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Business incubators: the impact of their support

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Citation

Samaeemofrad, N. (2021, June 17). *Business incubators: the impact of their support*. *SIKS Dissertation Series*. Retrieved from <https://hdl.handle.net/1887/3188575>

Version: Publisher's Version

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Issue Date: 2021-06-17

Chapter 1

Supporting New Technology-Based Firms

A New Technology-Based Firm (hereafter NTBF) is a significant enabler of job creation and a driver of the economy through stimulating innovation (cf. Colombo and Delmastro, 2002). In the last two decades, we have seen an enormous development of the NTBFs. Science and technology policymakers tend to endorse the formation of NTBFs via providing proper conditions for them to generate more economic growth within their territory.

Previous studies highlighted that there are three important obstacles in the early stages of an NTBF's lifecycle. They are listed below.

- (1) Liability of *smallness* relates to the small size of the firms (see Witt, 2004; Gilbert et al., 2006; Schwartz and Hornyh, 2010).
- (2) Liability of *newness* concerns the lack of (a) customer trust to the product, (b) a firm's reputation, (c) business skills, (d) industry information, and (e) administrative support (see Shepherd et al., 2000; Witt, 2004; Bøllingtoft and Ulhøi, 2005).
- (3) Liability of *weak ties* relates to the strength of the NTBFs' networks (see Neergaard, 2005; Bøllingtoft and Ulhøi, 2005; van Weele et al., 2017).

For all NTBFs, these three obstacles have impacted the access to the required resources, such as financial and human capital resources. In fact, they were a threat to the development process of the NTBFs (cf. Gilbert et al., 2006; Sullivan and Ford, 2014; Lukeš et al., 2019). Consequently, there was a high rate of failure among NTBFs, particularly in high-technology-based sectors (cf. Lerner, 2009; Bøllingtoft, 2012; Audretsch, 2012). A remedy to avoid these failures is in using the support and resources by Business Incubators (BIs) (Soetanto and Jack, 2013). So far, they

provide a supportive environment for the NTBFs (e.g., by providing administrative and finance-related support, and networking) to help them address their liabilities.

This chapter starts with an overview of the ideas behind the BIs in section 1.1. Then, section 1.2 elaborates on the motivation for the thesis. Section 1.3 presents the essential definitions of the thesis. Section 1.4 describes four perspectives with their four characteristics. The problem statement and three research questions are formulated in section 1.5. Section 1.6 provides the research methodology. Finally, section 1.7 presents the structure of the thesis.

1.1 The Idea of Business Incubator

Currently, the Business Incubator (BI) is a well-known phenomenon. It is well understood as a means to support NTBFs, particularly in the early stage when the NTBF is in its development phase. The aim of the BIs is to decrease the risk of failure among the NTBFs and to accelerate their evolution (see Grimaldi and Grandi, 2005; McAdam and McAdam, 2008; Bøllingtoft, 2012). BIs provide supportive services which promote the NTBFs capabilities and engage them with either public or private agreements (see Colombo and Delmastro, 2002). So far, there is almost no reliable evidence on the effectiveness of BIs on the performance of NTBFs (see Hackett and Dilts, 2004; Eveleens et al., 2017; van Weele et al., 2017; Lukeš et al., 2019). As a result, BIs attract a considerable amount of attention from scholars, in particular around the topics such as: What are the BIs doing? How effective are the BIs? What is the impact of the BIs? There are some quantitative studies, but the majority of all scholarly studies is qualitative, and only a few of them evaluate more precisely the performance of the BIs quantitatively (e.g., Mian et al., 2016; Lukeš et al., 2019). In 2012, Bruneel and his colleagues clearly pointed out that the scientific world was facing a clear absence of theoretical studies on the impact of the supportive activities of BIs on the performance of NTBFs, since they could have provided us with a yardstick and theory-based expectations. Five years later, Eveleens and his colleagues (2017) reviewed the recent studies of BIs and concluded that there still was an urgent

need to evaluate the impact of business incubators on the performance of NTBFs. So, I observed that a contribution in this specific area was needed.

1.2 Motivation

My motivation to measure the impact of the support by BIs on the performance of NTBFs, comes from my personal experience of collaborating with BIs. For about three years, I was a business advisor for entrepreneurs in my hometown (Tehran). I was wondering why some BIs and accelerators were more effective in their support provision for the entrepreneurs than others. After my arrival in the Netherlands, I had similar practical experiences with the performance and output of the BIs in my new living environment. The differences in the effectiveness of BIs motivated me to investigating this question more deeply to find an answer. My interest goes particularly to the role of the BIs in (1) the guidance of the NTBFs in their development processes, and (2) the provision of different services by the BIs promoting entrepreneurship.

Following, Subsection 1.2.1 explains the starting position of my research. Then, two research objectives are presented in 1.2.2.

1.2.1 My Starting Position

After I had decided to conduct a study on business incubators, I started to read scientific studies in the relevant literature (e.g., Mian, 1996; Hackett and Dilts, 2004; Grimaldi and Grandi, 2005; Bergek and Norrman, 2008; McAdam and McAdam, 2008; Bøllingtoft, 2012). Later on, I became familiar with recent research efforts (e.g., Albort-Morant and Oghazi, 2016; Eveleens et al., 2017). They highlighted the unique role of BIs in empowering NTBFs in the ecosystem of entrepreneurship. Obviously, the concept of BI is rooted in innovation-system studies and in the innovation-management literature. Innovation-systems show how policymakers provide different mechanisms to foster innovation and consequently support NTBFs. The innovation-management literature revealed that there exist four clear mechanisms consisting of (1) tax incentives, (2) subsidies, (3) Technology Transfer Offices, and (4) Business

Incubators (cf. Freeman, 1987; Brown and Mason, 2014). Among these supportive mechanisms, BIs have been identified as the most effective tool for the development of NTBFs (see Grimaldi and Grandi, 2005; Bøllingtoft, 2012).

In the last two decades, the incubation studies have gained considerable attention and they have been developed with the growth in the nature of the incubators (Eveleens et al., 2017). The research efforts on business incubations have been concentrated on three issues, viz. (1) their improvement and development (see Rothaermel and Thursby, 2005), (2) their forms, classification and characteristics (see Grimaldi and Grandi, 2005; Bergek and Norrman, 2008; Vanderstraeten and Matthyssens, 2012), and (3) their identification of offering services (see Grimaldi and Grandi, 2005; Bøllingtoft, 2012).

While previous investigations clearly have shown that business incubators support their NTBFs through different mechanisms and resources, the impact and importance of these supports on the performances of their NTBFs is not still clear (cf. Ratinho et al., 2013; Eveleens et al., 2017; van Weele et al., 2017; Lukeš et al., 2019). Based on the recent investigations by Eveleens et al. (2017) and Lukeš et al. (2019), it has been indicated that on the one hand some NTBFs have more chance of survival when they receive support from BIs (see McAdam and McAdam, 2006; Scillitoe, J.L., Chakrabarti, A.K., 2010; Bruneel et al., 2012). On the other hand, some investigations have showed that BIs have no impact on the performances of the NTBFs (Chan and Lau, 2005). Further, Dvoulety et al. (2018) stated that the incubated NTBFs have worse performance than unincubated NTBFs.

Eveleens and his colleagues (2017) highlighted two main shortcomings in the incubation studies. *First*, the contradictory results in the incubation literature may be rooted in the lack of theoretical models to advance this field. *Second*, previous investigations are mostly used qualitative methods and explained best practices (see Fernández, 2012; Eveleens et al., 2017). Thus, our contribution in this study is to address these shortcomings and advance our understanding about the impact of

support by BIs on the performances of NTBFs through developing a fine-grained model. To arrive our aim, we use both qualitative and quantitative methods.

1.2.2 Two Research Objectives

The objectives of this research are twofold: (1) to identify the supportive activities by University Business Incubators (hereafter called UBIs), (2) to understand to what extent the supports by UBIs have a serious impact on the performance of their NTBFs. Thus, in this thesis I will explore the relations between the support by UBIs, with emphasis on (a) the performance of the NTBFs and (b) the NTBFs' innovation strategy with a moderating role of NTBF's capability. To achieve these two objectives, I set up an explorative and explanatory study in three UBIs which are based in the Netherlands and Germany. The findings of my research will enable UBIs managers to provide more customized supports for their NTBFs via obtaining a deeper insight into the effectiveness of their supports.

1.3 Essential Definitions

Below a general definition of a business incubator is given as a fundamental concept in the thesis.

Definition 1.1: *A **Business Incubator** is a property-based initiative attempting (1) to connect technology, capital and knowledge to foster entrepreneurship, and (2) to generate and develop new firms via offering particular supportive activities to entrepreneurs.*

Already eight years ago, Bruneel et al. (2012) observed an absence of theoretical studies on the supportive activities by BIs. This implies a lack of studies which is still not filled. The most prevailing missing items are on (1) the effectiveness of BIs and (2) the performance by NTBFs. The fundamental underlying issues of the two items are supportive activities. In this thesis, I define the supportive activities offered by BIs as follows.

Definition 1.2: *Supportive activities (SA) by BIs are defined as functions and services that BIs are offering to the NTBFs to enable the entrepreneurs to develop their businesses.*

Three prevailing examples of the supportive activities are (1) shared physical facilities, (2) business-oriented services, and (3) networks. It is well known that a wide range of requirements originating from a diverse set of the NTBFs and the available set of resources as offered by the BIs may create a large set of different models of incubators. Consequently, the supportive activities lead to an emerging variety of distinguished supportive services. With regard to the role of sponsors or stakeholders of BIs and the sources of their supports, scholars such Grimaldi and Grandi (2005), Bergek and Norrman (2008), and Bøllingtoft (2012) have segmented BIs into three classes, viz. public, private, and bottom-up incubators. This typology is elaborated upon in Chapter 2. In our study, we concentrate on the *University Business Incubators* (see definition 1.3) which fall under the public class.

Definition 1.3: *A University Business Incubator (UBI) is defined as “an incubator set up by a university which provides office space, equipment, mentoring services as well as other administrative supports to assist the formation of new ventures” (Wonglimpiyarat, 2016, p.19)*

In addition to the concept of UBIs, a second central concept of this study is the New Technology-Based Firms (NTBFs). There are many different definitions for the concept of NTBFs (see, e.g., Storey and Tether, 1998; Saemundsson and Candi, 2017). The majority of the definitions emphasizes the newness of this type of firms and the level of their innovativeness and technology (Saemundsson and Candi, 2017). Storey and Tether (1998) reviewed the NTBFs from two perspectives. They partitioned their definition into (1) ‘narrow’ and (2) ‘broad’ perspectives. In the narrow definition, the term is limited to the new independent firms that in the end

develop new industries. In the broader definition, the term applies to the wide range of new firms operating in the high-tech industry. In the latter definition, ‘new’ refers to (1) the technology, or to (2) the firm, or even to (3) both (see Storey and Tether, 1998; Saemundsson and Candi, 2017). In this thesis, I define the NTBFs as follows under one umbrella (see definition 1.4). It will be a broad definition. However, as far as I can see it serves our research purpose since we look at new initiatives in combination with new tech. Hence, our definition is straight forward and still far reaching.

Definition 1.4: *A New Technology-Based Firm (NTBF) is an initiative that is newly established and develops new technologies (see Storey and Tether, 1998; Saemundsson and Candi, 2017).*

Previous investigations (see van Geenhuizen and Soetanto, 2009; Soetanto and Jack, 2016) reported that there is a considerable increase of public investments. The goal is to strengthen universities and to support academic NTBFs. Meanwhile, in return academic NTBFs are likely to depend on universities in receiving updated knowledge and innovation. Thus, universities with the support of industry and government attempt to help NTBFs with different policies such as UBIs. However, when compared to the performance of the other three types of incubators, the efficiency of the UBIs is questioned due to the high rate of failure and slow rate of growth among academic NTBFs (Soetanto and Jack, 2016). Therefore, in this research, I address this gap and choose UBIs to investigate to what extent their support is effective.

1.4 Four Theoretical Perspectives – Four Characteristics

As stated earlier, there is a lack of studies on the impact of the supports by UBIs on the performance of NTBFs. In summary, I reiterate there exists a research gap already for a long time due to the limited theoretical perspectives representing the impact of the supports by UBIs. Although over two decades the issue has been noted by several authors (see Hackett and Dilts, 2004; Ahmad and Ingle, 2013; Eveleens et

al., 2017; Lukeš et al., 2019), the UBIs' impact is still unclear. The majority of prior studies has mainly addressed the following four theoretical perspectives: (A) Resource-Based View (RBV) (see Mian, 1996; Hansen et al., 2000; Clarysse and Bruneel, 2007; McAdam and McAdam, 2008), (B) Knowledge-Based View (KBV) (see Colombo and Delmastro, 2002; Soetanto and van Geenhuizen 2010; Sullivan and Marvel, 2011; Patton, 2014), (C) Organizational Learning Theory (OLT) (see Warren et al., 2009; Scillitoe and Chakrabarti, 2010; Patton and Marlow, 2011; Patton, 2014), and (D) Social Capital Theory (SCT) (see Fang et al., 2010; Ebberts, 2013; Eveleens et al., 2017). In this study, I address the impact of the supports by UBIs through the lens of RBV (see subsection 1.5.4). To support our own choice, we describe the main characteristic of each of the four perspectives below in the paragraph A to D.

A: Resource-Based View

The Resource-Based View (RBV) assumes that firms are characterized by collections of different resources and capabilities. In such a configuration, the resources may provide strategic direction and create sustained competitive advantage for firms (see Grant, 1991; Musiolik et al., 2012; Somsuk and Laosirihongthong, 2014; Eveleens et al., 2017). Due to the small and novel nature of NTBFs, it is obvious that such firms are in dire need of both tangible and intangible resources, such as knowledge, financial support, and human capital (see Clarysse et al., 2005; van Geenhuizen and Soetanto, 2009). Therefore, BIs can act as a means to provide different resources for NTBFs to help them grow (see Lockett and Wright, 2005; McAdam and McAdam, 2008).

B: Knowledge-Based View

Seen from the Knowledge-Based View (KBV), knowledge is a fundamental characteristics resource that will have an impact on the firms' performances. It is based on the idea that other types of resources cannot compete with knowledge as they are not easily transferable and thus, they are not able to provide strong advantages for the firms (see Grant, 1996; Eveleens et al., 2017).

C: Organizational-Learning Theory

From the Organizational Learning Theory (OLT) point of view, the knowledge needs to be acquired, distributed and interpreted to determine a firm's performance (cf. Huber, 1991). Eveleens and his colleagues (2017) show that four types of learning are characteristic for organizational learning and have an impact on the performance of the NTBFs. These types are distinguished by two possible relations, viz. individual vs social, and explorative vs exploitative, which are elaborated upon in Chapter 2. Within the entrepreneurship studies, entrepreneurial activities are considered as interactive learning processes through which they can share their knowledge (see Fang et al., 2010). All business incubation literature reviews see an incubation program as a learning context which stimulates knowledge flows for their NTBFs. As a result, the NTBFs are able to create their own social relations and obtain their own required resources (see Fang et al., 2010; Eveleens et al., 2017).

D: Social Capital Theory

Social Capital Theory (SCT) concentrates on the social relations with the others. These relationships are characteristic for SC and are able to facilitate the actions. In the context of entrepreneurship, the SCT states that the positive and negative attitudes towards entrepreneurs, lead to different consequences (see Eveleens et al., 2017). The positive consequences for the entrepreneur might be (a) access to the knowledge and (b) influence on the other actors. The negative consequences may include the risks of group thinking (see Eveleens et al., 2017).

1.5 The Problem Statement and Research Questions

In our study, we take one plain Problem Statement (PS) which is formulated below. Subsection 1.5.1 addresses our contribution to the scientific efforts. Further, we formulate a Problem Statement in subsection 1.5.2. Then, three Research Questions (RQs) in subsection 1.5.3. Their answers will guide us to an answer to the problem statement.

1.5.1 Aiming at Three Contributions

From the above point of deployment, our research aims at achieving a threefold contribution. First, I will investigate the relationship between the supports by UBIs and the performance of the NTBF. By studying their relations and the NTBF's performances, I will respond to the research calls in the incubation literature to investigate and measure the impact of UBIs on the NTBFs' performances (see already Hackett and Dilts, 2008; Eveleens et al., 2017). Second, I will evaluate the empirical evidence about the impact of the supports by UBIs on the performance of the NTBF through the employment of RBV. Third, I will provide recommendations on how UBIs can support their NTBFs more effectively, and a number of concrete avenues for future research.

1.5.2 The Problem Statement

Considering the fact that there is a paucity in previous studies on the influence of the supports by UBIs on the performance of the NTBFs, the following problem statement (PS) is formulated.

PS: How can university business incubators support their NTBFs effectively?

1.5.3 Three Research Questions

In order to answer to the problem statement, I formulated the three research questions (RQs).

We start our discourse by assuming that UBIs have impact on the performance of an NTBF by providing a mix of services. However, the extent to where the services might have an impact on the performance of the NTBF is not clear. Indeed, the lack of any theoretical insight into the supportive activities offered by the UBIs is the main trigger of my research (see Bruneel, 2012). For the first step to investigate the impact of the supports by UBIs on the performance of the NTBF, we need to identify the supportive activities. Therefore, the following research question is formulated.

RQ1: *What are the main supportive activities offered by UBIs that influence the performance of an NTBF?*

Following the identification of the UBIs' supportive activities, we note that we do not have available a concise construct (measurement instrument) that would enable us to measure the extent of the impact of the supportive activities by UBIs on the performance of an NTBF. Furthermore, measuring the performance of the NTBFs is a challenge in the incubation studies. The most used performance criteria are efficiency, survival, market share, growth, profitability, size, goal attainment and the founder's opinion on the success of their NTBFs which they classified into the objective and subjective measure (see Eveleens et al., 2017). The choice of either objective or subjective is greatly impact on the findings of the investigations. As a result, the existing approaches in measuring the performance of the NTBFs show the contradictory outcome in current studies (Wiklund and Shepherd, 2003; Eveleens et al., 2017). In order to avoid the possible biases within each class of the performance measure, we combine both objective and subjective measures. The operationalization of all of the measurement scales are provided in section 4.4.

Below, we give a definition of such a construct.

Definition 1.5: *A **construct** (as used in this study) refers to an instrument that allows a UBI manager to measure and evaluate the offering supports to their NTBFs. We are now ready to formulate our second research question.*

We are ready to formulate our second research question.

RQ2: *How can the supportive activities be operationalized in a construct that enables us to measure the impact of the identified supportive activities by UBIs on the performance of an NTBF?*

Despite of the above operationalization of the construct, I came across that it was still not clear *to what extent* these supportive activities by UBIs do have an impact on the performance of the NTBFs. Then, I found a salient point that only a few studies (e.g., Soetanto and Jack, 2016) addressed when reporting on their observation, viz.

that each NTBF has their own innovation strategy in the usage of their support by UBIs. Starting from this salient point of view, it appears that an innovation strategy plays a prominent role in the relation between the supports by an UBI and the performance of an NTBF (see Soetanto and Jack, 2016). Thus, in line with Soetanto and Jack, (2016), I will also consider the role of the innovation strategy in the relation with the supports by UBIs and the performance of an NTBF. So, the third research question is formulated as follows.

RQ3: In what way are the identified supportive activities related to (a) the innovation strategy of an NTBF and consequently to (b) the performance of the NTBF?

Answering the three research questions will enable us to answer the problem statement.

1.5.4 What is the Most Appropriate Theoretical Perspective?

As mentioned earlier, we are to investigate the impact of supports by UBIs on the performances of NTBFs, and do not aim to focus on the learning processes, different type of learnings, or the impact of UBIs on learning and knowledge acquisition by the NTBFs. Therefore, the implication of KBV and Organizational Learning theoretical perspectives may not be an appropriate choice to lead us answer our RQs. Social Capital Theory concentrates also on social relations between the variables which is out of the scope of our investigation. Hence, SCT cannot be a suitable theoretical lens in our investigation. Among the four explained perspectives in section 1.4, it appears that the employment of RBV is the most appropriate theoretical view to answer the RQs and PS. Following the above argument, we see that RBV posits firms to act as a bundle of resources and capabilities which determines the firm's performance. Through the lens of RBV, the supports by UBIs can be considered as external resources which might influence the performance of NTBFs. In addition, measuring the influence of supports by BIs is not possible without considering the capability of the founders of the NTBFs in the usage of the supports. Thus, as RBV

considers (1) the firm's resources (internal and external) and (2) the firm's capabilities, and we aim to investigate the possible impact of the supports and resources by UBIs on the performances of the NTBFs with the role of their capabilities, the employment of RBV appears to be the most appropriate theoretical view to address the research gap.

1.6 Research Methodology

To meet the two research objectives (see subsection 1.2.2), I will perform a literature study and an empirical study. The methodology followed consists of seven stages. Stage 1 is a theoretical study. The stages 2 to 5 attempt to answer the three RQs. Stages 6 and 7 are part of the usual scientific procedure of analyzing the results, establishing the findings (i.e., discussion), and formulating the conclusion. Below, we list the stages in full.

- 1) Literature review
- 2) Identification of the supportive activities (SA) by UBIs (RQ1)
- 3) Operationalizing the SA construct of the UBIs (RQ2)
- 4) Validation of the SA construct of the UBIs (RQ2)
- 5) Implementation of the SA construct of the UBIs (RQ3)
- 6) Analyzing the results
- 7) Discussion and conclusion (PS)

In summary, the seven stages attempt to answer the formulated research questions and the problem statement. For a proper understanding, we briefly discuss the stages 2 to 5 below. Subsection 1.6.1 explains the identification of supportive activities by UBIs. Subsection 1.6.2 briefly presents the operationalization of the SA construct. The validation of the construct of the supportive activities is addressed in subsection 1.6.3. Finally, subsection 1.6.4 elaborates on the implementation of the construct.

1.6.1 Identification of the Supportive Activities (SA) by UBIs

The identification of the supportive activities by the UBIs is conducted through interviews with entrepreneurs. The results answer RQ1 (see Chapter 3). This step is an explorative study which is based on qualitative research. As a first step, I employed a systematic literature review that was mainly based on a well-formulated meta-analysis. Then, I used a combination of observations and semi-structured in-depth interviews with the founders of NTBFs in UBIs. A series of eleven interviews with eleven founders of the NTBFs located in UBIs was conducted to explore the supportive activities of the UBIs from the NTBFs' perspectives. All interviewed founders of the NTBFs operated in the Netherlands. Each interview was recorded, transcribed and approved by the interviewees. Next, I categorized and coded the transcription of the interviews to analyze them.

1.6.2 Operationalization of the SA Construct of the UBIs

The operationalization of the SA construct should be conducted to measure the impact of the support by the UBIs and to facilitate their managers with a measurement tool. The operationalization stage is performed in Chapter 4, and the results will contribute to partial answering RQ2. For evaluating the reliability of the operationalization of the construct, I interviewed four NTBFs entrepreneurs, three UBI's managers and nine scholars. The interviewees were convenience-sampled (cf. Bryman, 2012). Due to the convenient access, the sample is selected from the Netherlands, France and Denmark. The scholars were faculty members in Leiden University, Delft University of Technology, Université de Lorraine, and Aarhus Business School. The entrepreneurs were affiliated to Yes!Delft UBI and Leiden Bio-Science Park.

1.6.3 Validation of the SA Construct of the UBIs

The validation of the construct of the SA is carried out in chapter 5. The results of chapter 5 will contribute to answering RQ2 completely. The procedure includes four levels. In first level, the correlation matrix, Kaiser-Meyer-Olkin index and Bartlett's

Test of Sphericity are conducted to check whether the data is appropriate for the Principal Component Analysis. In the second level, the Principal Component Analysis is performed in order to extract the components from the data. Therefore, the eigenvalues of the (a) extracted components are checked according to the Kaiser's Criterion, (b) the Scree Plot of the eigenvalues is inspected, and (c) Parallel Analysis is conducted to cross check the visual inspections. In the third level, Promax Rotation on the independent variables and the Varimax Rotation Method on the Moderators are performed to extract the items with an acceptable validity for further analysis. General threshold criteria (component-loadings > 0.6 and cross-loadings < 0.3) are checked for each item in the rotated component solution. Items not fulfilling these thresholds are excluded. As a result of these three levels, the validity of the constructs has been checked. In the fourth level, Cronbach's Alpha coefficients and Composite Reliability are calculated to evaluate the reliability of the component solution.

1.6.4 Implementing the SA Construct of the UBIs

The implementation of the construct to measure the impact of the supportive activities construct is presented in Chapter 6. This stage contributes to the RQ3. To this end, a multiple linear regression analysis method will be performed to analyze the relationships between supports by the UBIs, and the performance of the NTBF. Also, the moderation impact of NTBFs' capability on the relation between the supports by UBIs and the performance of NTBFs will be evaluated.

1.7 Structure of the Study

The thesis consists of eight chapters. The structure of the thesis is presented in Figure 1-1, and the overview of each chapter are given below.

Chapter 1: Supporting New Technology-Based Firms

Chapter 1 provides an introduction to the thesis with the aim of providing the readers with the motivation, the research objectives, the problems statement, the research questions, and the research methodology. An overview of the structure of the thesis is presented in this chapter as well.

Chapter 2: Literature Review and Theoretical Embedding

The objective of chapter 2 is to review the previous studies on business incubators. In addition, the main four theoretical perspectives in the business incubation literature are elaborated. The chapter concludes in employing the Resource-Based View (RBV) as a proper theoretical perspective to provide answers to our RQs and PS.

Chapter 3: Supports by the Business Incubators

Chapter 3 identifies supportive activities (SA) by UBIs and addresses RQ1. A qualitative research method is performed to explore the supports by UBIs. Five main supports are investigated and addressed. The explored supports are: (1) access to the networks, (2) knowledge development and dissemination, (3) finance and administrative mobilization, (4) growth control, and (5) creation of exposure.

Chapter 4: Operationalization of the SA Construct

In chapter 4, the construct to measure the relations between supports by UBIs (explored in chapter 3) and the performances of the NTBFs are described. RQ2 is addressed in this chapter. The SA construct aims to enable UBIs managers to measure the effectiveness of their supports on the performances of their incubated NTBFs.

Chapter 5: Validation of the SA Construct

Chapter 5 elaborates on the evaluation of the validity and reliability of the SA construct, which contributes to answering RQ2. In this chapter, we present the result of the interviews with scholars and entrepreneurs concerning testing the construct validity. Employing statistics enabled us to check the construct reliability.

Chapter 6: Implementation of the SA Construct

Chapter 6 provides an answer to the RQ3. Conducting a multiple regression analysis technique allows us to answer this question. Based on the statistical results of the analysis, a model for measuring the effective supports by UBIs is evaluated. Finally, the answer to the PS will be provided.

Chapter 7: Research Answers and Recommendations

Chapter 7 summarizes the answers to the formulated RQs. Thereafter, the answer to the problem statement is elaborated upon. Moreover, practical and theoretical contributions are further worked out. Subsequently, the research limitations are presented. Finally, the chapter concludes with five recommendations for future research. Table 1.1 briefly describes the research stages in this thesis.

Table 1-1: Research Stages

Research Stage		Ch.	Research Methodology	RQ1	RQ2	RQ3	PS
Stage 1	Introduction	1	-	✓	✓	✓	✓
		2	Literature review				
Stage 2	Identification of SA of UBIs	3	Interview and literature review	✓			
Stage 3	Operationalization of SA construct	4	Interview and literature review		✓		
Stage 4	Validation of SA construct	5	Quantitative Methods		✓		
Stage 5	Implementation of SA construct	6	Quantitative Methods			✓	
Stage 6	Analyzing the results	7	Quantitative Methods			✓	
Stage 7	Discussion and Conclusion	8	-	✓	✓	✓	✓

Figure 1-1: Thesis Structure

