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Idea, Product, Launch and Beyond

Technology business incubators and graduate evaluations in Silicon Valley and literature

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Abstract

This research is concerned with technology business incubators and more specifically on the rather undefined area of graduate evaluations. Many business incubators track their graduated companies and evaluate them as a late-stage process, often later used for proof of impact, performance measurements and collected for general stakeholder or marketing strategies. The aim of this thesis is to explore the use of these client evaluations in academic literature and by examining business incubators practices in Silicon Valley. The result section is a mix of presented and analyzed literature and fifteen interview answers, contrasted by incubation academic literature and the authors' criticism and thoughts. A majority of the results shows that business incubators indeed evaluate their clients through e.g. current funding, status of the company and its current valuation. Data is solely collected through forms and surveys. The evaluations can most commonly be explained by equity, marketing and strategy incentives. The results also illustrate the complexity in the evaluation and provide directions for further research with ranging themes from the gathering of subjective data to response rates.

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Contents

1. Introduction

1.1 Background

The author of this thesis is an entrepreneur student with previous experience from incubators, both in real-life and academically. Background on the chosen research theme stems from the small amount of literature found in academic papers, especially on the subject of client evaluation in business incubation. A relatively large amount of general literature seem to exist, discussing general definitions and presenting functions of business incubators yet fewer academic papers offer connection to any industry or actors and even less so on how they should work with clients post incubation. This struck the author as odd when contrasted to importance of outcome understandings in other economic fields. Digging deeper triggered the author's interest in performing a narrow study on client evaluation and contributing in this field. Later on

both scholars and the interviewed industry actors expressed great interest on updating the industry knowledge on business incubator outcome evaluation.

The author's goal has been to find and present relevant literature, to create an understanding of business incubators and what the different perspectives on outcomes and evaluations are. Later building on this framework and interviewing technology business incubators within the renowned startup community Silicon Valley, thus exploring reality. The last step is to present the results with an analysis and contrast literature with reality in hopes of concluding and adding to existing literature while finding gaps for further research.

Two large gaps that were discovered during this study which could be elaborated upon; the lack of good methods to collect data in order to prevent low response rates or quality and the potential reasons behind international and virtual incubators low interests in evaluating graduates. Further research is urged to develop clear best practices to aid business incubators in job creation and business growth.

1.2 Objective and research questions

The two aims of this thesis are to explore the use of incubator client evaluation in academic literature and Silicon Valley practice and to answer the research question, "What is the practice of business incubation in Silicon Valley?"

Overall objective of this study is to explain business incubation and to explore the use of incubator client outcome evaluation in literature and in reality by examining technology business incubators practices in Silicon Valley, later discussing the results. The basis is that literature may be insufficient, out of date or possibly lacking connection to reality practices in a swiftly changing market. Several scholars' states that incubators should track and evaluate client outcomes post incubation to understand how they might better their services and prove their usefulness. Despite this very few texts provide suggestions on what to collect and how to best do it, claiming that it's hard due to varying incubator goals, poor incentives, methods and often too short track records.

By using data collection tools and methods such as interview guiding and comparing analysis, this thesis tries to answer the following questions.

- What are the best practices in literature on technology business incubation client evaluation?
- Does Silicon Valley technology business incubators track and evaluate client outcomes?
- If so, what kind of data are they collecting?
- Why are they collecting that specific data?
- How are they collecting that data?
- Which problems are they facing when collecting this data?
- What are the similarities and differences in literature and Silicon Valley practices?

1.4 Definitions

1.4.1 Business incubation

The term 'business incubator' has existed since the mid 1950s but became a popular term around the dot-com bubble (1999-2001). According to the National Business Incubation Association (NBIA), a business incubator nurtures the development of entrepreneurial companies, helping them survive and grow often during the startup period. The term business incubation acts as umbrella for various service models and support programs. Incubator programs is often tailored to fit novel firms and is enabled through a set of steps with supporting management teams and networks. This thesis categorizes business incubators in accordance to 'The four prominent business incubation models' proposed by Lewis (2011). Further elaboration of various definitions can be found in section 3.1.

1.4.2 Silicon Valley

As Kenney & Burg (1999) concluded, 'Silicon Valley is an incubator region consisting of institutions that nurture the growth of small start-up firms'. Silicon Valley is often referred as epicenter of disruptive innovation in the world. With notable technology companies such as Facebook, Apple, Google, Oracle and Intel having their headquarters located there. Silicon Valley has been a poster-child for successful technology trends and innovations over several

decades. This has in turn attracted a lot of ideas and money to the area. Over the years several business incubators has emerged to accommodate the needs of these entrepreneurs and investors, now hosting some of the most prestigious and successful universities, companies, venture capitalists and technology business incubators in the world.

1.4 Limitations

The focus of an incubator varies by industry; this research will solely focus on business incubators with technology company clients. A technology incubator fosters growth companies in emerging technologies (as opposed to e.g. manufacturing incubation program). The prerequisite used in this thesis to be classified as a technology incubator requires a minimum of half the clients in the current batch to be technology-oriented of the participating firms. Furthermore, the study will not take into account whether the incubator is a nonprofit or for profit organization since the focus is to explore as many evaluation scenarios as possible. It should also be known is that an estimate of 85% of all U.S business incubation programs receive public support regardless of being for or non-profit and business model (Lewis 2008).

Lewis (2011) expresses a need for a more extensive classification system and deeper definition of incubators, since they tend to vary greatly across countries and industries. He explains that incubators tend to be divided into four types, namely 'With walls, without walls (virtual), international and accelerators'. This study will use this framework when searching for potential interviewees, excluding organizations that fall outside this definition.

According to Voisey et al (2006) there is incubator outputs categorized as "soft" and "hard". Hard measures being defined as objective often correlated with exact answers whereas soft ones are more subjective (e.g. knowledge, skills and networks). In limitation to the timeframe, interviews will not put emphasis nor probe for either one due to the difficulties in assessing whether the answers are subjective or objective.

The main data sources throughout this thesis has can be traced to literature and running incubator programs (in Silicon Valley, CA). The narrow geographic choice is based on time frame in relation to relevance of the area focus. The choice of Silicon Valley is motivated on sheer

number of incubators available and the key role it holds as a technology cluster as well as the reputation held as a global innovation epicenter. Silicon Valley host some of the worlds top-performing technology business incubators hence the author deem that insights on their way of evaluating should yield valuable inputs.

Lastly, interviews were performed with the incubators and not the past companies. This could have added an interesting perspective but would have be irrelevant on this topic without first having the general incubator perspective, thus were excluded.

1.5 Structure of the thesis

There are four sections in this study.

- The methodology
- Literature review
- Analysis and findings
- Conclusions

2. Methodology

The methodology chapter will provide details about how the research will be conducted. It will be used as in Yin's (1994) definition: 'an action plan from getting here to there'. The methods used here are meant to help explore the area of incubator client outcome evaluation in literature and with technology incubators in Silicon Valley. This study uses methods to perform a literature review and semi structured interviews to collect data from industry actors.

2.1 Discussing methods

One early crossroad for some researchers is whether qualitative or quantitative approaches best suits the study. Depending on choice, your methods to collect, analyze and present data will likely differ. In social science it seems to be an endless discussion regarding which is most valid. According Strauss and Corbin (1990), qualitative research is defined, as 'any kind of research that produces findings not arrived by means of statistical procedures or other means of

quantification'. Quantitative on the other hand are generally used as standardized approaches, testing hypotheses or measuring phenomena.

Qualitative research can use various methods including focus groups, ethnographic approaches or interviews. Since this study's research question aims to explore and ask open-ended question to smaller sample groups, interviews seemed most prudent for the purposes of this thesis. The choice of methodology is said to depend largely on research question and exploring studies are according to Strauss & Corbin (1990) best performed with qualitative methods such as interviews. Qualitative interviews tend to capture the interviewees own perspectives and provides rich and detailed answers. Interviews are generally also more flexible and enable an iterative process that fits the study's purpose well. Main critique of qualitative methods is the reliability and validity that are deeper discussed in 2.4.

2.2.1 Choosing data collection methods

The study employs interview methods on the premise that the research question is concerned with exploring, the "why" and "how" of things. Exploring questions fits the characteristics of interviews well and the choice is further motivated for practical reasons. Other data gathering methods such as surveys or observation would pose a problem in shallowness and not allow any flexibility during the interviews, loosing the chance for probing for more information and adjusting questions as you go. Other methods such as in-depth case studies with one or two participants would most likely paint a full picture but it would not include enough actors to explore the industry practice. It applies to purely statistical approaches as well; they could have been employed but were simply not applicable due to the relatively small sample sizes available and the exploring nature of the research question.

The chosen data collection in exploratory research is commonly less structured to account for emerging insights. To construct meaning instead of having a pre-given order of questions those interviewees might interpret differently. Initial inspiration on how to performing interviews was collected from Stake (1995) and from Yin (1994). They both offer a guide approach to field procedures, questions and write up.

2.2.2 Interview guide

Interviews that are structured are commonly constrained by the order of questions and the situation at hand. In order to break this, the interviews were performed utilizing an assisting tool called interview guide. Pole and Lampard (2002) suggest using such guides to keep orientation during interviews and help to keep track of theoretical issues and facilitate analysis of categories. One risk and possible opportunity with flexibility during interviews could be “sidetracking”, the act of exploring unforeseen issues and experiences.

In pursuit of a fluent interview, it seemed to make most sense to let interviewees in an unconstrained way, speaking freely about everything that came to mind. Many of the interviews led in to themes that were planned for but in later parts of the interviews. Thanks to the guide acting as a tool of orientation, those themes could be covered in advance. The issue of misunderstanding and misinterpretations were also considered in the choice of a guide. Due to the various backgrounds and professions of the interviewees and interviewer, the flexibility of asking if answers and questions were understood helped the overall clarity.

Initially, knowledge on how to conduct interviews was gathered from literature. Questions and themes were formulated and the interview guide was developed. A pre-test was conducted to test the questions and logic behind the coming analysis. This led to some iterations and changes. One result was that background information in interviewees was gathered before interviews started rather than during. Small talk seemed to take much of the time meant for data gathering. Also, questions that previously aimed at very open answers were narrowed somewhat and clarity in all questions were enhanced. One unforeseen problem that did not show until actual interviews were performed was the constraints of secrecy. Many organizations were hesitant to provide information that they used for strategic purposes. This later proved to be best mitigated by interviewing hierarchically high ranked employees. This did not only give more credibility to the answers but clearly shown in the confidence of interviewees about which details were fine to disclose. They were also able to answer sensitive questions with some skill of bypassing the strategic secrets. In the end, interviews were all performed with senior employees.

2.2.3 Conducting the interviews

It seems relevant to mention that the researcher was located in Silicon Valley during the period of the interviews, both working at an international incubator himself while also receiving tutoring from the local university (Stanford). This fact might have contributed to the candidate's willingness of participating in these interviews while also assuring the subjects that they could speak freely without expanding on industry terms and slang.

The study iterated on the research questions a few times; resulting in a list of all the relevant incubators in Northern California (see 4.1) was created. In the first phase of the data collection, this list was used to filter out incubators in the Silicon Valley area (see 2.2.4). A total of nineteen people across nineteen incubator organizations in Silicon Valley were asked to participate. Hence this was not a sampling but the total set of relevant available (considering the limitations of the study). The author got replies from a total of fifteen organizations, twelve of which led to interviews. The remaining three stated that they did not collect data on graduates, which led to short conversations only performed via mail conversations.

The subjects were approached through various channels but initially through personal networks and the Internet. Most non-network subjects were targeted by reading on the employee sections of business incubator websites and later tracked down through blogs or social medias. There were two cases of incubators being recommended by a previous interview participant. At first, any random person employed at the target organization was asked to participate in the interview. This soon proved to be inefficient due to lack of knowledge and as mentioned previously, the aspect of secrecy. As a result, all of the following twelve interviewees aimed for interviewees with higher position within the organizations, most commonly a CEO, founders, board member or senior managers.

All interviews were performed in English, often over the phone or in person. None of the interviews exceeded 25 minutes, usually ranging between 15 and 20 minutes. The in-person interviews were conducted at cafés or their offices. All participants were promised anonymity.

2.2.4 Population

The case population came from a complete list of all the incubators in northern California (see appendix 4.1). The choice of interviewed organizations was selected on contact information availability and the limitations used in section 1.5. The limitations were mainly geographical and by industry. The population was categorized based on the four types proposed by Lewis (2011); with walls (incubator), without walls (virtual), international and accelerators. The study did not draw samples but tried to collect data from all available technology business incubators in Silicon Valley meeting the set requirements. The employees interviewed were initially asked if they had knowledge enough to speak on behalf of the entire organization. If they did not, a more knowledgeable interviewee was chosen.

2.2 Literature review method

In the literature review the author has tried to set the stage for his research by selecting, presenting, summarizing and evaluating the different studies. The study has been inspired by the literature review structure presented by Cooper (1984).

- Problem formulation
- Data collection
- Data evaluation
- Analysis and interpretation

The goal is to provide a representative set of relevant articles. Further it is meant to serve as proof of the author's knowledge by including vocabulary, history, methods and the phenomena. It has also aided the clarity in delimiting the research problem. Hart (1998) explains that some other reasons for reviewing the literature includes:

- distinguishing what has been done from what needs to be done
- discovering important variables relevant to the topic
- synthesizing and gaining a new perspective
- identifying relationships between ideas and practices
- establishing the context of the topic or problem
- rationalizing the significance of the problem
- enhancing and acquiring the subject vocabulary

- understanding the structure of the subject
- relating ideas and theory to applications
- identifying the main methodologies and research techniques that have been used
- placing the research in a historical context to show familiarity with state-of-the-art developments

Furthermore the review serves as a part of the research in itself when used in the concluding analysis, being compared with the data collected from interviews. It should be noted that one motivation to the chosen research question was the lack of specific literature on the area. Hence quantity of literature presented on the subject of client outcome evaluation is limited.

The literature was mainly found by searching in academic databases using keywords (e.g. “business incubation”, “technology incubators”, “incubator outcome evaluations”, “silicon valley incubators”, etc) to find related topics, problems and solutions. Another method used to find literature was to search in references lists of the articles retrieved until exhaustion of related articles. The data collection ended either when saturation was reached or sufficient literature to explain the phenomenon was collected and the likeliness to find new critical articles was low.

In the early parts of the review the literature presented explain the general history, the phenomena and its interpretations, the various concepts and types, the aspects of management and tenant selection and the overall goals for business incubation. The last section in the review containing goals, outcomes, internal operations, evaluation and performance is, other than the previous mentioned reasons, meant to be used later in the analysis.

2.3 Analysis

After finishing the interviews, answers were all analyzed through inspiration from content analysis. Method explained in the following section.

2.3.1 Qualitative analysis

The interview analysis is based on Mayring (2003). It aims at systemically analyzing material. The method attempts building on the strengths of quantitative approaches such as the verification of reliability and validity later adding to the strengths of qualitative analysis. First step of content

analysis is to define materials, which were interviewed, what the basic conditions of the interview were and what text was produced (see 2.2.3). The intention and interpretation of material in the analysis also has to be supported by a theoretical background that in turn explains and clearly defines the research question (see chapter 3). Furthermore, the underlying elements of the research question have to be incorporated into the interview guide (see appendix 2). Techniques and tools for qualitative analysis cannot be standardized hence needs to be connected to research question and materials.

Mayring (2003) states that there are three forms of interpretation in the qualitative analysis, the summary, explication and structuring. Summary refers to reduction, explication to gathering more materials and structuring about collecting the most vital parts. The analysis in this thesis focuses on these mainly through structuring and summarizing. It seemed most appropriate to reduce data to the most fitting parts and categorizing answers in to blocks of themes (see 4.2.1). For every category, the author used variables and to ensure consistency in the analysis, they were explained by examples. During the analysis, some aspects became more relevant and shifted the focus somewhat, putting emphasis on some parts of contrasting and comparing rather than presenting. This led to some parts took up more time than initially planned. As a result, other insights became less relevant and were completely left out due to time and space constraints.

2.4 Reliability and Validity

Considering reliability and validity in research seem important regardless of methods. Since this thesis uses qualitative methods, that will be discussed here. Initial inspiration was collected (see Figure 4) from Eisenhardt (1989) and Yin (1994). This provided a framework to consider quality and increase reliability and validity, though not entirely applicable to this thesis.

Test	Definition	Case study tactic	Phase of research in which the tactic occurs
Construct validity	Establishing correct operational measures for the concepts being studied	Use multiple data collection methods Have key informants review draft case study report	Research design Composition
Internal validity	Establishing a causal relationship, whereby certain conditions are shown to lead to other conditions	Use pattern-matching Compare with conflicting literature	Data analysis
External validity	Establishing the domain to which the findings of a study can be generalized	Use replication logic Specified population	Research design
Reliability	Demonstrating that the operations of a study can be repeated, with the same results	Use case study protocol	Data collection

Figure 4: Research quality "tactics"

Reliability is concerned with the question "is yielded results constant even though a change of research period or researcher occurs?". Attaining reliability is generally hard for a qualitative study with some scholars even claiming it to be impossible. Trying to get the same answers from an interview that is largely dependent on circumstances is a challenge. And even if the same process were repeated, many contextual factors would impact outcomes. Instead, qualitative studies are designed to emphasize validity, concerned with fitting data to what people say and do. Silverman (2006) provides measures to conduct a reliable study that this thesis has adopted. Some of these measures are transparency in choice of theory and research process, enabling a red thread to be followed and even reproduced throughout the text. Moreover, pre-testing and the interview guide can enhance reliability, both of which this thesis has utilized. Validity is also an important aspect to consider, the question whether the study had accuracy in measuring what it set out to do (Silverman 2006). The answer in qualitative research and exploratory studies in specific is generally not as simple as quantitative ones. Pole and Lampard (2002) suggest that a study should be "empirically and conceptually well grounded". This study has done so through consideration of contexts, providing examples to support the data.

3. Literature review

The point of this review is to identify, critically evaluate and explain existing theory and literature on business incubation as an economic development tool. The review illustrates the authors understanding of the existing literature while it simultaneously develops the data used for

analysis in later chapters. The goal is to create an understanding of the existing literature on business incubation and connect that to the ideas of the author.

This literature study starts with an examination of business incubation research history. Continuing by explaining definitions, the various types, management and goals leading up to the research gap.

3.1 Interpretations

The first researchers on business incubation were arguably Temali and Campbell (1984) with their "Business Incubator Profiles: A National Survey". In early literature much emphasis was put on defining the functions of incubation and lesser emphasis was directed to the outcomes. In the 1990s focus was shifted and the literature began talking about "best practices" as the most important areas to find successful programs. These were often conducted in case studies chosen by field experts. From the early days of the new millennium, still prior the dot com bubble, scholars increasingly promoted importance of research on value-added services and general economic benefits. The turning point came shortly after the bubble bursted; many researchers began questioning the effectiveness of incubators. In the midst of this technology and economy meltdown, two new and diverging researching branches started to grow. One discipline focusing on emerging program models while the other one dug deeper into the growth of business incubation across the globe.

The concept of business incubation has changed through history but parts of the essence of business incubation, the core definitions, seem to be rather constant. One example of this consistency in literature is illustrated when historically comparing Hisrich and Buys. Early on, Hisrich (1988) explained that an incubator supports the development of new technology companies by helping them build in a reliable manner. They accelerate the learning curve and problem solving through entrepreneurial networks. He stressed the importance of key factors such as talent, technology, capital and know-how. According to Buys (2007) twenty years later, a business incubator should provide the protective environment for business start-ups. Created by organizations with the fundamental goal of helping entrepreneurs from inception to commercialization with all that it entails. Comparing these two scholars, despite the two decades

gap reveals the core of incubation being about managers helping entrepreneurs to build their firm by leveraging knowledge, tools and networks.

Business incubator purpose has been stated to support novel firms during the volatile and uncertain phases of startup according to Aernoudt (2004). They are traditionally linked to economic development and are often used as a tool to enhance job creation, growth and further innovate on products and services.

A grounded definition was provided Hackett et al. (2004). Through his attempt to collect and systematically present much of all the relevant research on the topic, he concluded that in short that business incubation is 'a shared office space facility that seeks to provide its incubates with strategic, value-adding and business assistance'. He put emphasis on the fact that it's not just an infrastructure or office facility, but a network of actors and institutions ranging from employees to universities and larger communities.

Management guidance, technical assistance and consulting have been a common critical part of most definitions. Providing facilities were up until recently a vital part of this definition as well however a shift happened. What started out as a phenomenon largely characterized by facilities and an administration service has over the years shifted emphasis to a full business support service, now not necessarily requiring physical offers at all. Nowak (2000) explains that this virtual shift was initiated by the software industry, especially in California where much of the development took place. Innovative public-private partnerships laid the foundation to the virtual possibilities that was largely characterized by a lack of physical resources and capital. Since then, many virtual models of business incubation have been proposed however the core mission has been constant; helping entrepreneurs and creating jobs.

3.2 Types

There are several common types and hybrids models of business incubators mentioned in literature. One consistent problem across both literature and industry is that the definitions vary to some extent, especially across national borders. What e.g. U.S. considers to be a business incubator is merely a co-working space in the eyes of northern Europe. Despite this some

scholars attempt to generalize and create distinctions. One of the more cited ones is Aernoudt (2004) with his distinction between the different types of incubators. Figure 1 shows these types and what their objectives and philosophies are as well as what sector is involved.

TABLE I
Typology of business incubators

	Main philosophy: dealing with	Main Objective	Secondary	Sectors involved
Mixed incubators	Business gap	Create start-ups	Employment creation	All sectors
Economic development incubators	Regional or local disparity gap	Regional development	Business creation	All sectors
Technology incubators	Entrepreneurial gap	Create entrepreneurship	stimulate innovation, technology Start-ups and graduates	Focus on technology, recently targeted, e.g. IT, speech-, biotechnology
Social incubators	Social gap	Integration of social categories	Employment creation	Non profit sector
Basic research incubators	Discovery gap	Bleu-Sky research	Spin-offs	High tech

Figure 1. Aernoudt (2004), Typology over business incubators.

Another well-cited break down of business incubators was proposed by Lewis (2011) in what he calls ‘The four prominent business incubation models’. They are explained as the following:

- *With walls*

Characterized by facilities and on-site management coupled with an incubation programs. Focus is on the program and assistance, not the building per se.

- *Without walls or virtual*

In essence refers to the same type of common business incubator as described above but without the facilities. They could have an office however it is usually not specifically dedicated for purpose of housing startups. Conference rooms are sometimes available though. Clients are not limited to a geographic area and it tends to be less expensive than traditional business incubators due to the lack of facilities.

Lewis (2011) explains that one of the hard parts on virtual incubation is how to motivate networking among its clients. Mutual help, collaboration, friendship and other aspects critical to success might be lost when physical coupling doesn't exist.

- *International*

A more recent form of business incubators that focuses its efforts especially on helping foreign companies enter a market. In general offers the same type of support as walled incubators but with a focus on "soft landings" for international companies seeking to scale.

- *Accelerators*

No exact definition is given in literature however Lewis (2011) explains that there are two broader definitions. Either as a late-stage program for incubation or a facility that offers a modified program focusing on incubator graduates. He adds that there is currently no agreed academic definition on accelerator and international business incubators yet.

3.3 Management

Giannakis (2007) states that scholars often seek to develop performance measures in business and management literature. One of these were Smilor (1987), he presented the assessment of internal management systems for technology incubators. Explained as a way to review resource utilization by assessing the management practices and operational policies with the program objectives. He concluded that the key elements to measure in this management system are goals, marketing, R&D, finance, human resources, physical services and law services. He first presented the integrated model followed by the revised model of technology incubator management. He concluded that further examination is needed to explain the relationship with critical factors and performance.

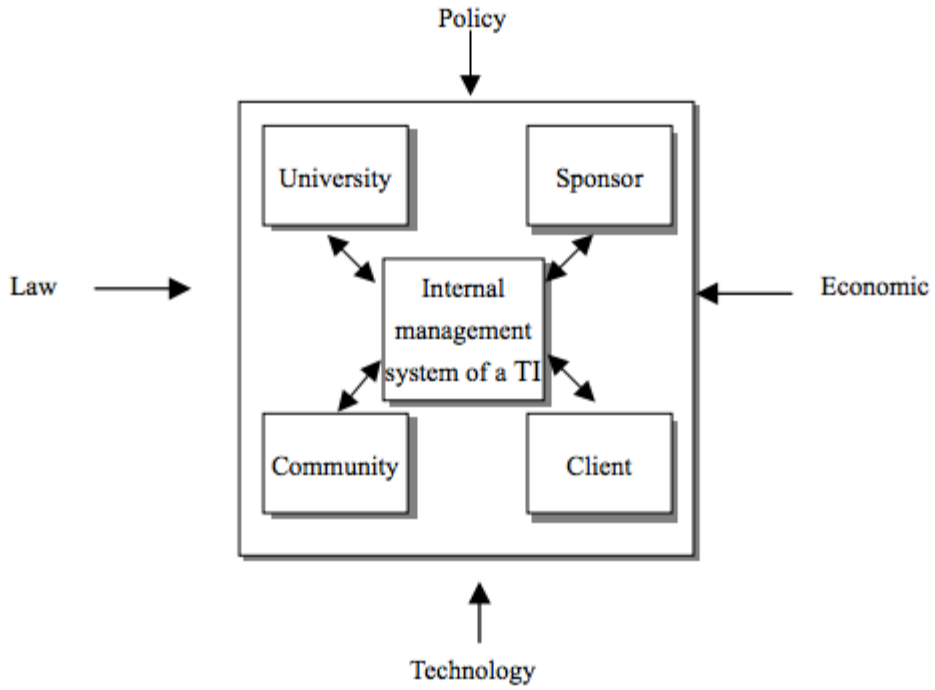

Figure 2. Smilor (1987), An integrated model for technology incubator management.

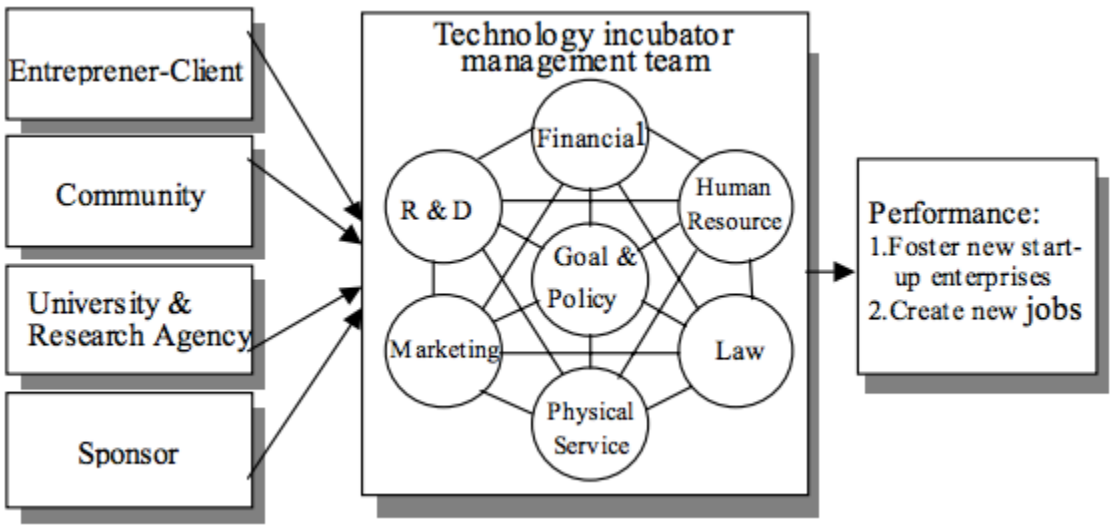

Figure 3. Smilor (1987), The revised internal incubation model

Startups and small businesses often perceive management as a scarce resource and business incubators generally specialize in helping them with that through that by creating a step-by-step program. Most literature on management supports the notion that those who adhere to guidelines and principles from industry best practices generally outperform other competitors that do not.

Building on the work of Rice and Matthews (1995), NBIA (1996) and its board of directors formulated two principles for effective business incubation management. They concluded that (1) the incubator should aspire to have a positive impact on its community's economic health by maximizing the success of emerging companies and (2) the incubator itself is a dynamic model of sustainable efficient business operation. This would require full commitment from board and management team to fully function.

3.4.1 Tenant selection

The management of the client selection process has shown to affect outcomes (e.g. graduation rates). The U.S. Department of Commerce Economic Development (EDA) and Lewis et al. (2011) presented a wide study on best practices leading to success for incubators. Research and conclusions were drawn from an online survey performed by 111 incubator managers. Results from this study were presented as key for future policy recommendations. These findings also explained why top-performing incubation programs often share common management practices. These practices included the crucial part of the selecting clients with right cultural fit and success indicators.

The research by Lewis et al. (2011) provides a list of key characteristics of these top-performing incubation programs, more than half of which stresses the importance of client selection structure.

- Incubation programs age from 7-50 years.
- Two most important goals were job creation and fostering entrepreneurial climate.
- Selects clients based on cultural fit
- Selects clients on potential success
- Reviews client needs at entry

A definition of what the cultural fit or potential success is not given.

Further literature review shows that few researchers having studied what the critical success factors are when selecting your companies. One study by Aerts et al. (2007), based on Chung (1987) suggested that there are a number of key success factors one should consider when

reviewing applicants, presented in figure 2. By reviewing these, incubator managers can establish an overall higher success probability and thus also the client's eligibility. One lacking point is the cultural fit that Lewis et al. (2011) emphasized, a vast 94% of his subjects showed cultural fit as an important factor.

Figure 2. Aerts (2007), Critical Success Factors.

3.4 Goals

The definitions on business incubation vary in literature. Ranging from shared office spaces to controlled work environments. However different the definitions may be - the fundamental goals of business incubation are mostly aligned in the literature as explained at the beginning of this chapter. Illustrated by an early OECD report (1997) that briefly explains: 'The business incubators should function to promote new businesses'. The underlying goal in most literature is stated as new business formation, job creation and the fostering of an entrepreneurial climate. Some of the desired results are also co-operation with regional public-private actors to further the regional development and give academic entrepreneurs business skills to commercialize.

3.4.1 Outcomes

Two-thirds of all top-performing incubators collect data on their outcomes (mainly tenant growth and impact). Half of which continued to do so at least two or more years according to Lewis et al (2011) and NBIA. Among the collected information, employment, revenues, survival rates,

success on service and program activities. They found that actors which performed analysis on graduate firm outcome data was positively correlated with firm success. One hypothesis was that the capacity to collect data is linked to resources of implementing best practices. Similarly proposed was that outcome data which demonstrates positive return on investment also assure funders and leads to continued investing. In short, success breeds success and Lewis et al (2011) claim that requiring clients to provide outcome data is positively correlated at statistically significant levels.

One way to divide incubator outcomes was proposed by the national study by performed by Tornatzky et al. (2000) on incubators. They divided client outcomes into two categories: Primary and secondary. The primary were growth, sales and revenue while the secondary outcomes were obtaining finance and securing intellectual protection.

Depending heavily on actor preferences, literature stresses different indicators and methods when measuring growth and impact of a graduate. In research by Bergek and Norrman (2008) it's stated that most studies indeed focus on outcomes like the mentioned above (new firms, jobs and survival) however fully disregard how the incubators themselves manage and organize the process. The incubator model is treated like a "black box" and according to the authors has to be opened in order to enable rigorous performance evaluations. They describe a lack of theoretical bases for incubator performance evaluation and claim a need for further frameworks. Hence the next section will focus on internal operations

3.4.2 Internal operations

Colbert et al (2010) claims that internal operations is equally essential to understand your incubation programs effectiveness. In their text, a set of questions are proposed.

- Does the program conform to its mission?
- Does the program have the right staff to meet clients' needs?
- Is the program operating within its budget?
- Does the program have the right mix of board members?
- Have staff become complacent, or do staff constantly try to improve?
- Has the program achieved its performance goals?

- Are performance goals aligned so the program can meet clients and stakeholders' expectations?
- Where is the program strong? Where is it weak?

They continue by claiming that these questions should be complemented with outside information to benchmark of a program properly. For example, your goal might be to measure a technology university incubators. There new company formation derived from university technologies are interesting while losing all relevance if your subject would be a non-university affiliated business incubator.

Another way to measure your internal operations is by using the client perspective approach proposed by Kathleen (2004). In her guide, managers are recommended to regularly gather feedback from clients about program usefulness and the effectiveness of services provided. By doing so, elimination or adjustments to ineffective services are made possible. She propose surveys to gauge for client satisfaction, covering staff performance, networking opportunities, facilities services etc.

3.4.3 Evaluation

There is no best practice methodology to use for incubator performance according to Dee et al. (2011). For many reasons, finding positive impact of incubators is hard. Measurements could be restricted on limited data explained by the sometimes many years needed to develop market and scale. The authors claims that it often takes three to four years to incubate a successful company and another three to four after graduation to get proper data to measure growth and viability. Hence few studies actually grasp the full impact and often ignore entrepreneurial learning.

Voisey et al (2006) distinguishes between hard and soft measures when looking at outcome performance.

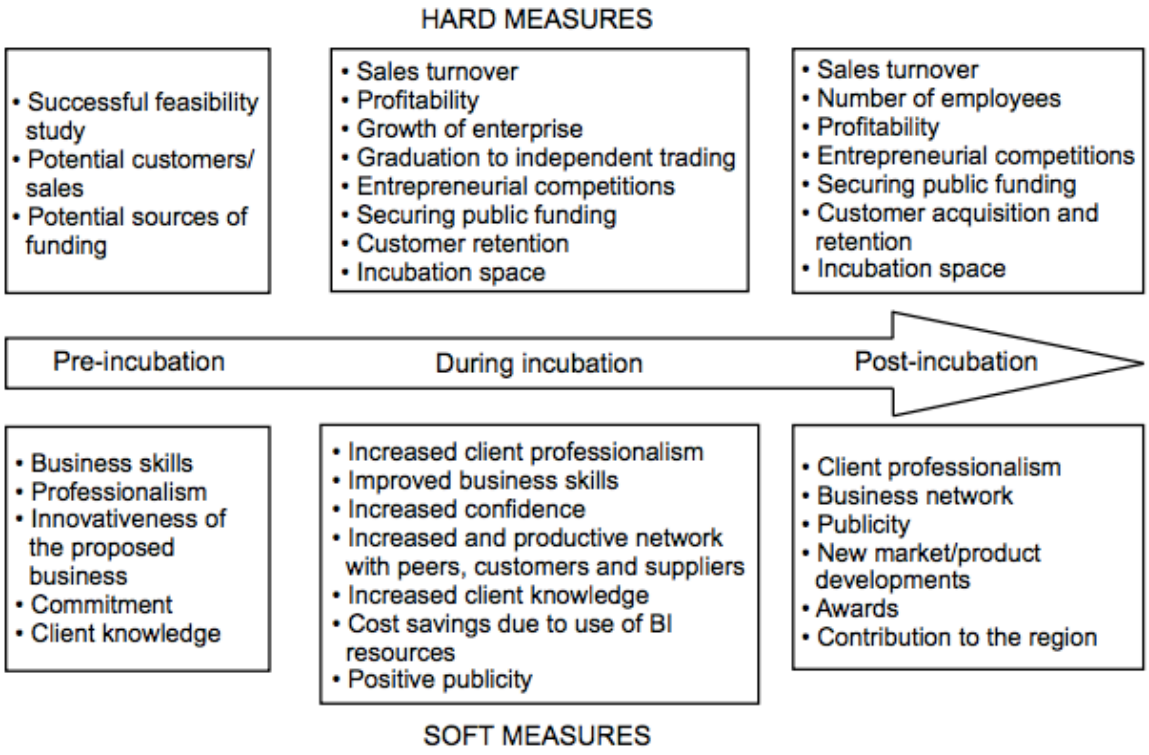

Figure 3: A framework for hard and soft measures in evaluation before, during and after the incubation process.

In evaluation economics, growth is commonly used as an indicator of performance. Positive growth is generally linked to increasing in numbers or size. Made obvious in the general definition by Audretsch et al. (2006) where higher economic output is simply stated as a increasing market. Meaning a higher intensity and level of entrepreneurial opportunities measured through gross value added. Their definition on positive economic growth implies the same, an increasing market size in relation to a region's past. Applying these parameters to your evaluation of an incubator graduate would show some indication on what has happened since graduation however it still lacks many aspects if the point of your measurements is to review the performance. A common goal of incubator programs is to validate if there is a market for the product or service and if the graduates chose to end their venture after graduation on new insights, all measurements on growth would be yield negative results yet your goal (and performance) of successful validation would be reached. However according to Vanderstraeten

and Matthyssens (2010), the literature still lacks an overall consensus on which measure is most relevant when measuring e.g. firm growth

Hence going beyond growth figures is needed in order to reach a deeper meaning of performance.

3.4.4 Performance

In evaluation literature, the concept of performance is usually correlated with goal achievement, Mosselman et al. (2004). This definition should be interpreted not only as measurement of activities but also in a relation with the expectations (e.g. goals). In this sense, measuring incubator performance is not only about gathering outcome statistics but also relating them to the individual incubator goals. So in order to capture performance, one needs to find the incubator model or the specific goals in each case. This might complicate things but it also offers an opportunity to measure some intangible things that offers results faster than economic statistics such as job creation and growth rate.

A good illustration of the complexity in performance categorized as success and failure of performance is provided in the evaluation literature by Hackett and Dilts (2008).

Category	***Success/failure***	***Incubatee outcome state***
1	Success	The incubatee is surviving and growing profitably
2	Success	The incubatee is surviving and growing and is on a path toward profitability
3	Success	Incubatee operations were terminated while still in the incubator, but losses were minimized
4	Failure	The incubatee is surviving but is not growing and is not profitable or is only marginally profitable
5	Failure	Incubatee operations were terminated while still in the incubator, and the losses were large

Figure 3. Business incubation performance.

Figure 3 provides a few examples of how success and failure is not just about measuring one critical aspect. The performance measurements include more than just growth and survival for

some. Much of the academic research focuses on impact assessment and the results are very conservative in comparison to the industry research and often even contradictory. Yet Dee et al. (2011) points out that combining these two schools might provide some good approaches but due to the small number of studies and overall lack of comparability, conclusions derived from the material should be treated as indicative at most.

Evaluating and measuring an incubator programs impact on local economy in wider scope than just clients served is stated to be vital for many reasons. Erlewine (2007) lists three essential reasons for tracking outcomes and impact for an incubator program. Impact data is a tool for fundraising, proof of your programs contribution to the local economy and lastly to improve industry credibility. In order words, to convince potential new clients, funders, future champions and show the importance of your program to the public.

The sophistication of tenant outcome tracking is explained as diverse. While there are some ambitious actors with advanced tools, many use rudimentary systems while others do not track at all. Erlewine (2007) claims that value of incubator services can best be demonstrated through outcome evaluations.

3.5 Literature summary

One of the first business incubators saw the light of day back in the 1959. It was the earliest North American business incubator, founded by Joseph Mancusos called the “Batavia Industrial Center” located in Batavia, New York. Since then, business incubators have gained fame and multiplied several times over. In 1980 there was a total of 12 U.S business incubators, growing steadily to a total of 1,250 in 2012 according to NBIA (2011). They provided research data that North American business incubators assisted 49,000 start-up companies and provided full time employment for 200,000 workers, generating annual revenue of nearly $15 billion.

Not only has the number of incubators has changed throughout history, as presented in this chapter; literature on the area has transformed the definition several times over. Hence we have ended up with various definitions and types of business incubators in literature, all of which hailing from different time periods and relevance. Whatever the current definition may be,

literature agrees on the fundamental goals of business incubation to be aiding business formation and adding to job creation. According to several of the sources, business incubators should pursue and align their services with these fundamental goals. Challenges technology business incubators seem to perceive is the gathering and evaluation of client outcome data. Evaluating business incubator success seems closely tied to evaluation of graduate outcomes.

While literatures on management and tenant selection are fairly aligned, outcome evaluation seems fragmented. Sources claim that two-thirds of the top-performing incubators collect data yet almost none provide information on how they do it or best practices to follow. Many just express the need for more research. Voisey et al (2006) did however attempt to make distinctions between soft and hard measures when collecting post-incubation data. Hackett and Dilts (2008) try to categorize performance through scenarios. Dee et al (2011) claim that there is no best practice methodology on performance measure while Vanderstraeten and Matthussen (2010) expresses literatures lack of an overall consensus on evaluation methods. Erlewine (2007) explains why it is essential to track outcome from incubator programs.

For many mentioned reasons it seems like scholars agree on the fact that evaluating is important and that most incubators should do it. Few offer specific tools to do so while others just express the need for such tools.

4. Data analysis and Findings

In this chapter the results of the data analysis are presented. The underlying goal is to explore incubator client evaluation in both literature and practice. The result of this is found in the subsequent analysis.

4.1 List of North-Californian Accelerator & Incubators

The list below is the result of an initial data collection, which was later used to find, select and contact relevant interview candidates. Contact information and addresses are purposely left out.

Organization Type	Organization Name	City

Operating incubation program	Gbiz.me	Alameda
Entrepreneur Support	Central Coast SBDC at Cabrillo College	Aptos
Developing an Incubation Prog	San Mateo County Econ Dev Assoc	Belmont
Entrepreneur Support	AnewAmerica Community Corporation	Berkeley
Entrepreneur Support	Berkeley Skydeck	Berkeley
Entrepreneur Support	Sustainable Agriculture Education	Berkeley
Operating incubation program	QB3 Garage@Berkeley	Berkeley
Operating incubation program	Roda Group	Berkeley
Operating incubation program	Siemens Technology-to-Business Center	Berkeley
Entrepreneur Support	Finance for Food	Bolinas
Entrepreneur Support	Startgrid Inc	Burlingame
Operating incubation program	YouWeb Incubator	Burlingame
Developing an Incubation Prog	Contra Costa Economic Partnership	Concord
Developing an Incubation Prog	John F Kennedy University	Concord
Entrepreneur Support	Contra Costa SBDC	Concord
Entrepreneur Support	LaunchPower	Cupertino
Entrepreneur Support	Artiman Ventures	East Palo Alto

Entrepreneur Support	Mind's Eye Studio & Gallery	Fairfax
Entrepreneur Support	Solano College SBDC	Fairfield
Developing an Incubation Prog	Foothill College - BSS Division	Los Altos Hills
Operating incubation program	Marina Technology Cluster	Marina
Operating incubation program	Monterey Bay Education Science & Technology Center	Marina
Operating incubation program	CleanStart	McClellan
Operating incubation program	VentureStart	McClellan
Entrepreneur Support	TechShop Inc	Menlo Park
Operating incubation program	Johnson & Johnson Innovation Center	Menlo Park
Operating incubation program	Menlo Incubator	Menlo Park
Operating incubation program	New Enterprise Associates	Menlo Park
Operating incubation program	Studio 9+	Menlo Park
Operating incubation program	The Foundry Inc	Menlo Park
Operating incubation program	US Market Access Center	Menlo Park
Operating incubation	TIPark Silicon Valley	Milpitas

program		
Operating incubation program	NASA Ames Research Center	Moffett Field
Developing an Incubation Prog	Fogarty Institute for Innovation	Mountain View
Entrepreneur Support	Fenwick & West LLP	Mountain View
Operating incubation program	500 Startups Accelerator	Mountain View
Operating incubation program	CFLD Capital	Mountain View
Operating incubation program	Y Combinator	Mountain View
Developing an Incubation Prog	Trellis Napa Valley	Napa
Entrepreneur Support	Napa Valley College SBDC	Napa
Operating incubation program	LACI@CSUN	Northridge
Entrepreneur Support	Alameda County SBDC	Oakland
Entrepreneur Support	Food Craft Institute	Oakland
Entrepreneur Support	Mandela Marketplace	Oakland
Entrepreneur Support	National Center for Employee Ownership	Oakland
Entrepreneur Support	Oakland Business Assistance Center	Oakland
Entrepreneur Support	OBDC Small Business Finance	Oakland
Entrepreneur Support	Women's Initiative for Self Employment	Oakland

Operating incubation program	25th Street Collective	Oakland
Developing an Incubation Prog	Pacifica Chamber of Commerce	Pacifica
Entrepreneur Support	Pedro Point Creative	Pacifica
Entrepreneur Support	BUILD	Palo Alto
Entrepreneur Support	Local Food Lab	Palo Alto
Entrepreneur Support	Sable Acceleration Network	Palo Alto
Entrepreneur Support	The Cleantech Open	Palo Alto
Entrepreneur Support	Transporation Technology Ventures	Palo Alto
Operating incubation program	Innovation Centre Denmark	Palo Alto
Operating incubation program	Innovation House	Palo Alto
Operating incubation program	Palo Alto Research Center	Palo Alto
Developing an Incubation Prog	City of Petaluma CA	Petaluma
Entrepreneur Support	Work Petaluma Coworking	Petaluma
Operating incubation program	Tri-Valley Gbiz.me	Pleasanton
Entrepreneur Support	Evernote Accelerator	Redwood City
Entrepreneur Support	Inventor Labs	Redwood City
Entrepreneur Support	nestGSV	Redwood City

Operating incubation program	Businesses United in Investing Lending & Dev	Redwood City
Operating incubation program	Yodlee Interactive Incubator Program	Redwood City
Developing an Incubation Prog	Richmond Chamber of Commerce	Richmond
Entrepreneur Support	West Contra Costa Business Development Center	Richmond
Operating incubation program	SoCo Nexus	Rohnert Park
Operating incubation program	Sonoma State Univ School of Business & Economics	Rohnert Park
Entrepreneur Support	ALBA Rural Development Center	Salinas
Entrepreneur Support	Hartnell College SBDC	Salinas
Entrepreneur Support	Steinbeck Innovation Center	Salinas
Entrepreneur Support	AllBusiness.com	San Bruno
Operating incubation program	Fashion Incubator San Francisco	San Fracisco
Developing an Incubation Prog	Center for Urban Educ about Sustainable Agriculture	San Francisco
Developing an Incubation Prog	Lightner Property Group	San Francisco
Developing an Incubation Prog	MINE Inc	San Francisco
Developing an Incubation Prog	San Francisco Redevelopment Agency	San Francisco

Entrepreneur Support	311 Cortland	San Francisco
Entrepreneur Support	ARTSHIP Foundation	San Francisco
Entrepreneur Support	California Assoc for Microenterprise Opportunity	San Francisco
Entrepreneur Support	Canadian Technology Accelerator	San Francisco
Entrepreneur Support	Cleantech Group LLC	San Francisco
Entrepreneur Support	Code for America Accelerator	San Francisco
Entrepreneur Support	D-Prize	San Francisco
Entrepreneur Support	Eclectic Cookery	San Francisco
Entrepreneur Support	HubTech 21	San Francisco
Entrepreneur Support	Imagine H2O	San Francisco
Entrepreneur Support	Innovation Norway Silicon Valley Office	San Francisco
Entrepreneur Support	Intersection Incubator	San Francisco
Entrepreneur Support	Juma Enterprise Center	San Francisco
Entrepreneur Support	Media Camp San Francisco	San Francisco
Entrepreneur Support	Mission*Social Coworking	San Francisco
Entrepreneur Support	Rearden Companies	San Francisco
Entrepreneur Support	Rocketspace	San Francisco
Entrepreneur Support	San Francisco Center for Economic Development	San Francisco
Entrepreneur Support	San Francisco LGBT Center	San Francisco
Entrepreneur Support	San Francisco SBDC	San Francisco
Entrepreneur Support	SFMade	San Francisco
Entrepreneur Support	Silicon Vikings	San Francisco

Entrepreneur Support	StartupHouse	San Francisco
Entrepreneur Support	The Marsh Theater	San Francisco
Entrepreneur Support	TinyCo Tiny Fund	San Francisco
Entrepreneur Support	Tumml Urban Ventures Accelerator	San Francisco
Entrepreneur Support	Venture Frogs Incubator	San Francisco
Entrepreneur Support	Wearable World Accelerator	San Francisco
Entrepreneur Support	Z Space	San Francisco
Operating incubation program	Astia	San Francisco
Operating incubation program	I/O Ventures	San Francisco
Operating incubation program	Idea Factory	San Francisco
Operating incubation program	La Cocina Business Incubator	San Francisco
Operating incubation program	Lemnos Labs Inc	San Francisco
Operating incubation program	MandalMed BioScience Laboratories	San Francisco
Operating incubation program	Prescience International / Janssen Labs	San Francisco
Operating incubation program	QB3 Garage	San Francisco
Operating incubation program	QB3@953	San Francisco

Operating incubation program	Renaissance Entrepreneurship Center	San Francisco
Operating incubation program	Rock Health	San Francisco
Operating incubation program	UpStart Bay Area	San Francisco
Operating incubation program	US Market Access Center - RocketSpace	San Francisco
Operating incubation program	Y Studios	San Francisco
Revenue/Equity Based	Health Evolution Partners	San Francisco
Revenue/Equity Based	TheraNova LLC	San Francisco
Revenue/Equity Based	Ventura Partners	San Francisco
Developing an Incubation Prog	Odinz	San Jose
Entrepreneur Support	City of San Jose CA	San Jose
Entrepreneur Support	Irish Innovation Center	San Jose
Entrepreneur Support	Manos Accelerator	San Jose
Entrepreneur Support	Silicon Valley SBDC	San Jose
Entrepreneur Support	Spartups Accelerator	San Jose
Operating incubation program	Impulsa Business Accelerator	San Jose
Operating incubation program	InCube Labs LLC	San Jose
Operating incubation	Prospect Silicon Valley	San Jose

program		
Operating incubation program	San Jose BioCube	San Jose
Operating incubation program	Software Business Cluster	San Jose
Operating incubation program	TechBA San Jose	San Jose
Operating incubation program	US-Japan Business Innovation Center	San Jose
Developing an Incubation Prog	Draper University of Heroes	San Mateo
Entrepreneur Support	SDForum	San Mateo
Developing an Incubation Prog	Sanovas Inc	San Rafael
Entrepreneur Support	Business Group	San Rafael
Developing an Incubation Prog	Citrix Silicon Valley	Santa Clara
Operating incubation program	Access Growth Venture Center	Santa Clara
Operating incubation program	Global Social Benefit Incubator	Santa Clara
Operating incubation program	Innospring	Santa Clara
Operating incubation program	Santa Clara Univ Ctr for Innov & Entrepreneurship	Santa Clara
Operating incubation	The Enterprise Network	Santa Clara

program		
Developing an Incubation Prog	City of Santa Clarita CA	Santa Clarita
Developing an Incubation Prog	City of Santa Cruz CA	Santa Cruz
Developing an Incubation Prog	University of California Santa Cruz	Santa Cruz
Operating incubation program	NextSpace Coworking + Innovation Inc	Santa Cruz
Entrepreneur Support	Science & Technology Innovation Center	Santa Rosa
Entrepreneur Support	Sonoma SBDC	Santa Rosa
Operating incubation program	The ShareExchange	Santa Rosa
Entrepreneur Support	Sebastopol Entrepreneurs Project	Sebastopol
Entrepreneur Support	Stanford University	Stanford
Operating incubation program	Stanford University StartX	Stanford
Entrepreneur Support	Blueseed	Sunnyvale
Operating incubation program	Coronis Medical Ventures LLC	Sunnyvale
Operating incubation program	Molecular Medicine Research Institute	Sunnyvale
Operating incubation program	Plaza Vigil Business Incubator	Watsonville

A total of nineteen incubator organizations were contacted in Silicon Valley. They represented the total amount of relevant actors within the limitations of the thesis. Fifteen of these answered, leaving the total response rate were 78.94%. Twelve of which (80%) agreed to an interview. Three of the six remaining companies failed to respond and the other three declined.

The interview data collection was initially performed through email and in most cases later in person or via telephone depending on availability. The interviews followed semi structured methods with open discussions using a interview guide. This approach enabled flexibility, follow-up questions, indirect questions and probing for additional information. Notes were taken during the interviews, later transcribed and key take-outs were inserted to a summary sheet.

Type	Do you collect data?	How often do you follow-up?	What kind of data?	Why collect?	How collected?	Obstacles in collection or analysis?
Accelerator	Yes	Quarterly	Funding, exit or end	Strategy, own equity	Google alerts, incentives and community managers	Response rates
Accelerator	Yes	Continiously	Funding, valuation, revenue, MRR, ARR basis	Fund valuation, track best performers	Founders sends	Response rates
Incubator and Accelerator	Yes	Yearly	Employees, revenue raised, fundraising, status	Fund valuation, learning, markering	Surveys	Response rates
Accelerator	Yes	Continiously	Funding, status, location	Strategy, own equity, track best performers	Surveys	Response rates
Accelerator	Yes	Quarterly	Valuation, funding	Marketing	Forms	Response rates
Accelerator	Yes	Continiously	Status, funding	Marketing, own equity	Surveys	Response rates
Accelerator	Yes	Quarterly	Funding and status	Strategy, track best performers	Surveys	Response rates
Incubator	Yes	Yearly	Status, funding, employees	Track best performers	Surveys	Response rates
Incubator	Yes	Continiously	Status, valuation	Marketing, own equity	Forms	Response rates
International incubator	Yes	Quarterly	Status, valuation	Strategy	Forms	Response rates
Accelerator	Yes	Continiously	Revenue, funding, status, valuation	Marketing, own equity	Forms, surveys	Response rates
Incubator	Yes	Continiously	Revenue, status, funding	Strategy, own equity	Surveys	Response rates

Figure 7. Summary of interview contents

4.2 Interviews

The analysis focuses on presenting and expanding results from the interviews and the literature review. It focuses on occurring and absent parts as well as correlations and patterns. Inconsistencies between literature and reality are also analyzed and discussed. Starting point of the analysis section is the objectives presented in the introductory chapter on objectives.

4.2.1 Data collection

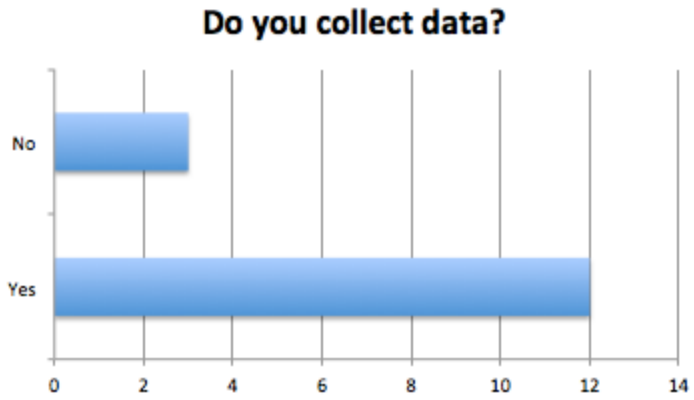

Figure 8.

Is Silcion Valley incubators collecting data?

This was the simplest yet most important question during the interviews. It decided whether the interviews would proceed or end. All except three (20%) out of the fifteen participants did track and evaluate their alumni companies. This is very much in line with what Lewis et al (2011) stated in his article where he claimed that at least two-thirds of all top-performing incubators collected data on their outcomes. Of course there is the aspect regarding the last three companies that failed to reply. Which direction would they have swayed the results? Either way, the fact remains that literature and interview with Silicon Valley actor's points to majority incubators track and evaluate their companies.

One aspect of the interview answers is that all of the asked accelerators and incubators answered that they collect data on their clients yet none of the virtual incubators and half of the international incubators did not track and collect data. In the literature review, both Nowak (2000) and Lewis (2011) explained that the virtual and international incubators are recent phenomenons with missions either to help foreign companies enter and scale on a market or provide assistance on distance. When asked why they did not collect data the organizations all replied similarly: they did not have close enough connections (virtual incubators) or long enough relationship (international) with their clients to motivate such evaluations. This suggests that physical presence and closer interaction during longer periods of incubation adds to the evaluation incentives of incubators. A possibility is that the international or virtual incubators have less reason to collect success stories because they don't market themselves as intensively as

the other types, shown in the findings summary. Unfortunately there was only one answer that pointed to lack of marketing reasons.

Both the virtual and international incubators explained that the major differences that led to incentives to measure were the incubation process and equity. Their interests in graduate evaluations were lower because they felt a smaller part in the future success or failure and they have no equity share to track. Clients were not seen as novel startups needing all types of assistance, rather established companies seeking to try out new markets. The international incubator that did collect client data did so solely for strategy and improvement in their service offer. Generalizing these results would imply that Virtual and International incubators have fewer tendencies to evaluate their alumni companies for a number of reasons, some of them being equity and service offering.

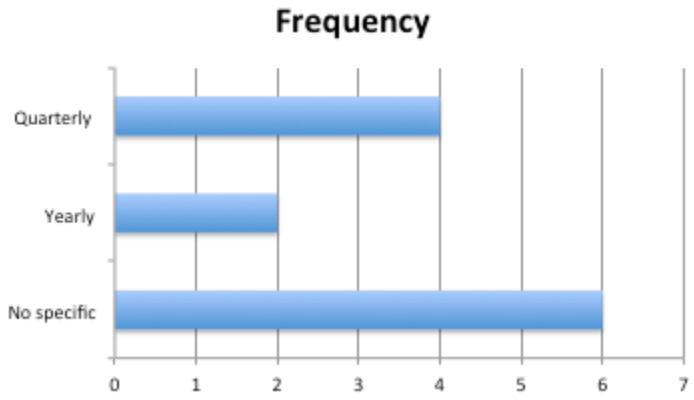

Figure 9.

The organizations that collected data did so on quarterly, yearly or a continuous but unspecified basis. A total of 50% collected data continuously until the company exited or ended while the other did so more structured. The not specified answers were asked what provokes a data collection, all of them answering partner and other stakeholder wishes. No further significant correlations could be made on how often they do it with the types of organizations, kind of data, incentives or channels used.

4.2.2 Data collected

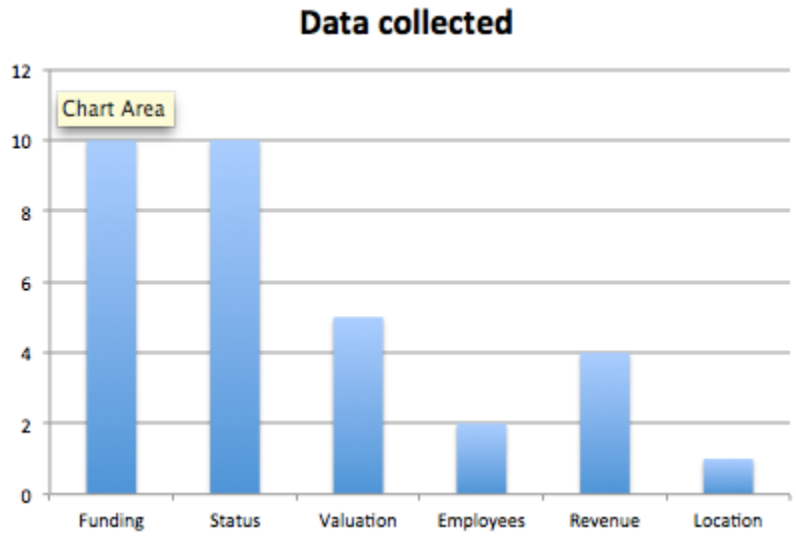

Figure 10.

What kind of data are they collecting?

When interviewees were asked what types of data they collected, answers varied somewhat across participants however the major emphasis were explained ask funding and status. Status often explained to act as an umbrella for tracking the entire situation a company is in. The status could simply be active and inactive however many of the participants went to greater lengths in their evaluation. When asked what status could include, most interviewees spoke about future aspects or invisible elements in the status. The objective of a status could be to check whether the company were planned to be acquired or to do an exit in the foreseeable future. Status could also often include hints of positive or negative progress. They explained that a graduated company could look good on the surface but still be on the verge of failure. A survival check didn't tell them enough about what was really going on. Many interviewees explained that they wanted a more real picture. Two of the interviewees provided examples where they created their own growth patterns by comparing variables from previous evaluations. Another interviewee explained that they perceived failures as success if the losses were minimized. Though no one provided details on what exactly, only that it included numbers (e.g. employees and number of locations).

This reasoning is a lot in line with Hackett and Dilts (2008) take on different incubate outcome states where companies could be surviving and still be a failure and failed companies could in a sense be successful.

Another hot topic during the question of what data they collected was the problem of collecting certain data. Statistical data (as shown in figure 10) on funding, valuation and status were commonly collected and expressed as fairly easy to get. Harder data which they often didn't measure but wanted to included graduate's business networks, PR and product development. Some innovative solutions including social network measurements (e.g. counting LinkedIn contacts) were used however most of the replies said that they would like to measure this but there simply was no way to do so. This was especially the case for the larger incubators which had several hundreds or even thousands graduates. It would have been too time consuming.

The problem expressed here is clearly also a phenomenon in the literature. Voisey et al (2006) writes about the hard en soft measures at outcome performance (see figure 3). Hard measures are explained as more statistical while the soft measure is more subjective and qualitative. An expression of this problem makes sense, especially if you want to be able to evaluate several hundreds of applicants. It has to be a standardized and easy to collect in order to produce the same outputs from everyone, especially if you're collecting numerous of answers. This is also reflected in the methods used, the less in-depth data collection use of surveys and forms.

Nine out of twelve companies replied that they extracted funding data post incubation and eight out of twelve stated that the status was important in the pursuit of their goal. In the next chapter I will discuss these underlying motivations in relation to these goals.

4.2.3 Motivations

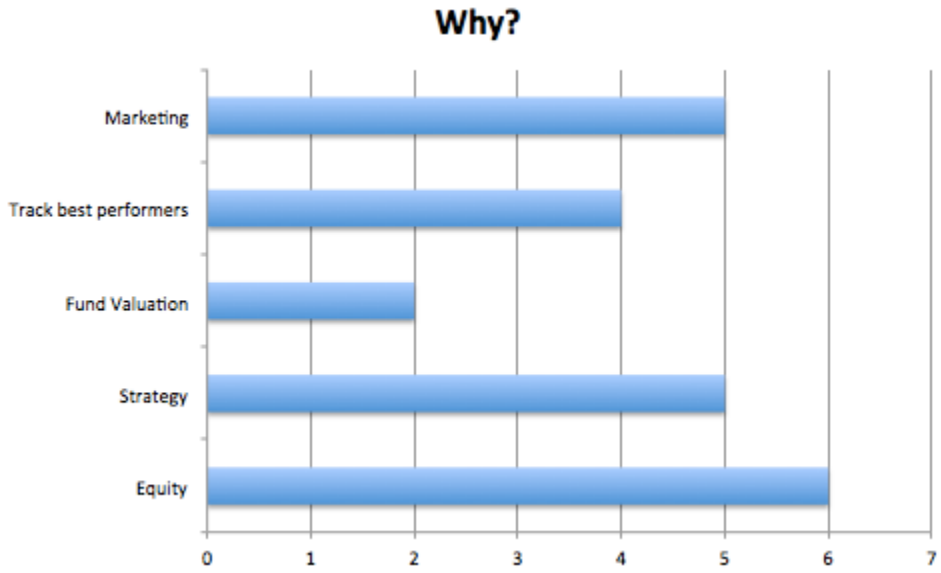

Figure 11.

In the first set of questions around the motivations behind the collection, most candidates were hesitant but answered to be able to "show progress". When provoking them with a series of why both equity marketing and strategy emerged as the top motivations by most candidates.

The interviewees that had equity ownership explained incentives to measure figures were high since they needed to track valuate their investments and fund as well as strategize. Funding and status were prominent and key in all cases. They stated that it had to do with positioning and future insights in regards to other investors. This seemed a bit misaligned since value should have been the main aspect but apparently future funding was more important. The status was said to be equally important for the equity-based incubators. Most interviewees seemed sure that the motivation naturally led to the types of data collected. Some expressed a misalignment between what they wanted to evaluate and what they could collect. Some of the interviewees wanted to evaluate networks while others wanted to see impact but explain that this was impossible to do considering that their sources either were too busy to engage or didn't have that kind of data. One interviewee said that the lack of proper tools and channels presents a gap that some

companies have started to capitalize on.

Those that evaluated best performers did so not only for marketing purposes, they answered that finding and keeping good relations with these graduates could help the program itself, either with the contributions to program layout progress or by being mentors and visiting presenters.

Why are they collecting that specific data?

4.2.4 Gathering

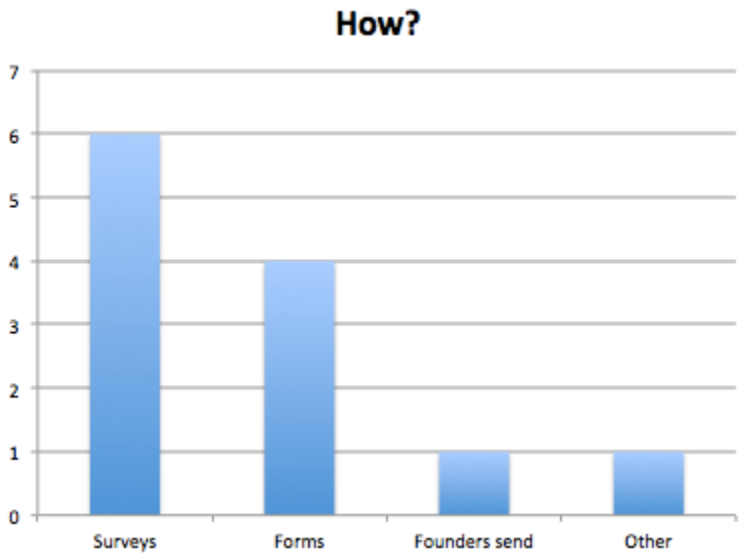

Figure 11.

How are they collecting that data?

Almost everyone collected similarly, either by a survey or a form. Most of these were simple web tools or forms either emailed or put on a websites for graduates to answer. One actor worked with Google alerts and incentives and another one had the founders sending them “whatever they saw as relevant, whether it was progress or failure”. By quickly reviewing which methods are commonly used, one can make the assumption that there is little depth in the content provided.

So the following question to the interviewees was if the collecting tools used had any constraints on what kind of data they collected. Many of them said yes, and that they rather would have had one-on-one interviews with all of them but it was not plausible for either party. Once again, the interviewees explained a problem where the tools are the main concern and constraint. When probing interviewees for additional information on why the methods were used, no one had an answer beyond accessibility and efficiency.

4.2.5 Problems

Which problems are they facing when collecting this data?

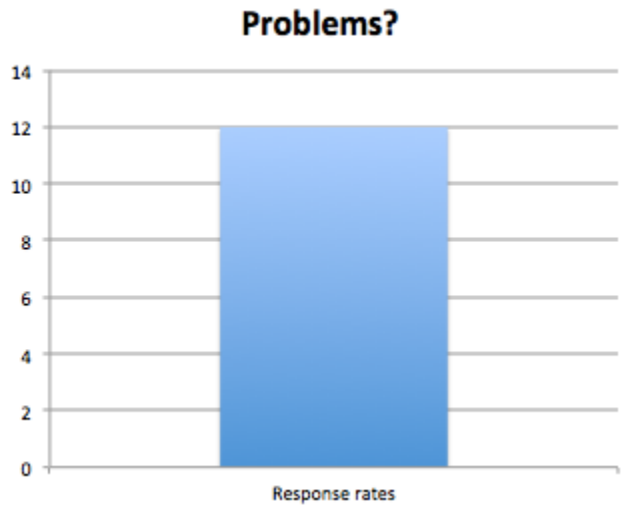

Figure 12.

All faced the same problem, the response rates in their data collection. Surveys and forms were rarely filled on time and often lacked some data. A paradox in the situation also became clear with some of the interviews. The more employees of incubators “bothered” and contacted companies, the less likely it was that companies would answer next time around. So in order to get the maximum amount of information, only one request to fill out the surveys were sent. This indeed also related to the problem and efficiency of tools. Nothing of this rather widespread problem was mentioned in the literature.

4.3 Conclusions

- What are the best practices in literature on technology business incubation client evaluation?

As far as the author has found, there were no best practices. However, literature made it very clear that evaluations should be performed if you aspire to be a top-performing incubator. Instead, literature presents a fragmented picture of tools and expressed needs for more research.

- Does Silicon Valley technology business incubators track and evaluate client outcomes?

Nearly every one of the interviewed incubators claimed that they collect data on and track post-incubation companies. The only cases of incubators straying from that path are some international and virtual incubators, arguably motivated by low participation level and lack of physical presence.

- What kind of data are they collecting?

The data collected varied however the most commonly gathered data was on funding, status and current valuations. Other less frequently collected data was on number of employees, revenues and geographic locations.

- Why are they collecting that specific data?

All incubators that took equity had that as their main motivation for tracking. Other factors discussed were marketing purposes, strategic reasons and to track best performers.

- How are they collecting that data?

All asked except two instances employed some kind of prepared set of questions, either through surveys or forms.

- Which problems are they facing when collecting this data?

Response rates, every single interviewed actor said that commitment and collecting data was the biggest issue.

One major finding has been that incubator incentives to evaluate can be traced to a mix of sources, ranging e.g. from equity, marketing and strategy purposes. In many cases explained by or in correlation with the structure, goal and services offered by the incubators. A surprising finding has been that most incubators in Silicon Valley collect data however both virtual and international incubators seem less inclined to do so. Further study is needed on whether this has

to do with relationships, services or presence. It also became clear that all incubators share a problem with data collection, often due to the frequency or depth in the responses. This might have a connection to the fact that they all use similar methods being either surveys or forms. How this can be mitigated is not clear and should also be investigated further. One major finding in the literature review was the vast amount of academic papers on business incubators yet the very few mentioning's of client evaluations and best practices.

4.4 Practical implications

The conclusion of this narrow study is that some academic literature on incubators is reflected in the reality practices (at least in Silicon Valley). This includes some of the methods found in both instances as well as general notions of the importance of evaluations, types, view of success and failures.

- A vast majority of post-incubation tracking was performed through simple forms and surveys.
- Incentives to track and evaluate post-incubation companies are often connected to specific structure of the business incubators themselves.
- All interviewed incubators shared the same problem with response rates from alumni companies.

During the interviews and the following analysis, it became apparent that most actors shared similar tracking methods, channels, incentives and problems. Despite this, no academic literature provided any best practices on how certain types of incubator should evaluate and track. Instead literature simply stated that more extensive research was needed. So in my conclusion, creating a best practice for incubators depending on incentives is a natural next step. This would help both novel and seasoned business incubators, which in turn would add to the job creation and growth in society.

4.5 Further research

There are many suitable continuations on this field of research due to the several limitations used in this study. A further research building on this would be to explore other geographical areas to provide a more nuanced picture of how incubators evaluate outside the most famous and innovative communities. Another interesting topic that could be expanded upon is the incubator program changes that can be traced to insights gained from evaluations, what actions these evaluations have led to in terms of change in program structure. Going further and looking at the application process of incubator clients would also be a good complement to this study, to perform a follow up on both incentives and prior-post growth statistics. Most importantly of all would be the development of a best practice for incubators. A guiding tool of how you should perform evaluations and tracking most efficiently.

4.6 Suggestions

Business incubators should definitely continue tracking their companies. However the author thinks it is vital that they understand what they measure and why they do it. Doing it, like many in the interviews in this thesis answered, "Because everyone else does it" won't yield good results in the end. It will be at best an inefficient use of your resources and an unnecessary burden to your past clients. Instead, the results of this thesis points to the fact that you should:

- Identify your needs (what type of data you need to know to improve your services, track investments, etc.).
- How to get that data efficiently (which channels, tools and how often).
- Start tracking early and don't stop.

If best practices are developed, I highly recommend that hey should be adopted quickly. With the amount of business incubators around, this type of competitiveness is needed to survive and further evolve.

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6. Appendix

6.1 Interview Guide

- The interviews are planned to take around 20-30 minutes
- Ask for permission to tape record the interview
- Anonymity of the interviewee will be protected
- Get the interview started; Explain briefly the topic and focus of the study

1. Do you track and evaluate client outcomes?

- Why, why not?
- What would alternatives be?
- When did you start measuring?

2. If yes on 1, what data are you collecting?

- Why that specific data?
- How are you collecting that data?
- Which problems are they facing when collecting this data?
- What has been done to mitigate this?

3. Do you have any future plans to change:

- The data that you collect?

- The ways in which you collect that data?