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Measuring the effectiveness of NMÍ's incubators
A study of public business incubators in Iceland

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Faculty of Business Administration

June 2014



HÁSKÓLI ÍSLANDS

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A thesis in partial fulfillment for a Bachelor's Degree

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School of Social Sciences

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University of Iceland.

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Preface

This thesis is submitted in partial fulfillment of the requirements for a Bachelor's Degree in Business Administration at the University of Iceland, School of Business. The thesis is 12 ECTS credits. The supervisor for the thesis was Þóra H. Christiansen, adjunct professor.

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Abstract

In recent years, entrepreneurship and innovation has gained traction in the public discourse and the attention of policymakers. One of the tools available to spur entrepreneurship is operating business incubators - organizations which provide shared office space and business consultation and services to startups. In Iceland, Innovation Center Iceland (NMÍ) is the largest operator of incubators. NMÍ operates four incubators as well as co-operating with other organizations on several others. The objective of this research was to analyze the incubators run by NMÍ, measure their effectiveness, and compare this with the results of similar research done on incubators elsewhere. NMÍ's incubators were analyzed and compared to suggested best practices in incubator operation. A survey, based on a four dimensional model to measure the effectiveness of incubators was sent to previous clients of NMÍ's incubators. The results, which are not statistically significant, showed that companies incubated at NMÍ report a considerably lower success rate than at other incubators in the USA and Europe, and NMÍ's incubators did not implement a substantial part of best practices suggested in the literature, which possibly explains the lower success rate.

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1 Introduction

Entrepreneurship, startups and innovation have been popular subjects in Icelandic media and political discourse during recent years. The years following the financial crash of 2008 were hard for Icelandic businesses, with firms going bankrupt and layoffs fueling Icelandic unemployment to very high rates. Some looked to entrepreneurship and new venture creation as a solution to those problems, with several high-profile successes in recent years, most notably the venture backed Plain Vanilla, which has received \$25 million in venture capital, or Meniga, which now employs more than 60 people, several years after starting.

Discussion of the entrepreneurial environment in Iceland, and what the government can do to support that environment, has regularly gained traction in the public sphere, generally with positive attitudes towards public support. This kind of support for entrepreneurship and new venture creation can come in many forms. Research and operating grants, such as those offered by the Icelandic Centre for Research, direct investment by NSA Ventures (The Leading Icelandic Venture Capital Fund), business consultation and education provided by the Icelandic Innovation Center (NMI) and local governments, incubators run by various entities, and tax deductions for R&D work are all examples of such a public support environment (Icelandic Centre for Research, n.d.; NSA Ventures, n.d.; Nýsköpunarmiðstöð Íslands, n.d.-b; Ríkisskattstjóri, n.d.).

Most of these initiatives are met with support and positive attitudes among the public, as the public discourse suggests that people are tired of large scale energy-intensive industries and industrial fishing being seen Iceland's most important industries. A common ground can be detected: "Entrepreneurship can and should play a bigger role in the future of the Icelandic economy." Some go so far as to suggest that Iceland's retirement funds should take an active role in seed and venture financing, further supporting the start-up scene (Forsætisráðuneytið, 2011; MBL.is, 2013).

As previously mentioned, one type of such public initiative is the business incubator, a shared office space operated by an organization that seeks to provide its clients with business assistance in order to increase their chances of success. Research suggests that incubators support the growth of small and medium sized enterprises (SME's) effective-

ly and in a cost-efficient way. In recent years, the number of incubators in Iceland, both public and private, has grown. Most of the incubators are run by NMÍ, which currently operates four incubators in the capital region, and is a participant in the operation of others.

It is worthwhile to study NMÍ's incubators for several reasons: When initiatives have been shown to be effective internationally, it is of interest to review their effectiveness domestically. When public funds are in play, arguments can be made that proof of effectiveness and success should be required to justify the allocation of financial resources. Finally, the impact or effectiveness of NMÍ's incubators has not yet been studied.

This leads to the objective of this research, which is to analyze the incubators run by NMÍ, measure their effectiveness, and compare this with the results of similar research done on incubators elsewhere. To achieve that objective, the following research question is posed.

➤ **How effective are the NMÍ incubators in promoting the success of start-ups?**

The research question will be answered by addressing the following sub questions.

a) How well does the operation of NMÍ's incubators compare to suggested "best practices"?

b) What is the success rate of companies/ideas at NMÍ incubators?

The findings should be of practical value to NMÍ and public institutions, which work with entrepreneurship and innovation. NMÍ has not gathered data on clients incubated after they have left the incubator or researched or measured the success or failure of their efforts as incubators. This is worth considering because public resources are used to run these incubators, and therefore the success of initiative should be measured to justify ongoing operations. Without measurements and analyses, NMÍ has little factual ground to measure their success and base their operational decisions on.

1.1 Icelandic Innovation Center – Nýsköpunarmiðstöð Íslands

The Icelandic Innovation Center (NMÍ) began operations on August 1st, 2007, when two institutions, Industry Technology Institution (Iðntæknistofnun) and the Construction Industry Research Institution (Rannsóknarstofnun byggingariðnaðarins) were merged. Its

objective is to increase the competitiveness of Icelandic business and increase the quality of life in Iceland. The tasks are twofold – entrepreneurial support and technical research and consulting. The former includes distributing knowledge as well as creating and operating a support infrastructure for entrepreneurs. The latter does practical research in several fields including construction, production, and energy (Fréttablaðið, 2007).

NMÍ approaches their entrepreneurial duties by operating two divisions. One is dedicated to the management of their incubators and the other is a consultation service aimed at entrepreneurs and small businesses, which is open to anyone, free of charge.

NMÍ operates four incubators, as well as partnering with other organizations on several other initiatives. The incubators are Keldnaholt, KÍM Medical Park, Kvosin and Kveikjan.

1.2 Structure of research

The following research is presented in seven chapters, including the introduction. The second chapter, Literature review, gives an overview of academic writing and research on business incubators and their operations. The incubator concept is defined and different types of incubators introduced. Research on their general effectiveness as a measure to spur entrepreneurship will be covered as well as definitions of successful incubators. Research on how incubators become successful and how individual incubator success is measured will be discussed. The third chapter describes the research methodology with detailed information on how it was conducted. The fourth chapter paints a profile of NMÍ's incubators and their operations. Chapter five depicts the results of a survey sent to graduates from NMÍ's incubators. The sixth chapter will discuss and analyze the findings, and compare them with similar results from other countries. Possible reasons for any difference in effectiveness between NMÍ's incubators and other researched incubators will be examined. The seventh chapter considers the practical implications of the research followed by suggested improvements to NMÍ's operations. The eighth chapter outlines limitations of the research and suggests subjects for future research.

2 Literature review

It is generally accepted that the first business incubator was the Batavia Business Center in Batavia, NY, which opened in 1959 (Lewis, 2001; National Business Incubation Association, 2009; Wiggins & Gibson, 2003). There, a real estate developer bought an abandoned manufacturing plant and turned it into a shared space for businesses. The novelty of the Batavia Business Center, which in essence made it more than just a shared space for business, was that they offered business assistance services to start-up companies (Lewis, 2001).

This idea gained popularity in the 1980's and growth of business incubators surged, when some individuals thought that focusing on attracting industry and large corporate expansions was a limited approach to economic development, and started focusing on assisting the creation of new businesses to support local economic development (National Business Incubation Association, 2009). Incubators didn't start to spread until the late 80's, when the US Small Business Administration undertook initiatives to strengthen the incubator movement, including supporting the formation of the NBIA (Wiggins & Gibson, 2003).

2.1 A definition of Incubators

Although no formal definition of an incubator exists, numerous industry professionals and researchers have offered their definitions in various works. These suggested definitions are often comparable in many ways. The National Business Incubator Association (NBIA) for example defines an incubator as "a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services" (National Business Incubation Association, n.d.). In addition, appropriate rental space with flexible leases and shared business equipment is part of NBIA's definition.

In their review of incubator research, authors Hackett and Dilts (2004) offer the following definition of the incubator concept, while emphasizing that business incubation should be seen as a process:

A business incubator is a shared office space facility that seeks to provide its clients (i.e. "portfolio-" or "client-" or "tenant-companies") with a strategic,

value-adding intervention system (i.e. business incubation) of monitoring and business assistance (Hackett & Dilts, 2004, p. 57).

United Kingdom Business Incubation (UKBI) further stipulates on the idea of incubation being a process, describing it as “a unique and highly flexible combination of business development processes, infrastructure and people designed to nurture new and small businesses by helping them to survive and grow through the difficult and vulnerable early stages of development”(United Kingdom Business Incubation, 2012).

The business assistance and development processes are further explained in an overview of US incubators by Wiggins and Gibson (Wiggins & Gibson, 2003). They state that 75% of respondents in a survey to identify services offered by incubators, offer assistance with business basics, marketing, finance and accounting, investor and strategic partner linkage, networking, links to higher educational institutions, shared office facilities like conference rooms and shared administrative services.

A similar list of services offered by 107 European incubators showed that 70% offered financial- and marketing advice, meeting rooms, networking, business planning and starting, help with fundraising through investors, loans and grants, and office equipment (Aerts, Matthyssens, & Vandenbempt, 2007).

In addition, according to Aernoudt, the business incubator’s “main goal is to produce successful firms that will leave the incubator financially viable and free-standing within a reasonable delay”(Aernoudt, 2004, p. 128).

2.2 Types of incubators

One frequently used approach of classifying incubators is based on the financial sponsorship of the incubator. Using these criteria, they are often arranged in four groups: Publicly sponsored incubators, private non-profits, universities and private corporations. (Allen & Rahman, 1985; Grimaldi & Grandi, 2005; Kuratko & LaFollette, 1987; Lumpkin & Ireland, 1988)

- **Publicly sponsored:** Incubators managed and organized by public initiatives, local governments, regional planning commissions and so forth. Their objectives are job growth and local economic development.
- **Private non-profits:** Incubators managed and organized by associations of private industry, chambers of commerce or community based organizations. Their objectives are the economic development of their area.

- **Universities:** Incubators managed by universities, which have the objectives of spinning-out research projects and commercializing them.
- **Private corporations:** Incubators run by private entities whose main goal is to profit.

Although different in scope and size, all these types have certain elements in common. They all offer flexible leases and affordable, lower-than-market rate rent. They provide shared administrative services at a limited cost or free of charge, business consulting, and financing assistance. They usually have a graduation policy, which requires firms to leave after a certain amount of time (Kuratko & LaFollette, 1987).

In a more recent paper, Aernoudt (2004) introduces a taxonomy of incubators. He arrives at five categories based on their objectives, rather than type of sponsorship as the older categorization did. His categories are:

- **Mixed incubators:** Incubators that serve all industries, from low-tech to hi-tech industries, and both manufacturing and service companies. Their main goal is to facilitate business creation.
- **Economic development incubators:** Incubators that focus on a regional gap, and have the objective to diversify a regional economy and improve the competitiveness of a region.
- **Technology incubators:** Incubators much like the university sponsored incubators; focus on technology companies such as IT or biotechnology. Their main goal is facilitate the transfer of research findings to industry.
- **Social incubators:** Incubators that have the objective of supporting the growth and development of companies that employ people with limited employment capabilities.
- **Basic research incubators:** Incubators that try to link the incubation concept to basic research, nurturing ideas and research projects until they are ready for the economy.

These two different versions of categorization show how varied incubators have become, but also provide a decent way of categorizing them based on sponsors and goals, which helps compare them with their peers.

2.3 Why operate incubators?

In their review of incubators as a tool for economic development, Kuratko and LaFollette (1987) evaluate the effectiveness of incubators for entrepreneurs but point out that, at the time of writing, incubators were so new that no study could give convincing results. They do however report a promising outlook for incubators by pointing out a dramatically smaller failure rate of incubated companies compared to non-incubated ones.

Several later studies suggest that incubators turned out to be a good method to support the growth of small and medium sized enterprises (SME's) in their locale: According to one survey, European incubators reported between 80-90% client survival rates over a five-year period, compared to a 30-50% survival rates in the wider community of SME's. The numbers for the US are similar, with survival rates reported at 87%. The same report concludes that incubators are a "cost-effective instrument for the promotion of public policy objectives (Costa-David, Malan, & Lalkaka, 2002, p. 10). Others have already pointed out that these numbers, although impressive, should be taken with precaution, as many incubators have a selection process that might weed out the ideas likely to fail, creating selection bias (Sherman & Chappell, 1998).

Many incubators are set up at the initiative of policymakers to spur local economic development (Bergek & Norrman, 2008), and according to research in the US 85% of incubated companies expect to or do relocate in the local area, which supports the case for incubators as an economic development tool on the local level (Allen & McCluskey, 1990).

This does not mean that their success or value is not debated. Stephen Bent (as cited in Cunningham, 1999) believes the incubator system shelters some companies too much and others not enough, while not providing any additional arguments. Others state that the concept is flawed, because it takes initiative away from the entrepreneur (Finer & Holberton, 2002).

Although the value of incubators is not universally acknowledged, and disputed by some, the ongoing operations of incubators, as well as studies that suggest their success and effectiveness, support the argument that incubators can be a useful tool for business development.

2.4 What is a successful incubator?

How to determine whether an incubator is successful in its operations or not, has been debated, and several approaches suggested. Aernoudt's (2004) suggestion of a successful incubator is quite detailed:

...a good incubator has a big enough number of new, young enterprises with growth potential, an optimal rotation rate, a high survival rate of graduates that continue to do business outside the nurturing premises, a positive impact on the perception of entrepreneurs and on the creation of an entre-

preneurial culture, strong links with industry, R&D centres and universities and finally a structure facilitating access to financial markets. (Aernoudt, 2004, p. 128)

This suggestion is quite ambitious, however, and does not take into account the goals or objectives of individual incubators. One way to determine success, which is proposed in a paper that set out to identify incubator best practices, is to measure their performance by defining how their outcomes correspond to the goals set by the incubator. The argument is that performance measures based on the goals of one incubator might not describe the performance of an incubator with other goals successfully. If the objective is to increase employment, the number of jobs created would be a suitable metric, while if the objective is to commercialize university research, sales or patents might be more suitable (Bergek & Norrman, 2008). This approach proposes that an incubator needs to define its goals in order to measure its success effectively.

Although the definition of success in an incubator environment can differ from one institution to another, the NBIA has created a list of suggested metrics, where it is recommended that all incubators both track clients still being incubated on a yearly basis, and follow them for up to five years after graduation. Such metrics can be seen in Table 1. Although not entirely exhaustive, they cover the most common program outcomes. These tracked metrics should be compared to baseline data collected on incubator clients when they enter the incubator (National Business Incubation Association, 2007).

Table 1. Ten basic metrics suggested by NBIA (National Business Incubation Association, 2007).

Ten basic metrics suggested by NBIA	
1.	Number of current clients
2.	Total number of graduates since program inception
3.	Number of graduate firms still in business or that have been merged or acquired
4.	Number of people currently employed full-time by client and graduate firms
5.	Number of people currently employed part-time by client and graduate firms
6.	Current monthly salaries and wages paid by client and graduate firms
7.	Gross revenues for the most recent full year for client and graduate firms
8.	Dollar amount of debt capital raised in most recent full year by client and graduate firms
9.	Dollar amount of equity capital raised in most recent full year by client and graduate firms
10.	Dollar amount of grant funds raised in most recent full year by client and graduate firms

2.5 How do incubators become successful?

There are various methods to assure and measure the success of incubators. Different terms tend to be used to describe similar elements of an incubators operation that seem to foster its success. Three approaches were identified which utilize both value laden terms such as “Success factors” and “Best Practice” as well as more neutral terms such as “Tasks” to describe factors which are seen to promote incubator success.

In 1987, Raymond W. Smilor published a study on the critical success factors of incubators. He based his research on a national survey, on-site reviews, case studies and interviews and identified ten success factors implemented by successful incubators. The ten factors identified were on-site business expertise, access to financing, in-kind financial support, community support, the entrepreneurial network and education, perception of the incubators’ success, the selection process, ties to a university and clear policies and program milestones. Some of these factors, such as on-site experience and access to financing, are not surprising, and are intertwined with the definition of an incubator given earlier. Others, like the selection process, are of more interest, and may be factors that are overlooked by inexperienced incubator managers.

Smilor's success factors, which are discussed on the following pages, can be roughly arranged in three clusters. Firstly, the shared office space which Smilor classifies as in-kind financial support. Secondly, the business assistance provided by the incubator, which includes on-site business expertise, access to financing and capital and entrepreneurial education. Thirdly, factors that are not part of the literal definition of an incubator, discussed on page 13, but part of the incubator’s strategic management. These are the entrepreneurial network, the perception of success, the selection process, ties to a university and concise program milestones and procedures. When categorized in this way, it is evident that half of the success factors are achieved by management going beyond the minimum requirements of incubators and designing incubator programs to maximize the success of their clients. These factors will be discussed in the following section, where success factors, tasks and suggested activities are categorized and grouped together.

Based on their case study of the award winning Austin Technology Incubator (ATI), Wiggins and Gibson (2003) come to the conclusion that in order to succeed, incubators must accomplish five tasks. These tasks are establishing clear metrics of success, provid-

ing entrepreneurial leadership, a service delivery network that is designed for and delivers needed service to the client companies, developing a workable selection process, and providing access to capital. Most of these tasks include one or more of Smilor's success factors.

In a report on the European Commissions' benchmarking of incubators, Costa-David, Malan and Lalkaka (2002) discuss ways to improve incubator performance based on lessons learned from European incubators. They suggest best practices in categories of operations, functions and evaluation of incubators. Many of their suggestions coincide with both Smilor's factors and Wiggins' and Gibson's tasks, and will be discussed alongside similar factors below.

These three studies provide the basis for the analysis in this research. Smilor's success factors, Costa-David's et al. best practices and Wiggins' & Gibson's tasks have here below been grouped together into "tasks" the incubators should perform to maximize their potential. In addition to the three studied mentioned, others will be cited when appropriate.

2.5.1 Define goals, success metrics and perform self-evaluation

Mission statements, goals, metrics and self-evaluation, where incubators measure their performance against metrics they have set for themselves are deemed to be essential to ensure success of individual incubator operations.

Wiggins and Gibson (2003) state that "every incubator program must establish criteria of success against which it measures its performance" (p.60) and they suggest several success metrics cited by the NBIA as industry-wide priorities. The importance of incubator evaluation is stressed as a business incubation best practice, as well as defining and developing a mission statement and goals (Lewis, 2001). The UKBI echoes these views and states that incubation management teams should benchmark in order to identify strengths and weaknesses and compare the incubator performance with other incubators (United Kingdom Business Incubation, 2012). Lee and Osteryoung's (2004) comparison of critical success factors for incubator operations between US and Korean incubators also shows that incubator managers rate goal clarity as highly important. It was rated on average 6.27 on a 7 point scale, where 7 is very important. Costa-David's et al. (2002) best practices also include this task, and suggest that incubators should be

encouraged to benchmark their practices against best practices standards in the industry, and actively try to achieve them, as well as periodically undertaking impact assessments, to demonstrate their effectiveness.

2.5.2 Entrepreneurial staff, training and networks

Experienced staff with certain skills is considered essential for the effective operations of an incubator. They should facilitate the networking of their clients, both with each other and important parties in their industry, and train the clients to prepare them for unsupported operations.

The incubator should have entrepreneurial staff with a “can-do” attitude, the ability to solve problems, a focus on results, and who are ready to work hard (Wiggins & Gibson, 2003). Similarly, the quality of management and staff is stressed as crucial to the performance of incubators, and it is recommended that a business-like approach be taken to running the incubator. European incubators have usually 5-6 staff, 2-3 of them being managers with a business background. The staff-to-tenant ratio is cited as an efficiency indicator and a ratio of 1:3.2 is suggested (Costa-David et al., 2002). This task also includes Smilor’s (1987) success factors of entrepreneurial training and thus preparing the entrepreneurs to stand on their own feet once graduated. He also notes the importance of networking for clients, both with other clients and entrepreneurs, and the business community. Networking activities received an average of 6.03 out of 7 in Lee’s and Osteryoung’s (2004) study and is therefore deemed important both by incubator directors in the US as well as Korea. Smilor notes the incubator should have a perception of success that would make it easier for the incubator to attract resources and stronger start-up ventures. One way to establish the perception of success is to employ a successful or experienced incubator manager, which, according to Wiggins and Gibson (2003), is the case at ATI, where they credit much of the incubators’ success to its first director.

2.5.3 Design an effective service delivery system

The service an incubator offers is what makes the incubator more than just shared office space and it is deemed necessary that this service is designed to fit the specific needs of current clients.

The incubator is seen as a service organization which must design services that clients need, and deliver these services in a reliable and excellent manner (Wiggins & Gibson, 2003). This task echoes several of Smilor's success factors. The on-site business expertise, which includes management and marketing consultation, is a service likely to be of value to many clients. The general office services – i.e. office space, administrative services etc. – fit the description. In their benchmarking survey, Costa-David et al. noted that these services should not be free of charge, but rather at subsidized or market rates. Furthermore, they found that the services should develop with and be adjusted to the incubator's target market, to enable it to offer industry specialized services (Costa-David et al., 2002). In addition, it is the incubator's duty to map out which services to offer, based on their clients' needs.

2.5.4 Establish balanced screening practices

Screening processes vary in scope, but a balanced screening method, evaluating a balanced set of factors, is reported as the most effective.

Kuratko and Lafollette (1987) propose that an elaborate incubator screening process of possible clients may be a way to increase success rates of both incubators and startups. Without a standard screening process the incubator faces the possibility of inviting clients who/which are either too weak, i.e. more likely to fail and might destroy the project, or too strong, i.e. older, less risky companies that may slow the growth and job creation rate. This view is similar to Culp's (as cited in Hackett & Dilts, 2004) who suggests that incubators should pick companies that are "weak-but-promising", i.e. too weak to make it on their own, but promising in regards to possible growth. Selective admission criteria, which reflect the target market of the incubator is recommended, and a balance should be struck between achieving high occupancy rates and selective admission. Smilor (1987) also notes the importance of a good screening and selection process and lists that as one of his success factors. The different selection processes used by incubators have been studied to some extent, both to identify how incubators screen and what screening factors are desirable.

In 1988, Lumpkin and Ireland, set out to identify factors incubator managers use to screen possible clients. They were looking for success factors, but focused on the success factors of the possible clients rather than the incubator itself. They defined several

factors used by incubators to screen potential clients and organized them into three dimensions. The dimensions were “Experience of Management Team” which included the skills of the managers, experience and growth projections, “Financial strength” which encompassed financial ratios like profitability, P/E ratios and liquidity, and “Market and Personal Factors” which included topics like the uniqueness of product, availability of a business plan and characteristics of the management team.

Aerts, Matthyssens and Vandenbempt (2007) used the previously discussed screening dimensions to link screening practices to incubator performance in a review of European incubators. Their findings suggest that although European incubators screen the incoming startups, only 6% use a balanced set of the three screening factors – experience of the team, financial strength, and market and personal factors. They also note that in a quarter of the incubators, the screening rests on one person alone. Finally, they find that client survival rate is positively related to balanced screening.

It is quite evident from the research cited above that incubators use a variety of screening processes. Admittedly screening should be aligned with the goals of the incubator, however our evidence suggests that a balanced screening process enables incubators to select startups more likely to succeed, and therefore, incubators should establish balanced screening processes, where all three dimensions are evaluated when applicants are screened. These results also concur with research done around 20 years earlier on similar subjects regarding the importance of a screening process (Smilor, 1987).

2.5.5 Ensure access to capital on behalf of the companies

Access to financial resources to fund the company is cited as “one of the primary values of [an] incubator” (Wiggins & Gibson, 2003). This echoes Smilor’s (1987) success factor “access to capital”. Support in regards to financing is ranked as a key incubator service which should be prioritized (Costa-David et al., 2002). In addition to helping companies gain access to working capital, thorough understanding of different financing options is essential to the incubator. The incubator’s staff should understand, educate and help clients make decisions on how to finance their venture. They should know of, and assist with, the various funding schemes available, be it commercial bank loans, venture capitalists or research and development grants (Smilor, 1987).

This chapter has outlined five tasks that incubators should complete to maximize their effectiveness. These tasks are based on literature spanning two decades, dealing with “success factors”, “best practices” and “tasks” which successful incubators incorporate into their operations. These tasks were defined by merging recurring themes in the literature on effective management of incubators. They are: setting goals and success metrics, employing entrepreneurial staff and providing training, designing an effective service delivery system, establishing balanced screening methods, and finally ensuring client’s access to capital. These five tasks will be the basis for the analysis of NMÍ’s incubators in this research.

2.6 Measuring the effectiveness of incubators

Whether an incubator is operated as a public service – for example with the aim of creating jobs in a region – or as a for-profit business, stakeholders expect results, and thus it is reasonable to ponder how results and the effectiveness of specific incubators can be measured.

One proposed model to measure the effectiveness of business incubation, is a four dimensional model created by Al-Mubarak and Schrödl (2011). The model is depicted in Figure 1. It suggests that the graduation of businesses incubated, success of businesses incubated, jobs created by incubation and salaries paid by incubated clients are significant factors when describing the effectiveness of business incubators.

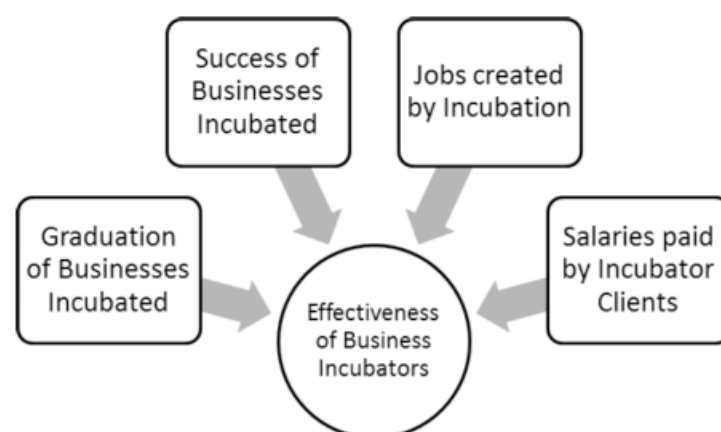


Figure 1. Model for measuring the effectiveness of business incubators. (Al-Mubarak & Schrödl, 2011, p. 445).

2.6.1 Graduation of Businesses Incubated

Graduation from an incubator usually occurs when a company has reached certain milestones, for example outgrowing available space, spending the maximum time allowed at the incubator or reaching other, mutually agreed milestones. The number of graduated businesses over a specified time period can therefore be a measure of an incubator's effectiveness and can indicate whether the clients achieve the level of self-sufficiency or outgrow the need for incubation, as specified in the exit or graduation criteria. It has been suggested that for these numbers of graduated clients to be meaningful, the incubator must have clearly determined goals and standardized graduation policies. This becomes evident when one considers that a business leaving an incubator for a smaller, cheaper space, or to receive different funding, cannot contribute to numbers on incubator success (Al-Mubarak & Schrödl, 2011).

This dimension however is not relevant in this research, as NMÍ does not have a graduation policy or criteria, and measuring effectiveness based on the graduation of businesses therefore not possible.

2.6.2 Success of Businesses Incubated

An incubator should be able to point to the continued success of graduated clients. Both firms still in operation after graduation as well as firms acquired or merged into other companies count as successful businesses when these numbers are tallied (Al-Mubarak & Schrödl, 2011). In addition, five states of business have been identified to further classify and measure the success of the businesses. These are:

1. The incubator client is surviving and growing profitably.
2. The incubator client is surviving and growing and is on a path toward profitability.
3. The incubator client is surviving but is not growing and is not profitable or is only marginally profitable.
4. The incubator client operations were terminated while still in the incubator, but losses were minimized.
5. The incubator client operations were terminated while still in the incubator, and the losses were large (Hackett & Dilts, 2004).

Researchers and industry organizations regularly report on success rates of incubated businesses, which generally range between 80-90% whereas the success rate of startups in general has been reported considerably lower. For example, Costa-David et

al. (2002) report a success rate of 30-50% for regular startups in Europe, but a success rate for incubated businesses of 84.2% in Europe and 87% in the US. Grimaldi and Grandi (2005) note two incubators that have an 80% and 93% five-year survival rate, and Bearse (as cited in Hackett & Dilts, 2004) reports that most studies on success of incubated businesses find a success rate of over 80%.

2.6.3 Jobs created by Incubation

Local economic development is often cited as one of the most important objectives of incubators, and jobs created by incubated companies are therefore important in measuring their effectiveness. Although the incubators themselves do not directly create jobs, but rather create an environment for entrepreneurs to start businesses that create the jobs, this metric allows incubator managers to follow the growth of their clients and the impact they have on their community (Al-Mubarak & Schrödl, 2011).

One study shows an average of 6.2 full-time equivalents (FTE) per client in Europe and 7.7 FTE's per client in the US. It is also noted that although job creation is often an incubator's a key objective, comparison on this statistic can be difficult because of the difference in employment between industries and different amount and types of space at the incubator (Costa-David et al., 2002).

2.6.4 Salaries Paid by Incubator Clients

Another way to assess the effectiveness of the incubators, and more useful when used in conjunction with job creation numbers, is to analyze the salaries paid by incubator clients. As stated earlier, between 80-90% of companies stay in their local environment after graduation, which means these measures can indicate growth in the community. To measure the salaries effectively, numbers on mean, median and maximum wages should be gathered and compared to salaries in the industry and community, to assess whether the salaries paid by incubated companies are positive or not (Al-Mubarak & Schrödl, 2011).

These four dimensions are not the only dimensions suggested to measure an incubator's success or effectiveness (cf. Mian, 1997; Voisey, Gornall, Jones, & Thomas, 2006) but they cover general incubator objectives and can give a rough image of the effectiveness of NMI's incubators. They measure how successful the incubator's clients are in a broad sense and give a general picture of the incubator's success. Other dimensions,

such as number of patents filed or sales or revenue, either limit the scope to a certain type of incubators and industries, or require access to data not available to this research. These four factors have been described as significant when evaluating an incubator's effectiveness (Al-Mubarak & Schrödl, 2011) and gathering the data required for these dimensions is relatively uncomplicated compared to other suggested factors.

3 Methodology

The objective of this research is to analyze the NMÍ incubator system and its offerings and then evaluate its effectiveness. The research question is:

- How effective are the NMI incubators in promoting the success of start-ups?

The research question will be answered by addressing the following sub questions.

- a) How well does the operation of NMI incubators compare to suggested “best practices”?
- b) What is the success rate of companies/ideas at NMI incubators?

In order to address these questions a two-phase approach was chosen. One phase consisted of an analysis of NMÍ’s incubators, their operations and management. The other was a survey sent to graduated incubator clients in order to measure the effectiveness of NMÍ’s incubators.

3.1.1 Analysis of NMÍ’s incubator system

To analyze the function, operations and services of the NMÍ incubator system and compare them to suggested “best practices”, a qualitative approach was used. Kristján Óskarsson, a project manager at NMÍ, was interviewed at Kvosin on April 28th. It was a semi-structured interview with prepared questions, with the aim of uncovering which incubator functions were performed by NMÍ and how. The questions can be seen in Appendix 1. Included were popular service offerings offered by incubators described in previous research, and the subject asked to detail whether, and how, NMÍ provided said services. Secondly, descriptions of NMÍ’s operations from their website were used to add depth to the analysis. This interview was the basis for the analysis starting on page 32.

3.1.2 Measurement of effectiveness

Research on incubators and incubated companies, cited in the literary review is usually based on data, which the incubators themselves gathered on their graduated clients in order to analyze their own effectiveness. These data are often quite detailed regarding

the ongoing operations of the former clients and give the researcher ample information to evaluate and measure important dimensions of their operations. In this case, no such data exist, and primary data collection was therefore necessary. Under normal circumstances, interviews or some other form of data gathering, which brings depth to the data, would be desirable. However, NMÍ declined to give access to personal information regarding their former clients. Moreover time- and budget constraints would not have permitted such elaborate data gathering.

Due to these reasons a questionnaire was chosen as the most viable option. The survey was designed to measure the three of four dimensions suggested by Al-Mubarak and Schrödl (2011) to measure the effectiveness of incubators. It included several background questions about the client's industry, where the client was incubated, and when it used the services. The aforementioned model consists of four dimensions, one of which is the graduation rate of companies. This dimension is not applicable in the case of the NMÍ incubator system, because no formal graduation policies have been set.

The survey was created and hosted on the online survey service QuestionPro.com, and sent out via email to recipients. NMÍ sent the email, with an introduction to the project and a link to the questionnaire and a plea to participate. Anonymity was guaranteed – individual responses are not traceable, the researcher did not have access to the list of recipients, and NMÍ was not given access to individual responses.

The survey was not pre-tested for effectiveness. It was, however, read by both a professional statistician and the academic advisor for this research. There are several reasons why it was not tested. Time and budget constraints limited the possibility of such testing as well as the nature of the population being surveyed made finding suitable testers harder. In hindsight, the pre-testing could have been carried out by experienced people, for example staff at the incubators in question. This might have brought to light some constraints in the questionnaire (see details in the chapter on limitations below).

The first dimension, *Success of businesses incubated*, was measured by asking about the status of the company. Whether the client was still active, had staff and was paying salaries, this was defined as success. Also, clients no longer active, which had been sold or “acqui-hired”, were also counted as success. Respondents who said their companies were no longer active, were thus not counted as a success. The same applies to clients who left the incubators for other reasons than continuing operations. Companies or

ideas that were still active, but had either no employees or did not pay wages were counted as neither a success nor failure. The NBIA suggests incubators track graduated firms that “remain in operation” (National Business Incubation Association, 2007) and a company that does not pay any wages can hardly be described as *in operation*.

The second dimension, *Jobs created by incubation* was measured by tallying full time equivalents at the companies, and the number of companies that had employees on their payroll.

The third dimension, *Salaries paid by incubator clients*, was measured by asking the respondents to share the average monthly salaries at their firm as well as the maximum monthly salaries, to account for outliers. The questionnaire can be seen in Appendix 2.

Some answers to the questionnaire did not fit into the scheme created. In these cases, responses were either grouped together into new answer categories, or when respondents used the “Other” option in the survey (and added their own answer) they were counted with answers in existing categories. In a few cases, new categories were created to house these answers. The cases where this was done are discussed in the discussion on results (starts on page 32).

3.2 Participants

The population for the survey consisted of 152 primary contacts for companies that were incubated in NMI’s incubator system and left their incubator in or after the year 2007. There were five instances where the survey was sent to two contacts in the same company, which means that there were 147 incubator clients represented in the population. This is the total amount of clients that were incubated in or before 2007 and left in or after 2007. Contact information on clients who left prior to 2007 was deemed inaccurate, and therefore not used. Out of the 152, twelve were unreachable. 140 recipients received the survey, of whom 54 completed it with valid responses. This corresponds to a 39.3% participation rate. The survey did not ask for personal information about the respondents, as the aim of the survey was to track the status of their idea and / or company, which renders personal information irrelevant.

Respondents were asked to identify which industry their company belongs to. The distribution can be seen in Figure 2. The single biggest group was creative industries, with 12 respondents (22%) but almost half (27 – 49%) of the respondents reported be-

ing in software or technology. In this question, Retail/Wholesale was created as a category during the processing of the data, as enough respondents identified that as their industry in comments to the question. Several answers in the “Other” category were moved to previously defined categories.¹

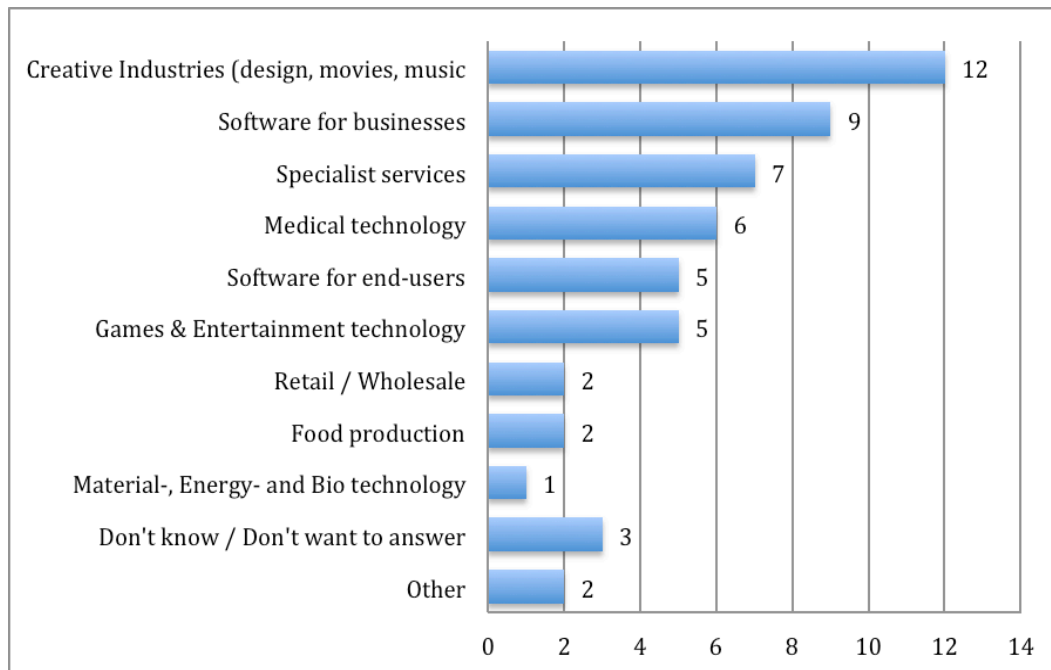


Figure 2. Incubator clients arranged by industry.

In Figure 3 the distribution of respondents based on which incubator they stayed at can be seen. 37 of the 55 respondents (67%) were tenants at Kvosin, which was predictable, as Kvosin has the most space available for tenant companies.

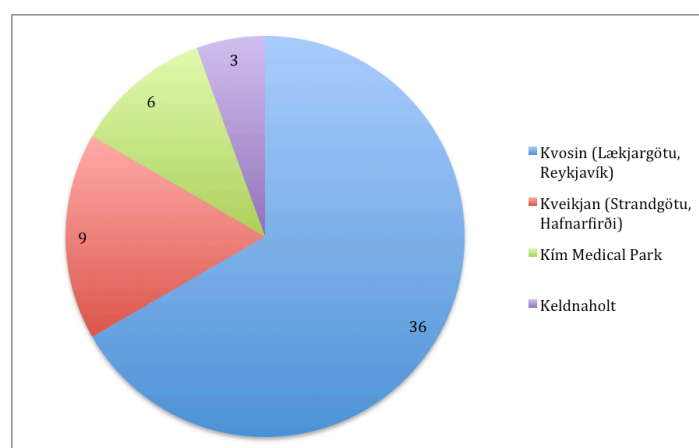


Figure 3. Clients arranged by incubator.

¹ The following answers were moved from ‘Other’ to these respective categories: ‘Website operation’ to Software for End-users, ‘Food-supplement production’ to Food production and ‘Finance’ to Specialist services,

Respondents were asked to share what year they entered the incubator and what year they left, to get a rough estimate of how long clients used the services. Not having direct access to this data from NMÍ makes the result a little less accurate, as respondents chose years, not months or days, and the results land on a wider range than preferable. Nonetheless, it does paint a general picture of how long clients use the services NMÍ's incubators offer. In Figure 4 the distribution of how much time clients spent at the incubators can be seen. Around 70% of the respondents were there for less than two years. There were two interesting outliers in this dimension, one which spent ten years in the incubator and one who spent eight. Both these companies were at Keldnaholt, and neither is still active today.

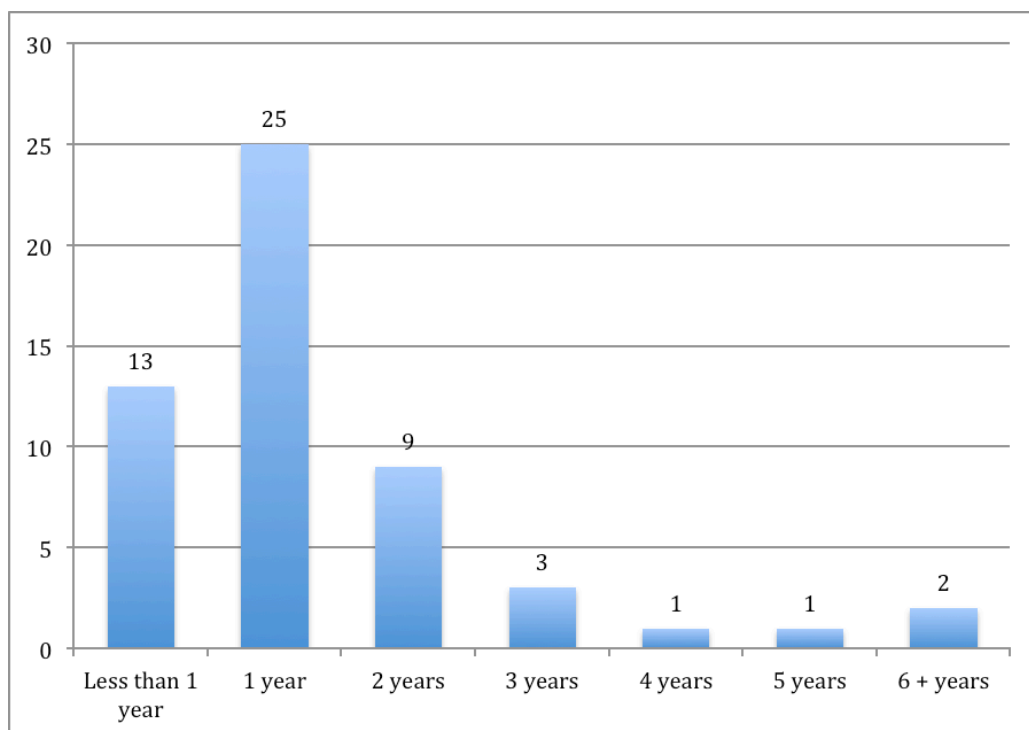


Figure 4. Time clients spent at their incubator.

In the next two chapters, the data collected will be presented and consequently analyzed and compared to previous research in a discussion chapter.

4 Analysis of NMÍ's incubators

The results of data collection on NMÍ's operation will be introduced in this chapter. To answer sub question a (How well does the operation of NMÍ's incubators compare to suggested "best practices"?) all relevant data will be used. The purpose was to uncover operational functions that have already been identified in the literature as conducive to client success (see the chapter "How do incubators become successful?" starting on page 18).

The Icelandic Innovation Center (NMÍ) currently operates four incubators – Kveikjan, Kvosin, Keldnaholt and KÍM Medical Park. These incubators are operated independently, and although similar in many ways they are to some extent very different. The following is a description of these incubators, their operating procedures and services offered. These details are based on an interview with the project manager of incubators at NMÍ and publicly available information from NMÍ's website.

4.1 Operation

This chapter addresses managerial decisions and functions that are not necessarily visible to clients. They include the funding schemes, selection process and graduation policies, and the metrics, goals and measurements set and measured by the incubators management team.

4.1.1 Funding

All of NMÍ's incubators are public incubators, in the sense that they are run by NMÍ, which is a publicly funded institution. Each of them however, is run in cooperation with different affiliates. The rent charged is kept at a bare minimum to cover housing cost and basic services. Advisors, experts and project managers who work in the incubators are on NMÍ's payroll, and therefore the service NMÍ provides is publicly funded. The incubator **Keldnaholt** is located at NMÍ's headquarters and some projects in close co-operation with Icelandic Universities (more details on this co-operation follows). **KÍM Medical Park** is sponsored by the Ministry of Industry, and is the only one funded directly by the government. It also has an outside sponsor; Arion Bank, one of Iceland's

largest commercial banks. **Kvosin**, located in downtown Reykjavik, in one of Íslandsbanki branches is co-sponsored by Íslandsbanki, which provides the housing. Lastly, **Kveikjan**, the only incubator run by NMÍ not in Reykjavík, is run in co-operation with the local municipalities of Hafnarfjörður and Garðabær. The Icelandic government also takes part in strategic planning and goal setting for NMÍ, which includes the incubators.

4.1.2 Selection process

The company screening process at NMÍ's incubators is short and simple: The applicant fills out an online application form with information on the idea, needs and vision for the future. A three person screening board reviews the application to see if it fulfills NMÍ's requirements, which are two: First, the idea must include some novelty. Second, it cannot be in direct competition with a business operating in Iceland. If both those requirements are met, the applicant is invited to an interview, where the idea and its status are discussed. No criteria or protocol is outlined for the interview, which seems to be mostly meant to verify the information provided in the application. If all goes well, the applicant is invited to join the incubator.

NMÍ does not screen the idea to determine whether it is viable or not. It does not ask for any plans, projections or analyses of the business idea. They also do not screen the qualifications of the team behind the idea.

4.1.3 Graduation policies

NMÍ's incubators do not have any official graduation policies. Clients are welcome to stay as long as they wish while they are still working on their idea. Many ideas leave the incubator soon after they start gaining revenue, and no serious problems have arisen with clients not leaving. If clients do not show up in the office space for longer periods of time, their space may be reallocated to other clients.

4.1.4 Metrics, objectives, goals and measurements

As previously stated, the strategy of the incubators is part of NMÍ's overall strategy, set by the government. The mission of NMÍ's incubators is to "give entrepreneurs a facility, a creative environment, a network and consultation to work on innovation" (Nýsköpunarmiðstöð Íslands, n.d.-a). They do not, however, have stated objectives or measure any specific metrics. They do keep track of all current clients, but do not follow

up on the status of companies after they leave the incubator, or conduct organized exit surveys, to monitor why companies leave.

They have done two satisfaction surveys and needs analyses of current clients, which they use to amend their service offerings. One result of these surveys is increased assistance with raising capital.

4.2 Services offered

The services offered refer to services the incubator offers and delivers to its clients, and is the most visible part of the incubator to clients. Most of the services offered are universal across the different incubators. There are some variations, and those will be mentioned.

4.2.1 Business basics

Entrepreneurs in NMÍ's business incubators have access to advisors and experts who work for NMÍ. Business consulting for entrepreneurs is a service offered to all entrepreneurs in Iceland, free of charge, and clients have access to them as well. In addition, project managers located at the incubators are available for consulting. This consulting consists mostly of information on how to create corporations and starting a business. If more specialized assistance is needed, e.g. legal or accounting, clients are referred to professionals in those fields, who will charge for their services. Occasionally, NMÍ will invite experts to hold talks on subjects enquired about by the clients.

4.2.2 Networking

NMÍ tries to aid in client networking, both within the incubators themselves as well as in the industry in general. They sometimes plan and host networking events, or inform clients about events that could be of interest to them. NMÍ has recently taken interest in creating clusters, e.g. by participating in the recently established Ocean Cluster by Reykjavik Harbor as well as the House of the Creative Industries in downtown Reykjavik.

4.2.3 Access to financing

Many clients apply for grants from domestic and foreign funds, for example the Icelandic Technology development fund. NMÍ's staff provide assistance with the application process. This assistance consists mainly of explaining the application processes and di-

mensions that are important to emphasize. They review the applications and offer feedback, but the work on the application is still done entirely by the entrepreneur.

If clients are in search of equity financing, such as seed investors or venture capitalists, NMÍ will provide some assistance: They will first analyze the needs of the entrepreneur and the status of the project to see if it is investor-ready. If it is, the entrepreneur is provided with contact info of investors.

4.2.4 Links to higher education

NMÍ and its incubators are connected to universities in several ways. Some of NMÍ's staff teaches at Icelandic universities and some research equipment at **Keldnaholt** and **KÍM Medical Park** is run in co-operation with local universities. Both of those incubators house several projects that are research spinoffs, both by professors and students.

4.2.5 Conference rooms, shared facilities

All incubators have access to conference rooms, kitchen facilities, sitting areas, Internet, desks, printing and other basic office facilities.

At **Keldnaholt** and **KÍM Medical Park**, clients have access to certain biotechnology lab equipment, which is not available elsewhere in Iceland. This equipment is operated in cooperation with universities.

4.3 Classification of NMÍ's incubators

A logical first step in classifying the incubators run by NMÍ is looking at the funding. As previously covered, incubators can be sorted into four categories – public non-profits, private non-profits, university managed and private for-profits. The four incubators run by NMÍ have in some ways different funding schemes, although all are indirectly funded through a public scheme.

- **Kvosin** is operated on rental income and benefit from a subsidized housing agreement provided by Íslandsbanki. However, services such as professional advice and counseling are provided by NMÍ, which is publicly funded. When extra services are needed the clients pay themselves for services not covered by NMÍ. The financial goal of the establishment is that rent should cover housing expenses: This could be classified as a non-profit goal. Aforementioned services are not paid for by rent, and thus publicly funded. **Kvosin** is therefore a public non-profit incubator.
- **Kveikjan** is similarly operated on rental income. The difference is that **Kveikjan** is operated in co-operation with local governments in Garðabær and

Hafnarfjörður. Services and business consultants are similarly paid for by NMÍ, except those hired by clients. **Kveikjan** is therefore a public non-profit, similar to Kvosin.

- **KÍM Medical Park** is supported by Arion Bank (Arion Banki, 2011) and is the only incubator in NMÍ's system that receives an operational grant directly from the government (Nýsköpunarmiðstöð Íslands, 2012). NMÍ's staff works there, and the research equipment is operated in cooperation with local universities, which also are publicly funded, in part or whole. KÍM would therefore be considered a public, non-profit incubator.
- **Keldnaholt** is the oldest of the incubators, located at NMÍ's headquarters, and also serves as a research center for other institutions such as the Soil Conservation Service of Iceland and the Agricultural University of Iceland. It is non-profit and publicly funded.

NMÍ's incubators can also be categorized according to their type. Kvosin and Kveikjan, which both are open to all, although the management tries to emphasize on technology, are mixed incubators. Keldnaholt and KÍM on the other hand emphasize more on research and technology; KÍM exclusively serving medical technology companies, and Keldnaholt offering access to biochemical laboratories and emphasis on material, construction and energy technology.

5 Survey results

In this chapter, the results of the survey will be introduced. To answer research question b) (What is the success rate of companies/ideas at NMÍ incubators?) the data gathered in the survey was analyzed. All survey questions were used as a basis for this analysis. The purpose was to identify respondents who could be classified as a successful client and therefore counted towards the success rate.

5.1 Why did the company / idea leave the incubator?

Respondents were asked to mark one of four reasons for leaving the incubator, or add their own reason in an “Other, what?” field. 25% of respondents stated that *the company / idea had become too big and needed more space* as the reason for leaving the incubator. 31% of the respondents moved out because their company / idea was terminated, and 10% moved out to cut costs. Figure 5 lists all the answers for reasons the tenants had for leaving the incubator.

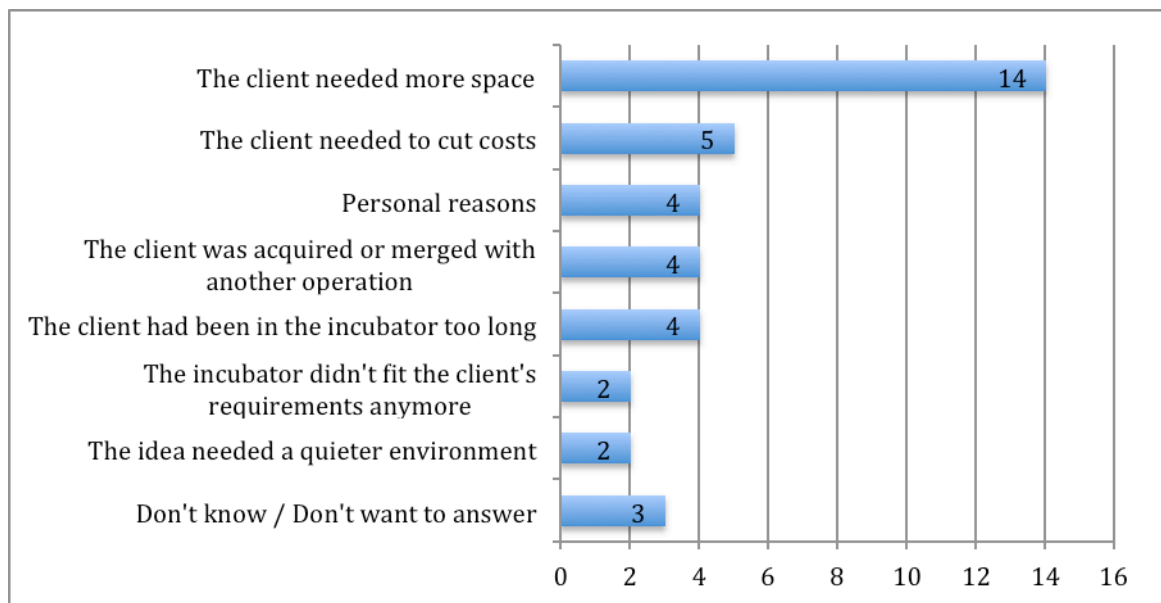


Figure 5. Reason client gave for leaving incubator.²

² In this table, the labels of each category have been changed from “idea / company” to “client” from the survey. This is done purely for aesthetic purposes.

5.2 Is the company / idea still in operation?

Respondents who answered with any other answer than *the company / idea quit* or *the company / idea was acquired or merged with another operation* were asked to answer whether the company / idea was still in operation. 94% of respondents stated that the company was still in operation, while 6% said that it was not.

Results of these two questions have been merged in Figure 6 to show the overall percentage of companies still in operation.

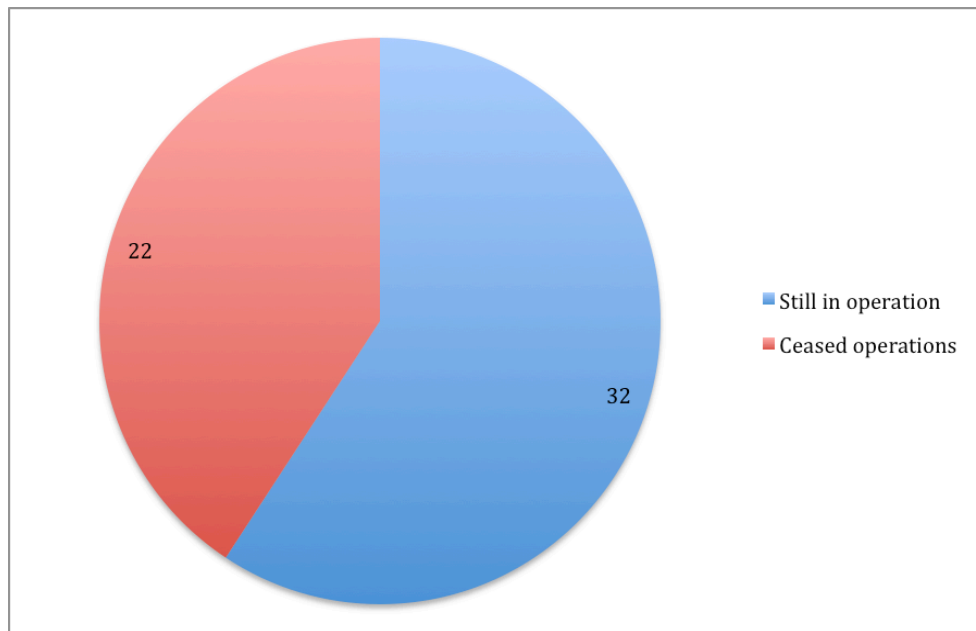


Figure 6 - Clients by operational status

5.3 Why did the company / idea cease operations?

Respondents, who answered either in question 1 or question 2 that the company was no longer active, were asked to define why the company had ceased operations. Added to answers was the number of respondents who reported that their company had been acquired or merged. Most, 59%, the idea ceased operations because their founders got job offers. 23% the companies were acquired or “acqui-hired” and the remaining 18% ceased operations because the idea didn’t work.

5.4 Losses induced when terminating operations

The respondents who answered that their company / idea ceased operations because it didn’t work out were asked to choose which of two statements better described fate of the idea / company. The statements were “Operations were terminated and losses

were minimized” and “Operations were terminated and losses were large”. 75% of respondents said losses were minimized while 25% answered: “Don’t know”. Figure 7 shows the results to this question.

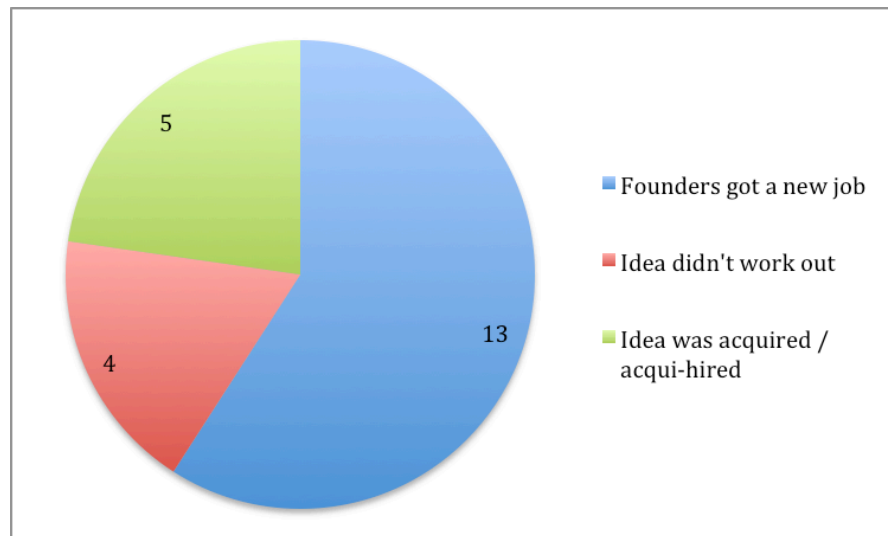


Figure 7. Reasons given for termination of operations.

5.5 Current state of operations

Respondents who answered that their company was still in operation were asked to define their current state of operations by choosing a statement which best described it. The results were that 34% said the idea / company was surviving, growing and profitable. 53% said the idea / company was surviving, growing and on a path to profitability. Finally, 13% said the idea / company was surviving but neither growing nor profitable. The results can be seen in Figure 8.

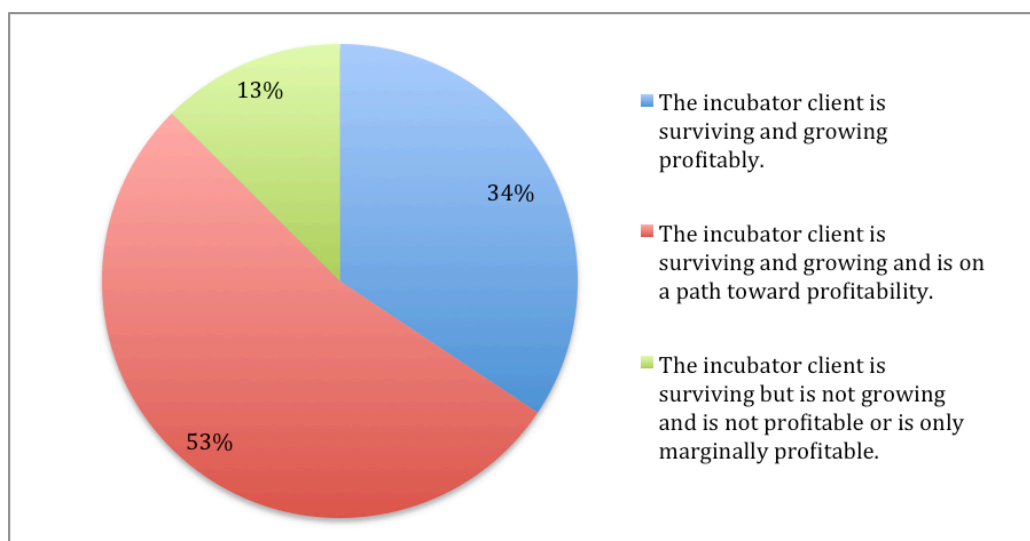


Figure 8 - Operating clients by current state of operations

5.6 Employee equivalents

Respondents were asked to type in the number of employee equivalents currently at the idea / company. In the following Table 2, the number of companies that reported each number of employee equivalents has been noted. Two outliers significantly pull up the total employee equivalents, with 25 and 31 employee respectively. It should be noted that the word used to ask for this information was the Icelandic word for ‘full-time equivalent’, which indicates that salaries are paid for the work. However, a relatively high number reported employee equivalents but no salaries. These answers were usually few employees, mostly one or two.

Table 2. Full time equivalents reported.

The leftmost column depicts the number of full time equivalents reported. The middle column depicts the number of companies reporting the aforementioned full time equivalents. The rightmost column depicts the total full time equivalents reported in each row.		
Full time equivalents	# of companies reporting	Total FTE's
0	2	0
1	13	13
2	4	8
3	3	9
4	5	20
5	0	0
6	1	6
7	1	7
8	1	8
25	1	25
31	1	31
Total	32	127

5.7 Salaries paid

Respondents were asked to type in the average, total, pre-tax monthly salaries paid by the company. Most answered, although some declined to. Interestingly, three of the four companies that denied to answer had relatively many employees – 7, 25 and 31 employees respectively. A considerable number of clients reported they paid no salaries, which would skew the average salaries paid by incubated companies and are therefore not included in the calculation. It should be noted however, that in the survey, it wasn't clearly stated how to answer the question in the case when the respondent wished not to share salary information. Therefore, some of the zeroes entered in this question might be respondents not willing to answer the question. However, some re-

spondents used the field, for open answers to express their decision not to share this information.

In Figure 9, salaries paid have been organized into salary brackets to indicate the distribution.

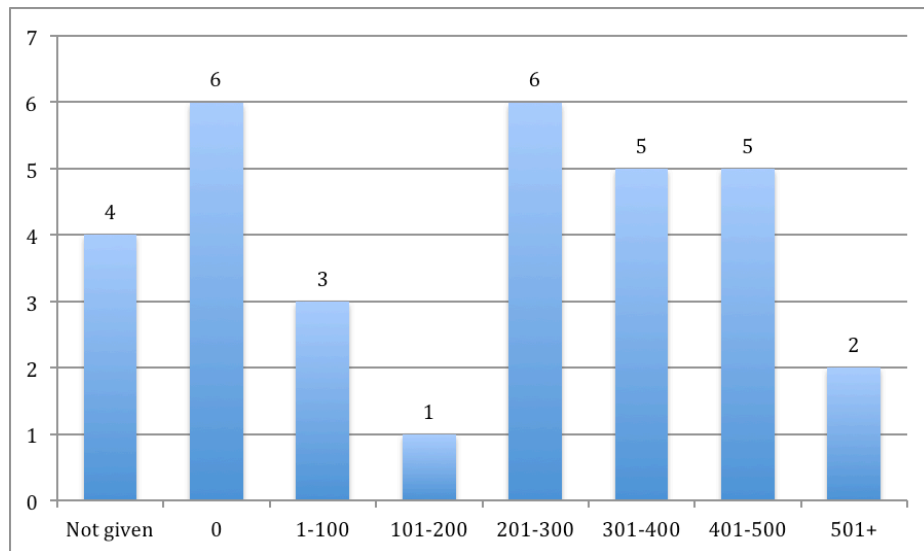


Figure 9. Average salaries paid by incubated clients, arranged into brackets spanning 100,000 ISK. Reported numbers are in '000s of ISK.

The average salaries of incubated businesses were 337,000 ISK. This number only includes currently operational companies that reported paying salaries.

5.8 Surviving ideas / companies that are paying wages

To further analyze and evaluate the clients that are still operational, the data were analyzed to reveal the proportion of still operating clients that pay salaries every month. In Figure 10 the proportions are shown. 81% of respondents still operating reported paying salaries, while 19% did not.

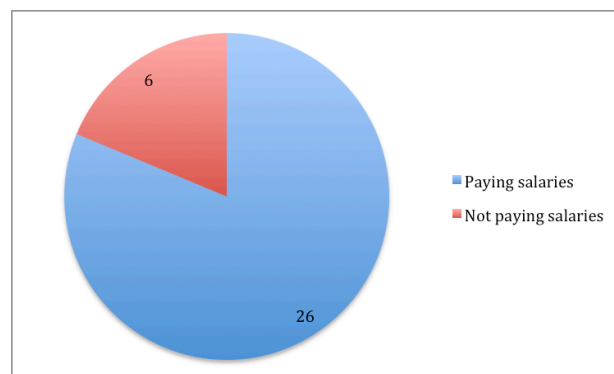


Figure 10. Clients still operational that report paying salaries.

This chapter has discussed the results of the survey sent out to measure the success of incubated businesses. The results showed that there were various reasons for clients leaving the incubator, outgrowing the facility and ceasing operations the most common ones. 59% of respondents report they are still operating, and most clients who ceased operations did so because the founders were hired to other occupations. A vast majority of operational former clients report they are either growing and profitable or growing and on a path to profitability. Average salaries reported were 337,000 ISK but responses on salary information was limited. Finally, operational companies were cross-referenced with companies paying salaries, which showed that 19% of companies identifying as operational do not pay salaries. These data will be analyzed and discussed in the following chapter to identify the number of successful, incubated businesses.

6 Discussion

This chapter is divided in four sections. First, to answer sub question a, the operations of NMÍ's incubators are compared to the five "tasks", based on best practices, success factors and essential tasks detailed in chapter 2.5. Second, the data gathered from the survey detailed in the previous chapter are analyzed to identify the number of successful businesses. Thirdly, the main research question, on how effective the NMÍ incubators are at promoting startups, is addressed. Fourth, the performance difference between NMÍ's incubators and reports on other incubators will be examined and possible reasons for that difference discussed.

6.1 Operations and management of NMÍ's incubators

As previously discussed (see page 18), researchers have suggested several factors which seem to be vital for the success of incubators. Smilor (1987) introduced ten success factors, Wiggins and Gibson (2003) suggested five tasks and Costa-David et al. (2002) evaluated best practices. These factors have been grouped into five "tasks" based on common themes in literature on incubator success. To further analyze NMÍ's incubators, their operational procedures will be now assessed based on these five tasks.

6.1.1 Goals, success metrics and self-evaluation

National associations of business incubators both in the US (NBIA) and the UK (UKBI) emphasize the importance of choosing, measuring and monitoring success metrics (National Business Incubation Association, 2007; United Kingdom Business Incubation, 2012). Researchers have similarly suggested that clear success metrics, self-evaluation and defined mission statements be regarded as best practices or success factors (Costa-David et al., 2002; Lewis, 2001; Wiggins & Gibson, 2003). Various metrics have been recommended, such as the number of graduated clients still in business, merged or acquired, the number of full time employees of current clients and graduates, salaries paid by current clients and graduates, and recent revenues (National Business Incubation Association, 2007). In addition, regular impact studies on the incubator's impact on the economy have been advised (Costa-David et al., 2002).

NMÍ's mission is to "give entrepreneurs a facility, a creative environment, a network and consultation to work on innovation" (Nýsköpunarmiðstöð Íslands, n.d.-a). Apart from this mission statement neither goals nor objectives have been formulated or success metrics set or measured. NMÍ has performed several private, in-house surveys but their focus has been on attitudes of current clients, and they were initiated by interested, outside parties such as university students.

6.1.2 Entrepreneurial staff, training and networks

As mentioned above (on page 20) many have identified training, coaching and networking as a task, central to the daily activities of successful incubators. For any service organization, the quality of staff that delivers the service is crucial to its performance; the same must be true of incubators. The staff of a business incubator should thus focus its activities on results in alignment with its aims, and the client's goals and have the ability to solve problems (Wiggins & Gibson, 2003). The ratio of staff to clients will understandably vary based on the type of incubator and the service it offers. A ratio of 1:3,2 (staff: client companies) is suggested by some (Costa-David et al., 2002).

Smilor (1987) recommended that an incubator should also train its client entrepreneurs in order to prepare them to continue working outside the incubator. Networking within each incubator, and with the relevant industry has also been identified as important (Lee & Osteryoung, 2004; Smilor, 1987). This is something that needs to be facilitated by incubator staff and be part of their duties. Finally, Smilor suggested that management should establish the incubator as an organization successful in fostering growing and prosperous businesses (Smilor, 1987).

NMÍ currently employs one person to manage day-to-day operations of all its incubators, with additional people, either an employee of NMÍ or contractor, coming in as needed when guidance, coaching or other services are requested. Networking activities are encouraged, both by occasionally hosting networking events, or informing clients of events which management believes would be of interest. However,

No formal guidelines exist concerning expected attendance of clients at the incubator. In some cases workstations are empty for longer periods of time. Under these circumstances no immediate measures are taken by support staff at the incubator, but they will, and have, ask clients to leave after prolonged periods of absence. Neither

does NMÍ require clients to receive entrepreneurial training, and has no organized training or coaching process, although guidance and assistance is provided when requested. NMÍ uses its website, events such as its annual meeting, and press releases to inform the local community of its operations on a regular basis, although these releases do not only inform on the operations of incubators. Client and graduate companies do generally not display or acknowledge their period in NMÍ's incubators, as practiced for example by projects that receive grants from the Technology Development Fund.

6.1.3 An effective service delivery system

Business incubation is a process, and the analysis of individual client needs and the delivery of services in a consistent manner is seen as a requirement for successful operations (Wiggins & Gibson, 2003). Such services should include operational services, e.g. office space, access to the Internet etc., and business services, e.g. marketing or management consultation (Smilor, 1987). Suggested best practices say that such services should not be free, but rather subsidized, and should focus on the incubator's target market (Costa-David et al., 2002)

NMÍ offers business consultation services and organizes occasional talks with experts on various subjects. They have carried out needs assessments among their clients in order to align service offerings with their client's needs – although this is not done regularly. It is left to the clients to reach out and ask for help or services, rather than providing proactive assistance and counseling or mandatory guidance. At the NMI incubator clients are left very much to their own devices; they are expected to ask for the guidance they need, and to use office space, and business services at their own discretion. However clients who do not use the office space they rent for a long time, will eventually be expelled. The business service provided by NMÍ's SME consultation service, is open to all and is free of charge, and not exclusive to or specialized in working with or for the incubator. One of NMÍ's most valuable services is access to expensive research equipment in Keldnaholt and KÍM, which are not accessible elsewhere in Iceland.

6.1.4 Establish balanced screening practices

It has been suggested that elaborate admission criteria and screening will increase the success of startups incubated and incubators (Kuratko & LaFollette, 1987). The purpose of such screening is to help management admit companies that are neither too strong,

nor too weak for the incubation process (Hackett & Dilts, 2004). Effective screening processes and admission criteria are suggested as success factors, and when possible clients are screened, the screening board should evaluate them based on three criteria: Experience of the management team, financial strength, and market- and personal factors (Costa-David et al., 2002; Lumpkin & Ireland, 1988; Smilor, 1987; Wiggins & Gibson, 2003). A balanced screening based on these three dimensions has been shown to correlate with incubator success (Aerts et al., 2007).

As described, NMÍ has two entry requirements – the novelty of the idea, and that the company is not in direct competition with another Icelandic company. They do not assess candidates based on any of the three dimensions or evaluate the business idea itself. They do not require applicants to have a business plan in any form, except for a short text describing their future vision for the company.

6.1.5 Ensure access to capital on behalf of the companies

Another integral part of an incubator's operations is assisting companies to gain access to working capital. This service is usually of great value to its clients. In addition to knowing of different sources for capital and helping clients to raise capital, it is generally accepted that incubators should have deep knowledge of different financial alternatives available to startup companies and help them evaluate them (Costa-David et al., 2002; Smilor, 1987; Wiggins & Gibson, 2003).

NMÍ has experience in assisting clients with applications for various grants, and does so when asked. The assistance is based on guidance regarding what to address, emphasize and include in the applications. They have also started offering their service in approaching investors. This practice was added to their portfolio after survey results showed interest from client companies for such service. The investor assistance is mostly in the form of consultations and advice about what clients need to do and present in order to be ready for investors, but NMÍ does not facilitate or directly introduce investors to clients, or host investor conferences or invite investors to pitches.

This section has outlined five “tasks” deemed central to incubator success and discussed how NMÍ's incubators perform them: NMÍ does have a mission statement but apart from that there is no evidence of them setting goals, success metrics and performing self-evaluations as recommended in the literature. Entrepreneurial staff, training for

clients and networking activities are all suggested, as well as a 1:3.2 staff-to-client ratio. At NMÍ's incubators, only one person is employed full-time to service four centers and all their clients. They do not offer specific ongoing entrepreneurial training but do offer guidance on request. Networking activities are encouraged and initiated to some extent. It has been deemed preferable that an effective service delivery system be designed to suit the needs of the clients, and that clients be charged for that service. NMÍ does not charge for consultation services, but when they refer clients to specialists outside the incubators, the clients understandably pay for those services. NMÍ has undertaken some measures to analyze their client's needs and updated their service offerings based on results of the needs analysis. Research suggests that balanced screening practices correlate with higher success rates of incubators and are therefore recommended. NMÍ has a simple screening process for their incoming clients, and bases the screening solely on the novelty of the client's idea and whether it is in direct competition with other businesses in Iceland. Finally, it is recommended that incubators ensure access to capital for their clients, both by assisting with decisions on capital structure and assistance in gaining capital. NMÍ helps with applications and networking to some extent, but does not take a leading role in providing or assisting clients with access to capital.

This answers research question a) How well does the operation of NMI incubators compare to suggested "best practices"?

6.2 Success of NMÍ's incubators

In this chapter, the results of the survey will be discussed with regard to the three dimensions measured; success of businesses incubated, jobs created by incubated companies and salaries paid by incubated companies. In the first section, the requirements for a client to be counted successful will be introduced. The analysis of the other dimensions is then based on analyzing successful businesses, rather than all operational businesses, as the successful businesses constitute clients that reached their success through the incubation process at NMÍ, and can therefore be wholly or in part attributed to NMÍ's initiative.

6.2.1 Success of businesses incubated

As mentioned on page 24, a successful business is defined as one that graduated from an incubator and is still operational, or one that was merged or acquired. To be consid-

ered successful in the context of this research, a business should be paying wages. Some of the businesses surveyed left the incubator for other reasons than growth, e.g. because the rent was too expensive or the location was impractical. These companies may very well be in operations and paying salaries, but their success should not be contributed to the incubator.

As previously noted, 59% of respondents classified themselves as still in operation. However, the data suggests that the respondents' definition of "in operation" does not necessarily coincide with a successfully incubated business. As discussed above, to be considered successful, a company should either be still operational and paying wages, or have been merged, acquired or "acqui-hired". Companies still in operation but not paying wages are classified as neither successful nor unsuccessful and other statuses are classified as not successful outcomes for the incubator. Figure 11 shows the proportions between these three classifications.

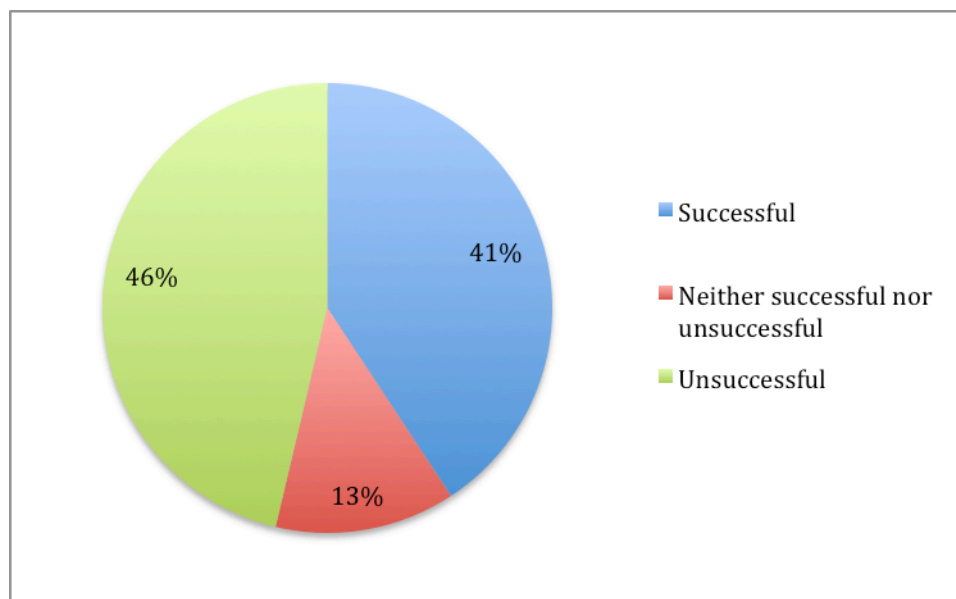


Figure 11. Successful, unsuccessful, and neither successful nor unsuccessful incubator clients.

Of the respondents, 22 or 41% are deemed successful, of which 18 are in operation and 4 were acquired, and the rest either not successful or neither. This is about half of the success rate of other incubators, on either side of the Atlantic, and could be a worrying sign. Although these numbers are not statistically significant, they give a clue of the current status of incubated businesses in Iceland.

This answers the research question b) What is the success rate of companies/ideas at NMI incubators?

6.2.2 Jobs created by incubated businesses

The creation of jobs is often an important objective for incubators, as detailed on page 14. Measuring jobs created by incubated businesses will enable a comparison to similar numbers. However, job growth is not a stated objective of NMI's incubators so the numbers should be considered with that in mind.

According to the data, there are currently 18 successful operating companies. Although there are several more operating companies that employ staff, those represent a number of clients who left the incubator for reasons other than growth, as discussed in the previous chapter. Jobs created by those companies are not tallied in the total number.

The successful, incubated businesses employ 108 full-time equivalents in total. The average number of FTE is 6 per company. Previously mentioned employment numbers were 6,2 in Europe and 7,7 in the US. These numbers are therefore quite promising. It should be pointed out, that these numbers do not include the several companies that had left the incubator, identified as currently operating but had either no employees or didn't pay salaries.

6.2.3 Salaries paid by incubator clients

As this research focuses on graduated or exited clients rather than current clients, data on former, or graduated, client salaries was used. This is perhaps the least accurate dimension of the three, as three of the companies still in operation did not disclose salary information. Unfortunately, these three companies represent about 60% of the FTE's in question, 63 FTEs of 108.

The average salaries at successful companies that disclosed salary information were 362.000 ISK per month. The national average for regular, total monthly salaries was 436.000 ISK in 2013 (Hagstofa Íslands, 2013). That means that, based on the gathered data, the salaries of employees at incubated clients are on average 74.000 ISK lower per month than the national average.

It should be stressed that data on salaries were provided for only 45 of the 108 FTE's reported. The two biggest employers, one employing 25 and the other 31 people, did not disclose information on salaries.

6.3 Effectiveness of NMÍ's incubators in promoting startups

This research set out to answer the following research question:

- **How effective are the NMÍ incubators in promoting the success of start-ups?**

To answer that question, two sub-questions were posed:

- a) **How well does the operation of NMÍ's incubators compare to suggested "best practices"?**
- b) **What is the success rate of companies/ideas at NMÍ incubators?**

In the previous two sections of this chapter, the two sub-questions were answered. Sub question a) was addressed by detailing NMÍ's operations and comparing them to best practices. The analysis showed that NMÍ does not perform the five tasks presented above as examples of best practices. Sub question b) was addressed by establishing the success rate of companies incubated by NMÍ, with success defined as operating companies that employ people and pay salaries and did not exit the incubator for other reasons that continue growth, being acquired or time constraints. The result was a 41% success rate, considerably lower than the industry average of 80-90% (see page 24).

Based on the data gathered, a 41% success rate of businesses incubated, compared to an industry average of 80-90%, can hardly be determined effective in promoting the success of startups. The analysis of NMÍ's operation backs this up, by detailing various functions deemed essential to successful incubators, but are not addressed by NMÍ. This answers the main research question: How effective are the NMÍ incubators in promoting the success of start-ups.

6.4 Performance differences – Possible reasons

Although the results of the survey and effectiveness measurements are not statistically significant, they do paint a rough picture of the state of affairs at NMÍ's incubator system.

The biggest performance difference between NMÍ and other incubators with reported performance numbers is the success of businesses incubated. Where, according to this research, NMÍ shows a 39% success rate, other incubators show success rates between 80-90% (see discussion of success rates on page 24).

One of the most probable explanations on these severe differences in success of businesses incubated probably stems from the mission of the incubators, which is “give entrepreneurs a facility, a creative environment, a network and consultation to work on innovation” (Nýsköpunarmiðstöð Íslands, n.d.-a). The focus of this mission statement is on providing a client (the entrepreneur) with facilities and services so the client and work on innovation. It does not focus on generating successful businesses that provide employment and value to the local community. The focus is on the input (the entrepreneur) rather than the output (the successful company).

Another possible explanation is the lack of a balanced selection process, because the selection process seems a likely contender in affecting this dimension of incubator success. A correlation between balanced screening methods and incubated business success rate has been found through research (Aerts et al., 2007), and a selection bias has been suggested as one of the reasons for the exceptionally high success rates of incubators (Sherman & Chappell, 1998). By thoroughly screening the applicants, incubators are able to weed out a big part of ventures likely to fail, and focus their efforts on more likely contenders.

NMÍ does not screen or pose additional requirements to its clients before admitting them to their incubators, except when admitting them to KÍM Medical Park, where the client must be in the medical technology industry. Out of all the respondents, the two most successful companies, in that they employed the greatest number of people, 25 and 31 employees, came from KÍM Medical Park. For Kvosin and Kveikjan, the client does not need to fulfill any requirements, apart from not being in direct competition with other Icelandic companies and a novelty in the idea. This might result in teams that are not qualified to follow through with their idea, ideas that have little or no realistic viability in regards to profitability or product / market fit. Also, the limited criteria risks admitting teams that are applying to the incubator solely on the basis of inexpensive rent or plan on pursuing the idea as a hobby or side-project. Closely related to this is the absence of exit criteria. Companies are seemingly allowed to stay at the incubators indefinitely, with no requirement of presenting any progress, and in a very rare occasion, an occupant was asked to leave after being absent for approximately six months. In addition, neither of the two companies that spent the longest time at NMÍ's incubators, 8

and 10 years respectively is still operational, and both report terminating operations whilst incubated.

Another possible reason, or at least part of a reason, is the lack of objectives and metrics. NMÍ has not set any objectives or metrics to measure their performance, which might explain part of why their performance is much lower than at other incubators. If performance were measured, it could be tracked and actions taken to respond to low performance.

Thirdly, the incubators are understaffed, if they are to satisfy suggested best practices, where suggested staff-to-client ratio is 1:3.2. Currently, the ratio is closer to 1:85.0 which indicates that the services expected can hardly be delivered in a manner similar to that which is suggested in benchmark, best practices and success factor studies.

The incubation at NMÍ's incubators is currently not seen as a process, with a beginning and an end, e.g. admission and exit criteria, but rather similar to a sandbox where hopeful entrepreneurs are allowed to try their idea in a safe environment. Service design and delivery is understandably hard to define and master in such circumstances, and the service will hardly become as efficient and valuable as it should be, were the incubation better defined.

Taking NMÍ's mission into consideration when the performance is evaluated paints a very different picture of the current state of affairs. The measured performance probably fulfills the mission, of giving entrepreneurs a facility, a creative environment, assistance and network to work on innovation. This mission might be rooted in the time shortly after the crash, when unemployment spiked and authorities thought measures were needed to improve the employment situation. Providing entrepreneurs with a relatively safe environment and some support services, with little to no cost for the entrepreneur is probably a justifiable initiative, especially in times of need and from a social point of view, where keeping some unemployed people busy or doing something creative is thought better than letting them be.

7 Implications

This research suggests that, when analyzed and compared with other incubators, the NMÍ incubator system does not perform nearly as well. The effectiveness of NMÍ's operations, based on the responses received, in creating new, operating growing businesses in Iceland is half of what studied incubators have shown through the years. NMÍ's businesses show a 39% success rate, compared to 80-90% success rate reported in studies on other incubators (see detailed discussion on this on pages 47 and 24 respectively). This 41% success rate is actually in the range reported on normal, unsupported business success, which is reported between 30-50% (Costa-David et al., 2002).

This means that businesses that choose NMÍ's incubators have the same probability of succeeding as businesses that decide to start up on their own. That fact puts the whole operation of these incubators into question. Why should public funds and resources be spent on an initiative that seemingly, based on the data gathered, has no difference on the success of businesses?

8 Suggested improvements

Based on the literature previously reviewed and the analysis of NMI's incubators, their performance and possible reasons of poor performance compared to other incubators measured, the following changes and improvements are suggested.

1. Redefine the goal of the incubator. This new goal should focus on the outputs of the incubator and the value incubator can create for the community, rather than the value they can give the entrepreneur.
2. Define the objectives and success metrics of the incubator, according to the goal, and measure them, to track the performance of the incubator.
3. Define entrance and exit criteria. Set up a screening board to screen applicants based on the goals of the incubator. Create exit criteria, so incubated companies know what is expected of them and what to expect of the incubator.
4. Hire employees to design and deliver the service. The incubator's service should be of great value to clients and in order to satisfy their needs to help them reach their goals and objectives, as well as reaching the incubator's goals, the incubator needs people to deliver the service.
5. Track the success of current and former clients. By keeping a database on clients, incubator managers will have information to build a case for further funding, which will result in better service and better performance.

9 Limitations and further research

Due to the nature of this research there are several limitations to the study that should be addressed. In this chapter these limitations will be outlined, described, their impact on the research discussed and proposed how future research might avoid them.

9.1 Untested survey

The survey sent to recipients was untested, which could have resulted in recipients misunderstanding some questions. This is especially true for the question on full-time equivalents, where respondents were asked to disclose the number of FTE's at the company. Some respondents answered with a number of FTE's but stated that average salaries were zero, which raises the question of whether respondents didn't fully understand the question – a full-time equivalent implies paid work – or whether a large number of companies did not want to disclose their payroll information. Similarly, respondents were asked to choose a statement that most closely described their status of business. A considerable amount answered that their company was growing and on a path to profitability, but then reported limited or no FTE's or salaries. This type of question is obviously very subjective, and by testing the survey beforehand, the questions could/might have been made clearer to possible respondents. However, as previously noted, the nature of the population all but forbade pre-testing, although other people, such as the staff at the incubators could have been used for pre-testing.

9.2 Insufficient data and access

Data on current and previous clients is not collected by NMÍ, apart from basic information like names and contact information. A study like this would be most accurate if the researcher has direct access to the companies being researched, or with access to normalized data gathered by the incubator. In this case, no previous data was available, and direct access to client companies not possible because of privacy issues. This might result in the data being less accurate and based in part on the subjective view of respondents, especially when it comes to value loaded questions. However, as this was an

exploratory research, the first of its kind on the NMÍ incubators, this does not devalue the research, as the results can still give a meaningful picture of the current status.

9.3 Statistical significance

The response rate of 39.3% (see discussion on responses on page 27), on a relatively small population like the one in this research, is not high enough for statistical significance, making it impossible to draw definite conclusions based on the results. As mentioned in the discussion section, the response on average salaries only included data for 45 of the 108 FTE reported, and therefore cannot be considered reliable. Although statistical significance was not achieved, the results on success rates can be used to interpret the effectiveness and overall operations of NMÍ's incubators.

9.4 Further research

The most serious limitation to this research was inadequate access to primary data. For a research into this kind of an initiative to be the most reliable, it is preferred to have access to primary data on clients and their information. Because of the low participation rate, the question remains: What of the other 60% of clients that did not respond to the survey? Their answers, if positive, could significantly increase the success rate of NMÍ's incubators, and it should be in NMÍ's interest to conduct this kind of research, to either show their success, or, if the results are similar to the ones in this research, recognize that improvements may very well be needed.

Furthermore, more research into individual success factors or best practices could be useful. As discussed, Aerts et al. (2007) researched the link between screening practices and success rate. Similar research into other success factors could prove useful to academics and practitioners alike.

10 Conclusion

This research set out to measure the effectiveness of NMÍ's incubators and to analyze their operations. The results indicate that the incubators are not as effective as their counterparts elsewhere, and that their operations will need some redesign if they want to be comparable to suggested best practices in neighboring countries.

To be fair, it must be acknowledged that the NMÍ's mission statement for their incubators does not include statements about their clients' success. Their aim is only to create a space for entrepreneurs to work on innovation.

However, if their mission changes, to include the success of their clients, as is evident in incubators elsewhere, information elicited from the data and its analysis can offer some insight and ideas to actors at NMÍ or other incubators. Suggestions were made to this effect.

It is evident, based on public discourse and policy decisions, that there is a will to encourage entrepreneurship and new ventures to play a bigger part in the Icelandic economy than it has until now. Operating effective support initiatives to spur the entrepreneurship are admirable endeavors. Effectively run incubators have been shown to support entrepreneurship and startups in a positive way, assisting fragile businesses to reach maturity and enabling them to stand on their own feet, creating value for their customers and community. The operation of powerful incubators in Iceland should therefore be of great interest to their local community.

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Appendix 1

Interview outline

How are NMÍ's incubators funded?

What types of businesses / ideas does NMÍ admit to its incubators?
Is it different between incubators, how?

Does NMÍ measure specific success metrics?
What does NMÍ measure?

Describe the steps of NMÍ's selection process for new tenants.

What business services does NMÍ offer its clients?

How does NMÍ decide which services to offer?

Does NMÍ assist clients with raising capital?

Do NMÍ's incubators have specific ties to universities?
Which universities and how are those ties?

What is included in the shared office space?

Appendix 2

Survey questions and introductory letter

Kæri viðtakandi,

Þessi könnun er send til þín þar sem þú ert tengiliður við fyrirtæki eða hugmynd sem hafði aðsetur í einu af frumkvöðlasetrum Nýsköpunarmiðstöðvar Íslands (NMÍ). Könnunin er liður í rannsókn sem unnin er af Kristni Árna L. Hróbjartssyni, BSc. nema við viðskiptafræðideild Háskóla Íslands undir leiðsögn Þóru Christiansen. Það tekur 1-2 mínútur að svara könnuninni.

Markmið rannsóknarinnar er að skoða afdrif hugmynda sem hafa haft aðsetur í frumkvöðlasetrum NMÍ. Rannsóknin er nafnlaus og ekki rekjanleg til þeirra sem taka þátt. Hún er send út í gegnum NMÍ og rannsakendur hafa ekki aðgang að persónuupplýsingum þáttakenda. NMÍ mun ekki hafa aðgang að svörum við könnuninni, en fær upplýsingar um niðurstöður þegar þær hafa verið greindar. Niðurstöðurnar munu nýtast hvoru tveggja í fræðilegu samhengi sem og í betri skilningi á starfi frumkvöðlasetra NMÍ.

Það er von okkar að þú takir þátt því þátttaka þín skiptir máli til að marktækar niðurstöður fáiist. Hafir þú einhverjar spurningar er velkomið að hafa samband við rannsakendur í síma 823-5253 (Kristinn), eða með tölvupósti á kal8@hi.is (Kristinn) eða thc@hi.is (Þóra)

Með bestu kveðjum og þakklæti,
Kristinn Árni L. Hróbjartsson

Í hvaða geira er / var fyrirtækið / hugmyndin?

1. Afþreying og leikjatekni
2. Hugbúnaður fyrir neytendur (veflausnir, apps, ofl.)
3. Hugbúnaður fyrir rekstraraðila (birgðakerfi, umsjónarkerfi ofl.)
4. Heilbrigðistækni
5. Efnis, orku- og líftækni
6. Matvælaframleiðsla
7. Sérfræðiþjónusta (t.d. ráðgjöf)
8. Skapandi greinar (hönnun, kvikmyndir, tónlist o.s.frv)
9. Veit ekki
10. Vil ekki svara
11. Annað, hvað?

Í hvaða frumkvöðlasetri hafði þitt fyrirtæki / þín hugmynd aðsetur - Ef aðsetur var í fleiri en einu setri, svaraðu miðað við það setur þar sem mestum tíma var varið.

1. Keldnaholt
2. Kvosin (Lækjargötu, Reykjavík)
3. Kveikjan (Strandgötu, Hafnarfirði)
4. Kím Medical Park
5. Veit ekki
6. Vil ekki svara

Hvaða ár flutti fyrirtækið / hugmyndin í frumkvöðlasetrið? - Ef aðsetur var í fleiri en einu setri, svaraðu miðað við það setur þar sem mestum tíma var varið.

1. 1994
2. 1995
3. 1996
4. 1997

5. 1998
6. 1999
7. 2000
8. 2001
9. 2002
10. 2003
11. 2004
12. 2005
13. 2006
14. 2007
15. 2008
16. 2009
17. 2010
18. 2011
19. 2012
20. 2013
21. 2014
22. Veit ekki
23. Vil ekki svara

Hvaða ár flutti fyrirtækið / hugmyndin úr frumkvöðlasetrinu? Beðið er um ár þar sem fyrirtæki / hugmynd flutti úr setrinu, óháð því hvort starfsemi hafi verið haldið áfram eða ekki. Ef aðsetur var í fleiri en einu setri, svaraðu miðað við það setur þar sem mestum tíma var varið.

1. 1994
2. 1995
3. 1996
4. 1997
5. 1998
6. 1999
7. 2000
8. 2001
9. 2002
10. 2003
11. 2004
12. 2005
13. 2006
14. 2007
15. 2008
16. 2009
17. 2010
18. 2011
19. 2012
20. 2013
21. 2014
22. Veit ekki
23. Vil ekki svara

Hvers vegna flutti fyrirtækið / hugmyndin úr frumkvöðlasetrinu?

1. Fyrirtækið / hugmyndin var orðin of umfangsmikil, þurfti að stækka við sig
2. Fyrirtækið / hugmyndin hafði verið þar of lengi, þurfti að færa sig
3. Fyrirtækið / hugmyndin var keypt eða sameinuð öðrum rekstri
4. Fyrirtækið / hugmyndin hætti
5. Veit ekki
6. Vil ekki svara
7. Annað, hvað? _____

Er fyrirtækið / hugmyndin enn þá starfandi í dag?

1. Já
2. Nei
3. Veit ekki

4. Vil ekki svara

Hvenær hætti fyrirtækið / hugmyndin störfum?

1. 1994
2. 1995
3. 1996
4. 1997
5. 1998
6. 1999
7. 2000
8. 2001
9. 2002
10. 2003
11. 2004
12. 2005
13. 2006
14. 2007
15. 2008
16. 2009
17. 2010
18. 2011
19. 2012
20. 2013
21. 2014
22. Veit ekki
23. Vil ekki svara

Hvers vegna hætti fyrirtækið / hugmyndin störfum?

1. Fyrirtækið / hugmyndin gekk ekki
2. Fyrirtækið / hugmyndin var keypt og stofnandi / stofnendur ráðnir til vinnu hjá kaupanda (e. acquihire)
3. Fyrirtækið / hugmyndin var keypt og stofnandi / stofnendur sneru sér að öðru
4. Stofnandi / stofnendur voru ráðnir til annara starfa og fyrirtækið / hugmyndin lögð niður
5. Veit ekki
6. Vil ekki svara
7. Annað, hvað?

Hver eftirfarandi staðhæfinga lýsir afdrifum fyrirtækisins / hugmyndarinnar best?

1. Starfsemi var hætt með litlu fjárhagslegu tapi
2. Starfsemi var hætt með miklu fjárhagslegu tapi
3. Veit ekki
4. Vil ekki svara

Hver eftirfarandi staðhæfinga lýsir fyrirtækinu / hugmyndinni best eins og staðan er í dag? Þegar spurt er um hvort félagið sé fjárhagslega arðbært er átt við hvort það hafi skilað fjárhagslegum hagnaði eftir síðasta ársuppgjör

1. Fyrirtækið / hugmyndin er starfandi, í vexti og er fjárhagslega arðbær (e. profitable)
2. Fyrirtækið / hugmyndin er starfandi, í vexti og stefnir í að vera fjárhagslega arðbær (e. on a path to profitability)
3. Fyrirtækið / hugmyndin er starfandi, er ekki í vexti og ekki fjárhagslega arðbær
4. Veit ekki
5. Vil ekki svara

Hversu mörg stöðugildi eru / voru hjá fyrirtækinu að jafnaði? Vinsamlega skrifið inn tölu

--

Hver eru / voru meðal mánaðarlaun sem fyrirtækið greiðir / greiddi? Átt er við heildarlaun fyrir skatt. Vinsamlega svarið í tölustöfum í þúsundum króna

Hver eru / voru hæstu mánaðarlaun sem fyrirtækið greiðir / greiddi? Átt er við heildarlaun fyrir skatt.
Vinsamlega svarið í tölustöfum í þúsundum króna

Er eitthvað um veru þína í frumkvöðlasetri sem þú vilt koma á framfæri?