechnic Institute of Technology, Canterbury Development Corporation Ltd and Orion NZ Ltd	To be, and to be internationally recognised, as a world class business incubator that provides excellent business growth services and an entrepreneurial environment to promote and advance the high technology industry of Canterbury.	ICT, electronics	19	8	$2,605,000
Canterbury Innovation Incubator – Lincoln (a satellite incubator of Canterbury Innovation Incubator)	2007	As above	As above	Biotech	0	1	$220,000
Spark Ventures Not classified as an incubator anymore					n/a	2	$133,000

Incubator	Started	Founders	Primary objective	Sector focus	MED's estimate of company exits	No. of incubator awards 2000/01 – 2007/08	Total value of incubator awards (ex GST) 2000/01 – 2007/08
Dunedin							
Dunedin Fashion Incubator www.dfi.co.nz (incorporated into Upstart in 2004)	2001?	Dunedin City Council and Otago Polytech.	Assist new high growth design businesses by providing tools, capabilities and networks to accelerate international success.	creative	n/a	3	$209,000
University of Otago Centre for Innovation www.cfiotago.com (incorporated into Upstart in 2004)	2003?	University of Otago, Otago Polytechnic and Dunedin City Council.	Facilitate the development of commercial applications via collaborations between university and industry researchers, student entrepreneurs, and academic researchers on campus by providing an innovative environment for the rapid development of new products and processes.	biotech, IT	n/a	1	$80,000
Upstart www.upstart.org.nz (amalgamation of other 2 incubators)	July 2004	Dunedin City Council, the University of Otago and Otago Polytechnic. Governed via a Trust.	To build a credible, efficient incubator, with high quality clients and a sustainable business model.	Technology Creative	15 total (including from above incubators)	5	$1,522,000
Invercargill							
Southern Institute of Technology (SIT) Not classified as an incubator anymore - part of a business course. www.sit.ac.nz	2002?	SIT and Southland Community Trust.	To stimulate economic growth in the local economy by helping establish new knowledge-based business ventures. Has a strong academic and practical link with the courses offered by the Institute of Technology.	Mixed	n/a	1	$89,000

14.3 Conclusions and progress from the first programme evaluation

The first evaluation of the Incubator Support Programme was undertaken in 2004, in order to assess the efficiency and effectiveness of the programme in achieving its intermediate objectives.

As a result of evidence presented it was concluded that:

- delivery of the programme was efficient;
- the programme had effectively promoted best practice amongst New Zealand incubators and enhanced networking amongst incubator managers;
- there was more scope to encourage networking within the wider incubator networks, i.e. with CRIs, universities, angel investors, and venture capitalists. (As noted in section 2.2 the IDU was subsequently tasked with undertaking work in this regard); and
- while the programme had effectively created greater awareness of other government programmes, facilitating access among incubator tenant companies to other government programmes was not considered to be a role of the Incubator Support Programme.

Refer to http://www.med.govt.nz/templates/MultipageDocumentTOC 13626.aspx for the full text of the first programme evaluation.

In the first evaluation a number of issues were identified for further analysis. In the table below we note what these issues were and provide an update on subsequent work done.

Table 14.3(a) Issues identified in the 2004 evaluation for further analysis

Issue	Subsequent actions
Investigate models of financial sustainability of incubators from central government.	• The IDU has placed greater emphasis on the potential for incubators to become self-sustaining when it assesses award applications. • In 2005 NZTE and Incubators NZ commissioned an independent report on incubators' plans to achieve self-sustainability (see section 6 for a discussion of the issues contained in the report).
What is the future role of the IDU, given the emergence of an incubators association, Incubators NZ, in May 2003?	In the short term, the IDU was deemed to be the most logical place to deliver the Incubator Support Programme. However, the ongoing role of the IDU is a question for the second evaluation.

Issue	Subsequent actions
Has the Incubator Support Programme been a useful complement to other government programmes?	There is complementarity between the Incubator Support Programme and other government funded business development programmes. These complementarities are touched on in section 10.
How can the linkages between incubators and universities/CRIs be improved?	• In mid 2005 it was deemed unlikely that central government or industry association interventions will impact on the behaviour and attitudes in this regard in the short to medium term. Instead, such linkages were best addressed by building local relationships and developing a track record of success in commercialising intellectual property from affiliated institutions. • Subsequently, significant activity has gone into addressing the links between incubators and universities/CRIs. This activity is discussed in section 7.
What is the merit of incubators pursuing social objectives relative to targeting only high value businesses?	The focus for incubators on growing high growth businesses rather than fulfilling social objectives is consistent with the government's economic framework and was deemed to be the most appropriate approach for encouraging self-sustaining incubators.
Can the Incubator Support Programme make a noticeable contribution to broader government economic development goals?	In order to help evaluate the programme's contribution to the longer survival and growth of early stage businesses, the IDU established a portal for the collection of firm performance data. Part of this portal included the collection of data from former incubator tenants, exiting since 2005. Such information is to be collected for a period of five years post exit.