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Managerial practices in the business incubation process

Study of the Dutch business incubators

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PREFACE

This thesis is result of the final stage of my master program "Management, Economics and Consumer Studies" with the specialization "Management, Innovation and Life Sciences". Because of my previous background in the field of food science and technology and the knowledge acquired during my master studies, I was interested in conduct a research that combines both fields. This led me to select this interesting topic concerning the technology and business creation.

Many people have contributed to the completion of this thesis and I would like to take this opportunity to express my gratitude to them. First of all, I want to express my gratitude to my thesis supervisors: dr. V. Blok, who has been very supportive and gave me relevant comments throughout the whole project; to dr. W. Hulsink for his help and guidance in the beginning of the project and to dr. S. Pascucci for his constructive comments.

Secondly, I want to thank all the business incubators managers and tenant/client companies that were willing to answer my questions.

Last but not least, lot of thanks to my mother and brother for supporting me all these years, to my uncle Geza, who enable my master, to all my friends who were always there when I need them and to Seppy.

Simona Šeruga
Amsterdam, February 2012

MANAGEMENT SUMMARY

In the past 30 years, governments, local communities and private sectors have been putting emphasis on economic development programs. As a result an explosion of new business and technical assistance programs, called "business incubators", has followed. Their purpose is to increase the formation, survival and success rates of small and medium enterprises. The concept of business incubator reaches back into the 1950s, when in the United States the first incubator was created and since the 1970s the number of business incubators has been rapidly increasing. In the Netherlands business incubators and knowledge transfer play an important role. Furthermore, in The Netherlands an innovative climate exists, where business incubators are related to universities and large companies.

In order to understand this quite young phenomenon of business incubators better, various studies have been carried out by management researchers. These studies mainly describe the configurations and contexts incubator facilities operate in, but they do not provide theoretical driven explanations of the factors that constitute the incubation process. Apart from Campbell *et al.*'s incubation process definition and the model of Patton *et al.*, little work has been done in identifying the variables associated with the incubation process. Therefore, it is perceived that in literature on business incubators a considerable gap exists in the understanding of variables associated with the incubation process. Taking into account this problem, the aim of this research is to close the theoretical gap by identifying a possible assessment model of the incubation processes in terms of key managerial practices and their added value to the incubation process outcome. This is done by pre-testing Patton *et al.*'s model on business incubators in The Netherlands.

With this objective in mind, this research was structured in two phases: literature study and empirical study. The Literature study was based on a desk research of Campbell *et al.* and Patton *et al.* model in order to understand the research topic and to identify the criteria for assessing the business incubation process. Additionally, through the literature the current condition and characteristics of the Dutch business incubators were reviewed. Finally, a theoretical framework was elaborated to carry out the empirical research and gather the relevant information.

The second phase of the research consists of an empirical study to examine the current managerial practices of Dutch business incubators. In this line, 8 business incubator managers and 38 tenant/client companies of business incubator have participated in this research. To carry out the empirical research a semi-structured interview protocol and questionnaires were set up, based on the theoretical framework. Then face to face interviews were conducted.

As a result of this research and in line with the central research question "What are the key managerial practices that add value to the incubation process outcome in Dutch business

incubators?*"* the identified key managerial practices are supporting previous work of Patton *et al.* (2009) in following:

Picking the winners

According to literature in most of the business incubators the final decision on selection of new tenant/client company is based on the judgement capability of one person (Aertsa et al., 2007). This is also the case in Dutch business incubators, the managers themselves select new tenant/client companies, based on 3-4 face to face meetings. Most of the incubator managers do market research and screen the business idea before making the final decision in order to really understand the commercial/technology potential of the business idea and when needed they consult their peers.

Developing commercialisation skills in new business teams

Dutch incubator managers find that it is the tenant/client companies' responsibility to ask for assistance and help. However, they provide relevant educational programs and trainings to tenant/client companies to foster development of commercialisation skills of tenant/client companies. This differs from literature, where for instance Rice (1992) argued that it is the incubator manager's responsibility to consult tenant/client companies, which in turn influence the success of the incubation.

Monitoring and evaluating progress

Dutch business incubators execute informal monitoring and evaluating the progress of tenant/client companies by conducting face to face meetings or through email communication. Informal way of monitoring and evaluating is not a common practise of the Dutch business incubators. Therefore this is partly in line with literature, where monitoring is perceived as formal and informal with provision of the necessary expert feedback for tenant/client companies' improvement performance (Milan, 1994).

Creating synergies within the internal support network

Dutch business incubators provide internal network activities such as unofficial happenings with other tenant/client companies and meetings between tenant/client companies and companies belonging to incubator networks to stimulate synergies. This is the same as in literature.

Building and maintaining an effective external support network

This key managerial practice is similar between the Dutch business incubators and what literature suggests. The Dutch business incubators are building and maintaining an effective external support network by providing external service providers such as other entrepreneurs, lawyers and financiers.

Access to appropriate funding streams

Finally, the last but not least key managerial practice is also supported by literature. The Dutch business incubators are providing the tenant/client companies access to appropriate funding streams through information about possible subsidy and bank loans; and also providing help in forming a persuasive business proposal and preparing tenant/client companies for meetings with different investors through discussions or role games.

In order to manage a successful business incubator, it is important that managers point out and challenge the tenant/client companies to develop their commercialisation skills. Furthermore, managers should check the tenant/client companies' progress, since it is important to identify in relevant time the needed supporting services. Managers should work on common projects with other business incubators to enable better network activities and it also offers the opportunity to get to know each other better. Another recommendation for managers is to include in the external networks other entrepreneurs, who are according to tenant/client companies the most important providers of external support. Finally, managers should provide the investor readiness programmes to better prepare tenant/client companies for meetings with investors.

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1 INTRODUCION AND PROBLEM DEFINITION

In the past 30 years, governments, local communities and private sectors have been putting emphasis on economic development programs. These programs can be categorized in three objectives: programs aimed at maintaining existing industries and firms, programs aimed at recruiting established firms from other areas and programs aimed at creating new industries and enterprises (Rice, 2002). In this research we are interested in the third objective, where has been an explosion of different kinds of new business and technical assistance programs with the purpose to increase the formation, survival and success rates of small and medium enterprises. Particular, one of these kinds of program for more than three decades is the "business incubator".

The concept of business incubator reaches back into the 1950s, when in the United States the first incubator was created. Although that many various definitions exist and some similarities can be identified among them, the concept still remains unclear. According to various authors the term business incubator can be seen more like an "umbrella word", presenting different kinds of reality. It is important to notice, that the constantly changing business environment, require also adaptive and changing business support programs, which makes the formation of a universal definition of business incubators even more complex. However, in general the business incubator is an umbrella term for any organization with shared facilities, training, advisory and financial services (Allen and McCluskey, 1990), small management team with core competencies and selection of start-up companies entering the incubation to be graduated after generally 3 years (Scaramuzzi, 2002).

The number of business incubators is rapidly increasing. At the beginning of the 1980s there were only 200 incubators and today NBIA estimates that there are about 7000 business incubators in the world (NBIA, 2011).With the rising number of business incubators and through time the focus and objectives of business incubators highly varied. Economy development and generation of new jobs, commercializing academic research and creation of entrepreneurship in transition economies are just few examples of them. However, during all those years the common purpose of business incubators remained the same, which is "to provide some degree of supporting infrastructure to compensate for perceived failures or imperfections in the market mechanism" (Bøllingtoft and Ulhøi, 2005). According to different objectives the typology of business incubators has been made and thus different incubators models exist. They vary according to their mandate (for-profit or not-for profit), the type of sponsorship they have (public, private, academic-related or mixed) and their focus or goals.

One example of such economic development program is the Israeli Public Technological Incubator Program, which was established in 1991 by the Chief Scientist's Office (CSO) in the Ministry of Industry and Trade. At the beginning the main focus of the technological incubator program was to reduce unemployment among highly skilled scientists and engineers emigrants,

from the former Soviet Union. Therefore the opportunity was given to those emigrants and also to Israelis to transform their innovative technology ideas into commercial and exportable products and services (Avnimelech et al., 2007). Since then, the project has blossomed into the 28 technological incubators operating in Israel today and into the high-tech industry, which generates more than 70 percent of Israeli exports (Avnimelech et al., 2007). Consequently, Israel is today one of the most successful and innovative countries in the world with high-tech cluster called Silicon Waldi as second after Silicon Valley and the largest number of NASDAQ-listed companies outside the United States, more than Europe and Asia together. It has the largest government and private sector investments in R&D and number of engineers in the world. It has R&D and regional business centers of some of the most successful international technology companies such as IBM, Microsoft, Intel, HP, Motorola, Cisco, GE, Google, Alcatel, Samsung, LG, Philips, Siemens and Nokia.

In order to understand better this quite young phenomenon - business incubator, various studies were done by management researchers. According to systematic review of business incubation research done by Hackett and Dilts (2004) five chronological research orientations can be identified. First were the incubator development studies, which were trying to define business incubator concept, to create taxonomic categories for comparison and to provide policy guidelines for operating an incubator. Next were the incubation configurations studies, which were attempting to identify the critical success factors for incubators-incubation and its concept work in practice. They were attempting to conceptualize incubator configurations and to some point also incubation process. After that, studies went in the direction of incubator-incubation impact studies and as the lattes appeared studies theorizing about incubator-incubation. It is obviously that we are talking about a new field and therefore it is not a surprising fact that theory-building literature is missing (Hackett and Dilts, 2004). However, among the theories that have been used in the previous studies are market failure theory, structural contingency theory (Ketchen et al., 1993), co-production of value theory (Rice, 2002), resource-based theory (Barney, 1991), social capital theory (Bøllingtoft and Ulhøi, 2005), network theory (Hansen et al., 2000; Nohria and Eccles, 1992) etc. Although social capital and network theory are used synonymously, in the literature they are occasionally used interchangeably (Bøllingtoft and Ulhøi, 2005).

All these different perspectives on business incubators in literature describe in what configurations and contexts incubator facilities operate, but they do not provide theoretical driven explanation of the factors that constitute the incubation process, which are presented in Figure 1 (Hackett and Dilts, 2004). However, the research done by Campell *et al.* (1985) was the first study that was attempting to describe the incubation process. They developed the framework that suggests that added value is more delivered through the provision of intangible factors than through the physical infrastructure. Those intangible factors are part of the incubation process and include: a diagnosis of business needs, support with business planning, introductions to peer group networks and the deployment of professional networks, mentors and funding agents. By

that it is for first time described in detail how different components or activities within incubator facilitate to the process of the transformation of a business proposal to the successful business. However, some of the weaknesses of the Campbell *et al.* (1985) framework are that it does not include the possibility of failure of the tenants and that the framework is applicable just to the private incubators. After Campbell *et al.* (1985), some work was done by Smilor (1987) and Hisrich (1988) in order to further develop the framework on incubator-incubation concepts. However both of them ignore internal incubation process. In further literature there has been a some effort devoted to identified the variables associated with the incubation process, but the efforts were mainly focused on the process of selecting new incubates.

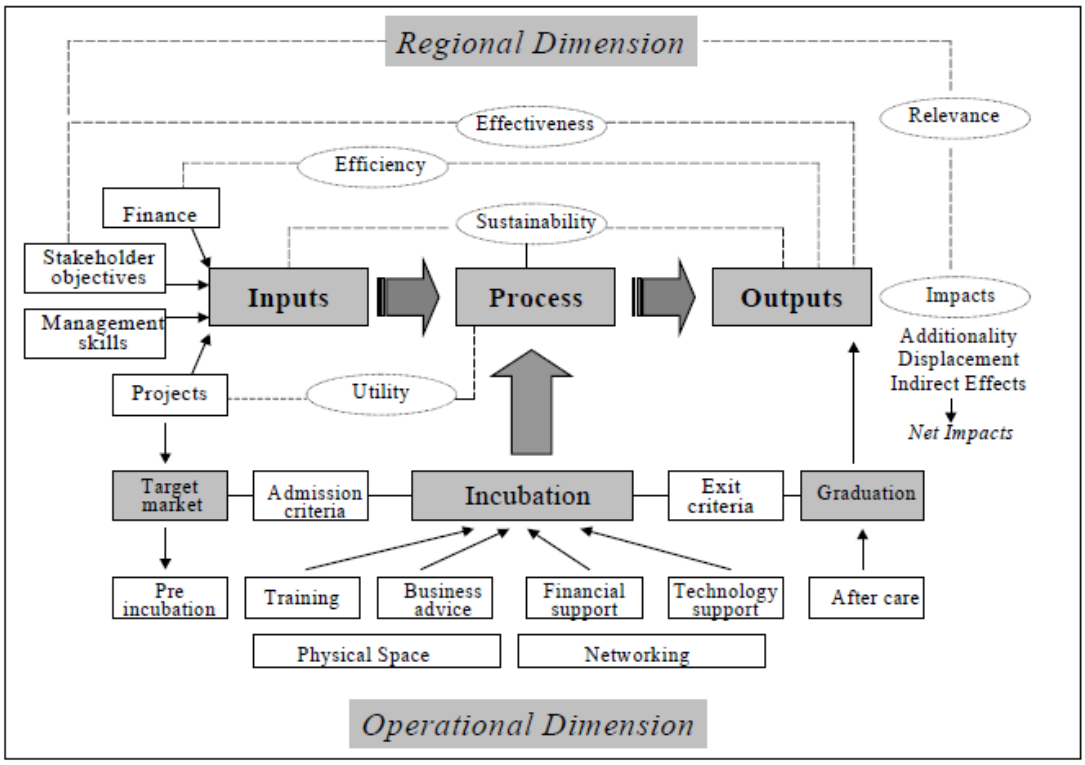

Figure 1: Business incubator model (European Commission, 2002)

Therefore, future research on incubation process of individual ventures associated with the social aspects present the greatest research potential for bridging this gap in understanding of the variables associated with the incubation process (Totterman and Sten, 2005). In this research we want to contribute in filling this gap in literature on the incubation configurations studies, which were attempting to identify the critical success factors for incubators-incubation. Furthermore it was recognised that incubation process is one of the critical success factors of incubators. However, apart from Campbell *et al.*'s incubation process definition little work had been done in order to identify the variables associated with the incubation process.

Firstly, to be able to identify the variables associated with the incubation process it is of importance to define the incubation process itself. The incubation process can be described as a

central part of business incubator model, which starts with admission criteria and conclude with exit criteria. According to Patton *et al.* (2009) the incubation process is an iterative and analytical process that evaluates progress and needs of tenant/client companies in the incubator. Furthermore it assesses the skills, abilities and motivation of new venture teams and uses this to create appropriate support to tenant companies for their successful development. This support concerns business and technology facilitation. Business support can be distinguished into three categories: training, business advice and financial support, which can be either from incubators sources or from external sources such as financial institutions.

Secondly, in recent study, Patton *et al.* (2009) in his research continue the work of Campbell *et al.* and confirm those factors identified by Campbell *et al.* (1985) and goes further, as he recognized the importance of deployment of these factors and the timing of such deployment as crucial for the success of incubation process. He identified the following factors that strengthen the incubation process; a steady flow of new ideas, an empathy with founders (tenant/client companies), the creation and maintenance of internal and external networks and appropriate exit strategies for firms leaving the incubator. By that he identified in detail the key process and management practices that create value for business incubator which is in their case for Southampton incubator.

Thirdly, in the Netherlands is innovative climate, where the business incubators are related to university and big companies such as Food-Valley Wageningen and the Philips research campus in Eindhoven. The fact that knowledge transfer plays an important role is not surprising, since the Dutch government sets as objective the improvement of the capitalization of academic knowledge must get better and thus, a prime task of universities is capitalization of knowledge (Ministry of education, culture and science, 2005). Therefore, it is interesting to explore the incubation process of Dutch business incubators according to Patton *et al.*'s identified factors explained above.

Research problem:

In literature on business incubators exist considerably gap in understanding of variables associated with the incubation process. Bridging this gap call for the identification of key intangible factors of incubation process in business incubators from managerial practices aspects and by that pre-test the Patton *at al.´*s model and evaluate how those factors contribute to outcome of the incubation process.

1.1 CONCEPTUAL RESEARCH DESIGN

1.1.1 Research objective

Objective in relation to the problem

To close the theoretical gap in understanding the variables associated with the incubation process in literature on business incubators, by making an assessment of the incubation processes of the business incubators in The Netherlands.

Objective in relation to the research project

To identify possible assessment model of the incubation processes in terms of key managerial practices and their adding value to the incubation process outcome by pre-testing the Patton *et al.*'s model on business incubators in The Netherlands.

Type of theory oriented research

This research is aimed to improve the theoretical view on the new phenomenon known as business incubator by pre-testing existing model with identified factors made by Patton *et al.* (2009). Therefore, according to Verschuren and Doorewaard (2005), this research project could be recognized as theory-testing research project. The goal of research is to better understand the new phenomenon by pre- testing the model in order to fill theoretical gap in understanding the variables associated with the incubation process.

1.1.2 Research framework

The Research framework is presented in Figure 3 and describes the different steps that were undertaken in order to achieve the research objectives.

The Research framework consists of three stages. The first stage of the research presents the literature research, where the background of the Patton *et al.*'s model is described in order to understand the research topic and to identify the criteria for assessing the business incubation process. Additionally, through the literature the current conditions and characteristics of Dutch business incubators are reviewed.

In second stage of the research empirical approach took place in order to assess the business incubation processes in The Netherlands. The assessment was made based on the set of assessment criteria identified in the first stage. Data gathering are based on interviews with managers of business incubators in the sectors of life science, high-tech and knowledge institutions and survey among tenant/client companies.

Furthermore, the assessed results are analysed to better understand variables associated with incubation process with special relevance to managerial practices as intangible factors and their adding value to the incubation process outcome. Finally, the recommendations on assessment model of the incubation processes based on the key managerial practices as key variables associated with incubation process of the Dutch business incubators are made.

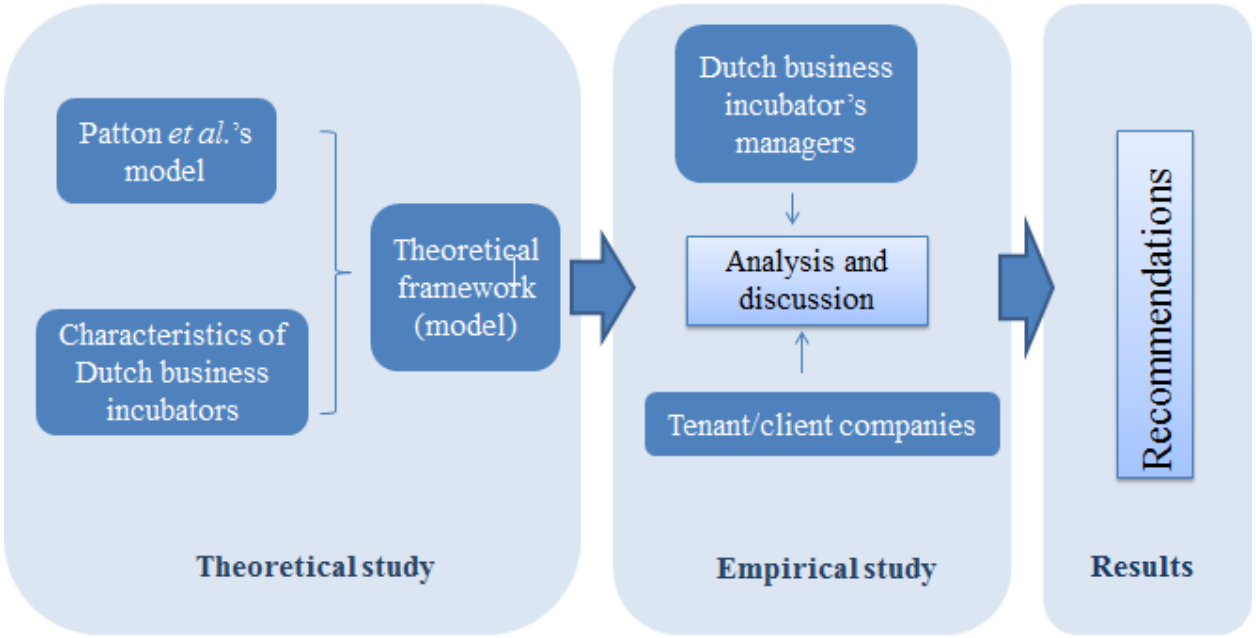

Figure 2: Research framework

1.1.3 Research issue

Central research question:

> What are the key managerial practices that add value to the incubation process outcome in the Dutch business incubators?

Sub questions:

Literature research

1. What criteria for assessing the managerial practices can be derived from Patton *et al.*'s model?
2. How can the outcome of the business incubation process be measured?
3. What are the characteristics of the Dutch business incubators?

Empirical research

4. What are the managerial practices of the Dutch business incubation processes according to the assessment criteria?

5. What are the contributions of assessed managerial practices on the incubation process outcome?
6. Which assessed managerial practices have a positive relationship with the incubation process outcome?

1.1.4 Key-concepts definitions

- Business incubator: Is an umbrella term for any organization with shared facilities, training, advisory and financial services with the aim to support development of new ventures in their early stages.

- Incubation process: Process by which the different stakeholders such as incubator manager, founders, external and internal networks integrate and interact in order to commercialize new business idea (Patton et al., 2009).

- Incubator outcome: successful companies graduated with achievement of incubators fulfilling their objectives and goals. For instance positive job and wealth creation or impacts on local economies or commercializing academic research.

- New ventures: new small company established by entrepreneurs

1.2 TECHNICAL RESEARCH DESIGN

1.2.1 Research material

Sources of information

- Documents:
  a) Professional PowerPoint presentations on Dutch business incubation industry

- Scientific literature (library, digital sources):
  a) Direct searching using key concepts on bibliographic databases (Scopus and Web of Science)
  b) Books on business incubators
  c) Articles from scientific journals:
     - Journal of Business Venturing
     - Entrepreneurship theory and practice
     - Journal of Small Business Management
     - Journal of International Management
     - Journal of Technology Transfer
     - Technovation

d) Academic textbooks and student reports

- Media (printed and electronic): Newspaper articles and magazines on entrepreneurship
- Individual people: managers of Dutch business incubators, managers of tenant companies

Methods of accessing the sources

Search methods

In order to obtain relevant scientific literature for the purpose of this research the different search methods is used. According to Verschuren and Doorewaard (2005) there are four different searching methods. First is based on search indexes with key words, next one is based on extracts and reviews, the third one is screening the annual overviews, which present the additional book reviews of recent articles that are consider important, and the last method of finding publication is the method based on snowball principle.

Content analysis

The method of content analysis is one of the most important elements for acquiring relevant research material. It generates data from different sources such as documents, the media and reality. Literature can be also used for content analysis, when it is used as a data source (Verschuren and Doorewaard, 2005). There are two main categories in the content analysis; the qualitative and quantitative. A strictly qualitative content analysis means extracting the information from large quantity of textual and/or audio-visual material in order to understand the contents and roughly classifying it. In the case of quantitative content analysis, the obtained information from contents is classified into closed categories (Verschuren and Doorewaard, 2005).

In- depth interviews

There are four main ways of conducting the interviews according to Opdenakker (2006), which are telephone, e-mail, on-line chat, and face-to-face. In this project the face-to-face method is used. The face-to-face method is preferred because it is more in-depth than telephone. It allows the researchers to see the facial expressions of the respondents and give them the opportunity to visit the business incubators which may help confirm the information given by the respondents. Doing face-to-face interviews also helps address the issue of language difference. Since neither the interviewer nor the interviewees have English as mother language, then it is best if both parties can express themselves with hand gestures. Also, face-to-face enables the interviewer to see the facial expressions of the interviewee and thus get a clue if something is unclear with the question.

1.2.2 Research strategy and methodology

The first part of the research is a desk research strategy, which is used to gain the necessary material to create an overview of the research topic. It will also provide with knowledge about the theories used in this research and the characteristics of the Dutch business incubators.

In the empirical stage of the research the case study strategy is used. The case study strategy is particularly appropriate for this research, because the phenomenon is quite new and not well understood. The strategy is based on carrying out face-to face interviews and survey as data collection. First the face-to face interviews among 8 business incubators in The Netherlands is conducted. During the interviews with the incubator managers possible cooperative tenant/client companies were identified, which are approached in order to include them into survey.

Desk research

The Desk research is a research strategy, its main characteristic is that it uses material that has been produced entirely by others. Further characteristics are that there is no direct contact with the research object and that is looking at the material used from a different perspective than at the time of its production. There are three different categories of materials that can be used: literature, secondary data and official statistical material (Verschuren and Doorewaard, 2005).

There are two different variants of desk research, literature survey and secondary research. First variants use knowledge produced by others and the second one uses empirical data produced by others (Verschuren and Doorewaard, 2005). In this research is used the combination of both variants in order to gain the necessary knowledge about theories for making operationalizing the concepts and data about statistics and characteristics of the Dutch business incubators.

The case study

The most important characteristic of case study is a small number of research units. This means that qualitative research methods have to be used and therefore the emphasis is put on comparing and interpreting the results and not on counting and calculating. Next characteristic is more depth than bread, which is realised by using various labour-intensive methods for generating data such as face-to-face interviews with open questions. It is common that the researcher uses triangulation of methods or triangulation of sources. Next characteristics are a strategic sample instead of random sample and an open observation on site. And as the last characteristic of the case study is the fact that case study tries to gain an overall picture of the object as a whole or it can be described as a holistic method (Verschuren and Doorewaard, 2005).

In this research is carried out the comparative case study with the hierarchic method. This means that separate cases (business incubators) are examined independently from each other in first stage. The result are analysed and described in established pattern, which enable to make comparison among them in the next stage. We also applied the triangulation of sources as we use data from documents, interviews with incubators managers and survey among tenant/client companies.

1.3 Thesis structure

This research has been structured in 7 chapters. It starts with introduction of topic and research problem statement. Chapter 2 is explaining theoretical phase of research with literature review on business incubators and Campbell *et al.* and Patton *et al.* model. Chapter 3 explains theoretical framework and summarise the research preposition. Chapter 4 presents the study domain with business incubator in The Netherlands. It continues with chapter 5 describing the methodology of the research. In chapter 5 the empirical results and analysis are present. Following chapter 6 provides conclusion and finally chapter 7 provides the recommendations.

2 THEORETICAL PERSPECTIVES ON BUSIENSS INCUBATORS

2.1 INTRODUCTION

This chapter includes theoretical perspectives on business incubators. In the first part, the concept and definition of business incubator is explained. Afterwards, the theoretical approaches used in this thesis are explained, beginning with the Campbell *et al.*'s model and then the Patton *et al.*'s model. Finally the answer to the first specific research question is provided.

2.2 THE CONCEPT AND DEFINITION OF BUSIENSS INCUABTOR

The concept of business incubator started as early as 1959, when the first business incubator was established in Batavia, New York as the Batavia Industrial Centre (Lewis, 2002). However, the concept did not spread among communities until the late 1970s, when 12 business incubators already existed in the USA (NBIA, 2011). After collapsing of traditional industries that resulted in a rapid rise in unemployment, the USA and Europe recognized the need for fresh strategies to help regenerate crisis sectors, regions and communities (European Commission, 2002). Therefore, during the 1980s, as the concept of business incubator became recognized as the value creating and expanding new businesses, the number of communities which developed business incubators in order to sustain local economies increased significantly (Vasilescu, 2000). Moreover, policy makers on national and local levels recognized business incubators as a tool for promoting innovativeness, economic development and the emergence of new technology-based growth firms (Bergek, 2008). After that, the phenomenon of business incubator started to spread worldwide and became a respected institution (Vasilescu, 2000). Today there are 7000 business incubators worldwide according to the estimates of NBIA.

Although today the concept of business incubator is present worldwide, there is still no unique definition for business incubator. Nevertheless, the following are some of its most commonly-used definitions:

Definition provided by the USA National Business Incubation Association (NBIA) is:

"Business incubation is a dynamic process of business enterprise development. Incubators nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable. Incubators provide hands-on management assistance, access to financing and orchestrated exposure to critical business or technical support services. They also offer entrepreneurial firms shared office services, access to equipment, flexible leases and expandable space — all under one roof" (NBIA, 2001).

Definition adopted by the UKBI and German ADT is:

"Business Incubation is a dynamic business development process. It is a term which covers a wide variety of processes which help to reduce the failure rate of early stage companies and speed the growth of companies which have the potential to become substantial generators of employment and wealth. A business incubator is usually a property with small work units which provide an instructive and supportive environment to entrepreneurs at start-up and during the early stages of businesses. Incubators provide three main ingredients for growing successful businesses - an entrepreneurial and learning environment, ready access to mentors and investors, visibility in the marketplace."

The concept of business incubator is most of the time used to describe a wide range of organizations that create a supportive environment for entrepreneurs to develop their ideas through the commercialization and the launching of new enterprise (Lyons and Li, 2003). Bøllingtoft and Ulhøi (2005) describe the concept of business incubator as "to provide some degree of supporting infrastructure to compensate for perceived failures or imperfections in the market mechanism". By that definition, business incubators can considerably improve the survival and growth prospects of start-ups and small firms at early stages of development. Thus, the incubation concept present effective ways of linking technology, capital and know-how in order to leverage entrepreneurial talent, foster the development of new companies and the exploitation of the technology (Grimaldo, 2005).

According to various authors, the term business incubator can be seen more like an "umbrella word", presenting different kinds of reality. In general the business incubator is an umbrella term for any organization with shared facilities, training, advisory and financial services (Allen and McCluskey, 1990), small management team with core competencies and a selection of start-up companies that will undergo incubation period of around 3 years (Scaramuzzi, 2002).

Moreover, previous studies about business incubators particularly focused on the following four components (Rice, 2002; Mian 1996; Allen and McCluskey, 1990):

- shared office space, which is rented under favourable conditions to tenants;
- a pool of shared support services to reduce overhead costs;
- professional business support;
- internal and/or external network.

This is in the line with the evolution of the business concept, since the emphasis on each component has changed over time according to the needs of start-up companies in never ending/changing business environment. So call the 'first generation' incubators in the 1980s were putting the emphasis on affordable space and shared facilities. They were offered to carefully select entrepreneurial groups (Lakaka, 2001). This first generation of incubators emphasized job creation and real estates (Aerts et al., 2007). In 1990, the work space was supplemented with intangible services such as counselling, skills enhancement and networking services. This has led to the 'second generation' incubators which emphasized professional

business support and seed capital. In 1998 a new incubation model or 'third generation' incubators came out emphasizing high-tech or the growth-potential of tech-based ventures and who mobilized ICT (Lakaka, 2001). Current incubators are incubators of this third generation (Aerts et al., 2007). Furthermore also Grimaldi and Grandi (2005) in their study argue that the development of incubators has been made towards a more intangible and high-value services. This means that studies made on the first two generations of incubators do not necessary apply to the present incubators (Aaboen, 2009). However most of the studies done in the past on business incubators focused on directly measurable aspects or tangible factors. They mainly used descriptive approaches in order to document different services provided by incubators (Bøllingtoft and Ulhøi, 2005). For example they were monitoring the number of training programmes carried out, keeping track of how many tenants have left the incubator, reporting how many distinct services are available to tenants, the average incubation time and networking activities (Allen and McCluskey, 1990). Thus, there has been rather less focus on the indirect and social aspects or intangible factors and their explanation (Bøllingtoft and Ulhøi, 2005).

According to Bøllingtoft and Ulhøi (2005), the main tangible resources and opportunities of incubators are physical environment, office and communication services, business services, facilities and equipment, and financing. The characteristics of business incubators in terms of tangible factors also concern the incubator location, age, size, staff size, client number. The average values of some of those tangible factors according to the survey undertaken by the Centre for Strategy & Evaluation Services (CSES) for the European Commission (2002) are presented in table 1.

Table 1: Average values of tangible factors of European business incubators (European Commission, 2002)

Setting up and operating	**Average**	**Range**
Average capital investment cost	€ 3,7 million	€ 1,5 to € 22 m
Average operating costs	€ 480,000 p.a.	€ 50,000 to € 1,8 m
% of revenue from public subsidies	37%	0 – 100%
Incubation space	3,000 m^2	90m^2 – 41,000 m^2
Number of incubator tenant companies	27 firms	1-120 firms
Incubator functions	**Average**	**Range**
Incubator occupancy rates	85%	9-100%
Length of tenancy	35 months	6 months – no max
Number of management stuff	2,3 managers	1 – 9 managers
Ration of incubator staff: tenant companies	1:14	1:2 – 1:64
% of managers' time advising clients	39%	5% - 80%
Evaluating services and impacts	**Average**	**Range**
Survival rates of tenant firms	85%	65% - 100%
Averages jobs per tenant firm	6,2 job per firm	1 to 120

On the other side, intangible resources and opportunities of business incubators include internal networking, legitimacy, social inputs and psychological support (Bøllingtoft and Ulhøi, 2005). Most of those intangible services of incubators are provided to tenant/client companies by managers. Therefore, managerial practices are important. Most of the incubators have a relatively common managerial structure (Hayhow, 1997). It has a full-time manager who is in charge of the daily operations, delivery of complementary services, coordination of support staff activities and considerable amount of local marketing. Furthermore, a previous research shows that managers spend the majority of their time (up to 90 %) on marketing and managing the operations of the incubators (Rice and Matthews, 1995; Hackett and Dilts, 2004a). However there is no further understanding of how to manage the successful incubation (Shane and Venkataraman, 2003) and impact of different practices to the incubation success.

2.3 CAMPBELL, KENDRICK AND SAMUELSON MODEL

In the year 1985 Campbell, Kendrick, and Samuelson (Campbell et al., 1985) develop a framework of four substantial values added to the new business by the business incubator based on survey data collected in Temali and Campbell (1984). This framework, presented in Figure 4, suggests four areas where business incubator creates the value. First is the diagnosis of total business needs of a new business through the collective experience of diverse group of business generalists and specialists. Second is the cost-effective selection, provision and monitoring of the acquisition, implementation and coordination of the various business services. Third is the provision of capital when needed, (i.e., to pay for product development and the business services provided by third party professionals). The fourth is the provision of access to the network of business development expertise (Campbell et al., 1985). With that, they described for the first time in detail how different components or activities within incubator facilitate to the process of transformation from business proposal into a successful business.

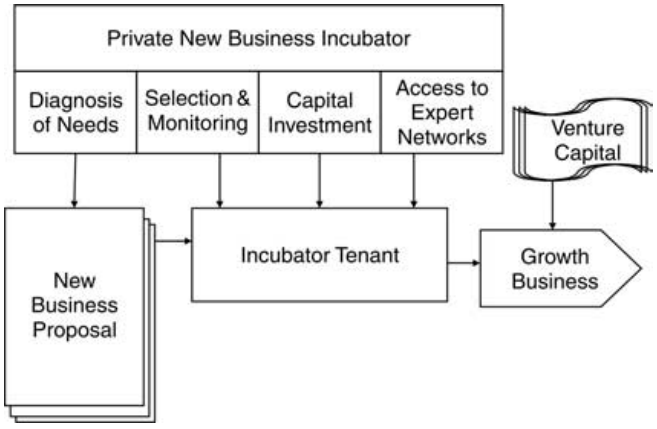

Figure 3: Campbell, Kendrick, and Samuelson framework (Campbell et al., 1985)

The suggestion here is that added value by business incubators is in helping new businesses to succeed by providing intangible factors such as the a diagnosis of business needs, support with business planning, introductions to peer group networks and the deployment of professional networks, mentors and funding agents; rather than through the provision of physical infrastructure (Patton et al., 2009). Therefore, the tangible elements of business incubators such as physical space, staffing, management and external networks do not play very significant role. Nevertheless, there has been quite some attention on incubator configurations but not so much attention on the incubation process, on the people highly involved in the process such as the founder and manager, and on how external and internal networks integrate and interact in order to commercialize business proposals (Hackett and Dilts, 2004b). Thus, this Campbell *et al.*'s work is of importance because it presents a milestone in the understanding of business incubators and incubation process itself.

2.4 PATTON, WARREN AND BREAM MODEL

In recent study, Patton *et al.* (2009) continued the work of Campbell *et al.* (1985) as they try to identify the key factors that strengthen the incubation process. They identified eight salient factors, which are presented in Table 2. They identified in detail the key processes and management practices that create value for business incubator by studying the case of high-tech incubator at the University of Southampton. Results of their study confirmed the conclusions of Campbell *et al.* (1985) – the incubation process involves the diagnosis of business needs, support with business planning and introductions to networks.

Table 2: Salient factors of incubation process identified by Patton *et al.* (2009)

N	Salient factors of incubation process
1	A steady flow of new tenant/client companies
2	Picking the winners
3	Developing commercialisation skills in new business teams
4	Monitoring and evaluating progress
5	Creating synergies within the internal support network
6	Building and maintaining an effective external support network
7	Access to appropriate funding streams
8	Managed exit

However, few differences exist among those two models. First one is weakness of Campbell *et al.* model that is applicable just to the private incubator. That model does not include the possibility of public institutions such as university being a sponsor. Second difference is weakness that the Campbell *et al.* model excludes the possibility of failure of the tenant companies. The model assumes that all incubator tenant companies succeed. Third difference is the fact, that Patton *et al.* (2009) go one step further as they recognized the importance of

deployment of those factors and the timing of such deployment as crucial for the success of incubation process. Furthermore, Campbell *et al*. model refers to the first and second generation of incubators, where intangible factors were not so emphasized. Therefore, our study which focusing on the third generation of incubators and especially to the intangible factors of incubation process the Campbell *et al.* is not the most suitable and we chose to apply and test the Patton *et al.* model.

2.4.1 A steady flow of new tenant/client companies

First salient factor of incubation process, according to Patton *et al*. (2009) work is a quality "pipeline". This present the steady flow of new tenant/client companies into the incubator. Different stakeholders of business incubators have different attitudes towards the right steady flow of new tenant/client companies. Firstly, tenant/client companies believe that is important not to push tenant/client companies too hard in order to faster their development and make them ready to leave incubator earlier. This is important, because tenant/client companies need their time to fully explore business ideas. This is the case especially in high tech business incubators, where the technology development is complex process. However, on the other side professionals from external network have an opinion that this process can be speed up, especially due to reason of spending too much time on technology development instead of finding market and costumers (Patton et al., 2009). Therefore it is of importance, to balance the right speed of steady flow of new/tenant client companies, which provide fostering commercialisation of tenant/client companies, increase the chances of finding the new technologies with clear market potential and maintain the interest and enthusiasm of the external network that has been established.

Proposition 1: A steady flow of new tenant/client companies will have a positive relationship with the incubation process outcome.

2.4.2 Picking the winners

Second salient factor of incubation process identified by Patton *et al.* (2009) addressed the issue selection of new tenant/client companies. Business incubator aim with selection criteria identifies entrepreneurial candidates with the greatest potential to fulfil the incubator purpose and objectives. Therefore, this first phase of incubation process is of importance for sustainable business incubator. Furthermore, according to various researchers selection process presents an important incubator management task (Lumpkin and Ireland, 1988; Peters et al., 2004). This task to identify weak but promising companies and at the same time avoids those companies that cannot be help and that do not need help, present a great challenge. Furthermore, it calls for sophisticated understanding of the market and the process of new venture formation (Hackett and Dilts, 2004b, Lumpkin and Ireland, 1988). Therefore have some business incubators a selection

committee for executing the selection process of new tenant/client companies. However, this is not always the case, since in the most of the business incubator the final decision on selection of new tenant/client company is based on the judgement capability of one person (Aertsa et al., 2007). Therefore, for the successful business incubator is important that incubator manager have those judgement capabilities when choosing the most promising new tenant/client companies.

To make the judgment of the most promising new tenant/client companies easier, business incubators use different selection criteria. Furthermore, also different emphasis putted on those criteria exists among business incubators (Lumpkin and Ireland, 1988). For instance Lumpkin and Ireland (1988) have identified three main groups of selection criteria (Table 3). Those groups are experience of the management team, financial ratios and market and personal factors.

Table 3: Three groups of selection criteria (Lumpkin and Ireland, 1988)

Group	**Screening criteria**
Personal characteristics of the management team	Age, sex, management skills, marketing skills, technical skills, financial skills, aggressiveness/persistence, References from others team
Financial ratios	Profitability, liquidity, asset utilisation, price earnings, debt utilization
Market factors	Current size, growth rate, the written business plan, marketability of product/service, uniqueness of product/service

Furthermore, like Lumpkin and Ireland (1988) point out, the actual criteria on selection of new tenant/client companies are in many cases function of the sponsorship of the business incubator. As mention above, the selection criteria also vary among the business incubators in sense of their application. Some business incubators apply them strictly, where the others are more flexible. Bergek and Norrman (2008) made two distinguish approaches according to that: ‘‘picking-the-winners’’ approach and the ‘‘survival-of-the-fittest’ approach. In first approach incubator managers try to identify the most potential new tenant/client companies. This means in case of high tech business incubators that the invention should lead to innovation within markets with significant potential value. However, this is not straightforward and presents uncertainty, as in many cases in first phases of the technology development the commercial application may still need to be identified (Patton *et al.*, 2009). In second or ‘‘survival-of the- fittest’’ approach, incubator managers apply less rigid selection criteria and accept more tenant/client companies. The selection relies on markets, which over time separates winners from losers (Bergek and Norrman, 2008).

Proposition 2: Picking the winners will have a positive relationship with the incubation process outcome.

2.4.3 Developing commercialisation skills in new business teams

Third salient factor of incubation process according to Patton *et al*. (2009) considers the commercialization skills. Skills needed, especially in high tech business incubators, are different from skills needed to develop technologies within research context. Commercialization skills include the market research and analysis, business planning and intellectual property management. It is very important for new tenant/client companies' team to understand their weaknesses and strengths considering commercialisation skills. This enables them to seek for right consultation and help from others in order to build a good business team for a successful commercialisation of idea. However, consultation considers the willingness and effort of both parts the tenant/client companies and business incubator manager (Grimaldi and Grandi, 2005). Even more, Rice (1992) argued that it is incubator manager's responsibility to consult tenant/client companies, which in turn influence success of incubation. However, this can be quite difficult task for a manager, since the founders of idea often fail to see the need for external assistances. This is especially the case when it means sharing the ownership and control of the prospective business. Furthermore, this evolution of becoming the business man from researcher is not straightforward and can present difficulties for the founders. To overcome some of those issues the incubation process can be in great help, since is getting the founder to test those attitudes at early stages through the development of the business plan. Thus, according to Patton *et al.* (2009) the main tasks of incubator manager are: managing the expectations of those with interesting ideas, making founders new to the incubator aware of potential weaknesses in their business proposal, explaining how the incubator process can assist in taking the proposal forward and providing some indication of the realistic scenarios that might evolve from their involvement with the incubator.

Proposition 3: Developing the commercialisation skills of tenant/client companies' teams will have a positive relationship with the incubation process outcome.

2.4.4 Monitoring and evaluating progress

Fourth salient factor of incubation process according to Patton *et al.* (2009) considers the monitoring and evaluating progress of tenant/client companies. The added value of available range of quality monitoring and business consulting services was also recognised by many other scholars (Hansen et al., 2000; Mian, 1997; Udell, 1990). The added value of monitoring and the real time feedback is to reduce the risk of failure of tenant/client companies by preventing them to make stupid but costly business mistakes (Rise, 2002). Furthermore, with the right balance of interventions trough monitoring and evaluating processes, the relationship among business incubator manager and tenant/client companies can be reinforced. The right balance is important, since too much formal intervention by incubator managers can be perceived as interference and too little can questions the value of the business incubator (Patton *et al*., 2009). However, in

order to be able to detect unwanted development of tenant/client companies at early stages and correct it, business incubators need to apply proactive management and implementation of monitoring systems (incubator initiated counselling with strong intervention). This includes continuous conversations, obligations of the tenant/client companies for ongoing reporting and establishment of milestones (Rice 2002, Bergek and Norrman 2008). Monitoring can be both passive and active (Rice, 2002) and is done in most of the business incubators on a formal and informal basis with provision the necessary expert feedback for tenant/client companies improvement performance (Milan, 1994).

Monitoring and understanding the needs of each tenant/client company facilitates the incubation process (Hackett and Dilts, 2004b). Furthermore, each tenant/client company within incubator has different needs and in order to achieve the successful incubation they have to be met (Grimaldi and Grandi, 2005). Understanding the needs of tenant/client companies enables incubator managers to provide accurate counseling. Counselling mean actual spreading the knowledge and advice to entrepreneurs in business start-ups domain and has been recognized as one of the crucial area of incubation process (Nahavandi and Chesteen, 1988; Smeltzer et al., 1991). Furthermore, counseling by the incubator manager can be considerably different from counseling by other business assistance programs, due to fact of co-location with tenant/client companies. This enables the potential for an ongoing and multi-faceted counseling relationship (Rice, 2002).

Furthermore, Rice (2002) in his study distinguishes three different types of counselling (Table 4). First one is reactive and episodic counselling and is initiated by entrepreneur, who request help regarding to crisis or problem. The assistance is focused on this problem and is limited duration. Second type is proactive and episodic counselling and it is initiated by the incubator manager, who engages entrepreneurs in informal way counselling. This type of counselling, for example, was managed in study of Patton *et al*. (2009) by incubator manager through informal methods of support in developing each of three phases of developing proposal: business plan, management team and funding. Third type is continual and proactive counselling and is also initiated by incubator manager. Tenant/client companies here are under intensive-aggressive intervention, focused on their ongoing developmental needs and subject of an ongoing review. The incubator manager should provide to tenant/client companies an ongoing critique, which has to be a real, honest business critique.

Table 4: Type of counseling

Type of counseling	**Initiator**	**Duration**
Reactive and episodic	Entrepreneur	Limited duration
proactive and episodic	Incubator manager	Limited duration
Continual and proactive	Incubator manager	Continual

Proposition 4: Monitoring and evaluation progress of tenant/client companies will have a positive relationship with the incubation process outcome.

2.4.5 Creating synergies within the internal support network

Fifth salient factor of incubation process identified by Patton *et al*. (2009) address the internal network. Duff (1994) point out that co-location of tenant/client companies in business incubators, provide the possibility to generate a symbiotic environment, to share resources and experiences, to learn from one another, to exchange business contacts and to establish collaborative business relationships. Business relationships may in practice mean the formal or informal partnerships, joint ventures, buy from/sell to relationships, bartering or basic information exchanges (Lyons, 2002). Moreover, according to Lichtenstein (1992) internal networking leads to improvement of tenant/client companies' performance. In particular, it increases sales, lower cost, enhances capabilities and reduce rick. Therefore the internal network play significant role in the incubation process. Lichtenstein (1992) concluded that among eight identified factors, which collectively contribute to the development of relationships, the manager action presents the crucial factor in providing the internal network. Furthermore, also Rice (2002) argued that task of assisting and supporting the creation and development of value-adding internal relationships belong to the incubator manager. Totterman and Sten (2005) in their research measured the network activity within the incubator according to 7 factors, which are present in Table 5.

Table 5: Networking activity within the incubators (Totterman and Sten, 2005)

N	Networking activity within the incubators
1	Tenant/client company specific meetings
2	Official meetings with other tenant/client companies
3	Unofficial happenings with other tenant/client companies
4	Tailor-made education occasions for tenant/client companies
5	Meetings between tenants/clients and companies belonging to incubator network
6	Meetings between tenants/client and external companies
7	Meetings between tenants/clients and other incubators' tenants

Proposition 5: Internal support network will have a positive relationship with the incubation process outcome.

2.4.6 Building and maintaining an effective external support network

The important purpose of the business incubator is to provide resources to the tenant/client companies in those areas where they have a gap. When business incubator cannot enable resources by itself, then it must provide them through its external network. Thus, developing and

managing a networking infrastructure present a crucial function of the incubator (Rice, 2002). This external network presents sixth salient factor of incubation process identified by Patton *et al*. (2009). Duff (1994) described external networks of business incubators as consisting of individuals drawn from the ranks of professional business service providers (Table 6) as well as experienced business people and educators who are willing to provide advice and assistance to tenant/client companies.

Especially during the early phases of start-up of tenant/client companies, the external network is used as 'safety net' to test new ideas, gain feed back and to gather relevant information (McAdam, 2006). Therefore, as pointed out by Duff (1994), an incubator adds value by bringing together a comprehensive set of skills and by selecting individuals who can most successfully tailor their services to the needs of small growing tenant/client companies. With other words, the business incubator manager act as intermediary for building the network with source of expertise for its business support activities in order to provide required information, knowledge and expertise that are fundamental for surviving and development of tenant/client companies (Collinson and Gregson, 2003) and can not be provided by business incubator itself. Furthermore, various backgrounds of the incubator managers, concerning previous incubator, business and technical experiences, can significant contribute in building external incubator network contacts (Hannon, 2005).

Table 6: Service provider availability (Totterman and Sten, 2005)

N	Service provider availability
1	Potential suppliers
2	Consultants
3	Mentors
4	Financiers
5	Governmental expert organizations
6	Insurance companies
7	Patent offices
8	Recruiting companies
9	Lawyers
10	Bookkeepers/Accountants
11	Former incubator tenants
12	Other entrepreneurs

Proposition 6: External support network will have a positive relationship with the incubation process outcome.

2.4.7 Access to appropriate funding streams

Seventh salient factor of incubation process identified by Patton *et al.* (2009) considers fund raising. The important source of funding tenant/client companies presents venture capital. Venture capital is a high-risk and potentially high-return investment to support business creation and growth. It usually finances new and rapidly growing companies through the equity participation (Bygrave and Timmons 1992). Getting the access to start-up and growth funds can present the critical issues for tenant/client companies (DTI, 2004). Therefore, one of the significant assistance of the business incubator is to enable the network of funding agents that are willing and able to fund the tenant/client companies with all of their associated risks. Thus, the important task of incubator manager is to help in raising funds by organising company's investment, or in particular to help in forming and writing a persuasive business proposal and to prepare tenant/client companies for what to expect in the presentation phase to investors (Patton *et al*. 2009).

Proposition 7: Provision of accesses to the funding stream to the tenant/client companies will have a positive relationship with the incubation process outcome.

2.4.8 Managed exit

Finally, eight and the last salient factor of incubation process according to Patton *et al.* (2009) is the way, how incubator manages the exit of tenant/client companies. Bergek and Norrman (2008) point out, that in the literature no significant differences exit among business incubators regarding to graduation policies. Furthermore, according to CSES (2002), most of the business incubators have formal exit rules, which require from tenant/client companies to leave the incubator after 3 to 5 years. Patton *et al.* (2009) in their study identified that, although managing exit presents important issue for tenant/client companies, they were not able to define what would be the best way to do it. Uncertainties were concerning the length of a time that company could remain in the incubation process and required achievement of the company before exit the business incubator.

Proposition 8: Appropriate exit strategies for tenant/client companies leaving the incubator will have a positive relationship with the incubation process outcome.

2.5 CONCLUSION

In this chapter two models concerning business incubation are explained. First is the Campbell *et al.* and second is Patton *et al.* model. The theoretical approach of this thesis applies the model of Patton *et al*., because it is more recent and relevant for current business incubators. The next

Chapter continues with explaining in detail 8 salient factors identified by Patton *et al.* model. These factors include the steady flow of new tenant/client companies, picking the winners, developing commercialisation skills in new tenant/client companies' team, monitoring and evaluating progress, creating synergies within the internal support network, building and maintaining an effective external support network, access to appropriate funding streams and managed exit. With this we also answer the first specific research question, which is: What criteria for assessing the managerial practices can be derived from Patton *et al.*'s model.

3. THEORETICAL FRAMEWORK AND PROPOSITIONS

This chapter presents the theoretical framework and provides insights in the relationships between different concepts of this research. Furthermore, the summary of the preposition statements are presented.

The theoretical framework (Figure 4) was derived from the insight of the characteristics of the Dutch business incubators and the Patton *et al.* model. The Patton model identified 8 salient factors of incubation process in relation with intangible factors, in particular the managerial practices. Furthermore, according to the literature review in chapter 2, intangible factors of incubation process such as managerial practices deliver the most added values of business incubators. With these concepts in mind this theoretical framework has been constructed in order to conduct the empirical part of the research and collect the relevant data.

This model allows examining different managerial practices of incubation process in Dutch business incubators. It enables to test different intangible factors identified by Patton *et al*. model and to determine how different managerial practices influence the incubation process and contribute to the incubation process outcome.

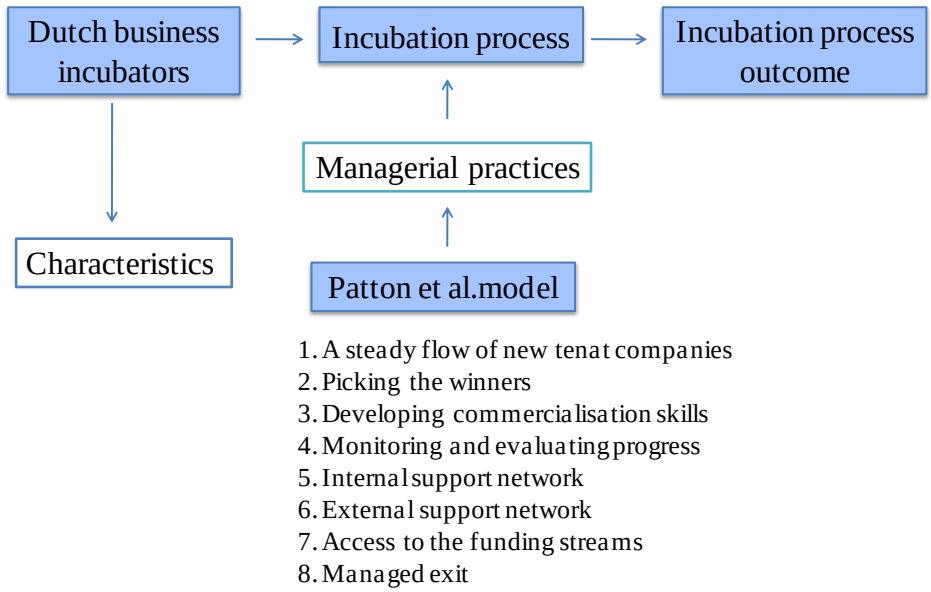

Figure 4: Theoretical framework

For instance, what is the appropriate steady flow of new tenant/client companies of the business incubator and how does it influence the success of business incubator. What is the best

managerial practice when selecting new tenant/client companies and what are the main selection criteria. How important and how challenging is for the managers to foster and facilitate development of commercialisation skills of tenant/client companies and how is this influencing the output of incubation process. Furthermore, how significant for a successful incubation process is monitoring and how does evaluation of the tenant/client companies progress influencing the incubation outcome and the process itself. Next it allow to understand if internal and external network of business incubator add value for tenant/client companies development and if it does, which one stand out of average contribution and present the key adding value and what is the best way of incubator managers to facilitate and enable it. It also allows to see the relation between providing the accesses to funding stream and incubation outcome. And finally, what kind of exit strategy of tenant/client companies is common among Dutch business incubator and how does is it contribute to business incubator sustainability.

Below the summary of preposition is presented, based on the literature review in chapter 2 and the theoretical framework in chapter 3, in particularly, based on the Patton *et al*. model.

Proposition 1: A steady flow of new tenant/client companies will have a positive relationship with the incubation process outcome.

Proposition 2: Picking the winners will have a positive relationship with the incubation process outcome.

Proposition 3: Developing the commercialisation skills of tenant/client companies' teams will have a positive relationship with the incubation process outcome.

Proposition 4: Monitoring and evaluation progress of tenant/client companies will have a positive relationship with the incubation process outcome.

Proposition 5: Internal support network will have a positive relationship with the incubation process outcome.

Proposition 6: External support network will have a positive relationship with the incubation process outcome.

Proposition 7: Provision of accesses to the funding stream to the tenant/client companies will have a positive relationship with the incubation process outcome.

Proposition 8: Appropriate exit strategies for tenant/client companies leaving the incubator will have a positive relationship with the incubation process outcome.

4. STUDY DOMAIN: BUSINESS INCUBATORS IN THE NETHERLANDS

4.1 INTRODUCTION

This chapter describes the general characteristics of business incubators, characteristics of Dutch business incubators and answers the specific research question how can the outcome of business incubation process be measured?

4.2 GENERAL CHARACTERISTICS OF BUSINESS INCUBATORS

4.2.1The classification of business incubators

Although business incubators and the definitions of what constitute an incubator are changing over time, it seems that certain defining characteristic of the incubation exist. Literature refers to five different services that are provided by the business incubators. First service addresses access to physical resources such as office space, furniture, telecommunication networks, security and other physical infrastructure and real estate requirements. Second service includes office support considering the secretarial and reception services, mail handling, fax and copying services, network support, book keeping and administration. Third service presents access to financial resources such as venture capital, usually a combination of private funds and investments by business angels, venture capitalists or local institutions and companies. Forth service considers entrepreneurial start-up support. This means accounting, legal advice for incorporation and taxation issues, formulating ownership and employee option plan structures. Finally, the fifth service addresses access to the networks, where incubators identify and leverage key individuals for start-up success (Hansen et al., 2000). The main difference between the business incubators present different emphasis putted on the importance of those five support services and the business incubation process itself (European Commission, 2002).

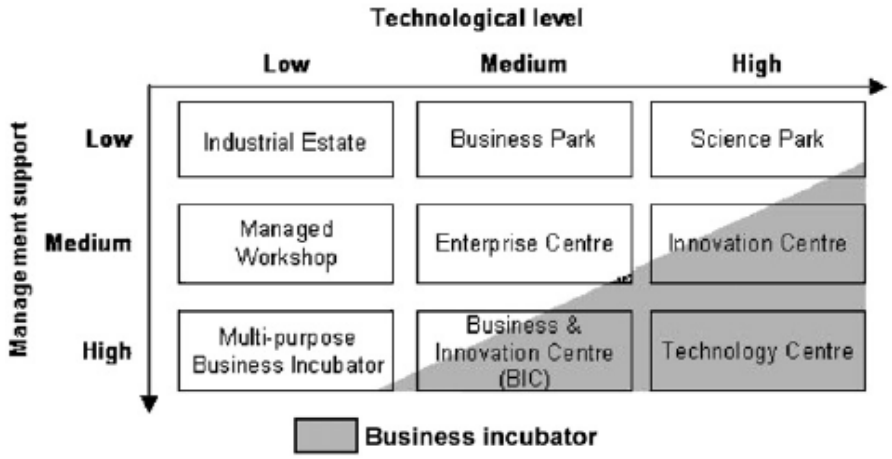

Figure 5: The classification of the business incubators (European Commission, 2002)

One way of approaching the classification of the business incubators was elaborated by the European Commission (2002) presented in Figure 5. In this broad framework, distinction is made according to the management support and the technology level. The top left-hand corner presents industrial estates with little or no management support and limited to renting the space to tenant/client companies. They usually do not have the selective intake and special criteria consider the business activities and the technology content of tenant/client companies. The bottom right-hand corner is the opposite extreme and presents technology centres. They have highly selective admission criteria with highly specialized technology focus and provide the intensive management support. In this framework the business incubators are positioned towards the bottom right-hand corner due to fact that they provide a high degree of the management support to tenant/client companies, which are in the most cases technology-based enterprises.

However, the most often used classification is based on the source of sponsoring and the objectives of the business incubators. Based on that differentiation, business incubators can be distinguished into four different classes (Allen and McCluskey, 1990).

The non-profit or public incubators present government or non-profit organisations with primary objectives to foster economic development by job and enterprise creation. They originate in academia, research centres, local and central government and are created by community advocates (Lavrow and Sample, 2000).

For-profit or private incubators are run by venture and seed investment groups or by corporations and real estate development partnerships. Their objective is return on their investment. They are new incubators and majority of them are start-ups (Lavrow and Sample, 2000).

Academic-related incubators are run by universities with main objectives to foster regional economic development, to develop faculty and creating business spin-offs by transfer of technologies and commercialisation of academic research (Mian, 1994).

Public/private incubators are joint efforts between government and non-profit agencies with objectives to support private sector expertise by financing with government funding.

On the other hand, since each type of the companies requires a different set of the incubation tools and support, it can be argued that the classification should not be made only based on the source of sponsoring and the objectives of the business incubators. The classification may also be based on the type of tenant/client companies in the business incubators. Such classification differs incubators into multi-purpose incubators, which are admitting any type of businesses that satisfying commercial criteria and specialised incubators, which are focussing on particular activities such as technology and sectors (life science, medical science, ICT/media, consulting etc., European Commission, 2002).

Another classification can be made based on the existence of physical space, resulting in virtual or new economy incubator. New economy incubator is new type of the business incubator with mostly web-based activity.

Furthermore, in literature the classification of the business incubators is also based on several characteristics such as location of the business incubators (rural, urban), the business model (property, venture capital) and combinations of all (Albert and Gaynor, 2001).

4.2.2 The Purpose and the mission of business incubators

Primary aim of the business incubators is to improve the survival likelihood of start-up companies (Allen and Rahman, 1985). However, through the evolution of concept of the business incubator, various purposes and objectives according to different identified needs of communities has been developed. For example, the first incubator generation was focused on job creation (European Commission, 2002; Hackett and Dilts, 2004), resulting into creation of the local economic benefits (Campbell and Allen, 1987). In general, purposes and objectives can be distinguished as:

- economy development,
- generation of new jobs for both generally and for targeted social classes (women and minorities),
- re-industrialisation / revitalisation,
- to support particular target groups or industries,
- development of SMEs and clusters,
- technology commercialization from academic research,
- fostering a region's entrepreneurial spirit,
- technology broking,
- investment attraction.

In the mission statement of the European business incubators are a wide rang of the objectives. According to study of Aertsa *et al.* (2007), the most important aims of the business incubators, is the contribution to the competitiveness of the local economy and stimulating the entrepreneurial spirit. Furthermore, also the technology broking is significantly recognized as important mission statement. The technology broking means bringing together different enterprises to stimulate the creation and elaboration of new ideas (‘cross fertilisation’) and presents the starting point of innovation activities. Aertsa *et al.* (2007) argued that growing importance of the business incubators objective to stimulate the entrepreneurial spirit and the technology broking, indicates that business incubators are becoming more and more considered as an instrument for promoting the innovation. This is confirm also by NBIA (2011) as they stated that purpose of current business incubators is to develop new and innovative technology with aim to create products and services that improve the quality of our lives in communities world wide through assisting their tenant/client companies.

4.2.3 Indicators of the business incubator performance or the incubation process outcome

According to Phan *et al*., (2005), there is no clear standard for measuring the business incubator performance. Therefore in literature various authors approached this aspect differently. For example, Allen and McCluskey (1990) used as the measures the employment created by tenant/client companies, incubation period, tenant/client companies success rate, the local retention of graduates and added value of incubator services. Furthermore, they evaluate the incubator size and occupancy rate, job created and tenant/client companies graduated. Similarly, Aernoudt (2002) described U.S. performances of different types of the business incubators with indicators: square feet of the incubator, survival rate of graduates, tenant/client companies, employment created by tenant/client companies, employment created by graduates and number of graduates remaining in the community.

Ferguson and Olofsson (2004) investigated the performances of the science parks according to survival and growth of the tenant/client companies with comparison to non tenant new technology-based companies. They measured the survival as continued legal existence of the company and the growth as changes in employment and gross sales. However, according to Sherman and Chappell (1998) direct comparison of tenant/client companies with non-tenant companies in survival rates may not be meaningful. The reason for that is in the use of selection criteria in admitting tenant/client companies into the business incubator, which result in the selection bias. In addition, also Phan *et al.* (2005) agreed, that the rate of company survival (or failure) has little construct validity, due to fact that they are primary designed to maintain and increase life span of tenant/client companies. Therefore, they suggest comparing survival rates of tenant/client companies among different business incubators (Aersta *et al*., 2007).

According to European Commission (2002) among three business incubator performance indicators, the survival rates of tenant/client companies, the degree to which can the business incubators contribute in development of innovative and high-growth companies and the capacity to create new jobs, are the last two indicators the most important.

Furthermore, Mian (1997) in his research assessed performances of the university technology business incubators based on three sets of variables. Fist set is the performance outcome with four variables: the programme growth and sustainability, the survival and growth of tenant/client companies, contributions to sponsoring university's mission and community-related impacts. Second set is management policies and their effectiveness with key explored elements with variables: goals, organizational structure and governance, finance and capitalization, operational policies and target markets. Third set consider services and their value added with variables: the typical shared office services (rental space and other business assistance services) and the university-related services (student employees, faculty consultants, the university's institutional support system around the facility).

According to this literature review the performance of the business incubator or the outcome of incubation process can be assess by variables presented in Table 7.

Table 7: Indicators of business incubator performance

N	***Indicators of the incubator performance***
1	Incubator size
2	Occupancy rate
3	Incubator period
4	Number of tenant/client companies
5	Number of graduated companies
6	Survival rate of graduate companies
7	Employment created by tenant/client companies
8	Employment created by graduates
9	Graduates remaining in community
10	Turnover of tenant/client /graduate companies

4.3 CHARACTERISTICS OF THE DUTCH BUSINESS INCUABTORS

The Netherlands is associated with innovative climate with well differentiated business incubator community. However, the most common class is business incubator related to the university (Aernoudt, 2002) and big companies such as Food-Valley Wageningen and the Philips research campus in Eindhoven. That the knowledge transfer play important role is not surprising, since the business incubator presents the best way to overcome the 'Dutch paradox', which is the contradiction between the knowledge-production and the knowledge-industry. Therefore, the Dutch government set objective that the capitalization of the academic knowledge must get better and thus, a prime task of the universities is capitalization of the knowledge (Ministry of education, culture and science, 2005). Today in The Netherlands approximately 70% of the business incubators are linked to the universities.

The most common focus of the business incubators in The Netherlands is sector life science. They present about 30% of all the business incubators. The couple of the business incubators, around 10% are focusing on the sector media and the sector medical science. Furthermore, focus of the rest business incubators including sectors such as space technology, maritime and offshore, ICT and internet technology, mobility, energy and lifestyle.

The average business incubator space is about 5000 m^2 with infrastructure such as offices, conference rooms and laboratories in case of life science focused business incubators. The

number of tenant/client companies in the business incubators considerable varies from 5 to 200 tenant/client companies.

All the business incubators are still quite young with one exception. This is the oldest business incubator in The Netherlands from the year 1982. First wave of establishing the business incubators was between years 2000 and 2003. However, in the year 2003 almost all private business incubators had gone bankrupt. Therefore, the Dutch Incubation Association (DIA) establish new concept of ‘incubator’ to find new internationally connections. In the years 2005 and 2006 was the second wave of new business incubators. Few new business incubators were established recently in the years 2008 and 2009. In addition, The Netherlands is well represented internationally trough European and international organizations as the European Incubator Forum and the Global Network for Business Incubation.

4.4 CONCLUSION

In this chapter the general characteristics of the business incubators are explain. The business incubators can be classified according to different factors, including source of sponsoring, objectives, type of tenant/client companies, location of incubators, combination of all and etc. Furthermore, the purpose and the mission of the business incubators are explained. In continue, the chapter provides the answer to the specific research question how can the outcome of the business incubation process be measured. This can be done by assessing the incubation process outcome by variables such as incubator size, occupancy rate, incubation period, number of tenant/client and graduated companies, survival rate of graduated companies, employment created by tenant/client and graduated companies and graduates remaining in community. The chapter concludes with description of characteristics of the Dutch business incubators, where the most common class of the business incubator in The Netherlands is related to the university with aim to transfer the technology.

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5. METHODOLOGY

This chapter discusses the methodology, in addition to the methodology section in the introduction. It elaborates on the research strategy, the data collection and the reliability and validity of this study.

5.1 RESEARCH DESIGN

First part of the research consists of the desk research strategy and provides a necessary knowledge about theories and characteristics of the Dutch business incubators, which is needed to construct theoretical framework. Theoretical framework provides the theoretical background for conducting empirical part of the research. The empirical part of the research is designed as the case study research strategy, which is explain in the first chapter. This research also applied the triangulation of sources as the data was use from the documents, the incubators managers and tenant/client companies.

The empirical part of the research includes face-to-face interviews with incubator managers and survey among tenant/client companies. Therefore, based on the theoretical framework, the semi-structured interview protocol and structured survey were set up, in order to gain relevant data. Interview protocol can be found in the Appendix I and survey questionnaire in the Appendix II.

5.1.1 Interview protocol

General characteristics
The questionnaire for incubator managers starts with the general characteristics such as name of business incubator, name of the respondent and his/ her contact details. Further in the questionnaire the questions concern the tangible indicators of how business incubator is set up, including the objectives of business incubator, legal status, ownership, type of tenant/client companies, type of business activities of tenant/client companies, the physical space, occupancy rates etc. (Question 1 - 13). These questions will provide us the information about current business incubators in The Netherlands and their characteristics. Furthermore, this data will enable us basis, when making comparison among different types of business incubators and possible influences of tangible factors on managerial practices.

Incubator management team
Next section examinee the incubator management team of business incubators. Questions concern size, experience, skills, qualifications and functions of management team (Question 14 - 19). This will provide us additional background information of Dutch business incubators and enable better understanding functions of incubator management teams as they are perceived by them self.

Factors of incubation process

The following section in the questionnaire considers how incubation process is managed. According to the Patton *et al.* model we approach this with assessing 8 factors of the incubation process.

Steady flow of new tenant/client companies

The first factor considers the steady flow of new tenant/client companies. With this in mind the questions are formulated in order to gain the knowledge about the current flow of new tenant/client companies in the business incubators and the attitude toward it (Question 21 – 22). These questions are formulated in order to test Proposition 1.

The process of selection of tenant/client companies

This set of questions 22 – 24 concerns the selection process and criteria for admission. The answers will provide us data for testing the Proposition 2. According to the literature review, selection criteria based on three variables. They are operationalized into the indicators presented in table 8.

Table 8: Operationalization of selection criteria

Variables	Indicators
Personal characteristics of the management team	Age Marketing skills Technical skills Financial skills Experience
Financial ratios	Profitability
Market factors	The written business plan Marketability of product/service Innovativeness of product/service Creativity

Development of commercialisation skills in new tenant/client company's teams

Questions 25 – 27 address the third factor of the Patton *at al*. model and are examining the incubator manager's time, methods and managers perception on their role for development of the commercial skills of new tenant/client company's teams. These answers will enable us to test Proposition 3.

Monitoring and evaluation process

Question 28 in the questionnaire is formed with aim to assess the business incubators practices of monitoring and evaluating tenant/client companies' progress. This includes the variables: the way of monitoring and evaluating with indicators informal, formal meetings and devoted time for monitoring and evaluating with indicator time per week/month. With this question we aim to test Preposition 4.

The synergies within the internal network

The fifth factor of the Patton *et al*. model presents the internal support network. This is assessed with variable networking activity within the business incubator (Question 29) and is operationalized as presented in table 9. Answers of this question will enable us to test Proposition 5.

Table 9: Operationalization of the internal support network

Variable	**Indicators**
Networking activity within the business incubator	Official meetings with other tenant/client companies. Unofficial happenings with other tenant/client companies. Workshops and tailor-made education occasions for tenant/client companies Meetings between tenants/clients and companies belonging to incubator network

Building and maintaining an effective external support network

The Question 30 concerns the external support network with variable the services provider availability and is operationalized into indicators as presented in table 10. The answers of this question will enable to test Proposition 6.

Table 10: Operationalization of the service provider availability

Variable	**Indicators**
Service provider availability	Potential suppliers Consultants Mentors Financiers Governmental expert organizations Insurance companies Patent offices Recruiting companies Lawyers Bookkeepers/Accountants

The access to appropriate funding streams

Questions 31 – 33 are addressing seventh factor of the incubation process according to the Patton *et al*. model and concerns funding streams. They are formulated in the way to provide the insight of accesses to appropriate funding streams, preparation of tenant/client companies for meeting with investors and the venture capital. The venture capital is operationalized as present in table 11. The answer will provide information to test Proposition 7.

Table 11: Operationalization of the venture capital

Variable	Indicators
Venture capital	Business angels Venture capitalists Local institutions and companies Combination

Managed exit

The last factor of the incubation process according to the Patton *et al*. model considers managed exit. Questions 34 – 35 address exit criteria with indicators time, size, funding and profitability. These questions provide the answers with data to test Proposition 8.

Performance of business incubators and the nature of their impacts on the local development

The last section of the questionnaire (Question 36 – 43) examinees the performance of the business incubators. This is operationalized into the indicators as present in table 12. The answers of these questions will enable us better understanding impact of the business incubators in general and impact of different managerial practices to the business incubation process outcome.

Table 12: Operationalization of indicators of incubator performance

Variable	Indicators
Incubator performance	Incubator size Occupancy rate Incubation period Number of tenant companies Number of graduated companies Survival rate of graduate companies Employment created by tenant companies Graduates remaining in community Turnover of tenant/graduate companies

5.1.2 Survey questionnaire

The questionnaire starts with questions about general information such as name of the company, name, position and years of work experience of respondent. It continues with company main business activities.

Second question in the questionnaire covers the incubator management team functions, as they are perceived by respondents. This will enable us to compare how are functions of incubator management team perceived by incubator managers on one side and by tenant/client companies on the other side.

Third question covers the development of tenant/client companies' commercialisation skills and will provide additional data for testing the Proposition 3.

Forth question consider practices of monitoring and evaluation of tenant/client companies progress. The answers will provide additional data for testing Proposition 4.

Fifth question presents network activity within incubator and will provide data for testing Proposition 5.

Sixth question considers business incubator external network, in particular the service providers. This question is aiming to provide additionally data for testing Proposition 5.

Questions 7 and 8 present the funding issues and are providing additionally data for testing Proposition 6.

Ninth question cover the exit criteria for tenant/client companies when they leave the business incubator and provides data for testing Proposition 8.

The last 2 questions, 10 and 11, consider the performance indicators of tenant/client company, which provide data for measuring business incubators success.

5.2 DATA GATHERING

Data are gathered through the interviews and the survey as part of the multiple case study research.

The research units in a multiple case study are approach in replication logic. This mean each case has been carefully selected in order to predict similar results, which is called a literal replication, or to predict contrasting results for predictable reasons, which is called a theoretical replication (Yin, 2003). This multi case study consists of 8 research units, business incubators across The Netherlands. In order to conduct interviews with managers of selected Dutch business incubators, the emails with description of this study and invitation for their cooperation were sent to them in first week of September 2011. When they did not respond in one week, the remainder was sent to them. If there was still no respond in next week, the phone call was followed. After that, in case of positive responds, the appointments were made as presented in the Table 13. All interviews were conducted face-to-face in time duration between 40 min to 80 min, tape-recorded and transcribed. The interviews type were focus interview (Yin, 2003) with open-ended questions and a set of questions in the form of a questionnaire. They cover all relevant information for the study and were identical for all incubator managers.

Table 13: Interviews schedule

N	*Interviewee*	*Business incubator/Place*	*Date*	*Duration*

1	Robert Posthumus	Erasmus MC Incubator, Rotterdam	16-09-2011	40 min
2	Henk Venema	BioPartner Leiden, Leiden	27-09-2011	40 min
3	Patric Machiel	BioPartner Maastricht, Maastricht	29-09-2011	70 min
4	Rob van Lambalgen	VentureLab Twente, Eschede	03-10-2011	80 min
5	Edward van der Meer	Biotech Centre/Triade Group,Groningen	04-10-2011	80 min
6	Hein van der Pasch	Mercator Incubator, Nijmegen	06-10-2011	75 min
7	Jeff Gielen	Biofacilities	12-10-2011	60 min
8	Geer M. Haksteen	Matrix innovation centre, Amsterdam	13-10-2011	40 min

Follow up of the interviews with the incubator managers, were survey of tenant/client companies of interviewed business incubator. Therefore, in the end of the interviews, the managers were asked for permission and help in conducting the survey. One of the managers refused to include his tenant/client companies in the survey. The other managers approved cooperation. However, not all off them were willing to provide us the contact information. Therefore, the email with short introduction of the study and invitation to participate in survey was first sent to these managers, who would then forward the email to incubator tenant/client companies. Some of the managers did provide us the contact information of their tenant/client companies and to these companies, in total 178 emails with invitation to participate in the survey was sent directly. After one week the remainder was send to the non responded companies, this was followed up with the phone calls to 43 companies to insure higher respond. In total, we received 38 answered questionnaires from 6 business incubators (Table 14).

Table 14: Overview of returned answered questionnaires from different incubators

Incubator	N
Incubator 1	0
Incubator 2	2
Incubator 3	0
Incubator 4	13
Incubator 5	0
Incubator 6	4
Incubator 7	4
Incubator 8	4
Incubator 9	11
Total	38

5.3 DATA ANALYSIS

Information gathered through interviews and survey were analysed in order to identify key managerial practices in Dutch business incubators. For that was used descriptive analysis done in the SPSS program. Therefore, collected answers from interviews and survey were coded and

separately included into the SPSS program in order to calculate the frequencies distributions and mean value of different variables. For instance, respondents were asked to rate statement concerning different topic in the questionnaires described in previous sections (5.1.1 Interview protocol and 5.1.2 Survey questionnaire) on the 7-point scale where 1 means the most important and 7 means the least important. For this was then calculated mean values, where lower the mean, the higher is importance of the statement. Unfortunately, due to limited numbers of respondents, the statistical analysis for the significance of correlations with Chi-square test was not possible. The answers of the open ended questions were analyzed qualitative with the interpretation of the answers, which provided more in deep information and enable better understanding of managerial practices of interviewed business incubators. In the end the results from the empirical part of the research were linked back to the literature review of the first part of the research.

In general, the process of analysing the gathered information was as follow: classify responses under the main categories, look for differences and similarities on responses, report the findings and analyse the results in relation with theories.

5.4.1 Reliability

Reliability refers to the credibility of the outcomes of the study and means that the operations of study, such as the data collection procedures, can be repeated, with the same results by other researchers on other occasions. Furthermore, it aims to minimize the errors and biases in a study (Yin, 2003).

To insure good reliability of the study, according to Yin (2003) is important to document all the procedures of study or to follow a case study protocol, especially when doing a multiple case study. The reliability of this research has been assessed by following the same interview protocol for all examined cases and the same questionnaire was used for the companies in the survey. Furthermore, it applies a case study protocol with an overview of the case study project, field procedures, case study questions and a guide for the case study report.

5.4.2 Validity

Validity can be distinguishes in construct validity, internal validity and external validity. The construct validity means to establish correct operational measures for the studied concepts. The internal validity, which applies only to explanatory or causal studies, means to establish a causal relationship with certain conditions, which are shown to lead to other condition (Yin, 2003). In other words, it measures the extent to which the research structure enables the researchers to draw clear conclusions from the results of the research itself and it does not exclude the

alternative conclusions (De Vaus, 2001). External validity means to establish the domain to which a study's findings can be generalized (Yin, 2003).

The construct validity of this research has been assessed by the fact that the interview and survey questions are based on the good and extensive source of literature. Internal validity has been assessed by using several sources of information. Within the desk research different concepts and theories have been screened, studied and analyzed. In empirical part of research the triangulation approach was applied us the data where gathered from documents, incubator managers and tenant/client companies. External validity of this research might be limited to a certain extent, since only 8 cases are studied, and therefore, it would be unrealistic to generalize the findings of this research to all population. However, to some point, the external validity of the research has been additionally strength by survey among 38 companies.

5.5 CONCLUSION

This chapter presents the detail information about research design with interview protocol and survey questionnaire. Further on, it describes data gathering through the interviews as part of the multiple case study research and through the survey as part of survey research. After that the data analysis is presented, followed with reliability and validity of the research.

6. EMPIRICAL RESULTS AND ANALYSIS

6.1 INTRODUCTION

This chapter considers empirical results and analysis of 8 interviews with managers of the Dutch business incubators and survey among 38 tenant/client companies of the Dutch business incubators. This chapter provides information on how incubator managers manage the business incubation process according to 8 factors identified by Patton *at al*. Moreover, it gives inside of tenant/clients companies' opinion and experiences of the business incubation process. This gives better overview of actual situation of managerial practices in the Dutch business incubators. It is expected, that together with theoretical review (Chapter 2), it will provides enough knowledge to be able to elaborate on recommendation for possible assessment model for the business incubator process.

6.2 GENERAL CHARACTERISTICS OF INTERVIEWED BUSINESS INCUBATORS

From 8 interviewed business incubators, were 2 incubators established in the year 1999, 2 incubators in the year 2000 and the other incubators in years 2002, 2003, 2005 and 2009. Based on the literature review, 2 incubators can be classified as University business incubator, 3 incubators as Science/Technology Park Incubator, 2 incubators as specialized incubators (life-science) and 1 incubator can be classified as Virtual incubator. Half of the incubators (4) have a legal status private company, 2 incubators have status public entity and 2 have other status (project and foundation). 5 of the incubators are for profit and 3 incubators are not for profit. None of the incubators have ownership of EU and/or other international agencies or community and voluntary organizations. In average 53% ownership of incubators belong to the Universities and other R&D organizations, 24% to National authorities and public agencies, 17% to Companies, banks and other private sector companies and 6% to other partner organizations (Figure 6).

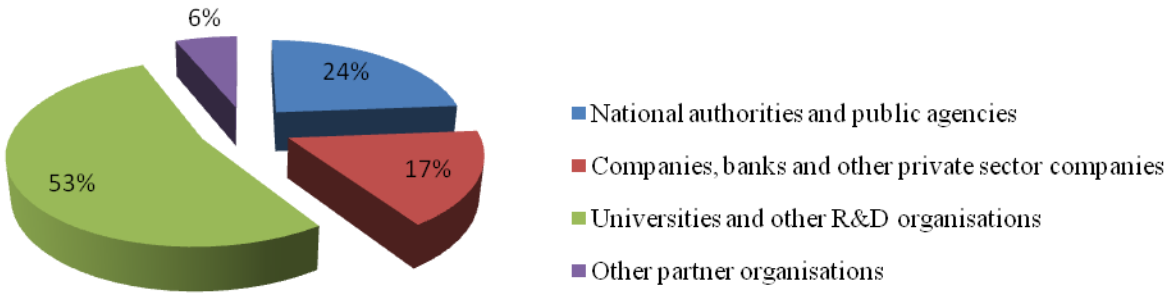

Figure 6: Ownership of business incubators (N = 8)

Objectives of the business incubators

The most important objectives of the business incubators (Figure 7) according to incubator managers are to contribute to the universities and R&D commercialise know how with the mean value 2.1 and to the competitiveness and job creations with mean value 2.4. Since the confidence intervals are overlapping, the difference is not statistically significant. Next objective is to contribute to the companies' spin-off with mean value 3.0. The least important objective of the business incubators is to help disadvantaged communities with mean value 6.0.

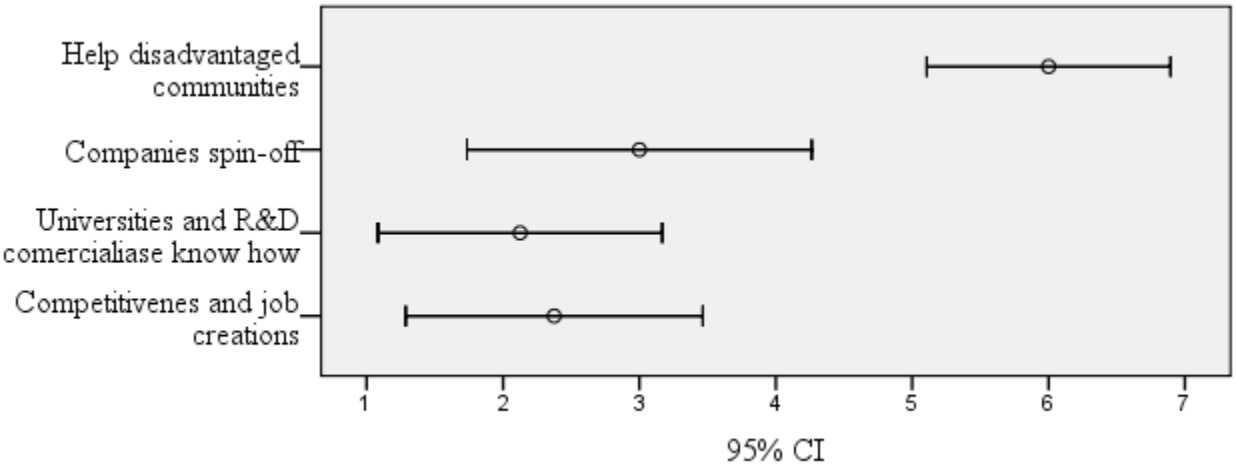

Figure 7: Main objectives of business incubators (N = 8)

Tenant/client companies of the business incubators

Numbers of assisted tenant/client companies vary from 15 to 500 with average number 136 tenant/clients companies. The average number of current tenant/client companies is 32. They can be distinguishing in three categories. The first category is start ups with an average number 29, second category present branch of existing firm with an average number 23 and the third category is spin offs from university or R&D centre with an average number 7. Most of the tenant or clients companies undertake a combination of listed business activities in the questionnaire with the average number 34. Next the most undertaken business activity is research and development with average number 15 tenant/client companies. Information and communications technologies business activity have average number 7 tenant/client companies. Business and financial services, advanced/high tech manufacturing and other service activities are all undertaken with average of 1 tenant/client companies.

6.3 GENERAL CHARACTERISTICS OF TENANT/CLIENT COMAPNIES

Additional to the interviews the survey among 38 tenant/client companies of interviewed business incubators and tenant/clients from other business incubators was done. Table 15 presents the numbers of tenant/client companies' respondents from the different business incubator types based on the classification made in literature review.

Table 15: Number of tenant/client companies respondents from different incubator types

Incubator type	N
University business incubator	12
Science/Technology Park	10
Specialised incubator	3
Virtual incubator	13
Total	38

Furthermore, Figure 8 presents the main business activities of tenant/client companies' respondents. Most of the tenant/companies respondents have a combination of different business activities (45%). Second the most common business activity of tenant/client companies' respondents is research and development (29%). The other business activities of tenant/client companies are information and communication technologies (10%), other service activities (8%), sales, marketing and distribution (5%) and advance/high tech manufacturing (3%)

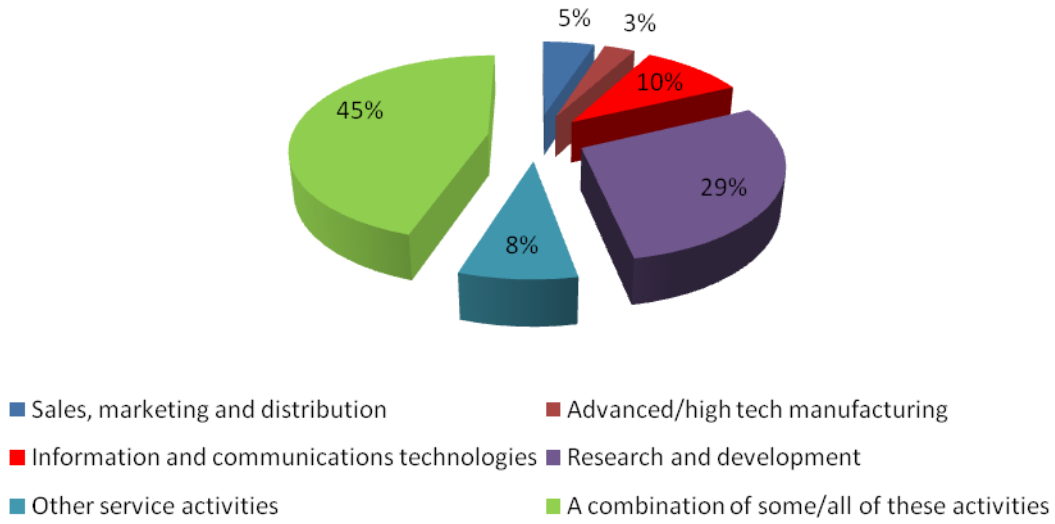

Figure 8: Main business activities of tenant/client companies' respondents (N=38)

6.4 BUSINESS INCUBATOR MANAGEMENT TEAM

Average number of managers of interviewed incubators is 2.4, average number of secretarial personnel is 1.3 and average number of other personnel is 1.4. All the interviewed incubators managers have a university degree and all of the incubators manages have participated in training that is relevant to business incubation. Most of them (7) have set up/managed their own firms or worked in business, have previous experience of advising start up and small firms and previously worked for public authorities/agencies or universities.
According to incubator managers the main function of the incubator's management team is routine management of incubator affairs with mean value 2.0 in a 7-point Likert-scale. Next two functions according to importance are providing advice and assistance to tenant/ client companies with mean value 2.4 and networking with other incubators and business support organisations with mean value 2.8. Next functions according to importance are raising funds with mean value 3.1 and other roles such as managing new facilities with mean value 5.1.

Furthermore, one of the incubator manager's respondents commented that the main manager function is facilitator, since "people that are in the business know the business and not we." To facilitate tenant/client companies was also identified as important goal of incubator from other incubator manager. Furthermore, one incubator manager finds networking with other incubators very boring in sense of not being efficient. Therefore, in his business incubator they try to find common projects to work on it with other business incubators. That way, they get the opportunity to get to know each other better. Moreover, one incubator manager finds raising the funds important, because the tenant/client companies expect that from management team, since they can not do it by them self.

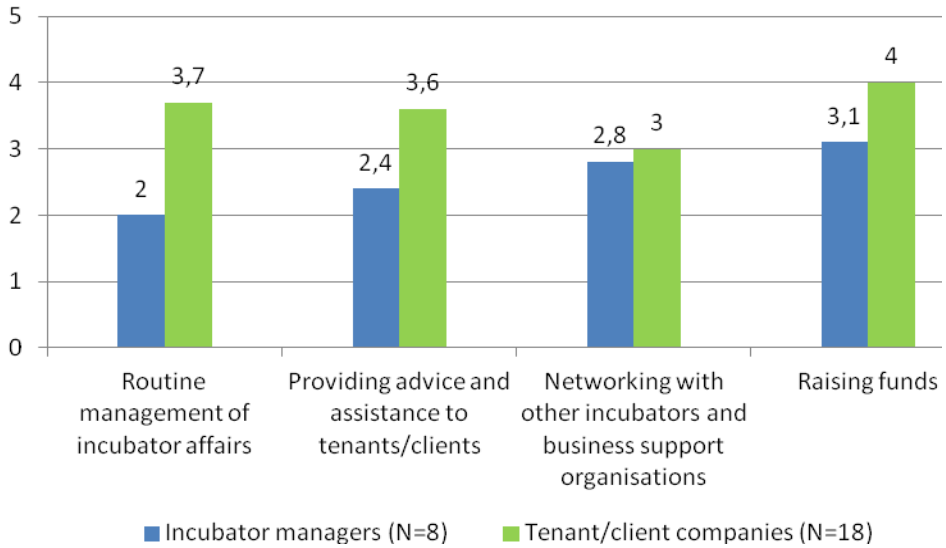

Figure 9: Comparison of the most important functions of the incubator management team according to incubator managers and tenant/client companies

Comparison between these results of incubator managers with the results of the tenant/client companies' respondents, allow us to see the differences in perception of the functions of the incubator management team (Figure 9). According to tenant/client companies the most important function of management team is networking with other incubators and business support organisations (mean value 3.0). Next 2 functions of incubator management team according importance are providing advice and assistance to tenant/client companies (mean value 3.6) and routine management of incubator affairs (mean value 3.7). As the least important function is perceived raising funds with mean value 4.

In following we also ask the tenant/client companies the reasons why they join the business incubator. According to answers by using a 7-point Likert-scale the main reasons to join the incubator for tenant/client companies (N = 20) is housing and other facilities (mean value 3.2) and networking with other companies and business support organisations (mean value 3.2). Next the most important reasons are contacts with students, researchers and business developers in the incubator for product development and commercialization (e.g. market research and analysis, business planning and intellectual property management, mean value 4.0) and advice and assistance to companies (mean value 4.2). According to answers of tenant/client companies the least important reason is raising funds (4.8). Additional reason for one respondent was to gain professional and reliable look and large company-feeling (e.g. employee-parties, etc.). Similarly the other respondent of tenant/client companies added gaining the credibility by acquiring the business incubator label.

Furthermore, we were interested in one of these functions, in particular the average manager time for providing advice and assistance to tenant/client companies. According to the incubator manager answers, the average incubator manager time for providing advice and assistance to tenant/client companies is 31% of working week with minimum 5% and maximum 80%. Furthermore, we wanted to know if incubators check individual tenant/client companies for their progress. According to answers, 3 incubator managers check individual tenant/client company in which phase of incubation process development they are and therefore when is the right time for specific service. One respondent said that he want to know what are the tenant/client companies doing and how much are they experiences, because this allow him to estimate how much of his time and help they required. However, he tries to stimulate their independence. Other incubator has a special scheme, ID skim, which help to track the company development process and required support. However, the incubator only use it, when is financially involved in the company. On the other side, one of the respondents said that if tenant/client companies need something, is on them to ask for it, since it is their business. Like the other respondent explains "if they need something, they come to us and we help them". However that not all incubator manager check the individual tenant/client company, they are aware in what phase the companies are by as one respondent explain "regular passing through incubator, via email or regular networking meetings".

6.5 FACTORS OF INCUBATION PROCESS

6.5.1 Steady flow of new companies

The average numbers of received enquiries of University business incubators, Science/Technology Park Incubators and Specialised incubators for potential tenant/client companies each year is 33 and in average 12 of these are subsequently admitted in the incubators. These averages do not include the numbers of enquiries and admission of Virtual incubator, that receive each year 200 enquiries, from which 100 are admitted into the incubator program. Table 16 present the average of enquires and admission tenant/client companies for each of the incubator type in this empirical study. Furthermore, only one incubator uses initial screening.

Table 16: The average enquires and admitted tenant/client companies according to incubator type (N = 8)

Incubator type	Enquiries	Admissions
University business incubator	28	14
Science/Technology Park Incubator	40	14
Specialised incubator	28	7
Virtual incubator	200	100

In following we asked them about their attitude towards their inflow of tenant/client companies. Half of the incubator managers (4) think that flow of new tenant/client companies into the incubator should be faster and other half (4) think it should stay the same. Like one of the incubator manager respondent answer "of course I would like to have more inflow, but my time is limited". He continued that some people can go faster through decision of being the entrepreneur but some need more time. However, according to the other incubator manager respondent it should not be expected too much from the incubator, since "you can give lots of support but it does not get any better". According to him it is not necessary to give them a lot of support as they should also be independent. The other incubator manager respondents were referring to financial reasons "if I want to help more companies, than that cost more" or "we need some stability, we do not want to have more companies leave the incubator and new companies come in, because then we are more unstable according to finance". The other incubator manager respondent refers to the fact that they are almost full.

The same question we also ask the tenant/client companies. Their answers were rather negative concerning to increase the inflow of tenant/client companies. One respondent said "too much moving around is not productive for a company, since moving is a substantial investment in time and money and whether to move or not to move depends not only on the success (growth) of the company but also on the possibilities to rent space elsewhere". Similarly the other tenant/client company respondent points out that the inflow of tenant/client companies depends on the start

ups and that there is no need for the incubator to intervene by hurry or slow down start ups in their growth.

According to the answers of incubator managers and tenant/client companies the Proposition 1*:"A steady flow of new tenant/client companies will have a positive relationship with the incubation process outcome."* is not supported in this empirical study. Non of the respondents see the relationship between steady flow of new tenant/client companies and faster commercialisation of tenant/client companies, higher chances of finding new technologies with clear market potential or to maintain the interest and enthusiasm of the incubator external network. The reasons for that can be find in the strong financial focus of the incubator managers, fully occupied incubators and life science focus of business incubators, where is in general required more time for product/service development and commercialisation.

6.5.2 The process of selection of tenant/client companies

Selection of new tenant/client companies is done in most incubators (5) by incubator manager. One incubator performs selection with incubator stuff, another incubator performs selection with selection committee (business developers, former board of incubator and financiers) and in one incubator the selection is done trough network decision (hospital, business developers and support group of scientists and incubator manager).

In the interviews we asked the managers to score 10 criteria on 7-point Likert-scale. According to answers the most important criterion when choosing new tenant/clients companies (Figure 10) is innovativeness of product/services (mean value 2.6). Next the most important criterion is marketability of product/service (mean value 3.1). Next three most important criteria are technical skills (3.3), financial skills (3.4) and creativity (mean value 3.4). Continue criteria are written business plan (3.7), profitability (4.0), marketing skills (4.1), experience (4.3) and as least important age (6.4). These criteria can be divided into 3 subgroups: personal characteristics of the management team, financial ratios and market factors. It is clear that the most important criteria for choosing new tenant/client companies presents market factors of products/services. Financial ratios and personal characteristics of the management team are less important with mean values 4 and 4.2.

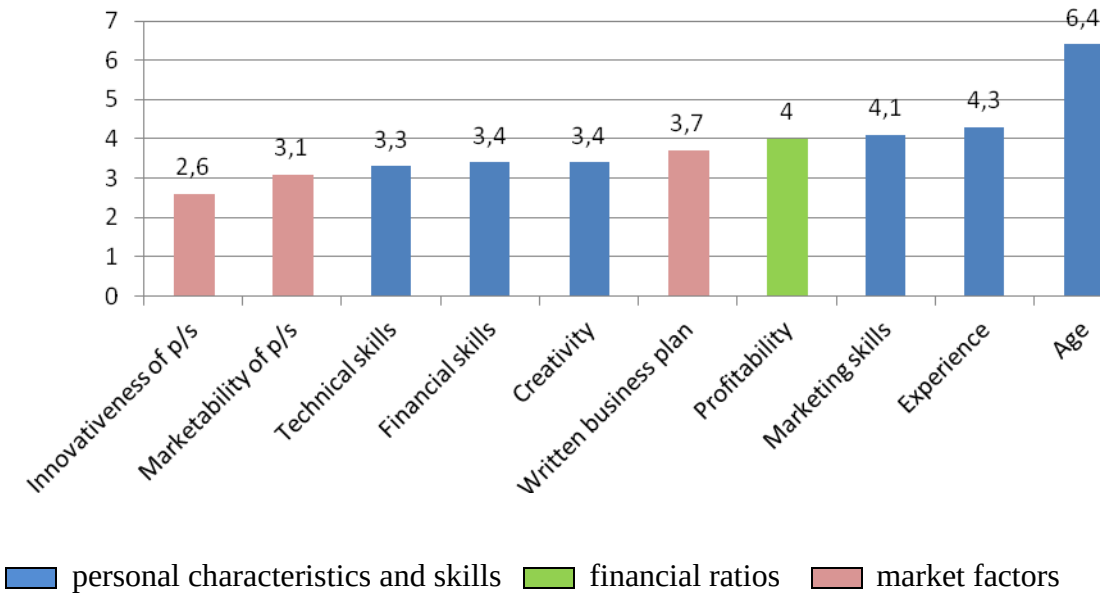

Figure 10: The most important criteria when choosing new tenant/client companies according to incubator managers (N = 7)

In addition, according to one of the respondent good idea present 20% for success of company and 80% are other things such as good team, good innovation process and availability of money. The respondent continues that most of the people have technical skill but miss the entrepreneurship skills. Therefore, according to that respondent the most important criterion is to be ambitious.

In continue we asked the incubator managers what are their practises of selecting new tenant/client companies. Most of respondents are doing marketing research and screening according to technology and asking for opinions. In the incubator, where selection is done by selection committee, incubator provide to selection committee document with 4 pages with information about financial potential, market possibility and management team. Furthermore, some of the incubators are selecting new tenant/client companies based on 3 to 4 meetings. Like one of the respondent said" not everything can be on the paper" and the other "I do it on the feeling". One respondent explain "based on one meeting I can make the estimation, if that person is skill enough and is worth to offer the accommodation to him/her. If I have some doubts, I will ask some colleague to join me on second meeting".

Therefore, according to the incubator managers answers the proposition 2: "Picking the winners will have a positive relationship with the incubation process outcome." is supported in this empirical study. The result market factors of products/services as the most important criterion for admitting new tenant/client company indicates that business incubators aiming to identifies the

most promising commercial application of potential tenant/client companies idea or technology, which would lead to innovation within markets with significant potential value.

6.5.3 Development of commercialisation skills in new tenant/client company's teams

According to the incubator managers answers the importance of the manager role for development of commercialisation skills of tenant/client company's teams is 4 on 7-point Likert-scale. Tenant/client companies' perceive this role of incubator manager slightly more important, as the mean value of the total tenant/client companies' answers is 3.3. Furthermore, when comparing this function with other functions of incubator managers (Figure 9), tenant/clients companies perceive development of commercialization skills as the second most important function of incubator manager.

The reason why incubator managers perceive this role as middle important can be explain with one of the incubator managers comment "I help them if they ask me, but it is their full responsibility". However, on the other side one incubator manager respondent mentioned that he gives to the youngest start ups a lot of support on the development of commercialisation skills through forming the business plan. He elaborates and advises them for example about product, product market combinations, missing price or like he said "I give them tips and suggestions and tell them to give me better version business plan in one week (I give them home work)". In another incubator they believe that business plan is not important anymore, what is important is the business or earning model. Manager of that incubator said"people have to be taught, learn and push and the best way for them to learn is learn on their own company. In the same incubator they provide them 1 hour per week of coaching. They try to help them to find out in which skills are good and bed or like respondent said "most of them are not aware that they miss some skills". He continues that they have to find out this by themselves. For this purposes every company have personal coach with situational coaching for one year and has to have personal development and team development plan.

However, most of the respondents provide help and support in development of commercialisation skills of companies' teams' trough their personal or incubator network. Like one of the respondent said "we send them to the external parties in this area for low budget" or the other one "I link them to the companies that are located in the science park". One incubator has external companies based in the incubator building and they provide help to tenant/client companies in matters such as IP etc. Furthermore, manager from the same incubator is also trying to help companies to learn from each other and therefore, he try to connect them to the right parties inside the incubator. Similar the other respondent think, that companies should try to learn from people who did that by them self, so he connect them with other entrepreneurs or like other respondent point out "we will offer them help with trainings or contact them with skilled people through our network".

In one incubator they work closely with the university technology transfer office (TTO) and TTO check the companies for the market potential, intellectual property and prepare them for the incubator. According to that respondent part of the TTO staff work is to advice and support potential companies to become an enterprise. However, the incubator helps in the way, that they find tenant/client companies missing part of management team, for instance CEO.

We also ask the tenant/client companies in which way did their incubator managers assisted them to foster their development of commercialisation skills. From 22 respondents 7 tenant/client companies answered that they didn't received assistances in their development of commercialisation skills and one respondent answered, that there were no need for it. Few of them (5) responded directly referring to the incubator managers with answers such as by learning to self-reflect, by advising and negotiating, by being good listener with having both feeds on the ground, helping in staying realistic and by discussion and feedback. Thereby, the role of the incubator manager is like one of the respondent of tenant/client companies said "to point out and challenge the start ups to develop commercialisation skills". The other tenant/client company's respondents respond with answers referring to master classes and workshops such as marketing, sales, negotiation, finance with feedback from coaches. The others were referring to collective training sessions, expert coaching and exposing the network, network's network.

In following, we wanted to know how much time incubators managers devote for the development of their tenant/client companies' commercialization skills. Half (4) of the incubator managers respondents devote time 2-4 times per week to foster development of commercialization skills of their tenant/client companies. The others answers were every day (1), once per week (1), once per 2 week (1) and less (1).

According to answers of incubator mangers and tenant/client companies the Proposition 3:"*Developing the commercialisation skills of tenant companies' teams will have a positive relationship with the incubation process outcome."* is supported in this empirical study. Some business incubators provide assistance to tenant/client companies by incubator managers themselves and most of business incubators provide educational programs and trainings in order to foster development of tenant/client companies' commercialisation skills.

6.5.4 Monitoring and evaluating process

The most (6) of the business incubators perform monitoring and evaluating progress of tenant/client company's trough informal way. In particular 2 business incubators perform monitoring and evaluating once per 3 months by talking with the tenant/client companies or through emails. One business incubator manager is checking the tenant/client companies' webpage in order to see their progress. 2 business incubators perform monitoring and evaluating once per month by individual meetings and through project managers, who on weekly base

discuss with the tenant/client companies. One business incubator monitor and evaluate progress of tenant/client companies once per two weeks and one every day. However, 2 business incubators do not monitor and evaluate progress of tenant/client companies in informal ways.

From all business incubators only 3 incubators monitor and evaluate progress of tenant/client companies trough formal way. All of them perform formal meeting once per 3 months. One of the incubator manager said "I invite all the companies, so that they can also meet with each other". In another incubator they monitor and evaluate progress of tenant/client company trough formal way with penal presentations, for which each company have to fill out formulary and make penal presentation. Furthermore, they also require weekly report from coaches and weekly diary from tenant/client companies. One incubator who does not have formal monitoring and evaluation progress of tenant/client companies trough formal way comment that they control tenant/client companies' progress by business incubator controller. He continues "we do not have milestones for companies, is their business is their problem".

According to incubator managers answers the Proposition 4: "*Monitoring and evaluation progress of tenant companies will have a positive relationship with the incubation process outcome."* is supported by this empirical study. However, this apply only to informal ways of monitoring and evaluating the tenant/client companies progress, since most of the business incubators do not perform monitoring and evaluation in formal ways.

6.5.5 The synergies within the internal network

According to incubator managers the most important networking activity within the business incubator presents unofficial happenings with other tenant/client companies with mean value 1.9. The next network activity is meetings between tenant/client companies and companies belonging to incubator network with mean value 2.3. Next network activity is workshops and tailor-made education occasions for tenant/client companies with mean value 2.6. The least important network activity according to incubator managers is official meetings with other tenant/client companies.

When comparing answers of incubator managers with answer of tenant/clients companies (Figure 11), is the only difference in perceiving the importance of networking activity within the business incubator, official meetings with other tenant/client companies, which is according to tenant/client companies the most important activity.

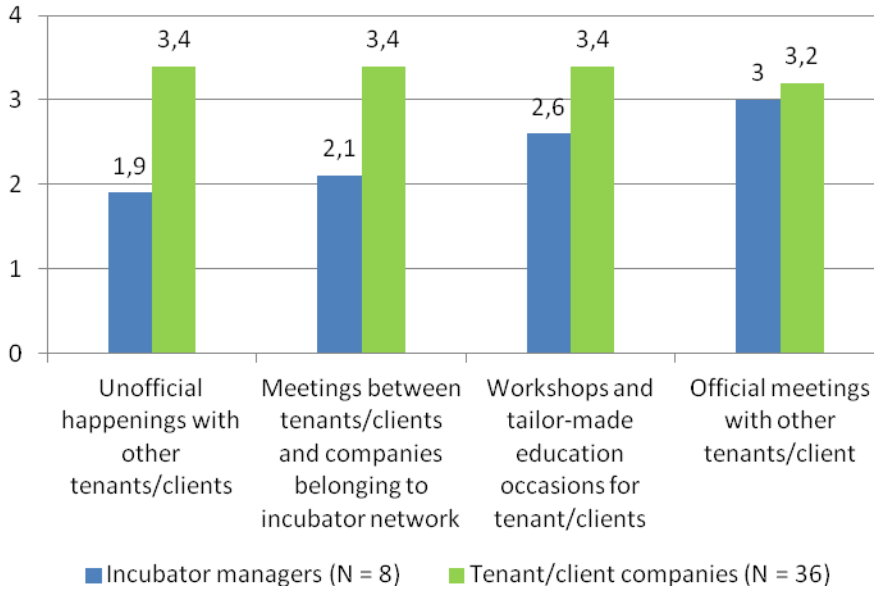

Figure 11: The most important networking activity within the business incubator according to incubator managers and tenant/client companies.

According to the incubator managers' and tenant/client companies' answers the Proposition 5: *"Internal support network will have a positive relationship with the incubation process outcome."* is supported by this empirical study. All the respondents perceive networking activities within business incubator important, since the mean values for each activities are between 2 and 3.5. Furthermore, like one of the incubator manager points out:" the really secret of successes is to meet people that you do not expect to meet, because they can teach you the things, for which you were not even aware that you need".

6.5.6 Building and maintaining an effective external support network

According to incubator managers the most important service providers for the external support network are lawyers (2.8), patent offices (2.9) and financiers (3), bookkeepers/accountants (3) and other entrepreneurs (3). Next the most important service providers are consultants (3.3), mentors (3.4) and potential suppliers (3.5). Next are governmental expert organizations (3.9). The least important service providers for the external support according to incubator manager are recruiting companies (4.8), insurance companies (5.3) and former incubator tenant/client companies (5.3).

Figure 12 compare the most important service providers for the external support network according to incubator managers and according to tenant/client companies. The main difference presents other entrepreneurs, who are according to tenant/client companies significantly the most important providers of external support network. The next differences are patent offices,

bookkeepers/accountants and consultants, who are less important to the tenant/client companies then for incubator managers. Furthermore, former incubator tenant/clients companies are more important to tenant/client companies than to incubator managers.

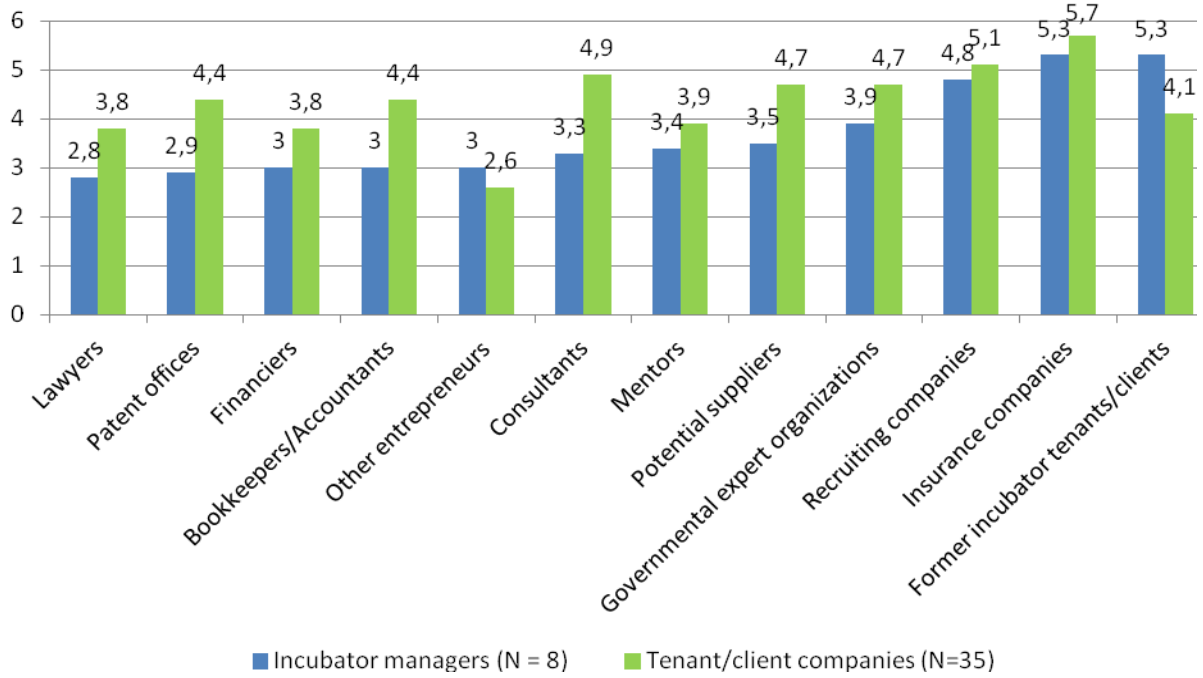

Figure 12: The most important service providers for the external support network according to incubator managers and tenant/client companies.

According to the answers of incubator managers and tenant/client companies the Proposition 6: *"External support network will have a positive relationship with the incubation process outcome."* is supported by this empirical study. However, not all external support providers are equally important. The most important service providers for the external support network are other entrepreneurs, lawyers and financiers.

6.5.7 The access to appropriate funding streams

Most of the business incubators (6) provide to the tenant/client companies accesses to appropriate funding streams. One of the business incubators has 2 systems: preseed and seed funding system for providing to the tenant/client companies loans. However, most of the business incubators provide only the information about possible subsidy and bank loans. Half of the incubators (4) use for the venture capital a combination of the business angels, venture capitalists and local institutions and companies. One of them uses only the local institutions and companies and one uses the foundation for the venture capital.

We asked also the tenant/client companies if their incubator managers were providing them the accesses to funding streams. From 15 tenant/client companies, only 5 companies answer yes

(Table 17). They explained that they were guided towards a bank for IBSK financing, they were introduced with a subsidized programme, they get accesses though various avenues, since according to one tenant/client respondent in practice getting accesses mostly works out trough network's network or by showing how to access possible funding partners. The other two third of tenant/client companies did not receive accesses to the funding streams. However, 3 of the tenant/client companies comment that, they were not looking for funding.

Table 17: Providing the accesses to the funding streams according to tenant/client companies (N = 15)

Incubator		Providing the accesses to the funding streams		Total
		Yes	No	
	Virtual incubator	3	8	11
	Science/Technology Park	2	1	3
	Specialised incubator	0	1	1
Total		5	10	15

In following, we wanted to know if the incubator managers provide help to tenant/client companies in forming a persuasive business proposal. Five incubator managers answered that they provide help in forming a persuasive business proposal. One incubator manager said, that they provide to the tenant/client companies loan (20 to 25.000e) to hire expert, who would wrote for them a good business plan. He continued that it is going to take more time and more money than tenant/client companies usually estimate in their business plan. "They would be too optimistic, but on the other hand, if they would not be too optimistic, they will not try at all". In the other incubator they provide tenant/client companies special trainings on business and earning model. However, 3 business incubators do not provide help in writing the persuasive business proposal. Like one of the incubator manager mention "TTO of educational institution help to tenant/client companies in that, before they send them to the incubator".

Additionally, we also ask tenant/client companies in what way they received help from their incubator managers in forming a persuasive business proposal. Their answers were various. Some of them answered that coach helps them with feedback on business plan or like one respondent comment "we have a coach from whom we learn a lot about all sorts of business matters". The other respondent answered through information sessions and personal sessions, the other respondent answered trough general training with little individual help. In the other incubator they get help by expert assistance.

In following we were interested if the incubator managers prepare their tenant/client companies for meetings with investors. According to the answers, 5 incubator managers prepare tenant/client companies for meetings with the investors. In two business incubators they prepare

tenant/client companies through discussion. In one business incubator is the incubator manager together with the tenant/client company at the meeting with investors and like he said "I help them with my experiences". However, he does not do this with all of tenant/client companies. In one incubator they have 2 to 3 times per year business challenges. This is a 30 min simulation game of investor meetings with 3 supervisors from external network. These supervisors then ask the questions that can be expected from different investors. Similarly, in the other business incubator they have an investor readiness, where they work in small group of 3 people to prepare the inventors for investors. For this they collaborate with people from bank and also venture capitalists, because like respondent said "bank does not understand business, they are more interested in capability of inventors to take mortgage and on the other side venture capitalists are only interested in the business." He continues that for the banks the tenant/client companies should decrease all the risk of the business and for the venture capital should increase in sense of the business opportunities.

According to the answers of incubator managers and tenant/client companies the Proposition 7: "*Provision of accesses to the funding stream to the tenant/client companies will have a positive relationship with the incubation process outcome."* is supported in this empirical study. Furthermore, not only direct provision of the accesses to the funding streams will have a positive relationship with the incubation process outcome, but also in the way how are tenant/client companies prepared in order to successfully approach different investor.

6.5.8 Managed exit

In order to understand what criteria should be used for deciding when tenant/client companies have to leave the business incubator, we asked incubator managers and tenant/client companies to score different criteria on 7-point Likert-scale (Figure 13). According to the answers, the most important criterion should be the required space, since the claim "companies should leave when they need more space to expand" was perceived as the most important for both groups of respondents. Other criteria, according to tenant/client companies, do not significantly differ in importance. According to incubator managers, claims "companies leave when they achieve agreed business objective" and "companies leave when they required support that incubator can not offer" slightly differ as they are perceive less important. The reason behind that can be in like one incubator manager comment: "we always try to find solution for the companies that they can stay longer."

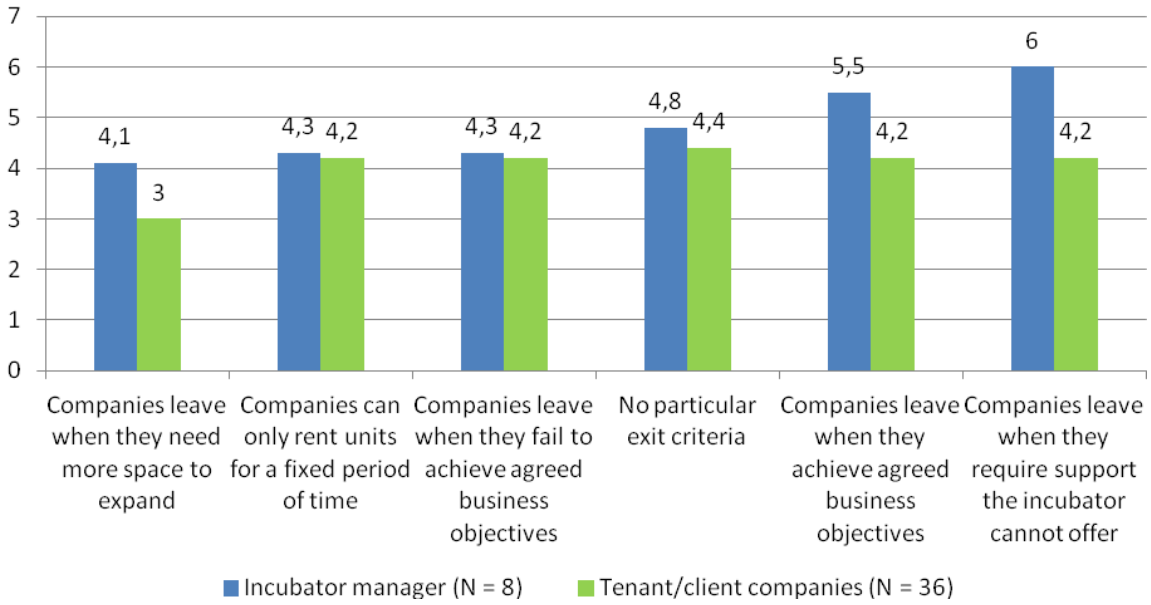

Figure 13: Criteria for deciding when companies have to leave the business incubator according to incubator managers and tenant/client companies.

In following we were trying to find out, what are business incubators exit policies. Most of the incubators do not have clear formulated exit policies/rules and usually when companies grow bigger, the contract is prolonger. However, like one of the incubator managers explained "when they get too big and they ask for a space that we can not offer to them, they usually decide by them self and leave the incubator" or like the other manager said "when the companies are ready to go, they have to move because they do not fit here anymore and this happen natural". In one incubator they have 2 stages, incubator for first 5 years and accelerator for next 5 year, in total 10 years. This is appropriate especially in life science, where 5 years is not enough to develop the product for the market. Similar, the other incubator manager mentions that companies in life science prefer to stay close to university and available infrastructures (special laboratories). Also the other incubator manager said that. In one incubator they have maximum one year, where they have coaching. After that they move to the entrepreneurial community, where they can still join the weekly lectures.

According to incubator managers and tenant/client companies answers the Proposition 8:*"Appropriate exit strategies for tenant/client companies leaving the incubator will have a positive relationship with the incubation process outcome."* is not supported in this empirical study. There are a lot of uncertainties, what is the best exit strategy and most of them do not follow some special exit rules as they were saying "it happen natural".

6.7 PERFORMANCE AND NATURE OF BUSINESS INCUBATORS IMPACTS ON THE LOCAL DEVELOPMENT

In following we were interested in performance of business incubators and their impact on the local development. Table 18 presents some of the performance indicators according to different types of business incubators. It is clear from the Table 18 that they differ among different types, especially in case of virtual incubator.

Table 18: Performance indicators of business incubators according to different types

Performance indicators	University business incubator	Science/ Technology Park Incubator	Specialized incubator (life science)	Virtual incubator
Incubation period (years, N=8)	3	4.5	5	1
Occupied space (N=8)	100%	92%	95%	100%
Assisted tenants/clients (N=8)	33	233	63	200
Current tenants/clients (N=8)	15	54	37	200
Created employment (N=7)	75	433	233	600
Bankrupt tenants/clients (N=7)	4	6	1	2

In continuing we wanted to know, from where the most of the employees of tenant/client companies coming from. According to incubator managers answers (N=7), the most current employees of tenant/client companies are coming from the local area (48%) and elsewhere in the region (30%). Only 13% of employees are recruited from elsewhere in the country and 9% from others countries. This is also supported with the answers of tenant/client companies, where we ask them from where does the most of their staff coming from (Table 19). According to their answers the average number of employees from the same arena is 4.9, from elsewhere in country is 1.3 and from other countries is the average number 0.9.

Table 19: Average number of employees according to location based on answers of tenant/client companies (N=30)

Location	Average number of employees
Same arena	4.9
Elsewhere in country	1.3
Other countries	0.9

In following we wanted to know the turnover and growth rates of tenant/client companies. According to incubator managers (N=5) the turnover for the past 12 months of the most tenant/client companies (70%) is below 1 million euro. Furthermore, 23% of tenant/client companies had the turnover between 1 and 5 million euro, 7.5% of tenant/client companies had turnover between 5 and 10 million euro and 0.5% tenant/client companies had 10 million euro. Most of the incubator managers were not possible to estimate the growth rates that tenant/client

companies have typically achieved in recent years. However, 3 incubators managers estimated that tenant/clients companies have typically achieved growth rates below 10%.

Next we were interested in the destination of graduated tenant/client companies. According to answers, the most common destination of graduated tenant/client companies is local area (mean value 3.1) or they premises close by incubator (mean value 3.3). The next most common destination of graduated tenant/client companies is elsewhere in the region (mean value 3.5) and the least common destination is elsewhere in the country (mean value 5.1). One incubator manager explained that when tenant/client companies leave the incubator, they are not mature companies yet and thus, they need cooperation with educational institutions. Furthermore they still have a lot of activities within R&D.

The last question was concerning business incubator impact on local community. According to incubator managers the most important impacts to contribute to local development of business incubators are by helping to create new, high quality businesses (mean value 1.3) and by contributing to development of new products and services (mean value 1.4). Next the most important contribution of business incubators is job and wealth creation (mean value2.0). The least important contributions of business incubators are internationalisation of businesses in the area (mean value 2.4) and helping to improve the competitiveness of existing businesses (2.5).

6.7 PERFORMANCE INDICATORS OF TENANT/CLIENT COMPNAIES INCLUDED INTO THE SURVEY

Most of the tenant/client companies (N=17) in the survey have 100% autonomy from 2008 to 2010, with two exceptions, where one tenant/client company have 30% of autonomy and the other 85% to 95% of autonomy.

Other performance indicators such as cash flow, R&D expenditure and turnover are present in Table 20. It is difficult to generate the results, since only few respondents provide us with information and their variations are huge. But, according to provided answers, it is possible to conclude, that companies have during past 3 years grown. In particular, some of them have decline in the growth in 2009 but get back in the track in 2010. This conclusion is also supported with the numbers of employees of tenant/client companies from year 2008 to 2010, since the numbers of full time employed stuff of tenant/client companies in the years 2008 (mean value 3.4), 2009 (mean value 3.4) and 2010 (mean value 4.5) have increased. In contrast the numbers of part time employed stuff in year 2008 (mean value 3.2), 2009 (mean value 2.8) and 2010 (2.5) have decreased. These results are not surprising, if we consider the possible influences of global economic crisis.

Table 20: Performance indicator of tenant/client companies for the year 2008, 2009 and 2010

Incubator		*Cash flow 2008*	*Cash flow 2009*	*Cash flow 2010*	*R&D 2008*	*R&D 2009*	*R&D 2010*	*Turnover 2008*	*Turnover 2009*	*Turnover 2010*
University business incubator	*Mean*	0	11k	43k	0	48k	88k	10k	35k	78k
	N	1	3	3	1	3	3	2	5	5
Virtual incubator	*Mean*	0	-31k	0	53k	53k	64k	1218k	914k	1168k
	N	1	2	1	3	5	5	6	8	7
Science/Technology Park	*Mean*	1072k	1403k	2252k	1042k	991k	1092k	903k	890k	1072
	N	2	1	1	1	1	1	3	3	3
Specialised incubator	*Mean*	60k	90k	190k	20k	25k	30k	60k	90k	190k
	N	1	1	1	1	1	1	1	1	1
Total	*Mean*	440k	209k	428k	204k	143k	170k	842k	603k	748k
	N	5	7	6	6	10	10	12	17	16

7 CONCLUSIONS

The main goal of this thesis was to better understand variables associated with the incubation processes in general; and what would be possible assessment model of Dutch business incubation process in terms of managerial practices in particular. Therefore, the main research question was: What are the key managerial practices that add value to the incubation process outcome in Dutch business incubators? In order to answer this question, additional 6 sub questions were answered first. To have clear structure and overview of collected information and done analysis the 6 sub questions are divided according to research stage. First tree sub questions are related to first stage of research, the literature research and the last tree sub questions are related to the second stage of research the empirical research.

Sub questions:

1. *What criteria for assessing the managerial practices can be derived from Patton et al.'s model?*

Based on Patton *et al.* model, which identified 8 salient factors of incubation process, assessment criteria of managerial practices of incubation process were derived. In the Table 21 is presented an overview of assessment criteria, which are more in detail explain in section 2.4.

Table 21: Overview of assessment criteria for managerial practices based on Patton *et al.*' model

N	Salient factors of incubation process	Assessment criteria
1	A steady flow of new tenant/client companies	Current flow Dutch business incubators and attitude towards it
2	Picking the winners	Personal characteristics, financial ratios and market factors
3	Developing commercialisation skills in new business teams	time, methods and managers perception on their role for development of the commercial skills
4	Monitoring and evaluating progress	Methods (informal, formal) and time
5	Creating synergies within the internal support network	Networking activity within the business incubator
6	Building and maintaining an effective external support network	Service provider availability
7	Access to appropriate funding streams	Providing accesses, preparation for meetings with investors and venture capital
8	Managed exit	Time, size, funding and profitability

2. *How can be outcome of business incubation process measured?*

In the literature are authors approaching this aspect differently. In general, there is no clear standard for measuring the business incubator performance. Therefore, based on the literature

review we identified the mot common indicators to measure the outcome of business incubation process. They are incubator size, occupancy rate, incubation period, number of tenant/client and graduated companies, survival rate of graduate companies, employment created by tenant/client companies, graduate tenant/client companies remaining in community and turnover of tenant/client /graduate companies.

3. *What are the characteristics of Dutch business incubators?*

The Netherlands is considered with innovative climate with well differentiated business incubator community. However, the most common class is business incubator related to the university (Aernoudt, 2002) and big companies such as Food-Valley Wageningen and the Philips research campus in Eindhoven. The most common focus of business incubators in The Netherlands is life science. The focus of the rest of business incubators include sectors such as space technology, maritime and offshore, ICT and internet technology, mobility, energy and lifestyle. The average business incubator space is about 5000 m^2 with infrastructure such as offices, conference rooms and in case of life science focused business incubators also laboratories. The number of tenant/client companies in the business incubators considerable varies from 5 to 200 tenant/client companies. All the business incubators are still quite young with one exception, the oldest Dutch business incubator from the year 1982. First wave of establishing the business incubators was between years 2000 and 2003. In the years 2005 and 2006 was the second wave of new business incubators. Few new business incubators were established recently in the years 2008 and 2009.

4. *What are the managerial practices of Dutch business incubation processes according assessment criteria derived from Patton et al. model?*

Assessment criteria derived from Patton *et al.* model are addressing 8 salient factors of incubation process as described above (Table 21).

Managerial practices of business incubators according to first salient factor consider how incubator managers manage current inflow of new tenant/client companies into the incubator and their attitude towards it. Current inflow of Dutch business incubators is in average 12 new tenant/client companies per year. However, this number differs among different types of business incubators. The lowest inflow is in specialised incubators with an average of 7 admitted new tenant/client companies per year. The inflow of university business incubators and Science/Technology Park incubators is the same. Both of them in average admit 14 new tenant/client companies per year. Significant highest inflow has virtual incubator with 100 new tenant/client companies per year. Managers' attitude towards the speed of their incubators inflow is various. Half of the managers think it should be faster and half think it should stay the same. Non of the managers or tenant/client companies did not saw implications and influence of steady flow on faster commercialisation of tenant/client companies, higher chances of finding new

technologies with clear market potential or to maintain the interest and enthusiasm of the incubator external network.

Managerial practices of business incubators according to second salient factor consider the process of selection of tenant/client companies. The most common practice of Dutch business incubators managers for selecting new tenant/client companies is done by themselves. Only one incubator is selecting new tenant/client companies with incubator stuff and another incubator with selection committee. The most important criteria for choosing new tenant/client companies are market factors of products/services such as innovativeness and marketability of product/service. Most of the incubator managers do marketing research and screen the business idea, to understand commercial/technology potential and in addition ask their peers for opinion. Most of them make final decision based on 3 to 4 meetings with potential tenant/client company.

Managerial practices of business incubators according to third salient factor consider development of commercialisation skills in new tenant companies' teams. Direct individual help and support to the tenant/client companies in their development of commercialisation skills is not common practice of Dutch business incubator managers. They mostly support them in development of those skills trough their personal or incubator networks and by providing them relevant educational programs and trainings.

Managerial practices of business incubators according to forth salient factor consider monitoring and evaluating process. The most common practice of Dutch business incubators is to monitor and evaluate the progress of tenant/client companies every three months trough informal way usually face to face or by email communication. Some Dutch business incubators monitor and evaluate tenant/client companies through project managers, who on weekly base discuss with the tenant/client companies. To monitor and evaluate the progress of tenant/client companies' trough formal way is not so common practice of Dutch business incubators.

Managerial practices of business incubators according to fifth salient factor consider the synergies within the internal network by network activities. The most common provided network activity to tenant/client companies of Dutch business incubators are unofficial happenings with other tenant/client companies and meetings between tenant/client companies and companies belonging to incubator network.

Managerial practices of business incubators according to sixth salient factor consider building and maintaining an effective external support network. The most common practise of Dutch business incubators managers is to provide external support network to tenant/client companies in terms of other entrepreneurs, lawyers and financiers.

Managerial practices of business incubators according to seventh salient factor consider providing the accesses to the appropriate funding streams. Most of the Dutch business incubators provide to the tenant/client companies accesses to appropriate funding streams mainly by the

information about possible subsidy and bank loans. Half of the incubators use for the venture capital a combination of the business angels, venture capitalists and local institutions and companies. Furthermore, quite common practise of Dutch business incubators is to provide help in forming a persuasive business proposal and to prepare tenant/client companies for meetings with the investors through discussion or role game.

Finally, managerial practices of business incubators according to eighth salient factor consider managing the exit. The most common practice of Dutch business incubator is to manage exit of tenant/client companies without any specific or explicit formulated exit policies/rules and usually when companies grow bigger, the contract if possible is prolonger.

5. *What are the contributions of assessed managerial practices on the incubation process outcome?*

Managerial practices are direct influencing incubation process and indirect influencing the incubation process outcome (Figure 4). With second sub question we have identified, based on the literature review, the mot common indicators for measuring the outcome of business incubation process. Based on these indicators we measured the outcome of Dutch business incubators and therefore the contribution of assessed managerial practices of Dutch business incubators outcome. The most important impact of Dutch business incubators is impact on the local community and economy. According to incubator managers answers majority (78%) of current employees of tenant/client companies are from the same region. This is also supported with the answers of tenant/client companies, with average number of employees from the same arena 4.9, from elsewhere in country 1.3 and from other countries 0.9. Furthermore, most common destination of graduated tenant/client companies is local area or close by incubator.

In addition, according to Dutch business incubator managers the most important impacts of their business incubator is to contribute to local development by helping to create new, high quality businesses and by contributing to development of new products and services. This is confirmed also with the results of survey among tenant/client companies, which show that tenant/client companies have during past 3 years grown in terms of cash flow, R&D expenditure, turnover and full time employees.

6. *Which assessed managerial practices have a positive relationship with the incubation process outcome?*

In this research 8 propositions were formulated (Section 2.4) to measure relationship between managerial practices and incubation process outcome. From eight propositions, 6 propositions were supported in this empirical study. First supported proposition was Proposition 2:"Picking the winners will have a positive relationship with the incubation process outcome." Therefore, selecting new tenant/client companies is important managerial practices which add value to the incubation process outcome. Next supported proposition was Proposition 3:"*Developing the*

commercialisation skills of tenant companies' teams will have a positive relationship with the incubation process outcome." Thus, managerial practices in terms of assisting to tenant/client companies in their development of commercialization skills are adding value to the incubation process outcome. Next supported preposition is Preposition 4: "*Monitoring and evaluation progress of tenant/client companies will have a positive relationship with the incubation process outcome."* Managerial practices to monitor and evaluate the tenant/client companies' progress through informal ways add value to the incubation process outcome. Next supported preposition was Proposition 5: *"Internal support network will have a positive relationship with the incubation process outcome."* Managerial practices in term of providing the internal network activities are perceived important by all respondents in this research and are adding value to the process outcome. Next supported preposition was Proposition 6: *"External support network will have a positive relationship with the incubation process outcome."* From 10 external support service providers the other entrepreneurs, lawyers and financiers are the most adding value to the incubation process outcome. Finally, the last supported proposition was Proposition 7: "*Provision of accesses to the funding stream to the tenant/client companies will have a positive relationship with the incubation process outcome."* Managerial practices in terms of direct provision of the accesses to the funding streams and preparation of tenant/client companies for successful meeting with different investor are adding value to the incubation process outcome.

Answers of these sub questions enable to identify the key managerial practices of Dutch business incubators process and provide an answer to the central research question, input for recommendation on possible assessment model of incubation process and support previous work of Patton *et al.* (2009).

Central research question:

What are the key managerial practices that add value to the incubation process outcome in the Dutch business incubators?

Key managerial practices of Dutch business incubators are selecting new tenant/client companies, which is done by incubator managers themselves, based on 3-4 face to face meetings. Most of the incubator managers do marketing research and screen the business idea before making final decision in order to really understand commercial/technology potential of business idea and when needed they consult their peers. Next key managerial practices are providing relevant educational programs and trainings to tenant/client companies to foster development of commercialisation skills of tenant/client companies. Next key managerial practices are informal monitoring and evaluating the progress of tenant/client companies by face to face meetings or email communication. Following key managerial practices are providing internal network activities such as unofficial happenings with other tenant/client companies and meetings between tenant/client companies and companies belonging to incubator network. Next key managerial practices are building and maintaining an effective external support network by providing

external service providers other entrepreneurs, lawyers and financiers. Finally, the last but not the least key managerial practices are providing to the tenant/client companies accesses to appropriate funding streams trough information about possible subsidy and bank loans; and providing help in forming a persuasive business proposal and preparing tenant/client companies for meetings with different investors through discussion or role game.

8 RECOMMENDATIONS AND DISCUSSION

8.1 MANAGEMENT RECOMMENDATIONS

As a result of the information analysed in this research and activities carried out with different participants the recommendation for the incubator managers have been formed. In this manner managers should:

- Point out and challenge the development of the tenant/client commercialisation skills, because as one incubator manager said “people have to be taught, learn and push” and “most of them are not aware that they miss some skills”. Furthermore, tenant/client companies perceived this role of incubator manager more important compare to managers.

- Checking the tenant/client companies’ progress to identify the phase of the incubation process development they are in and therefore be able to identify the relevant time and needed service.

- Work on common projects with other business incubators to enable better network activity and opportunity to get to know each other better. Nevertheless, the most important function of management team according to tenant/client companies is networking with other incubators and business support organisations.

- Include other entrepreneurs in the external network, who are according to tenant/client companies significantly the most important providers of external support network.

- Provide the investor readiness programmes to better prepare tenant/client companies for meetings with investors. This meant work in small group of 3 people presenting different investors such as people from bank and venture capitalists.

8.2 OTHER RECOMMENDATION

Based on Patton *et al.* model and identified key managerial practices in Dutch business incubators the possible assessment model can be derived. The model is including all 6 key managerial practices concerning picking the winners, development of the commercialisation skills of tenant/client companies’ teams, monitoring and evaluating the progress, internal support network, external support network and provision of accesses to the funding stream as describe above. Furthermore, the consulting in terms of business or personal matters to tenant/client companies and ownership of initiative for it (either managers or either tenant/client companies) is another factor, which should be taken into consideration when measuring and understanding

the business incubation process. Furthermore, as various tenant/client companies required for their development progress different time and different support, the other factor taken into consider when measuring the incubation process would be relevant timing and customised educational trainings and workshops. Patton *et al.* model suggested one step further from Campbell *et al*. model, when recognising importance of diagnosing the needs and their delivering time. One further step present relevant timing with individual and customised support approach. (Finally, the last factor is concerning online internal share point or intranet that enables and fosters knowledge transfer, learning experiences and best practices sharing among tenant/client companies.)

8.3 DISCUSSION

Concerning this research, several limitations need to be mentioned. First limitation is related to size of the sample. Sample of 8 incubator managers is sufficient, however sample of 38 tenant/client companies participated in survey is not representative and therefore the results of this research can not be generalized. Next limitation concern the high variety of business incubators: specialized, university and technology/science park incubators. Furthermore, based on literature review the incubator can be classified into the three different generations. Based on the results, it was clear that business incubator in this research present both second and third generation on business incubator. Nevertheless, it can be expected that these results give a good overview and understanding of practices in the Dutch business incubators, due to carefully selected participants.

8.4 FUTURE RESEARCH

This research present first step in formulating and also pre-testing the model for assessing business incubator processes. Therefore, for the future research it would be interesting to continue testing the model with larger sample to get more insight on variables associated with business incubator process. Furthermore, measuring each of these factors separately but more in depth is another interesting and promising option to get insight and better understanding of variables associate with business incubator process. For instance, which internal network activity and/or external service provider present the most important add value for tenant/client companies' development. What are the most relevant educational trainings and coaching for tenant/client development? What is the best way to prepare tenant/client companies for meetings with different investors? Finally, what are the phases that tenant/client companies go through, starting at entrance of incubation process and ending at exiting the incubation process and how can business incubator the most efficiently facilitate to that.

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APPENDIX I

QUESTIONNAIRE FOR INCUBATOR MANAGERS

Date: Name of the business incubator: Address: Respondent: Position: Email:

PART I – INTRODUCTION

We start by examining how business incubators are set up and what type of businesses they have as tenant companies.

1. When was the incubator established?
   Year _____

2. How would you best describe the incubator?
   a) Business & Innovation Centre (BIC)
   b) University business incubator
   c) Science/Technology Park Incubator
   d) Specialised incubator (e.g. rural incubator, e-business incubator)
   e) Virtual business incubator
   f) Other type – please specify: _____

3. What are the main objectives of the incubator? Please rank each of the following objectives according to importance (where 1= most important objective and 7= least important objective).

Objectives of the incubator	*The most----------The least*						
To contribute to competitiveness and local job creation	1	2	3	4	5	6	7
To help universities and R&D centres commercialise know-how	1	2	3	4	5	6	7
To help companies generate spin-off activities	1	2	3	4	5	6	7
To help disadvantaged communities/individuals with projects	1	2	3	4	5	6	7
Other roles - please specify:	1	2	3	4	5	6	7

4. What legal status does the incubator have?
   a) Public entity
   b) Private company
   c) Other

5. Is the incubator design to be:
   a) For profit

b) Not for profit

6. Who are the main owners of the incubator? Please indicate the percentages of the ownership for each of the following.

Owners	Percentage
EU and/or other international agencies	
National authorities and public agencies	
Companies, banks and other private sector organisations	
Universities and other R&D organisations	
Community and voluntary organisations	
Other partner organisations	

7. Where did the current tenant companies originate from? Please indicate the number in each category:

Origins	*Number*
Start up	
Branch of existing firm	
Spin off from university or R&D centre	
Other - please specify	

8. What sort of business activities are the tenant companies undertaking? Please indicate the number of clients falling into each of the following:

Business activity	*Number*
Sales, marketing and distribution	
Business and financial services	
Advanced/high tech manufacturing	
Information and communications technologies	
Research and development	
Other manufacturing activities	
Other service activities	
A combination of some/all of these activities	

9. How many tenant companies has the incubator assisted since it started operating? _____

10. How many of these companies subsequently went out of business? _____

11. How many tenant companies is the incubator currently assisting? Please distinguish between (a) tenant companies occupying incubator units and (b) other ('outreach') clients not located in the incubator units.

Tenant companies _____ Other ('outreach') clients_____

12. What is the physical space of the business incubator? Please indicate in square meters:
    Total area_____ Incubator units_____

13. What percentage of the total incubator space is currently occupied? _____%

PART II – KEY FUNCTION OF INCUBATOR MANAGER

This section of the questionnaire examines issues relating to incubator management.

14. How many personnel does the incubator have? Please indicate the full-time equivalents for each category:

Personnel	*Number*
Managers	
Secretarial	
Other personnel	

15. What are the main functions of the incubator's management team? Please rank each of the following functions according to importance (where 1= most important function and 7= least important function).

Management Functions	*The most---The least*
Routine management of incubator affairs	1 2 3 4 5 6 7
Providing advice and assistance to tenant companies	1 2 3 4 5 6 7
Networking with other incubators and business support organisations	1 2 3 4 5 6 7
Raising funds	1 2 3 4 5 6 7
Other roles - please specify:_____	1 2 3 4 5 6 7

16. Taking the second of these functions, approximately what percentage of management time is devoted to providing tenants with advice and assistance?
    Percentage of working week_____%

17. Does the management team check each of the tenant companies, when is the right time for specific service? Yes/No

18. What sort of experience and skills does the incubator's staff have? Please indicate the number of managers and staff who:

Staff experiences and skills	*Number*
Have set up/managed their own firms or worked in business	
Previously worked for public authorities/agencies or universities	
Have previous experience of advising start up and small firms	
Have participated in training that is relevant to business incubation	

19. What sort of formal qualifications does the incubator manager have? Please tick the appropriate box and indicate the level/type of the qualification:

Incubator manager qualifications	*Degree*	*Professional qualification*	*Other*
Accounting, banking, finance, etc			

Real estate, property management, etc			
Personnel management, education/training			
Legal qualification			
Sales, trade, marketing, etc			
Other – please specify:_____			

PART III – FACTORS OF INCUBATION PROCESS

In this section we consider how incubators manage incubation process.

The first set of questions is concerning the flow of new tenant companies and the process of selection of tenant companies.

20. Approximately how many enquiries does the incubator receive from potential clients each year and how many of these are subsequently taken on by the incubator?

Enquiries_____ Initial screening_____ Admissions_____

21. Do you think the flow of tenant companies in your incubator should be:
    a) Faster
    b) Slower
    c) Should stay the same
    Please explain why:

22. Who does perform the selection?
    a) Incubator manager
    b) Incubator stuff
    c) Selection committee
    d) Other:_____

23. What sort of criteria is used to screen projects for admission to the incubator? Please rank each of the following criteria according to importance (where 1= most important criterion and 7= least important criterion).

Criteria	The most--The least	Criteria	The most--The least
Profitability	1 2 3 4 5 6 7	Age of the management team	1 2 3 4 5 6 7
Financial skills	1 2 3 4 5 6 7	Marketability of product/service	1 2 3 4 5 6 7
Marketing	1 2 3 4 5 6 7	Innovativeness of product/service	1 2 3 4 5 6 7
Experience	1 2 3 4 5 6 7	Technical skills	1 2 3 4 5 6 7
Creativity	1 2 3 4 5 6 7	The written business plan	1 2 3 4 5 6 7

24. Do you have defined or do you have the best practice for the selection process?

The following questions are concerning development of commercialisation skills in new tenant company's teams. With commercialisation skills we mean the skills concerning the market research and analysis, business planning and intellectual property management.

25. In your opinion, how important is the role of the incubator manager for development of commercialisation skills of tenant company's teams?

Not important at all	*Not important*	*Less important*	*Medium*	*Important*	*Very important*	*Extremely important*
1	2	3	4	5	6	7

26. What kinds of methods to foster the commercialisation skills are used in the incubator?

27. How much time do you devote to foster development of commercialisation skills of tenant companies' teams?

Time		*Time*	
Every day		Twice a month	
2 - 4 times per week		Once a month	
Once a week		Less time	

28. In what way and how often do you execute the monitoring and evaluation process in the incubator?

	Every day	Once per week	Once per two week	Once per month
Informal meeting				
Formal meeting				

Comments:

29. What from following are you providing in your incubator to create the synergies within internal network? Please rank each of the following activity according to importance (where 1= most important activity and 7= least important activity).

Networking activity within incubator	The most--The least
Tenant company specific meetings	1 2 3 4 5 6 7
Official meetings with other tenant companies	1 2 3 4 5 6 7
Unofficial happenings with other tenant companies	1 2 3 4 5 6 7
Tailor-made education occasions for tenant companies	1 2 3 4 5 6 7
Meetings between tenants and companies belonging to incubator network	1 2 3 4 5 6 7
Meetings between tenant companies and external companies	1 2 3 4 5 6 7
Meetings between tenant companies and other incubators' tenant companies	1 2 3 4 5 6 7

Comments:

30. What from following are you providing to your tenant companies to build and maintain the effective external network? Please rank each of the following services according to importance (where 1= most important service and 7= least important service).

Service provider availability	The most---The least	Service provider availability	The most-----The least
Potential suppliers	1 2 3 4 5 6 7	Patent offices	1 2 3 4 5 6 7
Consultants	1 2 3 4 5 6 7	Recruiting companies	1 2 3 4 5 6 7
Mentors	1 2 3 4 5 6 7	Lawyers	1 2 3 4 5 6 7
Financiers	1 2 3 4 5 6 7	Bookkeepers/Accountants	1 2 3 4 5 6 7
Governmental expert org.	1 2 3 4 5 6 7	Former incubator tenants	1 2 3 4 5 6 7
Insurance companies	1 2 3 4 5 6 7	Other entrepreneurs	1 2 3 4 5 6 7

Comments:

The following questions concern funding.

31. Are you providing the accesses to the appropriate funding streams? Yes/No
    If yes, please explain how:
32. What kind of private funds and investments do you use for the venture capital?
    a) Business angels
    b) Venture capitalists
    c) Local institutions and companies
    d) Combination
    e) Others (please indicate).....

33. Do you provide the help in forming and writing a persuasive business proposal and in preparing for what to expect in the presentation phase to investors? Yes/No
    If yes, please explain how:

The finale set of questions of this section concern the managed exit.

34. What criteria are used to decide when tenant companies should leave the incubator? Please rank each of the following criteria according to importance (where 1= most important criterion and 7= least important criterion).

Exit criteria	*The most------The least*
Companies can only rent units for a fixed period of time	1 2 3 4 5 6 7
Companies leave when they need more space to expand	1 2 3 4 5 6 7
Companies leave when they achieve agreed business objectives	1 2 3 4 5 6 7
Companies leave when they fail to achieve agreed business objectives	1 2 3 4 5 6 7
Companies leave when they require support the incubator cannot offer	1 2 3 4 5 6 7
No particular exit criteria	1 2 3 4 5 6 7
Other criteria - please specify	1 2 3 4 5 6 7

35. What is your graduation policy according to:

Criterion	*Graduation policy*
Time	

Size	
Funding	
Profitability	

36. What is an average time of stay of a tenant companies in the incubator?
    Years_____

PART IV –PERFORMANCE
In the final section, we examine the performance of incubators and the nature of their impacts on local development.

37. How many people are currently employed by tenant companies? Please indicate the number of full time equivalent employees:_____

38. Where do most of the people currently employed by tenant companies come from? If possible, please provide an (estimated) breakdown for the total workforce:

Source of Recruitment	%
Recruited from the local area	
Recruited from elsewhere in the region	
Recruited from elsewhere in the country	
Recruited from other countries	

39. What is the turnover of tenant companies? If possible, please indicate the percentage of companies whose turnover for the past 12 months fell into each of the following bands.

Turnover	%
Below 1 million euro	
Between 1 and 5 million euro	
Between 5 and 10 million euro	
Over 10 million euro	

    Not possible_____

40. If possible, please indicate the turnover growth rates that tenant companies have typically achieved in recent years.
    a) Below 10%
    b) Between 10 and 20%
    c) Over 20%
    d) Not possible

41. How many tenant companies have 'graduated' since the incubator started operates?
Companies: _____

42. Where have graduates, i.e. companies that have left the incubator, mainly moved to? Please indicate the most common destinations by ranking the following possibilities in order of their relevance (where 1= most common and 7= least common).

Destination of graduate companies	The most--The least						
Premises close by (e.g. science park)	1	2	3	4	5	6	7
Elsewhere in the local area	1	2	3	4	5	6	7
Elsewhere in the region	1	2	3	4	5	6	7
Elsewhere in the country	1	2	3	4	5	6	7

43. How does the incubator contribute to local development? Please rank the following impacts from1= most important to 7= least important:

Contribution to local development	The most-------The least						
Helping to create new, high quality businesses	1	2	3	4	5	6	7
Helping to improve the competitiveness of existing businesses	1	2	3	4	5	6	7
Contributing to job and wealth creation	1	2	3	4	5	6	7
Contributing to the development of new products and services	1	2	3	4	5	6	7
Contributing to the internationalisation of businesses in the area	1	2	3	4	5	6	7
Other roles - please specify	1	2	3	4	5	6	7

APPENDIX II

QUESTIONNAIRE – for tenant/client companies

Please fill in the following items:

Name of the company: Respondent: Position and years of work experience:

Instructions
This questionnaire includes a combination of open and closed questions. To the best of your ability, please try to complete this questionnaire and return it **by email** (to simona.seruga@wur.nl) within 1 week after receiving. As the questionnaire is sent in the digital version, do not hesitate to use more space for answering the questions than is provided.

1. What is your company's main business activity? Please tick relevant box.

Business activity		*Business activity*	
Sales, marketing and distribution		Research and development	
Business and financial services		Other manufacturing activities	
Advanced/high tech manufacturing		Other service activities	
Information and communications technologies		A combination of some/all of these activities	

2. According to your opinion what are the main functions of the incubator management team? Please rank each of the following functions according to importance (1= most important and 7= least important).

Management Functions	*The most---The least*
Routine management of incubator affairs	1 2 3 4 5 6 7
Providing advice and assistance to client companies	1 2 3 4 5 6 7
Networking with other incubators and business support organisations	1 2 3 4 5 6 7
Raising funds for client companies	1 2 3 4 5 6 7
Development of commercialisation skills (e.g.market research and analysis, business planning and intellectual property management) of clients companies	1 2 3 4 5 6 7

3. In what way is/was the manager assisting you to develop/improve your commercialisation skills?

4. In what way and how often does/did incubator management team monitor and evaluate your company progress?

	Every day	*Once per week*	*Once per month*	*Once per2 months*	*Once per3 months*
Informal meeting					
Formal meeting					

5. What from following networking and contact opportunities are interesting for you in the incubator? Please rank each activity according to importance (where 1= most important and 7= least important).

Networking activity within incubator	*The most-----The least*
Official meetings with other clients companies	1 2 3 4 5 6 7
Unofficial happenings with other companies	1 2 3 4 5 6 7
Workshops and tailor-made education occasions for clients companies	1 2 3 4 5 6 7
Meetings between clients companies and companies belonging to incubator network	1 2 3 4 5 6 7

6. Which from following services might be interesting for you, if available in the incubator? Please rank each service provided according to importance (where 1= most important and 7= least important).

Service provider availability	*The most---The least*	*Service provider availability*	*The most-----The least*
Potential suppliers	1 2 3 4 5 6 7	Patent offices	1 2 3 4 5 6 7
Consultants	1 2 3 4 5 6 7	Recruiting companies	1 2 3 4 5 6 7
Mentors	1 2 3 4 5 6 7	Lawyers	1 2 3 4 5 6 7
Financiers	1 2 3 4 5 6 7	Bookkeepers/Accountants	1 2 3 4 5 6 7
Governmental expert org.	1 2 3 4 5 6 7	Former incubator tenants	1 2 3 4 5 6 7
Insurance companies	1 2 3 4 5 6 7	Other entrepreneurs	1 2 3 4 5 6 7

7. Does/did the incubator provide you access to the appropriate funding streams? Yes/ No (If yes, please explain how.)

8. Does/did the incubator provide you help in forming a business proposal and preparing for meeting with investors? Yes/No (If yes, please explain how).

9. According to you what criteria should be used to decide when your company has to leave the incuabtor program? Please rank each of the following criteria according to importance (where 1= most important criterion and 7= least important criterion).

Exit criteria	*The most------The least*
Companies can only rent units for a fixed period of time	1 2 3 4 5 6 7
Companies leave when they need more space to expand	1 2 3 4 5 6 7
Companies leave when they achieve agreed business objectives	1 2 3 4 5 6 7
Companies leave when they fail to achieve agreed business objectives	1 2 3 4 5 6 7
Companies leave when they require support the incubator cannot offer	1 2 3 4 5 6 7
No particular exit criteria	1 2 3 4 5 6 7

10. Can you describe the main company features in the previous three years:

Indicators	*2008*	*2009*	*2010*
Shares holds by the company	……%	……%	……%
The cash flow	……€	……€	……€

The R&D expenditures	……€	……€	……€
Company's Turnover (euro thousands)	……€	……€	……€

11. Where does most of the company's staff come from? Please indicate the approximate numbers:

Location	*Numbers*
Same arena	
Elsewhere in country	
Other countries	

Thank you for your time and cooperation!