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Measurement of Business Incubator Performance by Governments:
Studying the Practices in the Nordic Region

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Abstract

This master thesis aims to investigate the measurement of business incubator performance by governments. Business incubators play a vital role in nurturing startups, promoting innovation, and fostering economic development. Governments have recognized the importance of supporting and monitoring the performance of these incubators to ensure their effectiveness in achieving desired outcomes.

The investigation focuses on the Nordic region, renowned for its reputation for innovation as well as the future sustainable goals of the governments. By utilizing an exploratory approach with interviews and secondary data collection this research gathers insights from four Nordic countries - Sweden, Norway, Finland and Iceland. Government officials were the primary data sources to enable an in-depth examination of the existing performance measurement practices, their effectiveness, and areas for improvement.

The research begins by exploring the theories on business incubators, incubator objectives and success as well as government support to business incubators. Drawing upon the analysis of the collected data, this study identifies and evaluates the different institutional regimes, the challenges with the evaluation as well as the metrics used for performance measurement, employed by governments in the Nordic region.

The outcomes serve as a valuable resource for governments and organizations seeking to enhance the effectiveness and impact of business incubators in their respective regions. By establishing robust performance measurement frameworks, policymakers can make informed decisions, allocate resources efficiently, and create an enabling environment for startups to thrive.

In conclusion, the main challenges are isolating the effects of incubator participation, collecting comprehensive and up-to-date data, selecting appropriate KPIs and measuring social and environmental returns. The findings and literature converge on the importance of job creation, direct economic effects, gender equality, capital attraction, and service quality in assessing the impact of supported business incubators. However, to develop a more comprehensive evaluation framework, additional factors such as systemic effects, regional economic development, technological innovation, and entrepreneurial capabilities need to be considered. By incorporating a balanced approach and a wide range of evaluation criteria, governments can effectively evaluate the impact of business incubators and make informed decisions to foster entrepreneurship and drive socio-economic development.

Main keywords: *business incubators, incubator financing, return on investment, public business incubators, government-supported business incubators, evaluation of incubation policy.*

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1. Introduction

This research study investigates how government organizations in Nordic countries are measuring the performance of business incubators that receive funding and support. More specifically, the purpose was to explore if different countries have any frameworks for evaluating business incubators to understand the best practices.

The majority of business incubators have legal and regulatory support (Ririh et al., 2020; Grimaldi et al., 2005), and their numbers and scope have been expanding. In order to ensure the survival and growth of new businesses and entrepreneurial teams, they perform a variety of functions and provide an array of services and support. In fact, Schutte et al. (2019) found that companies that have undergone incubation have a higher likelihood of survival than those that have not. Therefore, governments worldwide have been investing in business incubation programs to support the growth of new businesses in various industries.

According to Mian (1996a), Tsai et al. (2009), and Sentana et al. (2017), incubation not only offers a wide range of integrated services for new businesses, but it also advances local and national economic development and innovation. In the study about regional development in Spain (Sentana et al., 2017), it is stated that the generation of innovative firms and increasing the number of high-quality jobs are the main goals of public business incubators. This will lead to the diversification of local businesses, thus becoming a key tool in their development. Harman and Read (2003) also referred to incubation as a crucial element of regional and national economic development strategies because of its support and acceleration of growth in all sectors. Therefore, governments and municipalities in several countries have policies providing financial and other support to business incubators.

Since the majority of incubators are supported by public funds, they should be held accountable for the results of their use (Hackett & Dilley, 2004). ROI and SROI provide insight into the economic and social benefits generated by government-funded business initiatives (Emerson & Twersky, 1996; Connell & Kubisch, 1998). It can help to measure the incubator's performance and make the necessary implementations of the policy. Moreover, these measurements provide governments with valuable information on allocating resources effectively, identifying the most successful programs, and replicating them in other regions.

Business incubators' return on investment is difficult to quantify, and there are no universally accepted criteria for measuring it. In addition, the goals of business incubation programs may vary depending on the region, and the success of a program may be influenced by a variety of factors, such as the local business environment, the quality of the incubator management, and the types of services offered (Mian, 1997).

This study concerns the Nordic region, which consists of Sweden, Norway, Finland, Denmark, and Iceland. According to the published innovation reports in 2022, Sweden was identified as the most innovative country in the EU while being the third in the world (European Commission, 2022; WIPO, 2022). Consequently, it is intriguing to learn more about the Swedish government's support of business incubators. On the other hand, the Nordic Council of Ministers states that its goal is to be the most integrated and sustainable region in the world by 2030 (Nordic Innovation, 2023). Therefore, it is also interesting to identify how the innovation ecosystem is working in these countries and what type of collaboration they have with business incubators. Although they have different national policies on the support and evaluation of business incubators, my study aims to have a measurement to help countries compare their policies and learn from one another.

On the other hand, while the current literature has results about success factors or regional policies from quantitative studies, these were mostly conducted with incubator managers and incubated firms. Due to the fact that both public and private entities have established incubators with varying objectives, it is difficult to compare the results of these evaluations. In some cases, the incubator may be linked to a job-training program and intended to provide employment opportunities to the unemployed. In other cases, the incubator may be affiliated with a university, enabling the development of products, their commercialization, and the employment of highly skilled graduates. Other incubators may restrict the participation of particular categories of enterprises. (Markley & McNamara, 1996), the viability of an incubator must be evaluated in relation to its objectives and operational constraints. However, my study will focus on taking perspectives from the government on this measurement system, learning more about their experience with the evaluation process, reflecting on challenges, and suggesting improvements through qualitative interviews.

The thesis is situated within a gap in the literature related to government evaluation of the return on public investments in business incubators. While the research highlights the benefits of business incubation, the function of public funding in sustaining these programs, and the government regarding evaluation. It does not inherently reveal the perspective of the success factors of business incubators. Therefore, this research can contribute to the literature and practice by providing information on expectations, evaluation methods, and further steps planned by governments, especially in the Nordic region.

The *main research objective* is “Measurement of Business Incubator Performance by Governments: Studying the Practices on Frameworks in the Nordic Region”, which can be divided into two *research questions* to further investigate:

1. *What are the challenges faced by the government with the evaluation of business incubators?*

2. *What factors do governments consider in assessing the impact of business incubators?*

To answer these questions, this study will employ a qualitative research methodology and semi-structured interviews with government innovation agency stakeholders in Nordic countries. In addition, the study will investigate the measurement system's challenges and their solutions. In addition, the study will investigate the measurement system's challenges and their solutions. This study will contribute to our understanding of the evaluation of business incubator programs.

This thesis contains six chapters: introduction, theoretical framework, methodology, and results. conclusion, analysis, and results. Having introduced the background information about the research area and identified the focus, this paper further discusses existing literature on related theories, such as business incubators, the government's role in business incubator support, etc., and suggests a conceptual model for the research in Chapter 2. Chapter 3 then describes the author's methodology for research strategy, research design, data acquisition, and analysis. In addition, the study's limitations are discussed in this chapter. In addition, as empirical context, the institutional regimes of the Nordic countries are discussed in Chapter 4, followed by themes derived from interview results and data obtained from government reports. Next, Chapter 5 analyzes the themes in relation to prior literature and uses secondary data points to compare and supplement the theory with the final version of the proposed conceptual model. Finally, Chapter 6 concludes the research by addressing the research questions, identifying the practical and theoretical contributions of this thesis, and suggesting further research areas that can be investigated related to this topic.

2. Theoretical Framework

The purpose of this chapter is to provide an overview of the current state of knowledge regarding business incubators, government policies, and methods for evaluating business incubator performance. Following that, a proposed model for the evaluation process will be presented to guide this study.

2.1. Business Incubators

This section reviews the literature on business incubators, their role in the economy and development, and the importance of government support for business incubators.

2.1.1. Business incubator definition

Several articles (Hackett & Dilts, 2004; Mian, 1996a, 1996b, 1997, 2016) describe business incubators as organizations designed to accelerate the growth and success of entrepreneurial companies by providing a variety of business support resources and services, including physical space, capital, mentoring, shared services, and networking connections. (Mian, 2016) Business incubators typically have a physical location, a structured program, and a network of mentors and investors.

Wiggins & Gibson (2003) provide a more comprehensive description of the business assistance and development processes in their overview of U.S. incubators. They report that 75% of respondents to a survey about incubator services provide assistance with business fundamentals, marketing, finance, and accounting, investor and strategic partner linkage, networking, links to higher education, shared office facilities such as conference rooms, and shared administrative services.

70% of 107 European incubators provided financial- and marketing advice, meeting rooms, networking, business planning and start-up assistance, assistance with fundraising via investors, loans and grants, and office equipment (Aerts, Matthyssens, and Vandervoort, 2007).

In the 1950s, the United States introduced the concept of business incubation in order to provide entrepreneurs with a variety of resources, including funding, instruments, office space, and mentoring (Hackett & Dilts, 2004). Over time, the concept has spread to other regions of the world, leading to the emergence of a variety of business incubators. The technology-based incubator, which focuses on providing high-tech firms with specialized apparatus and technical expertise, is one of the earliest and most well-known models of business incubation (Mian, 1996a). Another type is the mixed-use incubator, which facilitates businesses from a variety of

industries and provides a variety of resources, such as office space, mentoring, and networking opportunities (Phillips & Kirchhoff, 1989).

A common classification criterion for incubators is their financial sponsorship. On the basis of these criteria, incubators are typically divided into four distinct categories: publicly funded, private nonprofits, institutions, and private corporations (Allen & Rahman, 1985; Grimaldi & Grandi, 2005; Kuratko & LaFollette, 1987; Lumpkin & Ireland, 1988). In publicly financed institutions, management and organization are the responsibility of public initiatives, municipal governments, etc. Their goals are employment expansion and local economic development. On the other hand, private non-profit incubators administered and organized by private industry associations, chambers of commerce, and community groups, aim for the economic growth of their region. University incubators are administered by universities with the goal of commercializing and spinning off research initiatives. And the last group are the incubators administered by profit-driven private corporations (Allen & Rahman, 1985; Grimaldi & Grandi, 2005; Kuratko & LaFollette, 1987; Lumpkin & Ireland, 1988).

2.1.2. Business incubator success

As mentioned above, publicly sponsored incubators are financed by government and municipalities funding. The financial dependence of publicly funded incubators forces incubators to operate in a politically tense environment in which they must continually demonstrate the "success" of the incubator and its graduates to justify sustained public funding of incubator operations (Hackett & Dilts, 2004).

According to one perspective (OECD, 1997; Phan et al., 2005), business incubators should address market failure, whereas Hansen, Chesbrough, Nohria, and Sull (2000) contend that incubators accelerate the entrepreneurial process and support new businesses. Nonetheless, the community can summarize incubators' primary goals as follows: to encourage new business growth (Scillitoe & Chakrabarti, 2010), to create job creation (Knopp, 2012; Wynarczyk & Raine, 2005), to support the entrepreneurial community (Bruneel et al., 2012), and to promote economic development (OECD, 1997; Phan et al., 2005). In light of the potential exceptional benefits of incubators for economic development, an evaluation of incubators is necessary (Phan et al., 2005).

Direct economic impacts are the sales, income, and employment resulting from the performance of an incubator. However, the direct economic impacts provide only a partial picture of the overall effect of business incubators on the local economy (Markley & McNamara, 1996).

There are many perspectives on what constitutes a business incubator's success, as well as key performance indicators (KPIs) for the phenomenon of business incubation (Vanderstraeten & Matthyssens, 2010). According to Autio & Parhankangas (1998) and Bergek & Norrman (2008), the success of an incubator is contingent on the support system's ability to assist incubated businesses in achieving their objectives. According to Peters et al. (2004), incubators are successful based on the number of firms they produce. Dee et al. (2011) and Aerts et al. (2007) argue that firm survival is the best way to measure the economic impact of an incubator, whereas Mas-Verd, Ribeiro-Soriano, and Roig-Tierno (2015) argue that only surviving firms can contribute to economic growth. However, Brunnström (2021) stated that quantity related to the above points is not the only measurement that needs to be considered, adding that there is also quality measurement to determine the incubator's impact on the economy. Furthermore, the term “quality” is mentioned as highly subjective to define and measure, meaning that it can be measured in various ways depending on the organization, such as employment generation, revenue increase, etc.

In addition, the success factors include the number/rate of new businesses, the number/rate of new corporations, and the number/rate of new jobs created (Udell, 1990). Most impact studies that measure these variables rely on simple ongoing estimates for each metric. Campbell & Allen (1987) propose the following "milestones" as indicators of incubator success (note: "tenant" refers to the incubatee in this context). The establishment of a responsive business consulting network, the participation of financial intermediaries in tenant capitalization, the point at which the majority of tenants are start-ups as opposed to established small businesses, and the collaboration that develops when tenants engage in subcontracting and joint purchasing (Campbell & Allen, 1987). Indicators of the incubator's level of development include measurements of the aforementioned factors, as well as the incubator's sustainability and growth, the scope and effectiveness of its management policies, and its capacity to provide comprehensive services (Mian, 1997).

Furthermore, the success of an incubator is heavily influenced by the funding it receives, as revenues from incubated companies often fall short of associated costs (Rice & Matthews, 1995; Campbell et al., 1989).

On the other side, the most clear metric of incubatee success is "graduating" from the incubator after overcoming resource limitations and building sustainable company structures. In fact, the literature characterizes incubator performance as a ratio stated in the following terms: number of firms leaving the incubator and number of enterprises ceasing operations while still a tenant (Allen & Weinberg, 1988).

From an economic theory perspective, investments in business incubators are expected to contribute to long-term growth. These investments, including research and innovation, are

believed to yield a high socio-economic return, particularly through the spillover effects that innovations have on the innovation capacity of other companies. Therefore, the state's involvement in supporting incubators is justified, with a focus on developing companies that have the potential for high socio-economic returns and significant innovation capabilities. (Griliches, 1998; Jaffe, 1998)

2.1.3. Government Support for Business Incubators

Several authors mentioned that business incubators were more effective than other economic development programs, such as the attraction and creation of businesses (Markley & McNamara, 1994; Sherman, 1998, 1999; Sherman & Chappell, 1998; Lewis, 2002). Moreover, it is considered a valuable instrument to stimulate business activity in the country (Wenneker and Thurik, 1999).

With the support of the state, regions/county councils, and municipalities providing financial and other stimulation, the operations of an incubator can be enabled, accelerated, and scaled up to a larger scale (Sweco, 2010). According to research conducted by Brunnstrom (2021), incubator administrators emphasized the significance of national policy and policymakers, particularly the National Incubator Program in Sweden, for their success.

When investing public funds in business incubation, policymakers primarily expect that graduates will have the ability to increase employment, revitalize local economies, diversify them, acquire technology from major corporations and universities, and commercialize new technologies, thereby strengthening regional and national economies (Tavoletti, 2013).

Another perspective for government intervention to support new technology (Jaffe, 1998), suggests to divide the returns of firms into private and social. Indicators such as sales, profits, and value-added do a good job of simulating private returns, which include the returns we commonly observe. There are two distinct types of social returns, which are those that accrue to society. First, there are unmeasured potential significant social returns directly involving the company in question that exceed the privately attributable returns.

Since it is expected that public economic support to be important for the maintenance of incubators, (CSES, 2002; Ferreiro & Vaquero, 2010) a follow-up analysis of this expense needs to be conducted. The research findings by Ferreiro-Seoane et al., (2018) demonstrated that business incubators can be effective in attaining socially beneficial outcomes (enterprise survival, employment creation, etc.) generating additional cash for the autonomous regions that would not have occurred without intervention.

2.2. Performance Evaluation

Mosselman et al., (2004) explained incubator performance including both aspects of effectiveness - doing the right things, and efficiency - doing those as well as possible. Furthermore Brunnstör (2021, p.175) revised these terms and developed the definition as:

Incubator performance as containing both aspects of efficiency, broadly related to the input and output side, and effectiveness, broadly related to the quality of output.

Where:

- *Input side refers to: money and time*
- *Output side refers to: new KIE firms*
- *Quality of output refers to: firm survival and firm performance*

Al-Mubaraki & Schrod (2011) created a four-dimensional model to evaluate the efficacy of business incubation. The illustration of the model is shown in Figure 1. It suggests that the graduation of incubated businesses, the success of incubated businesses, the employment created by incubation, and the salaries paid by incubated customers are significant indicators of the efficacy of business incubators.

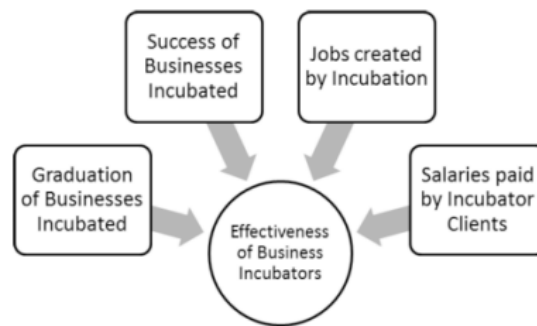


Figure 1. Model for measuring the effectiveness of business incubators. (Al-Mubaraki & Schrödl, 2011, p. 445).

For governments, one way of measuring the performance of business incubators is Return on Investment (ROI), which, according to Investopedia (2023), is used to “evaluate the efficiency or profitability of an investment”. ROI can also be calculated to compare the efficiency of various investments with one another. The calculation can be done by dividing the benefit (or return) of an investment by the investment's cost and expressing the result in ratio or percentage form. This is because the calculation seeks to gauge the amount of return on an investment in relation to the investment's cost.

The ROI of business incubators can be tough to quantify, and there are no universally accepted metrics for assessing it. In addition, the objectives of business incubation programs can vary by region, and the success of a program can be affected by a number of variables, including the local business environment, the quality of the incubator administration, and the types of services provided (Mian, 1997)

According to the article by Economics (2014), the returns on investments in science and innovation accrue privately to the investors, but socially to the non-investors. Here, social return is defined as "increases in profits for firms that can use innovations created by other firms or the public sector, as well as more difficult-to-measure returns to wider society, such as gains to health, well-being, security, and efficiency in the policy-making process and the delivery of public services."

Therefore, there is another measurement in the literature called Social Return on Investment (SROI), which is measuring how an organization, program etc., creates value (Emerson & Twersky, 1996; Connell & Kubisch, 1998). Studies by Rotheroe & Richards (2007) and Sentana et al. (2017) stated SROI is based on accounting and cost-benefit analysis principles, as the ratio indicating the value created in euros for each euro invested. In other words, it calculates the social and environmental returns to show how they contribute to overall value creation. Lingane and Olsen (2004) reflected on these two approaches, mentioning that traditional ROI indicates the strength of the company to the shareholders; similarly, investors and managers can use SROI to measure the business performance based on the social and environmental criteria.

Social profitability exists despite the fact that business incubators are not economically profitable due to their reliance on financial aids and public investment. The activities conducted by entrepreneurs within incubators generate returns for public administrations through taxes that exceed the initial investment. Studies by Bigliardi et al. (2006), Byus et al. (2010), Kerr (2007) and Mian (1997) explore social profitability indicators, the relationship between sustainability and financial outcomes, and the importance of identifying long-term projects for strategic benefits. The New Economics Foundation (NEF) revised the methodology in 2000, making it widely used to measure the social return of public subsidies. Recent studies, including those by Nicholls et al. (2009), distinguish between evaluative and prospective aspects within the Social Return on Investment (SROI) analysis, allowing for the prediction of social value creation based on expected outcomes. Assessing the economic profitability of incubators, Ferreiro Seoane (2014) proposes variables for estimating the economic returns, while Nicholls et al. (2009) introduce a comprehensive SROI concept that considers social, environmental, and economic elements.

2.3. Summary

Considering the literature review and the purpose of this study, a model has been designed by the author in Figure 2 below.

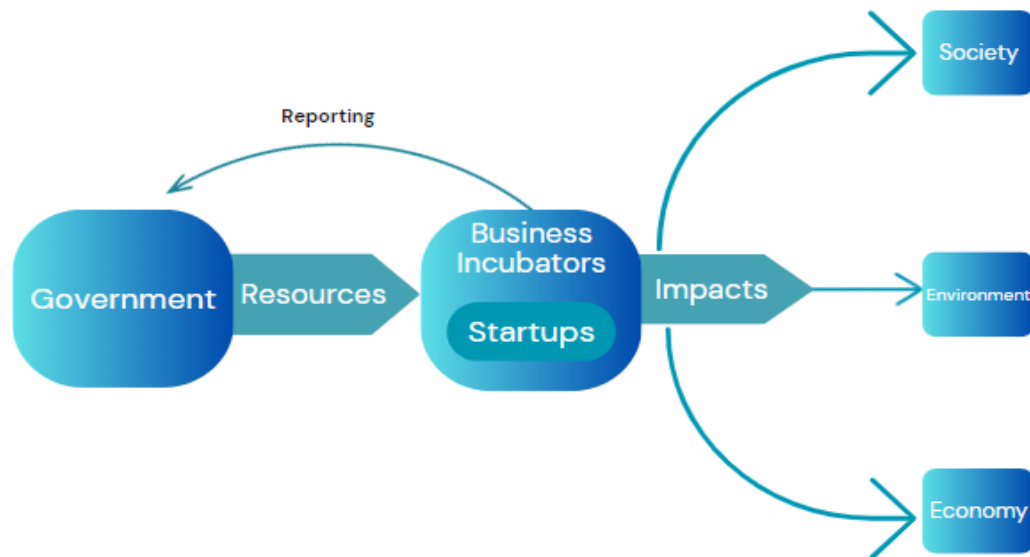


Figure 2. Evaluation Framework for the government support to business incubators

The model illustrated in Figure 2 is suggested to analyze the measurement of business incubator support provided by the government.

This process illustrated in the model begins with the government investing resources in business incubators. These resources could include financial support, expertise, infrastructure, or any other form of assistance aimed at fostering the growth of startups within the incubators (Markley & McNamara, 1994; Sherman, 1998, 1999; Sherman & Chappell, 1998; Lewis, 2001).

The business incubators, being the recipients of government support, house and nurture startups. These startups are typically early-stage companies that are in the process of developing their business ideas, products, or services. The incubators provide them with the necessary support and guidance to help them succeed. By providing resources such as funding, mentorship, and infrastructure, business incubators facilitate the growth and development of start-up enterprises (Allen et al., 2007; Mian, 2016; Phillips & Kirchhoff, 1989).

The resources provided by the government to the business incubators have an impact on different levels of society, the economy, and the environment. (Nicholls et al, 2009). These impacts can be both direct and indirect. For example, the startups nurtured within the incubators may create job opportunities, contribute to economic growth, and introduce innovative solutions that have positive environmental effects.

To evaluate the impact of business incubator support, relevant information needs to be gathered, which is reported by the business incubators to the government. The reporting process involves collecting and sharing data on the outcomes and impacts achieved by the startups within the incubators. This information helps assess the effectiveness of the government's support and understand the broader implications of the business incubator programs.

The information extracted from the literature can be categorized into three categories: impact on society, impact on the environment, and impact on the economy. To identify the specific data points used by governments for evaluation, the model proposes using qualitative interviews and analyzing government reports. Qualitative interviews involve engaging with relevant stakeholders, such as government officials and business incubator representatives, to gain insights into the evaluation process. Additionally, it is possible to identify the crucial data points that governments take into account in their assessments by analyzing government reports that describe the activities, successes, and impacts of business incubator programs.

By using this research provides a deeper understanding of the impact of government support for business incubators and their evaluation. The process can help governments ensure that resources are allocated effectively and that the desired outcomes, such as economic growth and societal benefits, are achieved through the promotion of entrepreneurship and innovation within the business incubator ecosystem.

3. Methodology

This chapter aims to describe the author's research strategy, methodology, and design. Following that, data collection methods are presented, including literature reviews, secondary data reports, and semi-structured interviews. Having described the data analysis process by thematic analysis method, this chapter identifies the quality criteria for this research.

3.1. Research Strategy

According to Bell et al. (2018), the research strategy is the general approach taken throughout the research study. The two main strategies, qualitative and quantitative, differ in their perspectives on theory as well as the process of carrying out the research. While the first strategy focuses on perspectives, words, images, and findings to establish theory, the second strategy utilizes numbers and measurements to test hypotheses derived from the existing literature. Using more exploratory methods such as interviews and observations, qualitative research seeks to comprehend the perspectives and experiences of individuals. According to Freeman and Chen (2019), qualitative methodology is "idiographic," which refers to a phenomenon in which the collected data can be representative of the unique responses from an individual's perspective, requiring researchers to identify and interpret more. In order to gain a greater understanding of the government's perspective on evaluating the efficacy of the business incubator, this methodology was adopted for the purposes of my research.

As Bell et al. (2018) stated, the findings from qualitative research establish and shape the theory, which is considered an inductive approach. With this approach, the amount of empirical data that can be gathered to build relevant theories is uncertain. The deductive approach, on the other hand, is considered to be strictly based on the development of hypotheses from existing literature (Bell et al., 2018). According to Malhotra (2017), the deductive approach has the issue of not being clear on the selection of the theory to be tested. Therefore, considering the limitations of both approaches, an abductive approach to research has been established that has characteristics of both inductive and deductive approaches. This study is not aimed at testing hypotheses that emerged from existing theories or developing new theoretical concepts; rather, it is aimed at exploring the theoretical concepts to support adding perspectives to the conclusions of the analysis of the chosen group. Having used a deductive approach to make a literature review and develop the theoretical concepts, the data gathered is combined with the theoretical framework by following the inductive approach.

3.2. Research Design

This section provides a framework for data collection and analysis (Bell et al., 2018) to establish relevant guidelines for research methods. The literature on how Nordic governments evaluate the

efficacy of business incubators is limited; thus, an exploratory research design was adopted. According to the definition provided by Shukla (2008), an exploratory research design is characterized by qualitative research with a limited number of extant theories and literature. According to Saunders (2016), this type of research design is more flexible and adaptable, which can lead to new findings that change the direction of the research. Considering the previous abductive approach and its relationship to exploratory research design, it seems more appropriate to employ in this qualitative study.

3.3. Data Collection

This section contains an explanation of the data collection processes for the research. First, a literature review has been conducted to develop concepts and frameworks. Following that, secondary data collection has been made with the help of official reports from government organizations interviewed and other supporting agencies. Lastly, as a primary source of data, semi-structured interviews have been conducted among the contacted organization representatives. In addition to this step, there have been more reports mentioned by the interviewees during the discussion that has been provided afterward and analyzed as secondary data.

3.3.1. Literature Review

The primary sources used in this study have been gathered by searching for peer-reviewed scientific papers in the Supersearch service in the e-library of the University of Gothenburg. Moreover, in order to make sure that more relevant papers have been reviewed in various reliable databases, Web of Science, Scopus, and Google Scholar have been used. Following that, papers of high quality have been identified by looking at the journal that published them and the number of citations. Moreover, the publishing year has also been considered since it might have an effect on the citation numbers.

The following main keywords were used for the first research in multiple different combinations: *business incubators, incubator financing, return on investment, public business incubators, government-supported business incubators, and evaluation of incubation policy.*

Furthermore, I have used the snowball approach by scanning the reference lists of relevant papers in order to find more suitable sources. The literature has been chosen among the papers in English, considering the language of the study.

3.3.2. Secondary Data Collection

According to Bell et al., (2018), analysis of information provided by other authors and studies is known as secondary data. Prior to conducting the actual review, predetermined keywords are systematically and reproducibly searched for in databases and search engines such as Google. Moreover, having identified the relevant government authorities, their websites have been checked for relevant reports about the incubator evaluation methods. The secondary data collection was constructed before the primary data collection in order to provide a foundation for the interview guide used for the primary data collection and the in-depth interviews using the abductive method. Moreover, during and after the interviews with government officials, they shared some of the documents that are not primarily available when searching on the Internet. The reports have been used to further develop the background in empirical findings.

These documents must be evaluated based on the four quality criteria outlined by Scott (1990): authenticity, credibility, representativeness, and significance. The applicability of these criteria differs depending on the type of document being evaluated. Authenticity is the determination of whether the evidence is genuine and has a particular origin. Credibility relates to the absence of error and distortion in the evidence, while representativeness indicates whether the evidence is representative of its type. Meaning is about the evidence being clear and comprehensible (Scott, 1990). Considering all the reports used as secondary data have been either retrieved from the official websites or provided by the organizations' officials, all the criteria above have been met.

In the case of my study incorporating government reports as secondary data sources can provide valuable insights into the policies and practices related to the evaluation of business incubator performance in the Nordics region.

3.3.3. Primary Data Collection

As the primary data collection for this qualitative study, interviews have been conducted in order to gain more in-depth knowledge from the respondents. According to Bell et al., (2018), semi-structured interviews are prepared in advance to follow certain points while providing partial flexibility during the interview. In order to have the points, an interview guide with general questions has been prepared (Appendix A). In this way, if necessary, follow-up inquiries can be asked to discuss the topic throughout the process, which is a crucial element given that the study requires knowledge of a great deal of specific information and terminology. By letting the participant's interests and examples lead the conversation, a constructed setting also enables the interviewer to understand the personality and particular experience of each person interviewed. Additionally, the researcher gains a complete understanding of the issue as a result. This interviewing method has drawbacks, such as the need for certain talents and improvisational ability throughout the interview. To determine which topics to investigate further, the interviewer must also be able to interpret verbal cues and the respondent's body language. During

semi-structured interviews, remaining objective and avoiding influencing or directing the respondent's responses are also essential.

The participants are selected through an initial Internet search. There are a limited number of organizations in each Nordic country that provide government support to business incubators, given the scope of the initiative. Employees selected from the websites of government organizations based on their role as well as general emails and phone numbers have been contacted to explain the study and request an interview. Potential interviews have been primarily sent and told information and the purpose of the study so that they have some understanding of the study's goals and be ready for the interview if it is relevant to their organization. In accordance with the interviewee's request, it was decided to do all interviews online using software, namely Zoom Communications, Google Meet, Microsoft Teams, and others. This ensured that every interview was captured with the camera on and in the same setting, making it possible to interpret the emotions or note disturbances if any. The benefit of using video conferences instead of in-person meetings is that poor recording technology is avoided. On the other hand, there is also a drawback because it might not be possible to record the environment's surroundings and make judgments about behavior and other elements that might have produced disturbances, if any. All the interviews have been asked for permission to record the conversation for analysis purposes. The software service Otter.Ai has been used to make sure that the interview has been recorded and transcribed at the same time. During the interview, it was essential to strike a balance between allowing the interviewee to direct the conversation and averting lengthy responses that strayed from the topic at hand.

Table 1. List of interview descriptions

Interviewee Affiliation	Country of Organization	Date of the Interview	Duration of the Interview	Form of the Interview
Respondent 1 (R1)	Sweden	27/03/2023	30 minutes	Zoom Meeting
Respondent 2 (R2)	Sweden	05/04/2023	27 minutes	Zoom Meeting
Respondent 3 (R3)	Norway	11/04/2023	32 minutes	Microsoft Teams
Respondent 4 (R4)	Iceland	17/04/2023	23 minutes	Microsoft Teams
Respondent 5 (R5)	Finland	18/04/2023	31 minutes	Zoom Meeting
Respondent 6 (R6)	Norway	18/04/2023	16 minutes	Microsoft Teams
Respondent 7 (R7)	Finland	21/04/2023	32 minutes	Google Meet
Respondent 8 (R8)	Finland	21/04/2023	47 minutes	Zoom Meeting

3.4. Data Analysis

The data acquisition phase was followed by the transcription and correction of the auto-recorded interviews. Despite the fact that the language of the interviews was English, dialects and the desire to avoid differences necessitated adopting an edited transcription while ensuring that the participants' intent was not altered. A post-transcription open-coding analysis was conducted to identify recurring themes, which will be discussed in greater detail in Chapter 4.

Due to the suitability of the thematic approach for qualitative data analysis, this method has been chosen for the analysis. On the basis of the collected data, themes pertinent to the research query were identified in order to develop a theoretical understanding of the collected data. Therefore, interview transcripts served as the basis for the data analysis, as they are the basis for the identification of themes; therefore, transcribing interviews is the first stage in the data analysis process. Interviews were transcribed throughout the interview process and immediately following the interview, as this allowed for a greater understanding of the research process. (Bell et al, 2018).

There are two components to the data analysis: first-order and second-order analysis. Codes and terms have been identified in the first-order analysis, while concepts and themes have been developed in the second-order analysis. The interview transcripts were color-coded by frequent mentions using the qualitative data analysis software NVivo, and then the color codes were combined in a mind map to form second-order themes (concepts). The empirical findings from the primary data collection were founded on the second-order analysis's identified themes.

Certain criteria must be taken into account in order to generate ideas. Examine the interview transcripts for redundancies as a starting point. Even though repetitions alone are insufficient to establish a theme, they are essential for discovering patterns within the data (Bell et al., 2018), thereby enabling the development of more comprehensive concepts. When the analysis began, the first item color-coded was repetitions between interviews. In addition, metaphors, analogies, similarities, and distinctions between interviews were identified. The analysis summary is displayed in Appendix B.

After conducting a comparative analysis of the interviews and the theory, similarities and differences were identified. The data collected from secondary sources have been contrasted in order to comprehend the criteria used by governments, as a final step in the analysis.

3.5. Quality Criteria

Certain criteria should be used to evaluate qualitative research and assess the quality of a study when conducting research. As researchers frequently question the applicability of validity, reliability, and objectivity to qualitative studies, alternative criteria more suited to the nature of qualitative research will be investigated. It is concerned with credibility, dependability, and confirmability (Bell et al., 2018).

Similar to the concept of validity, credibility involves the principles of good practice, which can be confirmed by examining the alignment of the methodology (Bell et al., 2018). Credibility was addressed by asking the interviewees to be provided with the transcripts. However, since they were not willing to involve in that process, the whole report will be sent to the participants after it is done. Only one respondent requested and was given and asked for comments on the results and analysis of their interview.

Another criterion is dependability, which resembles reliability in some ways. It involves the interpretations and evaluations of the collected data by the researchers. To increase reliability, the author kept and archived all process-related records, including audio, transcripts, and notes. In addition, the researcher ensured that the study was as transparent as possible by providing a detailed description of the findings and analysis, as well as a large number of quotes to illustrate how the conclusion was reached (Bell et al., 2018; Korstjens & Moser, 2017).

The final criterion, confirmability, refers to objectivity and the extent to which other researchers can confirm the study. The fact that qualitative research has frequently been criticized for being too subjective demonstrates that objectivity should be one of the primary objectives. This was accomplished as much as possible by concealing personal values and attempting to see through the interviewees' eyes. In addition, the author attempted to demonstrate clear connections between the findings, analysis, and interpretation, and to provide a thorough description of the methodology and procedure (Korstjens & Moser, 2017).

3.6. Delimitations

This research delimitation focuses on the Nordic region, which includes Denmark, Finland, Iceland, Norway, and Sweden. While this scope allows for a comparative analysis of government practices within this specific region, it may limit the generalizability of the findings to other geographical areas or countries.

Furthermore, even though the research focused on the Nordic region, the potential respondents from Denmark declined to participate in the research due to time constraints and other responsibilities. This refusal limited the scope of the study, as the perspectives and practices of the Danish government could not be directly incorporated.

Another limitation encountered during the research was the scarcity of literature specifically addressing the measurement of business incubator performance from the government's point of view. Most available literature primarily focused on incubator self-assessment and measurement frameworks. This limitation may impact the depth of analysis and comparison of government practices within the Nordic region.

Overall, these delimitations acknowledge the challenges and constraints faced during the research process, highlighting the potential limitations that may affect the comprehensiveness and generalizability of the study's findings.

4. Empirical Results

This chapter presents the findings generated through primary and secondary data collection procedures. Section 4.1 explains the institutional regimes and business incubator support for the analyzed countries. It is important to have background information with the help of official government websites and reports in order to understand the context of the research. Furthermore, Section 4.2. presents the results from the interviews with government officials according to the identified themes and codes. Here, respondents mentioned their views on business incubators, the importance of support, as well as ways for evaluation and the challenges of the selected methods.

4.1. Institutional Regimes in the Nordic Region

Sweden

Incubators in Sweden are supported by national incubator program. The government agency for innovation has recently increased the number of incubators in the country from 24 to 29. Vinnova's dedication to encouraging innovation and entrepreneurship in Sweden is reflected in this growth. During the year 2021-2024, a total of SEK 87 million is granted to 29 incubators via the incubator program's call for proposals "Support to start-ups via excellent incubators." This financial assistance, together with the specific quality stamp awarded to the incubators, is critical for their ability to secure investment from other actors. Vinnova strives to improve the skills and resources accessible to incubators by giving financial assistance and recognition, therefore fuelling innovation and sustainable entrepreneurship in Sweden (Vinnova, 2023)

Vinnova's portfolio includes follow-up, assessment, and analysis, which are critical for promoting systematic learning and assuring the efficacy of its activities. Evaluation is a critical step in determining the impact and success of Vinnova's work. Vinnova assesses the results and

value provided by the projects and initiatives it supports using thorough assessment methodologies. It gets an in-depth knowledge of its programs' accomplishments, strengths, and limitations using a mix of qualitative and quantitative data collecting, stakeholder interviews, and rigorous analysis. Vinnova's assessment insights allow it to identify areas for development, solve any gaps or obstacles in the innovation ecosystem, and optimize the effect of its efforts, therefore contributing to Sweden's capacity to innovate and flourish in a sustainable world (Vinnova 2022)

Tillväxtanalys is the organization which also explores the effect of company assistance via incubators in this research, with a particular emphasis on the Swedish National Incubator Program (NIP). Modern incubators were first established in Sweden in the mid-1990s. However, the economic effects of these programs have yet to be determined. A 2017 analysis also called into question the significance of incubators in the Swedish innovation system, citing a lack of long-term statistics for comparing the growth, innovation, and financial performance of incubated firms to non-incubated start-ups (Tillväxtanalys, 2018).

Norway

The primary objective of the incubation program is to increase national value creation by effectively identifying, developing, and commercializing excellent ideas for new growth companies, as well as providing new growth opportunities for established businesses.

Together with the Naeringsshageprogrammet - "commercial garden" program - the Incubation program was allocated a total of NOK 282.75 million in 2021 by the Ministry of Local Government and Modernization through county municipalities as clients.

Through the incubation program, Siva provides annual grants for the growth of the incubator and the companies with which it collaborates. The subsidy amounts for 2016 and 2017 range between 1.5 and 5 million Norwegian Krone. The Ministry of Trade and Fisheries, the Ministry of Local Government and Modernization, and the Ministry of Agriculture and Food fund the incubation program (SIVA, 2021).

Siva carries out customer satisfaction surveys annually. These surveys provide incubators with program updates by comparing companies to the program average over time. There are different types of surveys: Startup forms are quick questionnaires for incubator newcomers 2-3 months later. Progress forms are sent annually after the start-up form till the agreement terminates. Finally, the exit form details a program operator's experience 2-3 months later. This ensures that organizations leaving the program don't wait a year for a questionnaire and capture their program experiences (SIVA, 2021).

In addition, they have an objective and results management (MRS) system, which is a method or systematic procedure mandated by financial regulations. As a method, MRS entails establishing objectives, monitoring their accomplishment, and utilizing the resulting data for learning, administration, and control. The method can be applied in various contexts where goal-directed management is applicable (SIVA, 2021).

Finland

Business incubator operations have a long history and strong ties to the academic and research communities in Finland. Focusing on startups and early-stage companies with growth potential, incubators provide them with centralized knowledge, expertise, networks, and funding (Business Finland, 2023).

Accelerator is a newer and trendier term than incubator, but it often refers to the same thing, namely the progression of early-stage companies to the next level. At their finest, business incubators and accelerators serve as tools for bridging structural gaps in ecosystems by providing a meeting place for public and private businesses, expert services, and funding with early-stage knowledge-based companies. There is a funding program Young Innovative Company (NIY) and the accelerator program (VIGO). It appears that participants in the Finnish accelerator program are permitted to take more time than in the Swedish system, making the accelerators more comparable to Swedish incubators (Halme et al., 2018).

There are currently scores of business incubators and accelerators in Finland, each employing a unique operational model. Nonetheless, a common and systematic evaluation of the performance, efficacy, and sustainability of various operating models has not yet been conducted. Incubators and accelerators primarily target regions where establishing market-based operations is difficult or even impossible. Consequently, the public sector plays a crucial role in facilitating incubator and accelerator operations. Local and regional operations receive public funding, but there is a lack of a uniform national model and benchmarks (Business Finland, 2023).

The Finnish business ecosystem also divides into the regional innovation ecosystems which were examined in Helsinki, Oulu, Turku, Tampere and Mikkeli. The primary focus of business incubator and accelerator operations is on regions where establishing market-based operations is difficult or impossible. Consequently, the public sector plays a crucial role in facilitating incubator and accelerator operations. Local and regional operations receive public funding, but there is a lack of a standardized national model and benchmarks (Business Finland, 2023).

The operating conditions and performance of incubators and accelerators are heavily influenced by the ecosystem's capacity to generate new business opportunities and the public sector's financial and other services for early-stage companies (Business Finland, 2023).

Iceland

Iceland has specialized its economy in accordance with its geographical location and natural resources in order to compete in the international market. The majority of the economy is comprised of marine products and energy-intensive industries. R&D investment is a prerequisite for innovative development, and a lack of investment indicates a lack of interest in or capacity for collaboration. This is especially true for university collaborations, as they require additional time and resources. In addition, the government has placed little emphasis on promoting university-industry collaboration due to the misconception that collaborations form more naturally in small countries (Taxell et al., 2009). The purpose of the agreement between the Ministry of Industry and Innovation and rural communities is to encourage and support rural development, as well as to enhance the innovation and competitiveness of the regional economy.

The Ministry of Higher Education, Science, and Innovation in Iceland plays a crucial role in integrating the resources of universities, science, industry, and innovation to drive economic prosperity and generate knowledge-based employment opportunities (Government of Iceland, 2023). Similarly, the Ministry of Industries and Innovation is a governmental body in Iceland that focuses on fostering economic growth and development. It actively supports a range of initiatives aimed at promoting entrepreneurship and innovation. This includes offering financial aid and guidance to startup companies and supporting business incubators.

Rannís, the Icelandic Centre for Research, is another government organization in Iceland dedicated to promoting and facilitating research and innovation within the country. While Rannís does not directly invest in business incubators, it provides funding opportunities for research and innovation projects, including those conducted by startups and small businesses.

In addition to these national bodies, there are regional organizations, such as the Association of Municipalities in the Capital Area (SSH), which work to support individuals, companies, and municipalities in job creation and innovation. These organizations provide assistance in obtaining funding for startups and innovation projects

4.2. Findings from the primary data collection

In this section, empirical findings that emerged from the conducted interviews are presented which is further analyzed with the help of thematic coding in Chapter 5, and summarized in Appendix B.

4.2.1. Business Incubator Support

Business Incubator Definition

In exploring the concept of business incubators and accelerators, the respondents provided both similar and varied perspectives.

Respondent R1 highlighted the different phases of venture development and defined incubation as primarily focusing on the first three phases: formation, problem solution, and product market fit.

"We use five phases of venture development: formation phase, problem solution phase, product market phase, efficiency phase, and scaling phase." - R1

Respondent R2 emphasized that accelerators and incubators share the goal of accelerating development but differ in their approach. According to this respondent, an accelerator is typically a batch-oriented program, whereas incubators can offer individual coaching or a batch-oriented program.

Respondent R3 characterized business incubators as working with companies that have high growth potential, global potential, and potential for exports:

"incubator will work with companies that have quite high growth potential and also potential when it comes to exports... So they should have a kind of global potential for the company to come into the program." - R3

Similarly, Respondent R5 differentiated between incubation and acceleration, explaining that an incubator is more focused on the early stage, where companies have ideas or minimum viable products (MVPs) and need to validate and build their businesses. Acceleration, on the other hand, occurs when companies have already proven their concept and generated revenues, requiring further growth and revenue expansion.

Respondent R7 offered a personal perspective, defining incubators as focusing on the very early stage of the entrepreneurial path. They described incubation as a preceding activity where participants test ideas and evaluate their scalability before deciding whether to establish a company. Accelerator programs, in contrast, encompass a broader range of startups, and the line between them and incubators may lie in the precede seed area from a funding point of view:

“ But for me, I think maybe the borderline area is somewhere in the pre-seed area if you look at the funding point of view, so the later stage companies are more in the accelerator area, and then the earlier stage more like their business incubation side” - R7

Respondent R8 acknowledged the challenge of differentiating between accelerators, incubators, and other growth programs, highlighting the difficulty in drawing clear distinctions.

Comparing the perspectives of the respondents, while some emphasize the phases of venture development, others focus on the potential for growth, global expansion, or the stage of the company. Overall, the respondents' opinions suggest that business incubators are commonly perceived as programs that support early-stage companies in validating their ideas, business models, and market fit, while the accelerator is helping the companies grow more in later stages.

Resources and Support Provided to Business Incubators

In the analysis of resources and support provided to business incubators, several key aspects were explored, including the role of the organization in the incubation ecosystem, R&D support and innovation systems, network effect, feedback sharing, funding, and the selection process for incubators.

Respondent R1 emphasized their organization's role in developing startups and providing support. They mentioned their indirect support by covering the cost of incubators that deliver services to startups. Additionally, the organization has a role in promoting peer learning among incubators to foster development.

Respondent R3 emphasized the importance of leveraging the network effect within the incubation ecosystem. They mentioned the ability to connect individuals with relevant expertise and experience, as well as investors interested in the industry. By facilitating these connections, they believed that they could benefit more people and achieve greater success:

“I think we can connect up investors that have interest within the area and I think that helps like the nation succeed so much more than if we don't do it” - R3

Moreover, Respondent R3 highlighted the presence of a network where incubators can connect and share knowledge. They mentioned regular digital meetings, workshops, and a focus on specific areas such as sustainability. The aim is to provide both financial support and competence-building opportunities while fostering collaboration and sharing best practices.

Respondent R3 highlighted the importance of providing feedback and guidance to incubators. They mentioned one-on-one conversations to offer feedback on performance, opportunities to

learn from others, and examples of best practices across all incubators. The goal is to continuously improve the quality and effectiveness of the incubation programs, thus benefiting the startups involved:

“We give them feedback on how they are doing, what they can learn from others, and how they can improve their services. So we try to give like best practices across all incubators to help them improve and the better.” - R3

However, Respondent R4 noted that in Iceland, there is a focus primarily on financial support for incubators, and limited additional resources are invested in them. The government organization responsible for providing grants rather than direct involvement in program management or guidance:

“We don't invest that many other resources into these incubators... As a government organization, we have to keep our arm's length distance between these we support them with grants them we do it with other organizations also.” - R4

On the other hand, respondent R5 mentioned

Moreover, all respondents acknowledged providing funding to business incubators. While specific details regarding the amount and nature of funding were not provided, it was clear that financial support is an essential component of the resources and assistance offered to incubators.

Selection of Incubators

The selection process for incubators varied among the respondents. Respondent 3 mentioned a renewal process every ten years, where incubators need to reapply. However, they expressed some limitations in the ranking process, indicating that it is primarily based on the application rather than the quality of the company. Respondent R1 highlighted the assessment of incubators when deciding how to allocate funds for delivering services.

“We don't rank the incubators anyway. We have a quality target, then that's the only thing we measure. And then we give them this quality stamp.” - R1

In summary, the examination of resources and support provided to business incubators revealed commonalities and variations among the respondents. While all respondents mentioned providing funding, differences emerged in terms of the selection process, with variations in ranking criteria and the renewal process. The role of the organization in the incubation ecosystem varied, from direct support and program implementation to providing financial assistance. The

importance of R&D support, innovation systems, network effects, and feedback sharing was also evident, although the level of emphasis and specific approaches differed.

4.2.2. Measurement System

Importance of Having a Measurement System

The respondents highlighted the crucial role of having a measurement system when it comes to business incubators. They emphasized the need to learn from past experiences to inform the development of future programs. According to Respondent R2, building the next program period based on the lessons learned from the current one is of great importance. This shows that continuous evaluation and improvement are essential for the success of incubators.

Respondents R3 and R4 shed light on the significance of a comprehensive report that outlines how funds are utilized and the value created throughout the incubation network. Such a report serves as a means to communicate the impact of investments made and provides a clear understanding of the outcomes achieved.

“We are supporting these accelerators and incubators. Then what is the task? What do we see happening?” - R4

It was also evident that government guidelines and directives influence the measurement system used in assessing incubator performance. Respondent R3 mentioned the current focus on environmental reporting, which indicates that external factors play a role in shaping the metrics and measures used for evaluation.

Another interesting insight came from Respondent R8, who conducted a study to measure the impact of the incubator program on the local area. The study assessed the taxes paid by companies that went through the incubator, as well as the income tax paid by their employees. The remarkable finding was that the tax revenue generated was 13 times more than the operational costs of the incubator, resulting in a substantial return on investment. This highlights the need for measuring economic outcomes and financial benefits to determine the true value of incubator programs.

The respondents also talked about the role and impact of incubator programs. Respondent R7 questioned the value of programs that don't contribute much to the growth of companies. This highlights the need to evaluate and assess incubator initiatives to make sure they actually provide meaningful benefits.

“whether that's an incubator program or something doesn't have really any impact on the pipeline or the development of the companies, then the question is that okay, is that something that we should be doing or, or that the other way of thinking?” - R7

Furthermore, there were discussions about resource allocation to incubators. Respondent R8 questioned the rationale behind allocating funds from the city's budget to support incubators, emphasizing the need for a sound justification based on the value and outcomes delivered by these programs.

To sum up, the respondents stressed the significance of a measurement system for evaluating the effectiveness and value of incubator programs. Insights from past experiences, reporting requirements, government guidelines, economic impact assessments, and the justification for resource allocation were all identified as crucial factors in establishing a comprehensive measurement framework.

Challenges with the evaluation

There were some challenges regarding the measurement ways highlighted by the respondents, providing valuable insights into the difficulties faced in evaluating the incubator programs.

Respondent 1 emphasized the challenge of determining success early on and stressed the need to move beyond superficial measurements and focus on understanding the dynamics and contextual factors that contribute to success:

"It's so easy to be caught in this kind of output outcome impact measurement. My personal view is that it's much more important to understand the behavior of the companies and the context they can embed." - R1

Regarding the isolation of incubator effects, respondent R3 shared:

"It's really difficult to isolate that effect because... it could be that when you apply to be a part of an incubator, you already have some features... that alone could be the reason that you succeed."
- R3

They acknowledged the challenge of attributing success solely to the incubator program and the ongoing effort to refine measurement approaches.

Data-related challenges were raised by respondents R4 and R7. Respondent R4 expressed the difficulty in gathering information from startups, stating,

"There is a big portion of startups... that they don't want to tell you... what is their revenue, how many people they employ, and so forth." - R7

Respondent 7 added that it was very tedious to get the data, and that takes a lot of time and resources. They emphasized the resource-intensive nature of data collection and the resulting limitations in obtaining comprehensive and up-to-date information.

The selection of appropriate key performance indicators (KPIs) was also highlighted as a challenge by respondents R1 and R4.

"We have many performance indicators for companies in the incubators. The challenge is to find good KPIs indicating the system impact of incubators, i.e. to be able to measure the true difference incubators make for firm development." - R1

"We don't have a silver bullet ... How can we create relevant KPIs and relevant measurements to be able to determine the impact incubators have on the innovation system performance and be able to communicate convincingly their importance in the Swedish system? We are not there yet." - R1

"To get the right data for your metrics... it requires too much effort." - R4

In summary, the respondents pointed out several challenges related to measurement in evaluating incubator programs. These challenges included determining success early on, isolating the effects of incubator participation, collecting comprehensive and up-to-date data, and selecting meaningful KPIs. Their insights underscored the complexity involved in accurately assessing the impact and value generated by incubator initiatives.

Measurement Practices

Measurement practices in evaluating incubator programs were discussed by the respondents, shedding light on the various approaches and frequency of evaluations conducted.

Respondent R1 highlighted the importance of assessing the operations of the incubator to ensure its quality and performance:

"One thing we do is we look at the operations of the incubator.. to deliver those services to startup companies"

Additionally, they mentioned conducting portfolio assessments to determine the allocation of funds to an incubator. The funding of an incubator is determined by the share of approved companies that it has relative to the number of approved companies in the incubator program.

Respondent R2 mentioned a half-time evaluation to monitor progress and ensure that all necessary steps are being taken:

"We have a big evaluation, but then we also have a half-time evaluation to see that we have done everything okay." - R2

Respondent R3 highlighted the presence of government guidelines that influence their reporting practices.

"Sometimes there are guidelines that come from the government... For example, now we have a focus on how we report on the environment."

Several respondents mentioned regular evaluations. Respondents R1 and R3 noted that they usually do evaluations every fourth year, emphasizing the periodic nature of their assessment process. They also said they would provide an annual report on the performance of companies and the incubator system.

In summary, the respondents described a range of measurement practices used in evaluating incubator programs. These practices included regular evaluations conducted every fourth year, portfolio assessments, annual reporting to the government, and additional evaluations every second year. The emphasis on quality and performance, along with adherence to government guidelines, demonstrated the importance placed on robust measurement practices in monitoring and improving the effectiveness of incubator initiatives.

Table 2. The current practice with the evaluation frameworks

	Sweden	Norway	Finland	Iceland
Currently making evaluation	x	x		
Currently developing an evaluation model			x	x

Metrics used for the measurement

The importance of assessing the turnover of jobs created by the incubator is one aspect that all the respondents highlighted. Respondents emphasize assessing whether the incubator is

effectively generating employment opportunities. This evaluation criterion serves as an indicator of the incubator's impact on job creation within the ecosystem.

The attraction of capital emerged as another important metric for evaluating the success of incubators. Respondent R1 highlighted that the funding received by incubators often depends on the proportion of companies within the program. Therefore, measuring the incubator's ability to attract capital serves as an indicator of its relevance and potential for supporting startups. Respondent R8 supported this perspective and suggested assessing the revenue and sales of companies as additional measures of capital attraction and financial success.

Respondent R7 proposed several metrics for evaluating the effectiveness of incubators. One such metric is the number of applications received, the teams onboarded, and the progression of teams to the next level.

“First we could have metrics for the incubator itself. The role of the incubator within the ecosystem that could be measured and evaluated somehow”- R7

These metrics serve as indicators of the incubator's ability to attract and nurture promising startup teams, ultimately assessing its success in supporting the growth and development of entrepreneurial ventures. Respondent R8 also suggested measuring the number of companies going through the incubator and their revenue and profit as evaluation metrics. This evaluation criterion provides insights into the incubator's ability to support the establishment and growth of viable businesses. By assessing the financial performance of companies that have graduated from the incubator, it becomes possible to evaluate the incubator's impact on the success and sustainability of these ventures.

Respondent R8 suggested assessing the revenue growth, hiring patterns, and export sales of companies as metrics for evaluating the progress of individual startups. These evaluation criteria provide insights into the companies' ability to generate sustainable revenue, create employment opportunities, and expand their reach in domestic and international markets. By evaluating the performance of companies that have received support from the incubator, it becomes possible to measure the effectiveness of the incubator's assistance in fostering their growth.

Respondents R1, R5 and R8 mentioned measuring the tax return from businesses that have gone through the incubator and the income tax paid by employees.

*“The goal of the city is to get a company established. Because if the company succeeds, they will start to pay taxes to the city. Then if they succeed, they started to recruit people”
- R5*

While respondent R8 shared their tax return study reflecting the extent to which the incubator contributes to 13 times growth, respondent R1 had different insights on the same subject, stating the difficulty of finding any objective kind of measure and the return on investment:

“But it has been criticized quite a lot because people are looking at the counterfactual. For example, those persons that are working in the startup are usually well educated they could be hired somewhere else so they could be generating the tax anyway” - R1

Respondent R8 highlighted the potential benefits of attracting international talent and suggested it as a metric to measure the success of incubators. The ability of an incubator to attract and support entrepreneurs from diverse backgrounds and nationalities not only enhances the ecosystem's diversity but also brings in new perspectives, expertise, and potential for global collaboration. Evaluating the incubator's success in attracting international talent provides insights into its ability to foster an inclusive and globally connected entrepreneurial environment.

“So, there's these brand values as well. So if we can, let's say, attract international talents to our area. As we have these kind of growth programs and startup studios, incubators, everybody wants young, smart international people to move in their areas” - R8

Respondents R1, R3 and R6 emphasized the importance of evaluating the quality and performance of the incubator's services rather than solely focusing on volume indicators. While measuring the number of companies, teams, or applications can provide quantitative data, it is equally important to assess the quality of support, guidance, and resources provided by the incubator. Evaluating the effectiveness of the incubator's services in terms of the value they add to startups' growth and success provides a more comprehensive understanding of their impact.

“For example, a startup programme has a maximum length where you can only be part of the program for eight months. And because of that they have a high volume. So the volume indicator doesn't really say something about the quality of the service that are given to the company.” - R3

Respondents R1 and R4 expressed interest in evaluating whether incubators facilitate sustainability goals and green transition. However, they acknowledged the difficulty in implementing these metrics effectively. This criterion emphasizes the importance of considering the environmental impact and sustainability practices of the companies supported by the incubator, although further exploration is necessary to develop reliable evaluation methods.

Respondent R4 drew attention to the significance of assessing whether incubators are facilitating female participation.

“Gender equality is also important to us. Are there as many women as men in these organizations that are the incubator supporting? Are incubators doing anything specific to facilitate female participation in these activities?” - R4

This evaluation criterion is essential for addressing the issue of gender inequality in entrepreneurship. By measuring the extent to which incubators support and empower women in their programs, it becomes possible to gauge the effectiveness of these initiatives in promoting gender equality. Respondent R1 also acknowledged the importance of this issue and the potential role of the ministry in addressing gender disparities within the incubator ecosystem.

4.2.3. Collaboration & Comparison

All the respondents mentioned that there is a need for improvement in the measurement practices. Respondent R8 mentioned their worries about the metrics while respondent R3 also added the importance of comparison to get informed more about different practices.

“It is really interesting when you look into others, to see if anyone has come up with a better system than us. Because I feel that our system is not perfect, and we have a lot to work with” - R3

As for the collaboration and comparison with the other Nordic countries, all respondents agree that there might be potential to share practices with one another to get inspiration. However, a comparison was identified as challenging considering the different types of regulations in these countries.

“The systems and contextual differences circumstances are so different that it's really difficult to make a direct comparison” - R1

Respondent 3 acknowledged the potential for improvement in their own system and expressed interest in examining if other countries had developed better approaches. However, they recognized the challenges due to the differing contextual circumstances and the difficulty in ranking and making direct comparisons.

“We have our own tools for measuring, but we also cooperate with other stakeholders to get the full picture” - R3

Respondent 4 questioned the need for a common framework, noting that each country has its own frameworks and approaches. While they acknowledged the possibility of comparing and

benchmarking performance levels between countries, the idea of a shared framework for all of Scandinavia was not considered necessary or discussed within their ministry. However Respondent 1 still sees value in collaboration.

"The contextual differences are quite large, but we can be inspired by each other" - R1

In summary, the respondents recognized the value of collaboration and comparison to enhance the measurement of business incubator performance. While there was an interest in learning from other countries and examining their practices, the contextual differences and diverse frameworks within the Nordic region made the implementation of a common framework unlikely. Instead, the focus was on being inspired, setting goals, and comparing performance in specific areas of interest.

5. Discussion

This chapter aims to provide several key insights that can be drawn about the assessment of business incubators and their impact based on the empirical data and the literature reviewed. My analysis summarizes the empirical results and contrasts them with the literature, followed by the complementary analysis of the secondary data to provide a more thorough understanding of the subject.

5.1. Business Incubator Support

Figure below summarizes the thematic coding for the business incubator support.

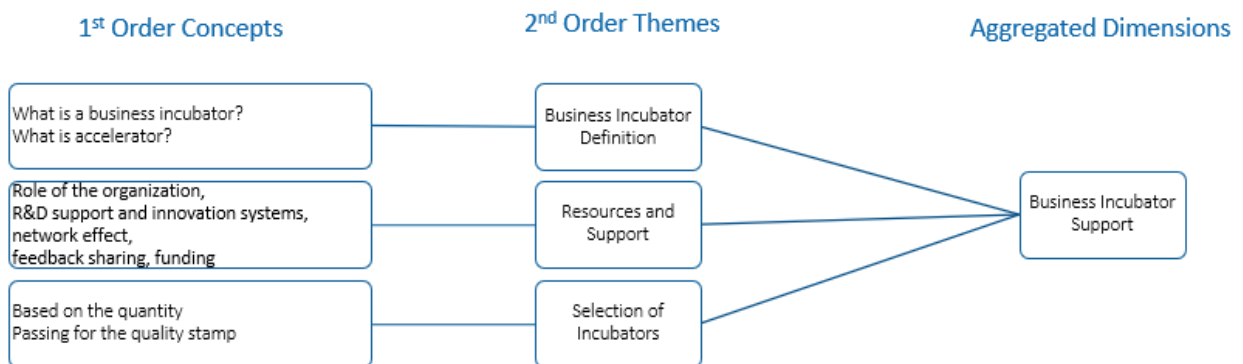


Figure 3. Thematic coding for the business incubator support

In exploring the concept of business incubators and accelerators, the respondents provided both similar and varied perspectives. The literature supports their views and provides further insights into the objectives, success indicators, and government support for business incubators.

Starting with the Business Incubator Definition from the Figure 3, according to the respondents, business incubators and accelerators have distinct focuses and approaches. Respondent R1 highlighted the different phases of venture development, with incubation primarily focusing on the early stages, while acceleration occurs in later stages when companies have proven their concept and generated revenues. This is consistent with the literature's definition of business incubators as organizations that use a variety of resources and services to accelerate the growth and success of entrepreneurial companies. Typically, business incubators aid entrepreneurs in validating their concepts, business models, and market viability (Allen et al., 2007).

Respondent R3 emphasized that business incubators work with companies that have high growth potential and global potential for exports. This corresponds to the literature's objective of encouraging new business growth, job creation, supporting the entrepreneurial community, and fostering economic development (OECD, 1997; Phan et al., 2005). Respondent R5 also distinguished between incubation and acceleration, highlighting that incubators focus on early-stage companies with ideas or minimum viable products, while acceleration occurs when companies need further growth and revenue expansion.

The respondents also discussed the resources and support provided to business incubators. Respondent R1 mentioned direct and indirect support, including programs, cost coverage, and peer learning among incubators. Respondent R3 emphasized the importance of leveraging the network effect within the incubation ecosystem and facilitating connections between individuals, experts, and investors. The literature also highlights the importance of network-building, feedback sharing, and funding support in incubation ecosystems (Vanderstraeten & Matthyssens, 2010; Markley & McNamara, 1996). However, Respondent R4 noted a focus primarily on financial support for incubators in Iceland, with limited additional resources invested. This suggests a potential disparity between the resources available in different contexts, which could impact the effectiveness and outcomes of incubation programs.

The literature supports the importance of government support for business incubators. It mentions that incubators are considered more effective than other economic development programs and can stimulate business activity in a country (Markley & McNamara, 1994; Wenneker & Thurik, 1999). Government intervention is often driven by the expectation that incubators will contribute to employment growth, regional revitalization, technology acquisition, and commercialization of new technologies (Tavoletti, 2013; Jaffe, 1998).

5.2. Measurement Systems

Figure below summarizes the thematic coding for the Measurement Systems.

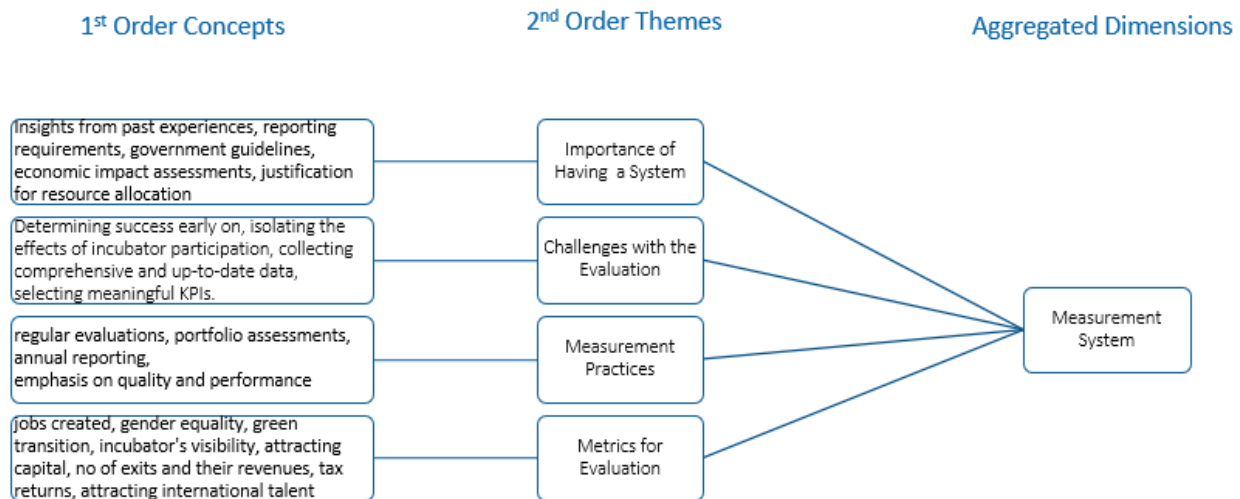


Figure 4. Thematic coding for the Measurement Systems

Importance of having a measurement system

Literature emphasizes the need to evaluate the impact and success of business incubators as an essential aspect. According to Phan et al. (2005), it is necessary to evaluate incubators in order to comprehend their potential benefits, such as fostering the development of new businesses, creating jobs, and supporting the entrepreneurial community. This view is supported by the research, as Respondent R1 emphasized the significance of evaluating the incubator's operations to ensure its quality and performance. In accordance with the literature (Phan et al., 2005), regular evaluations, conducted every fourth year, were mentioned as a method to measure the effectiveness of the incubator.

Respondent R2 provided additional insight by emphasizing the necessity of basing future incubator programs on the lessons learned from the current programs. This is consistent with the literature's emphasis on the need to learn from past experiences in order to develop effective incubator programs (Markley & McNamara, 1994; Sherman, 1998, 1999; Sherman & Chappell, 1998; Lewis, 2002).

In addition, Respondents R3 and R4 cast light on the importance of comprehensive reporting when evaluating the impact of incubators. They emphasized the importance of having a clear comprehension of how funds are utilized and the value created across the incubation network.

This viewpoint is consistent with the literature's emphasis on measuring incubator effectiveness through indicators such as firm survival, firm performance, and employment creation (Al-Mubarak & Schrod, 2011; Mosselman et al., 2004).

The study also revealed the impact of government guidelines and directives on the measurement system used to evaluate incubator performance. Respondent R3 mentioned the current emphasis on environmental reporting, indicating that external factors influence the metrics and measures used for evaluation. This finding is consistent with the recognition in the literature of the significance of government support and the need for the public economic evaluation of incubators (Ferreiro & Vaquero, 2010).

In addition, Respondent R8 provided a fascinating perspective by conducting a study to determine the impact of the incubator program on the local community. The study analyzed the taxes paid by incubator businesses in addition to the income taxes paid by their employees. The remarkable finding was that the tax revenue generated was 13 times greater than the incubator's operational expenses, resulting in a significant return on investment. This is consistent with the literature's examination of return on investment (ROI) as a metric for determining the economic outcomes and financial benefits of incubator programs (Mian, 1997). In addition, it surpasses the existing literature by providing a concrete illustration of the economic impact of an incubator program on the local community.

In addition, Respondent R7 questioned the value of incubator programs that contribute little to the development of businesses. This insight emphasizes the importance of evaluating and assessing incubator initiatives to ensure they provide actual value. Al-Mubarak and Schrod (2011) and Mosselman et al. (2004) highlight the importance of measuring the efficacy of incubators through indicators such as firm growth and success.

In addition, Respondent R8 questioned the justification for allocating funds from the city's budget to support incubators, emphasizing the need for a sound justification based on the value and outcomes delivered by these programs. This insight is consistent with the literature's consideration of incubators' economic profitability and long-term strategic benefits (Kerr, 2007; Ferreiro Seoanes, 2014).

In conclusion, the particular insights provided by the study's respondents add depth and nuance to the existing literature on business incubators. Their perspectives on learning from prior experiences, comprehensive reporting, government influence, economic impact assessment, and resource allocation contribute significantly to the ongoing discussion on measuring the efficacy and worth of incubator programs.

Challenges with the evaluation

The results of the study emphasize a number of obstacles associated with measuring the efficacy of incubator programs. These obstacles are consistent with the current research on business incubators. Respondent R1 highlighted the difficulty of determining success early on and the significance of comprehending the dynamics and contextual factors that contribute to success. This is consistent with the literature's recognition of the complexity of evaluating incubator programs and the need to take contextual factors into consideration (Markley & McNamara, 1994; Sherman, 1998, 1999; Sherman & Chappell, 1998; Lewis, 2002).

Respondent R3 highlighted the difficulty of identifying the effects of incubator participation. They acknowledged that it can be challenging to attribute success solely to the incubator program, as entrepreneurs who seek to join an incubator may already possess certain qualities that contribute to their success. This is consistent with the literature's recognition of the difficulty of isolating the impact of incubator programs from other factors that influence entrepreneurial success (Mosselman et al., 2004).

Respondents R4 and R7 brought up data-related difficulties. R4 stated that it is difficult to obtain information from businesses, as some are unwilling to disclose their revenue and other details. Data collection is laborious and resource-intensive, according to R7. These obstacles are consistent with the literature's acknowledgment of the difficulty of collecting exhaustive and current data on incubator performance (Mian, 1997).

Respondents R1 and R4 cited the selection of appropriate key performance indicators (KPIs) as a challenge. They highlighted the importance of identifying KPIs that accurately measure the impact and system-level effects of incubators. Al-Mubarak and Schrod (2011) and Mosselman et al. (2004) explored various KPIs and performance indicators for evaluating the efficacy of incubator programs.

In conclusion, the challenges identified by respondents in measuring the efficacy of incubator programs are consistent with the existing literature. Among these obstacles are determining success early on, isolating the effects of incubator participation, collecting exhaustive and up-to-date data, and choosing meaningful KPIs. Evaluation of the impact and value generated by business incubators is complex and multifaceted, as evidenced by responses from respondents and findings from the literature.

Metrics for evaluation

Chapter 4 highlighted various data points and evaluation frameworks for assessing the effectiveness and impact of business incubators. It presents insights from multiple respondents (Respondents R1, R4, and R8) regarding different evaluation criteria. Moreover, the literature

review offers perspectives on business incubator objectives, success indicators, government support, and performance evaluation. In this discussion, we will analyze and compare the text's findings with the literature, drawing connections and identifying areas of convergence and divergence.

The importance of evaluating the turnover of jobs created by incubators serves as an indicator of their impact on job creation within the ecosystem. Respondents highlighted the need to assess whether the incubator is effectively generating employment opportunities. This aligns with the literature, where job creation is recognized as a major objective of business incubators (Knopp, 2012; Wynarczyk & Raine, 2005). The literature also supports the idea that business incubators contribute to direct economic impacts such as sales, income, and employment (Markley & McNamara, 1996).

Although Respondent R8 found it valuable to measure the tax returns from companies that have gone through the incubator and the income tax paid by employees, Respondent R1 mentioned the difficulty of finding objective measures and assessing the return on investment due to the counterfactual nature of the analysis. This difficulty is consistent with the literature, which recognizes the difficulty of measuring the direct economic effects of business incubators (Markley & McNamara, 1996). The literature suggests that direct economic impacts, such as sales, income, and employment, provide an incomplete understanding of the total impact of incubators on the local economy (Markley & McNamara, 1996). This highlights the importance of considering indirect and long-term effects, such as the spillover effects of innovation on other companies (Griliches, 1996; Jaffe, 1998).

Furthermore, the text emphasizes the evaluation of gender equality and female participation in incubators. Respondent R4 draws attention to the significance of assessing whether incubators are facilitating female participation, which is crucial for addressing gender inequality in entrepreneurship. This is consistent with the literature, which emphasizes the significance of supporting the entrepreneurial community (Bruneel et al., 2012) and fostering economic growth (Phan et al., 2005) through business incubators. The literature acknowledges the need for evaluating the social impact and potential large social returns associated with business incubators (Dee et al., 2011; Aerts et al., 2007).

Another essential metric mentioned is the attraction of capital. Respondents R1, R3, R6, and R8 highlighted that the funding received by incubators often depended on the proportion of companies within the program. This is consistent with the literature, which claims that the funding business incubators receive has a significant impact on their success (Rice & Matthews, 1995; Campbell et al., 1989). The literature also emphasizes the potential long-term growth and socio-economic returns resulting from investments in business incubators (Griliches, 1996; Jaffe, 1998).

Respondents R1, R3 and R8 suggest evaluating the quality and performance of the incubator's services beyond focusing solely on volume indicators. This is supported by Respondent R8, who emphasizes assessing the visibility and impact of the incubator within the ecosystem. The literature also recognizes the importance of measuring the effectiveness of support systems in helping incubated businesses achieve their goals (Autio & Parhankangas, 1998; Bergek & Norrman, 2008). Additionally, the literature highlights the need to evaluate the overall impact and outcomes of incubators, considering factors such as the success rate of startups, the rate of survival and sustainability of businesses, and their long-term economic and social contributions (Peters et al., 2004).

The literature also emphasizes the multiple objectives and success indicators associated with business incubators. While some studies focus on the number of firms produced (Peters et al., 2004), others argue for measuring firm survival as an indicator of an incubator's impact on the economy (Dee et al., 2011; Aerts et al., 2007). Additionally, the quality of the incubator's impact is mentioned as a significant factor to consider (Brunnström, 2021). The findings align with these perspectives, as Respondent R1 highlighted the challenge of determining success and the need to move beyond superficial measurements. They emphasized the importance of understanding the behavior of companies and the context in which they operate, reflecting the notion of assessing quality and considering qualitative aspects.

The literature also suggests that business incubators demonstrate social profitability despite not being economically profitable due to their reliance on financial aids and public investment (Bigliardi et al., 2006; Mian, 1997). This indicates that the evaluation of business incubators should go beyond financial metrics and consider their broader social and environmental impacts.

While the findings and literature share several common themes, there are also some contrasting viewpoints. For instance, the findings largely assess the effectiveness of individual incubators, although the research argues that assessing the impact of business incubators necessitates taking into account the larger ecosystem and its long-term implications (Mian, 1996; Klofsten & Jones-Evans, 2000). The literature emphasizes the importance of assessing the incubators' contribution to regional economic development, innovation, and knowledge spillovers (Klepper, 2001; Oakey et al., 2003). Therefore, it is essential to have a balance between evaluating individual incubators' performance and understanding their systemic effects.

Moreover, while the text highlights the importance of job creation, gender equality, and attracting capital as evaluation criteria, the literature suggests that additional factors, such as the level of technological innovation, networking opportunities, and the ability to foster entrepreneurial skills and capabilities, should also be considered (Mian, 1996; Hackett & Dilts, 2004). These factors are crucial for measuring the effectiveness and impact of business incubators in nurturing successful and sustainable ventures.

In conclusion, job creation, gender equality, capital attraction, and service quality emerge as important evaluation criteria, which find support in the literature. However, the literature suggests a broader perspective that considers the long-term outcomes, regional economic development, innovation, and entrepreneurial capabilities. Balancing both individual incubator performance and systemic effects will provide a more comprehensive evaluation framework. It is crucial to consider a diverse range of stakeholders and incorporate additional indicators to capture the full impact and effectiveness of business incubators in fostering entrepreneurial success and contributing to socio-economic development.

5.3. Collaboration & Comparison

Figure 5 below shows the thematic analysis process for Collaboration&Comparison.

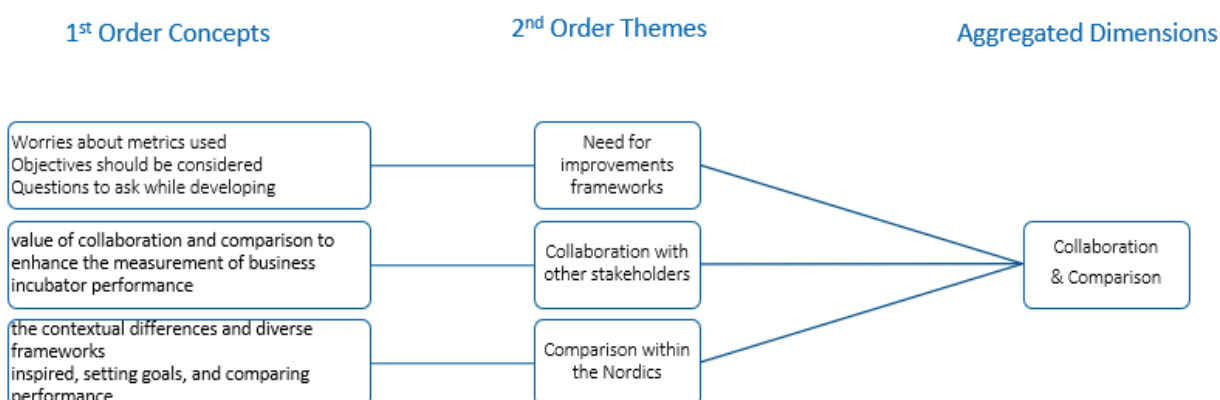


Figure 5. Thematic coding for Collaboration&Comparison

The collaboration and comparison of practices among Nordic countries emerged as a potential area of interest in our study. However, respondents highlighted the challenges of making direct comparisons due to contextual differences and varying regulations. This is consistent with the literature, which acknowledges the difficulties in comparing incubator practices across different regions and countries (Phan et al., 2005).

All respondents concurred that there is a need for improvement in the performance measurement practices of business incubators. This demonstrates a widespread recognition of the limitations of existing measurement systems and a willingness to investigate alternative methods.

Respondents emphasized the significance of comparison in gaining insights into diverse practices and identifying potential improvement areas. Respondent R3 expressed interest in alternative systems and the possibility of discovering a superior strategy. Respondents acknowledged, however, the difficulties of comparison due to contextual differences and varying regulations.

Respondents agreed on the potential for Nordic countries to obtain inspiration through collaboration and sharing practices. While a regional framework for measuring performance was not deemed necessary or discussed within their ministry, respondents acknowledged the importance of being inspired by one another and collaborating with stakeholders to gain a more comprehensive understanding of incubator performance.

Respondents acknowledged that the Nordic countries' contextual differences make direct comparisons difficult. Each country's varying regulations, frameworks, and conditions produce a unique context for measuring incubator performance. Therefore, it was determined that a one-size-fits-all strategy or shared framework for the entire region was not feasible.

Rather than pursuing a comprehensive and uniform measurement framework, the emphasis appeared to be on establishing objectives and comparing performance in specific areas of interest. Respondents acknowledged that while direct comparisons may be difficult, there is value in learning from one another, being inspired by one another, and benchmarking performance levels in particular aspects.

6. Conclusion

This chapter of the thesis is divided into four parts. After discussing the overall accomplishment of the study, section 6.1 discusses the linkages between the objective of the study and the results by answering the research questions. Having elaborated on how this study can contribute to practice and theory in section 6.2, the author suggests directions for further research in this topic.

6.1. Addressing the Research Questions

This thesis has investigated how the governmental organizations in the Nordic region are assessing business incubator performance and impact in order to understand current practices and ways to improve. The main research objective was “Measurement of the business incubator performance by governments: Seeking Best Practices on Frameworks in the Nordics Region”, which was divided into three research questions addressed below.

RQ1: What are the challenges faced by governments with the evaluation of business incubators?

The analysis of the results and literature also sheds light on the challenges faced by governments in evaluating business incubator performance:

Both the findings and literature highlight the challenge of *determining the success of incubators in their early stages*. It can be difficult to assess the impact and outcomes of incubators when startups are still in the early phases of development.

The findings and literature acknowledge the challenge of *isolating the effects of incubator participation* from other external factors that may influence the success of startups. It can be challenging to attribute the outcomes solely to the support provided by the incubator.

Moreover, the findings and literature mention the challenge of *collecting comprehensive and up-to-date data* for evaluation purposes. Gathering accurate and relevant data on the performance and impact of incubators can be time-consuming and resource-intensive.

Furthermore, both the text and literature highlight the challenge of *selecting appropriate KPIs* that accurately capture the effectiveness and impact of incubators. Choosing meaningful metrics that align with the objectives of the incubators and reflect their outcomes can be complex.

The literature recognizes the challenge of *measuring social and environmental returns* associated with incubators (Emerson & Twersky, 1996). It can be difficult to quantify and assess the broader social and environmental impacts of incubators beyond financial metrics.

Governments can decrease the effect of these challenges by collaborating with stakeholders such as other governments and ecosystem participants in order to learn and improve more.

RQ2: What factors do governments consider in assessing the impact of supported business incubators?

Respondents and literature review findings highlighted tested business incubator impact evaluation criteria and its consistency with previous studies. The data and literature suggest several crucial factors.

Incubators' impact is measured by *job creation*. The findings and literature emphasize the necessity of analyzing whether an incubator creates ecosystem job possibilities.

Direct economic effects such as *sales, income, and employment* have also been considered. These variables show the incubator's economic impact and growth potential.

Furthermore, *gender equality and female engagement* were mentioned during the study. Promoting female entrepreneurship helps solve the gender inequality and supports the entrepreneurial community and economic progress.

Findings and research also stress the necessity of analyzing *incubator capital attractiveness*. Incubator performance depends on funding, and securing capital has long-term socio-economic effects.

Finally, respondents prioritized incubator *service quality and performance* over volume metrics. The literature acknowledges support system efficacy and the necessity to evaluate incubator outcomes.

It is recommended to have a thorough evaluation methodology for funded business incubators to reconcile individual incubator success with systemic implications. Governments can measure business incubators' influence on entrepreneurship and socioeconomic development by include a variety of stakeholders and indicators.

6.2. Theoretical and Practical Implications

My research aimed to advance the understanding of business incubator performance measurement by analyzing frameworks and practices in the Nordics region. By examining best practices, key performance indicators (KPIs), and metrics, this study identifies important elements that capture the essence of business incubator performance evaluation. Therefore, it enriches the existing knowledge base on business incubators and their evaluation, particularly from a governmental perspective.

Secondly, this research enhances the theoretical background of performance measurement in the Nordic region. This can guide future research and assist policymakers in formulating comprehensive evaluation approaches, which can also contribute to cross-regional learning and knowledge exchange. The insights gained from this research can be shared with the researchers in other regions, promoting the transfer of best practices and fostering collaboration in the field of business incubator performance measurement.

Moreover, the theoretical implications of this study extend beyond academia and directly inform policy and decision-making processes. By identifying best practices, this research provides policymakers with evidence-based insights into effective frameworks for measuring business incubator performance. As stated in the empirical findings, some governments do not have such an evaluation framework, while others are planning to have one. The ones having a measurement system also think that it can be improved.

My research can inspire the development of government policies and guidelines for evaluating business incubators. This can help governments establish standardized evaluation practices and criteria for assessing the performance of business incubators or improve their measurement system by having different approaches.

The findings from the research could potentially be used to pinpoint areas where government support programs need to be improved. Governments can evaluate existing programs' strengths

and weaknesses and make the necessary changes to improve their efficiency by knowing assessment frameworks. This may result in better support for new businesses and entrepreneurs through the business incubators.

Finally, governments are providing funding and other resources to support business incubators. Based on the results of the evaluation, they can use to guide resource allocation decisions. Funds may be distributed more efficiently and investments can be made in incubators that possess higher performance and value.

6.3. Suggestions for Future Research

While this research focused more on the government's perspective on evaluation systems, it would be interesting to investigate the role of stakeholders in shaping the evaluation frameworks. This could involve interviewing not only government agencies but also business incubator managers, entrepreneurs, and other relevant actors. Examining the perspectives and experiences of these stakeholders can provide a more comprehensive understanding of the challenges faced and the improvements needed in measuring business incubator performance.

Furthermore, future research could explore the potential of integrating qualitative and quantitative methods in evaluating business incubators. By combining in-depth interviews and surveys, researchers can gain a deeper understanding of the underlying factors influencing performance and supplement their findings with quantitative data.

Another area could be investigating this topic further with a different sample group. While this study focused only on the Nordic countries, it would be interesting to identify the similarities and differences in the other regions.

Overall, by addressing these research gaps and exploring these suggested areas, future studies can contribute to the development of more comprehensive evaluation frameworks for business incubators in the Nordic region. The knowledge gained from such research can support governments in effectively measuring and enhancing the performance of the innovation ecosystems.

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Appendix A. Interview Guide

Background Questions

1. Could you define business incubation? What is an incubator for you? What is an accelerator for you?
2. Could you please explain how your organization defines its role within the context of business incubators and accelerators?

Measurement System

1. How do you define and measure/evaluate return on investment/support in the context of publicly-funded business incubators/incubated startups?
2. Can you describe the process by which your organization measures the impact of public funding investment and other kinds of support in business incubation?

Follow up: What factors (explanation: types) do you consider when determining this?

Follow-up 2: Is there an existing framework? Set of measurements used today?

3. What tools and systems/processes do you use to collect and visualize data on this measurement?
4. How do you use the data collected on the return on investment?

Follow up: what type of output is there available internally and externally on the data that was collected and measured? Who is using these results and how?

5. Can you describe any challenges or limitations you have encountered in this measurement system?

Follow up: What are you actively doing to overcome these?

National/International Comparison

1. Is there a national business incubator ranking? Do they have a grading system? (internally, externally) Do they benchmark/compare the incubator they fund with each other?
2. Do you benchmark business incubation activities against other countries? Which countries? What is relevant to see in those types of activities?
3. Do you have any approach to measuring the return from business incubators that differs from those of other Nordic countries?

Follow up: Do you know how government organizations collaborate with other Nordic

countries to share best practices and improve the measurement of the ROI?

Follow-up 2: How do you work with improving measurements? What about the future? Do you know if there are any plans or initiatives underway to improve the measurement and assessment of the return of publicly-funded business incubators?

Long-term effect

1. Can you describe the role of your organization in supporting SMEs / Startups / Scaleups..after they graduate from the incubator program?
2. How do you assess the long-term impact of publicly-funded business incubators on the economy and society as a whole?

Appendix B. Thematic Analysis

