Which support services deserve the focus of the incubator? A value creation perspective.

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Management Summary

In dit verslag is onderzocht welke aspecten van het service pakket dat de Nederlandse incubators aanbieden het meeste waarde creëren in de start-ups die zij begeleiden. Allereerst wordt er gezocht wat er hierover al bekend is in de literatuur. Vanuit de literatuur is er een framework opgesteld, dat is aangevuld met behulp van informatie verkregen uit interviews met de programma managers van vijf Nederlandse incubators. Met behulp van het ontwikkelde framework is vervolgens onderzoek om in de kaart te brengen welke aspecten het meest tot waarde creatie leiden.

Het framework biedt ruimte om zowel de visie van de incubator als die van de start-up mee te nemen én onderling te vergelijken. Door de selectie van de incubators in dit onderzoek is het mogelijk om te onderzoeken wat de effecten zijn van de sector waar de incubator in actief is, en de positie in het start-up proces waarin de start-ups zich bevinden.

Uit het onderzoek is gebleken dat de verdiepingsslag die gemaakt is met het ontwikkelen van het framework nodig was. De onderzoeken gevonden in de literatuur zijn veelal op algemene schaal gebleven, waardoor verschillende aspecten van bijvoorbeeld business planning altijd als even belangrijk zijn geacht. De verdiepingsslag van dit onderzoek laat echter zien dat deze onderling heel veel kunnen verschillen.

Door zowel de visie van de incubator als de visie van de start-ups mee te nemen in dit framework is het voor incubators mogelijk om te onderzoeken of hun programma wel focust op waarde creatie in de start-ups. De opvattingen van het programma management en de start-ups verschillen namelijk op sommige punten. Met behulp van dit onderzoek worden concrete aanbevelingen gedaan voor de onderzochte incubators om het programma meer te focussen, zodat de waarde creatie centraal staat bij de start-ups.

De uitkomsten van dit onderzoek laten niet alleen zien dat de ondersteuning die start-ups wensen een gedetailleerdere blik verdient, maar ook dat deze verschilt per sector en positie in het start-up proces. Zo geldt er voor start-ups in hardware sector dat zij minder waarde creëren met de netwerken waar zij zich in bevinden, maar juist veel meer hebben aan het ontwikkelen van een marketingstrategie. Voor start-ups in de software sector zijn de ondersteuning bij het vormen van het team en de financiële ondersteuning het belangrijkste, terwijl de aangeboden R&D assistentie en hulp bij het ontwikkelen van het product vaak helemaal geen waarde creatie tot gevolg heeft.

Voor de start-ups die eerder in het start-up proces zitten zijn weer hele andere aspecten van toepassing, zo is het ontdekken van de klant en het ontwikkelen van een marketing visie erg belangrijk, maar scoort ook het business plan veel hoger dan bij de start-ups die later in het start-up proces zitten.

Met behulp van de verkregen inzichten uit dit onderzoek kunnen de Nederlandse incubators hun programma gaan afstemmen op waarde creatie en kan GoldenEggCheck de best practices uit de incubatie wereld meenemen om het online platform een roadmap te bieden, om ook hier de focus op waarde creatie te behouden.

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1. Introduction

The tech companies in Silicon Valley are now more popular then ever and the start-up founders have become tech-rockstars in the eyes of the young IT enthusiasts. Venture Capitalists, Business Incubators, Business Accelerators, Angel investors and supporting businesses are eagerly waiting for and chasing after their chance to work with the newest and most promising high-tech start-ups that these times have to offer. The nascent entrepreneur is almost sure of active support and attention. The business incubator offers a full package in order to nurture these entrepreneurs and its start-up. These incubators come in different shapes and sizes, addressing different needs of tenant firms. But which aspects matter the most? That's what this study is about.

The principal of this research is GoldenEggCheck (GEC) in Utrecht, the Netherlands. After developing a tool to assess the investor readiness of start-up ventures, further research is required to gain insight in which business development services create the most value for start-ups. Therefore, GEC took part in defining the research problem. For GEC, the outcomes of this research will enable them to offer better guidance to early-stage high-tech ventures that make use of the GoldenEggCheck.

This remainder of this chapter serves as a clarification of the motivation behind this research. First the terms business incubator, supporting services and value creation will be introduced. Then follows a description of the problem that forms the basis for this research. Subsequently a description of the research scope will be given. The chapter will be concluded by an introduction of the research questions that will indicate the direction of this study.

1.1 Definitions
1.1.1 Business Incubators
Throughout the world Business Incubation centres have been established in order to stimulate entrepreneurship and support new ventures. The first formal Business Incubator (BI[1]) was founded in Batavia, New York in 1959 (Adkins and Association 2003). Since the 1980's a rapid growth has been seen in the number of BI's and similar concepts (science parks, R&D centres, business accelerators etc). The main role of the BI's has been defined as: *to assist entrepreneurs with business start-ups and development, and with possible involvement of the public, private and non-profit sectors* (OECD 1999). In order to assist the entrepreneurs, incubators typically offer shared office space, a pool of shared support services, professional business support and network provision (Bergek and Norrman 2008).

Besides an increase in the number of BI's, the BI has started to take on different shapes. Several ways have been described to classify the many types of BI's. The main differencing characteristics seem to be the selection, business support and mediation (networking) of the used incubation model (Bergek and Norrman 2008). When these aspects (the business support and mediation in particular) are examined, one would be able to group BI's in three different generations. The first of which provides no business support and mediation. The second generation expanded its value proposition to include in-house business support services. The third generation

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[1] Throughout this document, Business Incubators will be referred to as BI's

additionally offers preferred access to networks, acknowledging the importance of mediation (Bruneel, Ratinho et al. 2012) (also see Table 1).

Table 1 - Incubator evolution (generation classification) (Bruneel, Ratinho et al. 2012)

First Generation	Second Generation	Third Generation
Infrastructure	Infrastructure	Infrastructure
	Business Support	Business Support
		Network Support

The infrastructure refers to the offering of turnkey office space, meeting rooms, parking and a reception desk. While some even offer premises for prototyping and small scale production. The business support consists of coaching and training on several fields. The presence network support indicates that the BI is facilitating access to external resources, knowledge and legitimacy.

1.1.2 Supporting activities
When it comes to supporting the tenant firms in their struggle for survival and growth, different strategies are used. The spectrum, at which the application of business support varies, ranges from a rather free '*laissez faire*' to a '*strong intervention*' style. The first is mainly based on a request basis, where the tenant firm has to actively seek and ask for business support. The latter provides a guiding hand by which the tenant firm follows the incubation programme (Bergek and Norrman 2008).

Mediation can serve to connect the tenant firms to *networks*. Through these networks, the firms can get in touch with possible customers, financiers, employees, etc. This provides essential information required for the development of the firm. *Institutional mediation* allows firms to gain knowledge about the institutional demands introduced by regulations, laws, traditions, values, norms and cognitive rules. These are limited by region, or by technological field in which the firm operates. The supporting activities can be clustered as follows, based on 20 (empirical) studies (Figure 1):

Supporting Activities			
Passive		**Intervening**	
Office space	Office services	Networks	Coaching
- Favorable renting conditions - IT infrastructure - Meeting rooms	- Office supplies - Postal address - Secretary - Other cost-cutting shared services	- Customers - Financiers - Fellow entrepreneurs - Possible partners - etc	- General management - Personal development - Product development - Market development - etc

Figure 1 - Supporting activities; based on (Bergek and Norrman 2008)

This research will focus on the intervening support activities. The passive support activities are limited in their impact on the value creation process, as the elements of these services very rarely vary during the incubation time (e.g. only the office space might increase).

1.1.3 Value Creation
In general, tenant firms have positive experiences with their respective BI's (Hansen 2000, Scillitoe and Chakrabarti 2010). In order to gain insight which supporting activities are the most valuable, research has tried to determine the value creation of

said activities. In an ideal setting, the effect would be measured by regularly determined firm valuations. Unfortunately these valuations do not take place very often. In literature we find several other definitions. In this study, value creation is defined as: *specific ways that an incubator program enhances the ability of its tenants to survive and grow in business* (Mian 1996). This predefines a link between the BI and the tenant firm in the field of value creation. In order to make a comparison later on in the research, this definition is preferable. Chapter 2. Literature Review further elaborates the findings in this area.

1.1.4 Value creation in the start-up process
The entrepreneurial process is still in need of a proper descriptive model (Moroz and Hindle 2012). The accompanying start-up process also had numerous attempts trying to model the process. It has shown itself to hard to model, yet some key events and its sequences have been discovered (Carter, Gartner et al. 1996). Value creating activities in the start-up process are deemed hard to classify as they have different levels of significance in every start-up. In the research conducted by (Amit and Zott 2001), value creation in e-business is categorized in four different drivers, being efficiency, complementarities, lock-in and novelty. Translated to the types of services used before, these can be interpreted as product development, business planning and customer development.

1.2 Research questions
The main objective of this research is to cater a solution to the question posed by GEC listed above. The following research question will be used to guide the research within its respective scope. In order to answer this research question sub questions are derived from the research question.

The research question is formed as follows:
'What intervening support activities contribute most to value creation within the incubated firms, during the start-up process?'

Sub questions derived from the research question:
1. *'What supporting activities do entrepreneurs need during the start-up process?'*
2. *'What supporting activities do Business Incubators offer to their tenant firms?'*
3. *'Which activities contributed most to the firm development of the tenant firm?*

The data needed to answer these questions will be gathered through extensive literature research, interviews and questionnaires, at both parties. A deeper insight in the research methodology can be found in Chapter 3. The data collection and analysis are covered in Chapter 4. In Chapter 5 the implications of the outcomes will be discussed, followed Chapter 6, which describes the limitations and sets out guidelines for further and/ or additional research.

1.3 Problem definition and research objectives
Business incubation has been subject to many studies and research has been done to discover the best practices of the service portfolio. Research that has been done on this subject so far has let to some conclusions. Several studies on the service portfolio

have investigated the satisfaction of the tenant firms with these services (Mian 1996, Abduh, D'Souza et al. 2007, Arlotto, Sahut et al. 2011)[2]. These studies have used a variety of methods to map the tenant satisfaction with, utilization of and experienced importance of the supporting services by their respective BI's. However, in these studies the vision of the BI has not been taken into account.

The goal of this bachelor thesis will be to further investigate the (perceived) contribution on value creation, from both the tenant firm's perspective and the BI's perspective. Defining the value-adding services and networks at a more specific level than the generic findings published in literature so far. This enables a two-sided view on value adding services and networks in the BI industry, forming a more solid basis for managerial implications.

1.4 Research Scope
Not all the aspects of the stated problem can be covered in this study. The impact of the used incubation model, the geographic location, the environment in which the BI is embedded etc are factors that might influence the ratings on the value added services. Since research on all these factors will not only take a lot of resources, but also yield results that may not show significant extra value, some areas are excluded.

As the problem definition in *§1.3* has already shown, the managerial implications for value creation in business supporting environments may lack a comprehensive basis (i.e. detail, a two-sided view or both). This study will focus on the Business Incubators. Business Accelerators have a different culture when it comes to the support and coaching, as their tenants specifically pick the program which fits their needs the most, a different stance pertaining to the coaching and networking services as a given. R&D Centres are subjected to corporate culture and values. Science parks are usually lacking the intervening supporting activities and solely provide the infrastructure. However, a co-working space has also been included in the research sample, to allow for a comparison between stages in the development process.

In the BI's, we distinguish three different generations, as earlier explained in *§1.1.1* Business Incubators, the focus is on the third generation as the intervening support activities are used most in this generation (Bruneel, Ratinho et al. 2012). In order to compare the results of several incubators in different sectors, a selection in both software and hardware incubators has been made. As *§3.1 Methodology* describes in more detail, a final selection of 3 BI's (two BI's and one co-working space) has been made.

The research questions require extensive answers. In order to provide an overview of which supporting activities create the most value within tenant firms, differences among sectors and along the start-up process will be studied. In order to make a comparison between these sectors, a division between software and hardware has been made. This will allow us to see if different sectors provide different results and therefore affect the value creation process. The value creation of a co-working space is also studied, so we can see the value creating activities in an earlier phase of the start-up process. The final part of the research scope, the choice for the intervening support activities, has earlier been described (1.1.2 Supporting activities).

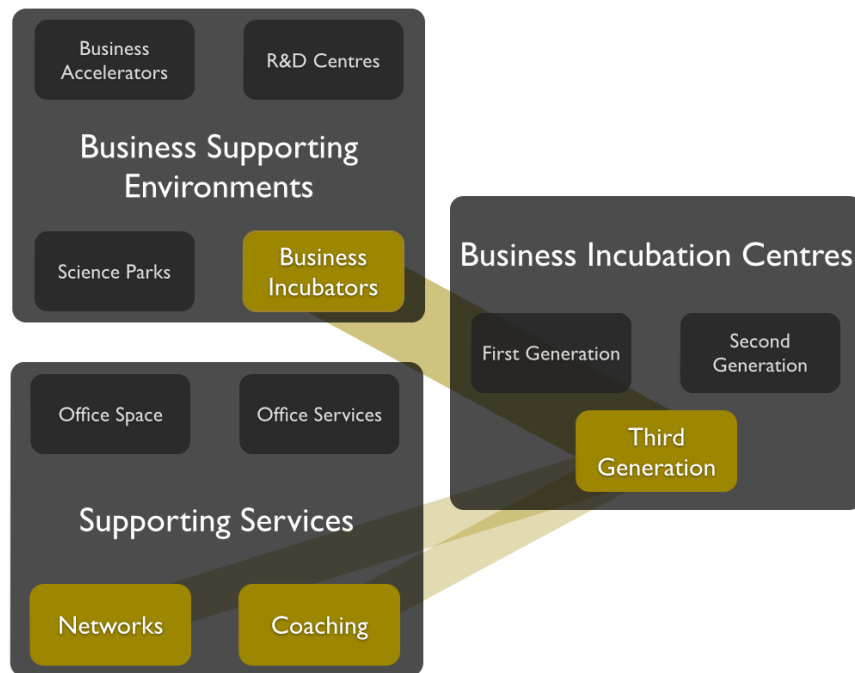[2]An extensive analysis of the literature can be found in chapter 2.

Figure 2 – Overview of the focus areas of this research

2. Literature Review

In section 1.2 and 1.3, several insights into the research that has been done on this field have been discussed. This chapter serves to give a more complete and in-depth analysis of the literature study conducted to form a basis for the questionnaires and conclusions.

2.1 Previous research

As noted in a study about all the business incubation research up to 2004, the main topics have been changing along the decades (Hackett and Dilts 2004). The most recent research stream and corresponding topics in this study are studies theorising about incubators-incubation, asking questions about the significance of relationships and how they influence entrepreneurship (see Table 2).

Table 2 - Overview of incubator - incubation literature (Hackett and Dilts 2004)

Research Streams	*Incubator development studies*	*Incubator configuration studies*	*Incubator development studies*
Research Period	**1984-1987**	**1987-1990**	**1987-1988**
Main Topics	• Definitions • Taxonomies • Policy prescriptions	• Conceptual frameworks • Incubatee selection	• New venture development • Impact of planning on development

Research Streams	*Incubator-incubation impact studies*	*Studies theorizing about incubators-incubation*
Research Period	**1990-1999**	**1996-2000**
Main Topics	• Levels and units of analysis • Outcomes and measures of success	• Explicit and implicit use of formal theories (e.g. transaction costs economics, network theory, (economic development through) entrepreneurship)

Different approaches to these relationships can be applied in studies. Two different categories have been established and named by (Arlotto, Sahut et al. 2011). The first, named "*normative*", deals with best practices of incubators and aims to define recommendations to improve incubation processes. Research so far has helped to identify best practices and success stories, under on the postulation that BI's improve the performance of tenant firms. For example, (Bergek and Norrman 2008) has identified several strategies which lead to the performance optimalisation of several types of BI's. Another example of the search for best practices is the study conducted by (Clarysse, Wright et al. 2005), providing an overview of the required resources for different types of BI's. Other studies can be found with the same normative approach, trying to define the best practices for all given scenarios. This is also the main format used for performance measurement by incubator associations (e.g. European Business and Innovation Centre Network (Vanrie 2010)).

The second, named "*positivist*" (also named by Arlotto, Sahut et al. 2011) has emerged to determine the influence of incubators in the value creation of firms. The positivist approach has risen to existence in order to determine the actual value creation that BI's achieve. The eventual managerial implications that these studies

bring forward are deemed more easily applicable and more accurate, as they are less based on external factors. Seeking the core of value creation will yield more transposable managerial implications as the best practices approach is relatively prone to error (Arlotto, Sahut et al. 2011). This approach will be used in this thesis.

2.2 Previous research outcomes

2.2.1 Needs of start-ups

The needs of the start-ups have been described in various ways. In the work of (Groen, Weerd–Nederhof et al. 2002) the entrepreneurial process is depicted in the 4S model, which is based on social system theory, a process contingency model and R&D metrics. The model describes the influences of Scope, Scale, Skill & Value, and Social network on the entrepreneurial process. Based on this model, the required resources and interventions are assigned to each dimension (Groen 2005), as shown in Table 3.

Table 3 - Four dimensions of entrepreneurial networking (Groen 2005)

Dimension	Relates to	Capital	Resources	Some interventions
Scope	Strategic Goals	Strategic capital	Power, authority, influence, strategic intent	Using power Redefining strategy
Scale	Economic optimization	Economic capital	Money	Using financial incentives Cost Cutting
Skill &Value	Institutions and pattern maintenance	Cultural / human capital	Values, organization, knowledge, skills, experience, technology	Training & education Teambuilding Organisational systems New technology
Social Network	Interaction pattern / process	Social capital	Contacts, (Multiplex filling structural holes, cohesive equivalent)	Relation management Changing network structure Using brokers Supply Chain management

With the help of these resources and interventions (Enter 2006) identified the needs of starting entrepreneurs, as shown in Figure 3. This shows the needs and where they originate from, but no ranking is shown.
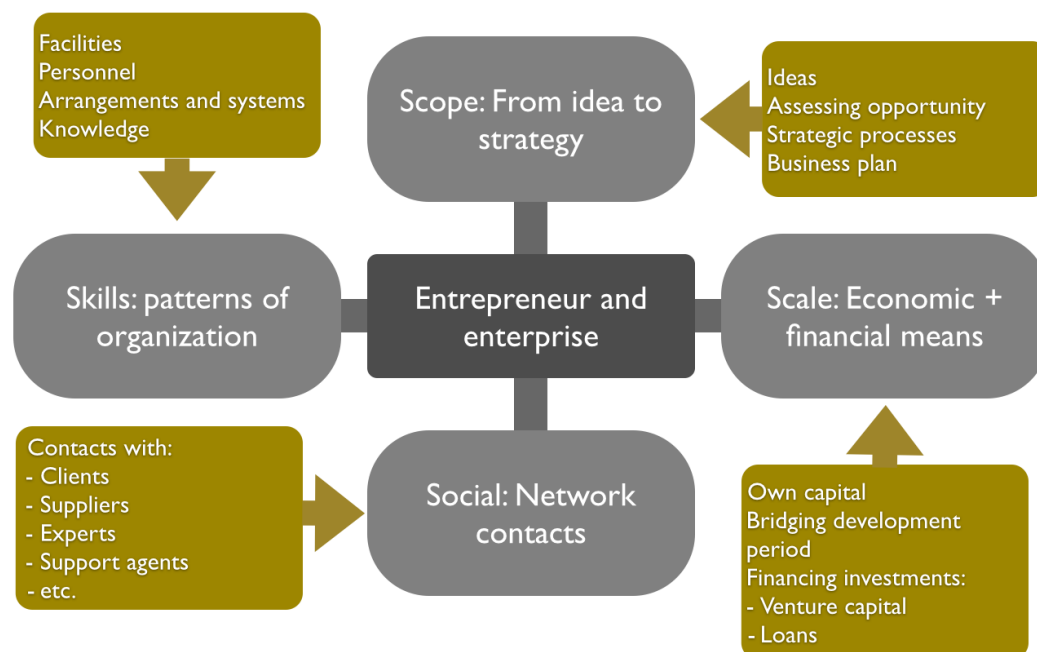

Figure 3 - Needs of a starting entrepreneur (Enter 2006)

Sales and marketing, financial planning, raising finance and business planning have also been identified by (Smallbone, Baldock et al. 2002). In research conducted by (Yusuf 2010), needs of nascent entrepreneurs have been categorized and mapped. Resulting in the following ranking (Figure 4). Providing some insights in which support really is sought for, and likewise, which isn't.
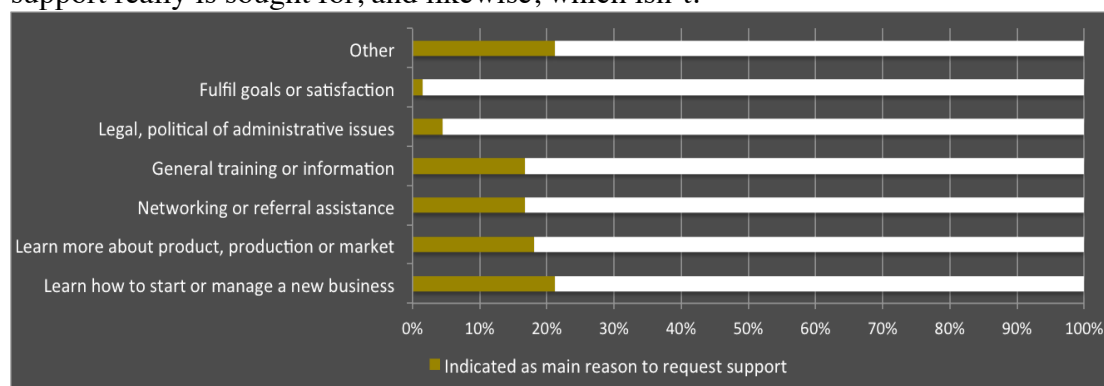

Figure 4 – Indicated main reasons to request support (Yusuf 2010)

2.2.2 Supporting activities of BI's

Many different shapes and sizes of the service portfolio exist. A study conducted by the University of Michigan, Univerisity at Albany, State University of New York and the National Business Incubation Association (NBIA) has identified the following key support services and key networks (Table 4). Their findings are based on (Nieri, Sorensen et al. , Campbell 1987, Lichtenstein 1992, Rice, Matthews et al. 1995, Tornatzky 1996, Lewis 2001, Hackett and Dilts 2004, Clarysse, Wright et al. 2005).

Table 4 - Key services and networks according to US dept. of Commerce, Economic Development Administration, University of Michigan, University at Albany, State University of New York, NBIA

Key entrepreneurial support services:
Business plan writing and business basics
Legal assistance (including, but not limited to)
General legal services
Intellectual property protection
Incorporation or other legal business structure
Import/export requirements
Access to capital
Marketing assistance
Access to broadband high-speed internets
Mentoring boards for clients with area business service providers
Close ties with higher education institutions
Accounting and financial management services
Assistance in developing presentation skills
Assistance in developing business etiquette.
Key networks
Networking with other entrepreneurs (particularly other clients)
Networking with area business community
Networks with area business service providers

2.2.3 Value creation by supporting activities of BI's

Although there seems to be a general consensus that the supporting activities are in fact creating value (Mian 1996, Jones and Parry 2011), no clear image exisists of the rank in which these should be seen. Research on this field has been used several different ways of assesing the relative importance of the services. For example, (Bruneel, Ratinho et al. 2012) identify the usage of the offered services (per generation of business incubator). This yields the following results:
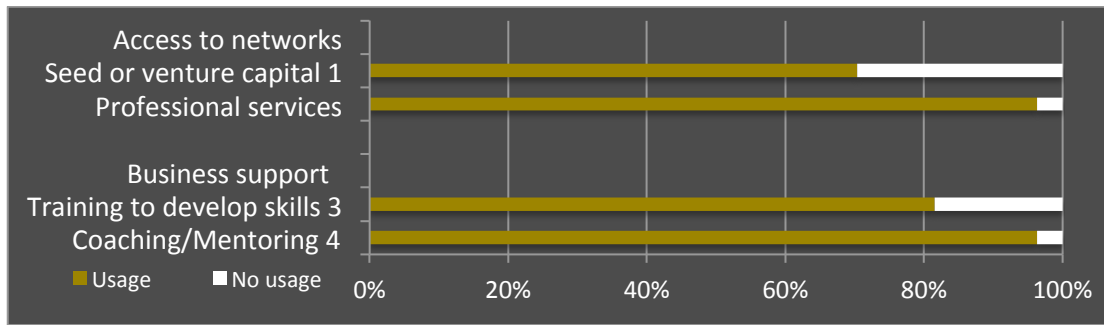
Figure 5 – Usage of business incubation services (in third generation BI's) (Bruneel, Ratinho et al. 2012)

The usage numbers reveal insight in overal importance these services have. The average usage level lies on 86%. The usage levels can be complemented with time and frequency data, to give a better insight in which of the services are preferred by the tenants.

One of the first studies focussed at opening the 'black box' of the rank or preference is the study conducted by Mian. The following figure shows the most relevant outcomes, depicting the perceived value-added contribution from the perspective of the tenant firms (Figure 6).
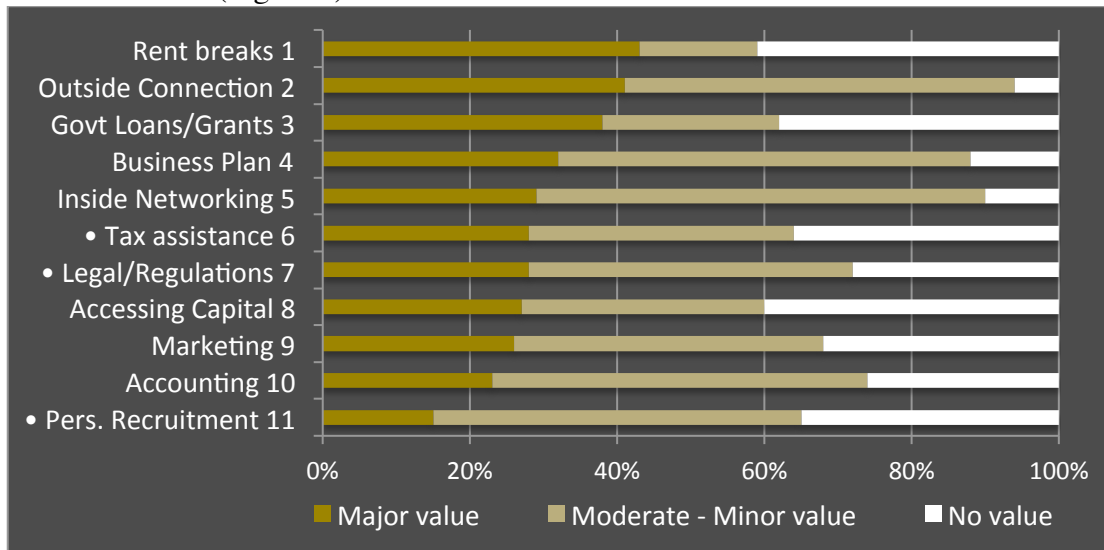
Figure 6 – Perceived value-added of business assistance/networking services (Mian 1996)

In this study, the relationship between the frequency of use and the value creation was determined. Tax assistance, assistance in legal/government regulations and personnel recruiting show no significant relationship (*marked with •*), while the other services did. Implying that making more use of a service will provide more value to the tenant firm. If the financing, cost cutting and networking aspects are left out, a clear view on the business support arises (Figure 7). Business planning has a much higher rating than the other services with a combined (major & minor to moderate) score of 88, while the remaining services (6, 7, 9, 10, 11) score 68,6 on average (see Figure 7).
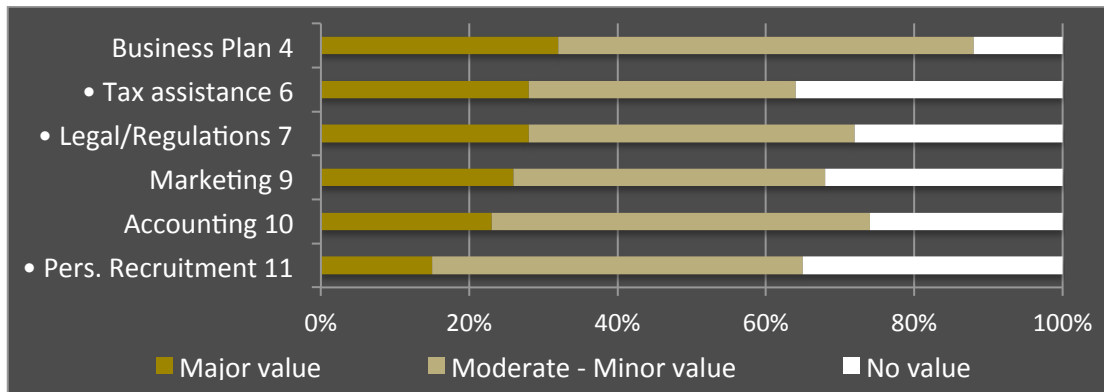
Figure 7 – Perceived value-added of business assistance/networking services (selection) (Mian 1996)

A slightly different methodology was used in a more detailed study by (Abduh, D'Souza et al. 2007) (see Figure 8). Their results are not comparable when it comes to their direct score, but the rank is eligible for a direct comparison. Some differences between their rank and the findings of Mian seem to exist. Business planning does not stand out and assistance to gain government grants and loans is rated as the most important. The business incubation services have been listed at the top, starting with the services with the highest importance rating. The networking aspects are listed at the bottom and divided into external and internal networking categories.
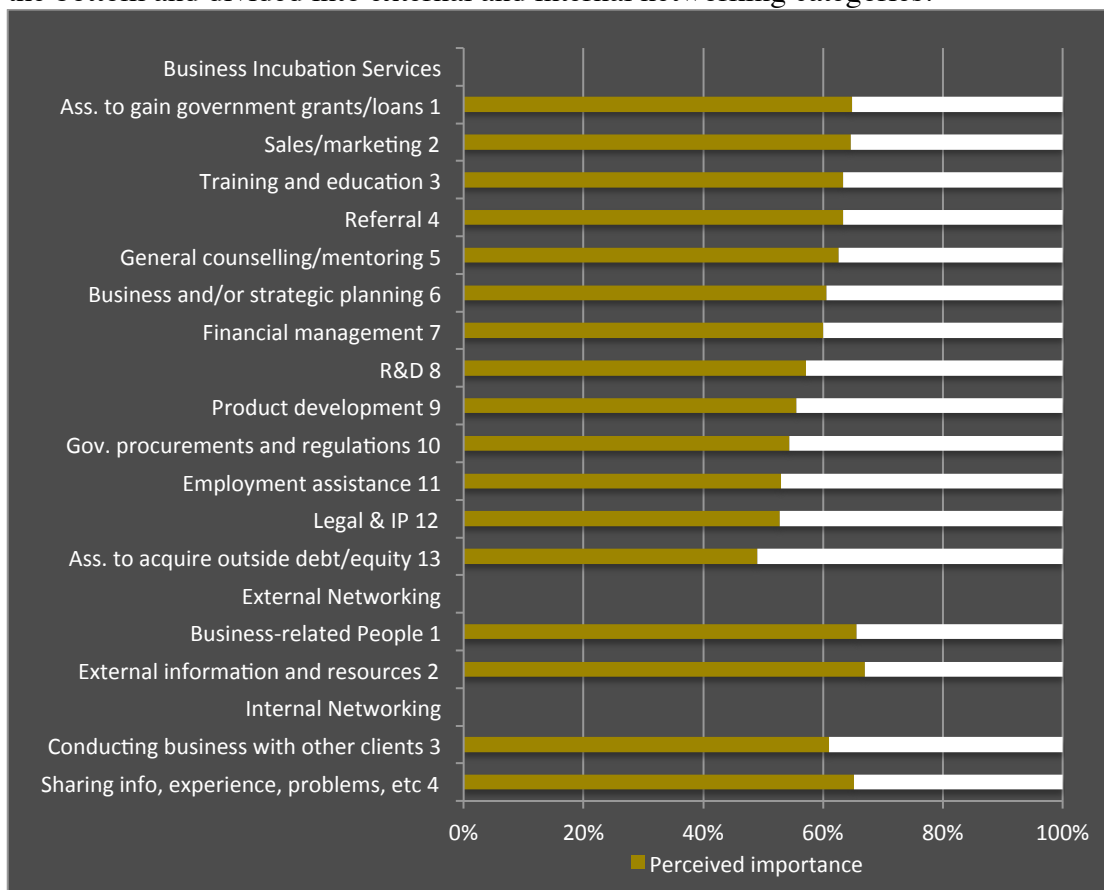
Figure 8 – Perceived importance of counselling related business incubation services. (Abduh, D'Souza et al. 2007) (Larger version available in Appendix 3 – Figures)

Further on, this study provides little more insight in the networking aspects, showing minor differences in the importance levels.

On the other side of the BI, (Smilor 1987), identified what consulting services were deemed to the be the most important, according to the BI's. The following results have been collected from fifty incubators in the United States. They clearly show higher ratings over the entire scope, but show some consistency with the ranking found by (Mian 1996).
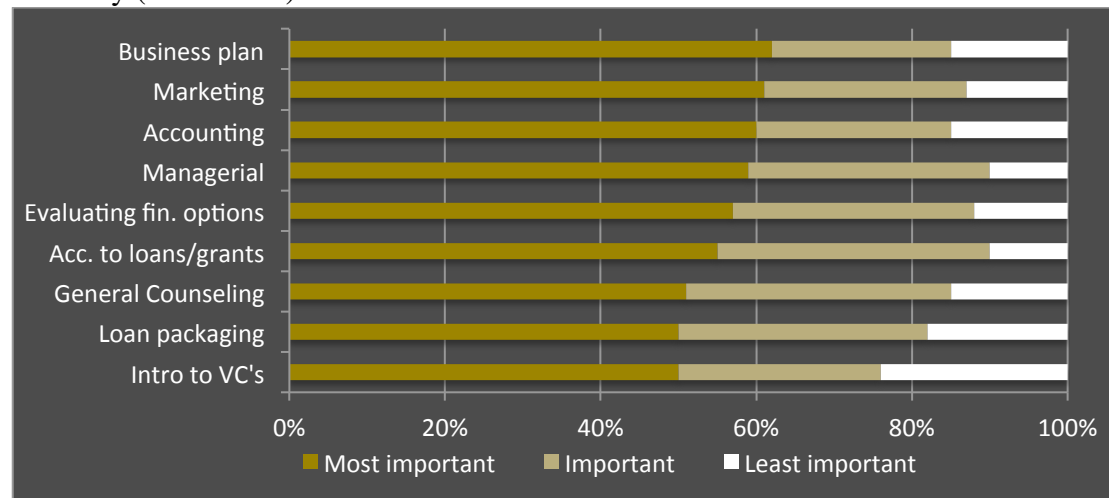
Figure 9 – Importance of consulting services provided (by the BI) (Smilor 1987) (Approximation)

2.2.4 Start-up process model

In order to see whether or not the value creation ratings change due to the position in the start-up process, results from the tenants from the co-working space and the tenants of the software incubator are compared. This provides insight in the needs of start-ups at certain moments.

The start-up process is described by the use of the Bell Mason framework for corporate venture development (see Figure 10) The co-working space serves entrepreneurs who are in the concept & seed stage, working towards the alpha phase. The software incubator has high demands for start-ups to become tenants, ensuring their position in the alpha and beta phase, working towards the market calibration phase (described in more detail in Chapter 4. Data).
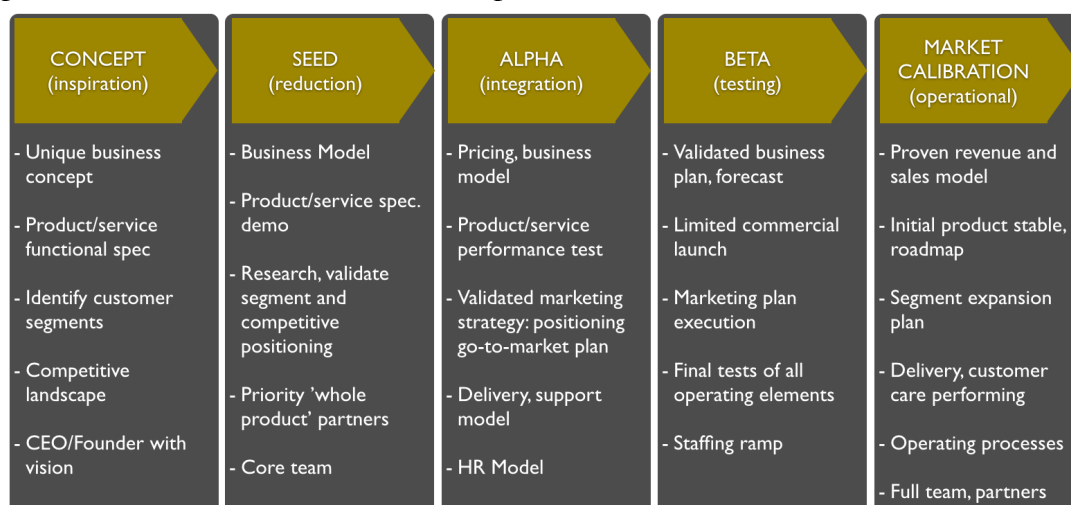
Figure 10 - Bell Mason Framework for Corporate Development

2.3 Shortcomings in previous research

As noted throughout paragraph 2.1, the current state of the literature leaves (too) little information to constitute the proper managerial implications for GEC. There seems to be a lack of consistency in the results so far. This is partly due to the different research methodologies, changes over time and different characteristics of the sampled population. The different names for the services lead to more confusion and inability to compare the outcomes one-to-one. This paragraph further addresses the shortcomings of the literature, addressing the need for more information. A new approach will be introduced in Chapter 3. Research Design. This approach is designed to tackle the issues mentioned below, providing a framework for future studies of which the results can be accumulated.

2.3.1 Generic results

In most of the studies so far, tenant firms have been questioned about the support services they used at a rather generic level. This is the proper approach when a general image of the used services is sought after, but it fails to drill down to the core of the services when it comes to the value creation. The absence of sector-specific research is also a cause of this, as production companies usually need other support than, say, service companies.

Which aspects of peer-to-peer networking are the most valuable? Which networks outside the BI are the most important? Contacts with customers, or potential suppliers? What part of business planning created the valuable insight? Neither of those questions can be answered with the information gained form the earlier studies.

2.3.2 Absence of the two-sided view

The study conducted by (Smilor 1987) shows significant differences in the way BI's rate their own service, as no major differences occur among the entire scope. The rating by the tenant firms provides a more extreme ranking. This is probably due to the fact that the BI's are careful or overoptimistic when rating themselves.

Yet, without the presence of the BI's view, no useful managerial implications can be given to these BI's. The perceived importance is presumably highly related to the amount of exposure the services have. If the BI is focussed on product development, little to no time will be allocated to the general management coaching, or the ability to acquire external funds.

2.4 Contribution of this chapter to the research questions

The shortcomings of the literature described in paragraph 2.2 were the core reason the problem addressed in paragraph 1.3, *the inability to give proper and fitting managerial implications in order to improve the current service and networking portfolio,* came into existence. The literature has been trying to get a large sample size, resulting in the absence of a sector-specific focus. In order to cater to the specialized BI's we see in the Netherlands nowadays, it is of vital importance to address this issue.

> *'What intervening support activities contribute most to firm development within the incubated firms, during the start-up process?'*
>
> Sub questions derived from the research question:
> 1. *'What supporting activities do entrepreneurs need during the start-up process?'*
> 2. *'What supporting activities do Business Incubators offer to their tenant firms?'*
> 3. *'Which activities contributed most to the firm development of the tenant firm?'*

The information listed in this chapter has provided a starting point for the first and second sub question. The used list of supporting activities has proven to be insufficient or too generic, so it should only serve as a basis and needs additional or more in-depth activities (which can be provided by the BI's).

The literature has provided some information for sub question 3 too. Literature, though sometimes contradicting, does show little hierarchy in the perceived added value of the activities. It also provides useful information for the methodology of sub question three, when it comes to BI's ratings. This will be discussed in depth in Chapter 3.

This research aims to solve the shortcomings listed above. Using the methodology as described in chapter 3, this research will drill down to the core of the value creating activities, with a two-sided view, in a sector-specific setting, to ensure useful results for BI management.

3. Research Design

This chapter serves to explain the used research methodology and the used approach in order to collect the data (which will be discussed further in Chapter 4). At first, the used methodology will be described in the methodology overview (§3.1). This will be followed by an in depth description of the techniques that will be used to collect the data (§3.2). The techniques used to handle the data will be described in the subsequent paragraph (§3.3). Further on, limitations (§3.4) and the contribution to the research questions will be given (§3.5).

3.1 Methodology overview

In order to answer the research questions, a selection of research techniques has been made. These techniques will allow the questions to be answered within their respective constraints. The overall strategy consists of four elements:

1. Interviews with BI programme managers
2. Questionnaires among BI programme managers
3. Questionnaires among tenant firms of the selected BI's
4. Comparison of outcomes

With the use of these techniques a suitable basis will be constructed to form answers on the sub questions and consequently, the research question can be answered. The techniques serve to help overcome the following challenges:

1. Identifying which supporting activities are actively offered by Dutch BI's (through interviews and questionnaires among BI's)
2. Identifying which supporting activities start-ups are looking for (by questionnaires among tenant firms)
3. Identifying which of these activities contribute most to value creation in the tenant firms (through both questionnaires)

The selection of the BI's for this research was made out of 59 Incubators. This list has been build through the network of the DIA[3] and acquainted incubators of B&M Business Development. Several criteria were used in order to narrow the selection down. BI's were only eligible to enter the sample if they matched the following criteria:

1. BI had to be a third generation incubator
2. Exist for at least 3 years
3. Have enough tenant firms to create a usable sample

However, when two of the BI's in the initial sample stopped communications, a hardware BI and a co-working space have been added to the sample. An overview of the selection process can be found in Appendix 2 – Selection Process of BI's.

Table 5 - Selected BI's

Data

Institution:	YES!Delft	UtrechtInc	LaunchCafé
Type:	Incubator	Incubator	Co-working space
Sector	Hardware	Software	Software
Position in start-up process	Business plan	Business plan	Pre-business plan
Number of tenants in dataset	9	6	6
Programme management included?	Yes	Yes	Yes

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[3] Dutch Incubator Association http://bit.ly/14Nh8iq

3.2 Data Collection
3.2.1 Step 1: Interviews with BI Programme Managers
As the majority of the information received from the interviews is not used as data in this thesis, the interviews serve mainly to establish personal contact with the BI's and ask for active support to achieve a maximum response rate. Getting the BI's to cooperate has been the main challenge for this thesis, as the sheer amount of studies conducted at their facilities, force them to hold off all students. Many incubated firms indicated that the personal contact and dedication shown were the only reason for them to fill in the questionnaire. The interviews were held with Utrechtinc, YES!Delft and LaunchCafé. The programme managers of Starterslift and Brainport also participated in interviews but denied any further cooperation, as they stopped responding or indicated that sampling among their tenant firms would be too intruding.

Not only did these interviews serve as a door opener, important information for the questionnaires was sought for. The current state of the studies conducted on this field has several shortcomings (as described in *§2.3.1*). The generic results yielded by studies so far should be given more depth through discussion with BI's. Actively discussing the value adding components with several BI managers yielded a list of the value adding aspects of the supporting services offered by the BI's. Information about the current ways of improving their incubation programme was discussed too.

These interviews followed a set-up that was made in advance, yet the required exploratory nature of the goals named above, required only a semi-structured approach. The final interview set-up and questionnaire designs can be found in the appendix.

3.2.2 Step 2: Questionnaires among BI programme managers
The next step in the data collection process required the BI programme managers to fill in the questionnaires designed after the interviews. These questionnaires focus on the BI programme manager's view about which of the given supporting activities contribute most to the value creation within the tenant firms.

In order to achieve the desired insights, the questionnaire has to provide ways to compare the value creation of different supporting services. In order to determine the most important supporting services a direct rating on a scale of 1-5 was used. This yielded ratings of all the separate supporting activities. These were ranked on their score, with the option that some services were rated as 'N/A' as the programmes may differ between the BI's (e.g. some offer legal services, some don't).

3.2.3 Step 3: Questionnaires among tenant firms
After the opinion of the BI organisation on the value creation process has been identified, it was time to identify the view of the tenant firms. This was done with a questionnaire that is adapted for the tenant firms. This step in the approach serves as a solution for the problem listed in 2.3.2 Absence of the two-sided view.
For the co-working space that was included in the sample, the management was asked what their views were on the value creation in the tenant firms, whether or not these were aspects they worked on with the tenants. The tenants were asked to rate the service components based on the value created in their process, also with or without assistance of the co-working space management.

This questionnaire will contain the same list of supporting services, and use the same rating technique. By abstracting the ranking from the direct rating, these outcomes can be compared with the outcomes of the questionnaires under the programme managers.

3.2.4 Step 4: Comparison of the outcomes

The outcomes of the BI programme manager questionnaire and the tenant firm questionnaire will be studied from several perspectives. Not only will the results of the BI programme managers and the tenants studied for differences, but also the differences in sectors and the differences along the start-up process are studied. By the use of the three steps listed above, the two main shortcomings of the literature can be avoided. The outcomes will be graphically displayed in (overlapping) radar-models, rapidly showing differences.

3.3 Concluding this chapter

This chapter has provided an overview of what the used methodology for this thesis is, and what decisions were made to lead to this specific research design. This methodology describes the way in which the data, needed to form a basis for the answers to the sub questions, can be collected. Following the program stated above, an answer to the research question can be constructed. The next chapter will further explain the way the data is treated and analyse it to create implications as shown in Chapter 5.

4. Data

This chapter shows the results yielded by the methodology as described in Chapter 3. The steps listed in 3.2 Data Collection are followed and the results of each step are shown. Further analysis of the outcomes are provided in Chapter 5

4.1 Following the steps of the methodology
4.1.1 Interviews with programme managers.
After the initial selection of the BI's was made, interviews with UtrechtInc, Brainport Eindhoven and Starterslift Breda were held. Yet, of these BI's, some declined to participate and others took a very long time to agree to interviews and questionnaires. During the research, the struggle to obtain data formed the need to widen the selection criteria. This meant that YES!Delft and LaunchCafé Groningen were includedin the sample.

In total, programme managers from Brainport Eindhoven, YES!Delft, UtrechtInc, Starterslift Breda and LaunchCafé Groningen were interviewed. (Starterslift Breda and Brainport Eindhoven were later excluded from the sample). The interviews were semi-structured in form. The main topic of discussion was the list of supporting activities that BI's offer to their tenants. The initial list was made on the basis of findings from literature (Smilor 1987, Mian 1996, Abduh, D'Souza et al. 2007, Yusuf 2010, Lewis 2011). The ever changing environment and programme that BI's offer to their tenants, constituted the need for input from the BI's themselves. Interviews with YES!Delft, UtrechtInc, LaunchCafé Groningen, Brainport Eindhoven and Starterslift Breda have supplied more information and this led to the development of the framework as can be seen in Figure 11 (for an explanation of the used terms see Appendix 4 – Questionnaire).

Services

Business planning	Finance
Revenue Model	Debt/equity structuring
Cost structuring	Governmental grants and loans
Strategic positioning	Commercial capital
Long term planning	Short-term financing

Market development	Team/Personnel
Market research	Team Formation
Customer identification	Team Building
Customer acquisition	Hiring
Value proposition	HR Problems

Legal	Product
IP strategy	Product development
General Legal services	R&D Assistance
Product legislation	Production scaling
Import/export legislation	Commercial scaling

Marketing/Sales	Training
Sales channels	Presentation skills
Marketing planning	Business etiquette
Offline marketing	Management
Online marketing	Mediatraining & PR

Accounting	Networks
Accountancy service	Peer-to-peer
Financial planning	Potential suppliers
	Potential customers
	Business support services
	Capital networks

Figure 11 - Services list as found by literature and interviews (concise version)

4.1.2 Questionnaires among programme managers.

By the use of these questionnaires, the view of the programme managers has been mapped. The supporting services rated with a 4 or higher are:

Table 6 - Supporting activities and their rating given by programme managers

Supporting activity	Rating by programme managers
Value Proposition	4,67
Peer-to-peer	4,67
Production Scaling	4,50
Potential customers	4,50
Strategic positioning	4,33
Customer Acquisition	4,33
Capital networks	4,33
Revenue Model	4,00
Customer identification	4,00
Sales channels	4,00
Financial planning	4,00
Short-term financing	4,00
Team formation	4,00
Team building	4,00
Commercial Scaling	4,00
Business etiquette	4,00
Presentation skills	4,00
Potential suppliers	4,00

A full overview of the outcomes can be found in Appendix 3.

4.1.3 Questionnaires among tenant firms.

Based on advice given by fellow students, the BI programme managers and known (co)-founders of start-ups who were in BI's, the decision was made to visit the BI's and speak to the tenants personally.

Revisiting the BI's has proven to be useful as meetings with the tenants provided the needed data. In these meetings the tenants were handed the questionnaire (on a laptop) and if there were any questions about the questionnaire they could be addressed to me, situated on the other side of the desk. This happened in about half of the meetings, as some tenants (despite the verbal introduction and the description on the questionnaire) were not sure how to interpret some of the questions. Many tenants stated that they would not have participated if I had sent it via email. The outcome of the questionnaires showed less high rated supporting services, so a top list of services with scores over 3,50 is shown (Table 7):

Table 7 - Highest ratings on supporting services from all tenants

Service	Rating by tenants from all incubators
Acces to commercial capital	4,67
Team formation	3,98
Value Proposition	3,94
Short-term financing	3,92
Peer-to-peer	3,92
Offline Marketing	3,90
Customer identification	3,83
Hiring	3,67
Potential customers	3,66
Customer Acquisition	3,62
Market Research	3,61
Sales channels	3,56
Online marketing	3,52

When looking at how many tenants actually made use of the services, one can see in Table 8, that the components of the services are widely dispersed throughout the list, proving the value of the detailed analysis. The high value creation rating on commercial capital falls away as only 29,63% have used it in their incubation period. The top 10 service components (strategic positioning – financial planning) all have a score ≥ 3,00 and significant usage percentages. The service categories they stem from are business planning, market development, networks, team, training and accounting, a far more varying palette than the literature on this subject has provide thus far.

Table 8 - Service components sorted on decreasing percentage of tenants use

Overall Percentage of tenants using service	Service	Score	Overall Percentage of tenants using service	Service	Score
83,33%	Strategic positioning	3,44	55,56%	Mediatraining & PR	2,61
81,48%	Customer identification	3,83	53,70%	Accountancy service	2,60
77,78%	Peer-to-peer	3,92	51,85%	Business support services	2,62
77,78%	Market Research	3,61	50,00%	Capital networks	3,28
75,93%	Team formation	3,98	48,15%	Government grants/loans	2,70
75,93%	Value Proposition	3,94	46,30%	IP Strategy	2,93
75,93%	Presentation skills	3,35	44,44%	Commercial Scaling	2,53
72,22%	Customer Acquisition	3,62	40,74%	Product development	2,92
72,22%	Revenue Model	3,44	38,89%	Potential suppliers	3,22
72,22%	Financial planning	3,01	38,89%	Debt/equity structuring	3,11
70,37%	Online marketing	3,52	37,04%	Product legislation	2,58
66,67%	Sales channels	3,56	35,19%	Hiring	3,67
66,67%	Long term planning	2,99	35,19%	Business etiquette	2,17
66,67%	Marketing planning	2,83	33,33%	Production Scaling	3,00
64,81%	Potential customers	3,66	31,48%	Short-term financing	3,92
64,81%	Cost structuring	2,53	29,63%	Commercial capital	4,67
62,96%	Team building	3,19	18,52%	HR problems	2,00
62,96%	General legal services	2,58	14,81%	R&D assistance	1,17
57,41%	Offline Marketing	3,90	0,00%	Import/Export Legislation	0,00
57,41%	Management	2,83			

A table with the complete dataset is placed in Appendix 5.

4.1.4 Comparison of outcomes.

This comparison is in place to give insights in three aspects of the research question ('*What intervening support activities contribute most to firm development within the incubated firms, during the start-up process?*'). After analysing the aggregated data, the difference in the sectors will be handled, followed by insights in the effects of the moment in the start-up process. In addition the views of the management will be compared with the views of the tenants.

4.2 Data analysis

In order to visualise the aggregated data (combination of the three incubators) plots are made. In these graphs the supporting services are plotted in a field, where their position is based on the usage ratio and the value creation score as provided by the tenant firms. In Figure 12, all the supporting services are plotted. The highest scoring supporting services are highlighted. The major difference in the usage ratio (number of start-ups in the sample that actually made use of the service) shows that some services may be highly regarded for their contribution to value creation, but not all tenants made use of this.
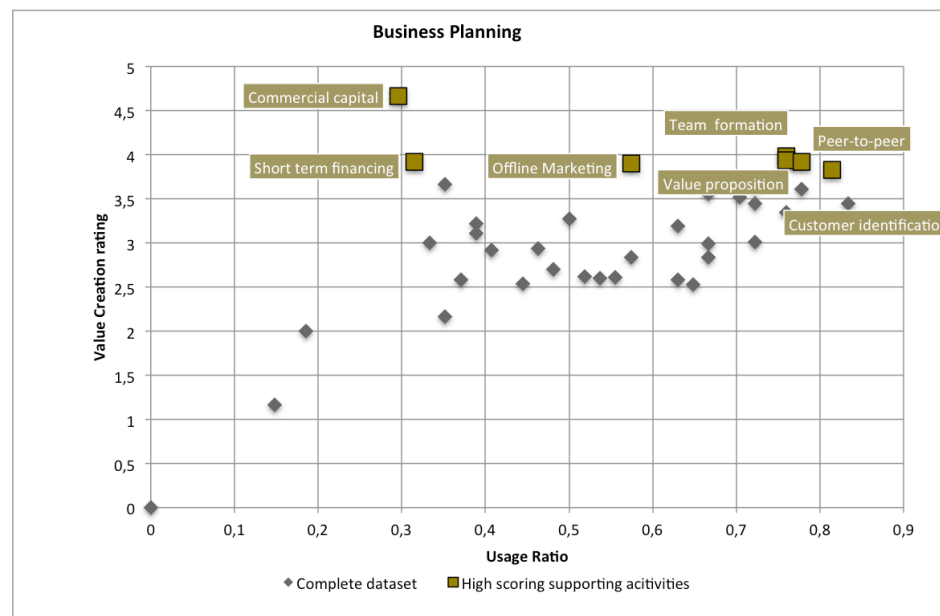
Figure 12 - High scoring supporting activities as rated by tenants

The diamond in the bottom left corner shows that the service as used in the questionnaire has not been used by any of the tenants. This concerns import/export legislation. Other low usage ratios were found at R&D assistance and assistance with HR problems. A full overview of all the services and its components is placed in Appendix 4.

4.2.2 Difference among sectors

A difference in the sectors is examined by comparing the results from the software incubator (gold) and the hardware incubator (black), as can be seen in the graphs below:
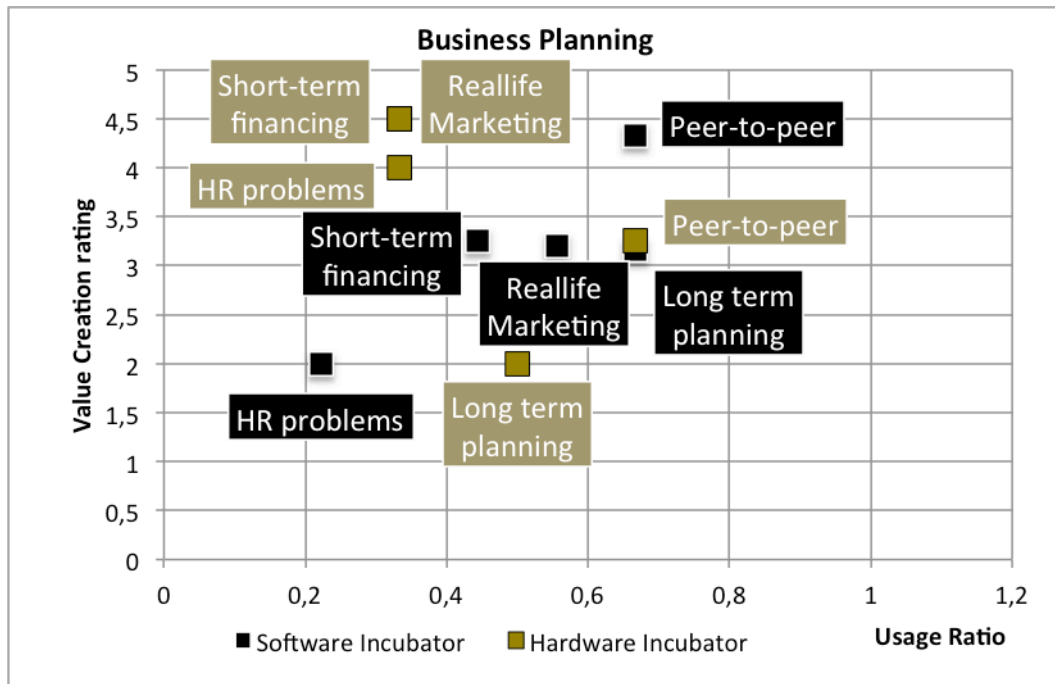
Figure 13 - Supporting activities that are heavily influenced by the sector of the BI

As the graphs show, several services and service components have value creation ratings that are heavily influenced by the sector in which the incubator is active (long term planning, offline marketing, short-term financing, HR problem assistance, peer-to-peer networks). Yet, some services and their components score (nearly) identical across both sectors (cost structuring, market research, IP strategy, accountancy service, debt/equity structuring, hiring, media training & PR, capital networks). For a full overview, please see Appendix 3.

4.2.3 Difference along the start-up process

As we can expect from the Bell Mason model, the business planning activities are less valuable to the alpha/beta stage tenants, as most of this is already clear upon entering the BI. The market development scores lower overall for the same reasons. Two aspects of legal advice are more important in the BI and a third (IP Strategy) ties, while neither use import/expert legislation. The marketing & sales service components need a closer look, while accounting seems to make no major deviations. The finance aspects provide a somewhat distorted outcome, as the governmental grants and loans are deemed to be unavailable and impractical constructions according to the BI management. The team aspects seem to overlap for a relatively large part, except for the HR problem assistance component. But, as most tenants did not have any employees yet, this comes a no surprise. Help with the product development (component) differs greatly among the phases, while the other product development service components don't. The distribution of the network components shows the importance of the potential customer base for the concept/seed phase tenants.

4.2.4 Comparison with the management's view

The service components have been given a value creation rating by the tenants and the management. In order to see of these views align, their ratings are compared per BI. The hardware BI will be handled first, followed by the software BI. The co-working space will be handled as last.
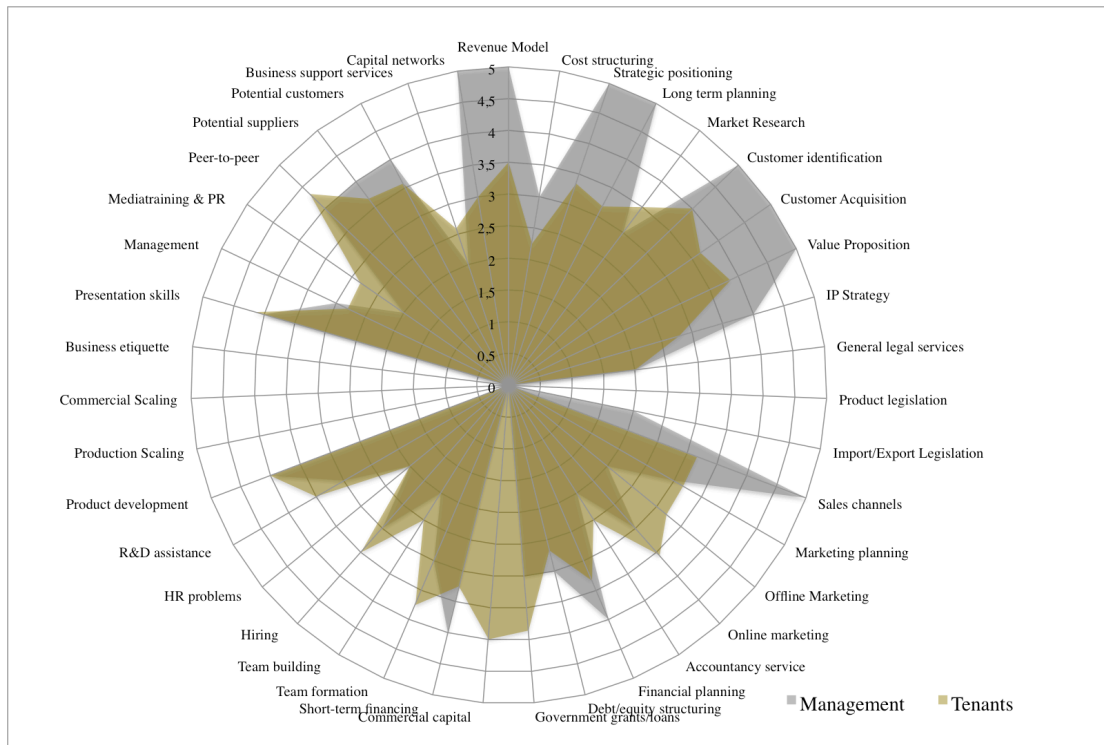
Figure 14 - Comparison between management and tenants (hardware BI)

As the picture (Figure 14) shows, there seems to be a consensus on the majority of the topics, although the ratings tend to be higher on the management side. The tenants have given a higher rating to market research, marketing planning, offline marketing, online marketing, the accountancy service, the assistance to gain governmental grants and loans, the acquisition of commercial capital, team formation, team building, hiring strategies, R&D assistance and mediatraining.

The BI in the software sector has another profile, as can be seen in Figure 15. The view of the management also resulted in higher ratings over almost the entire scale. Offline marketing is more important in the view of the tenants, so is the acquisition of commercial capital and short-term financing. One of the major differences is the support in R&D, as none of the tenants gave this a rating, but all said it was 'Not Applicable'.

The co-working space has been charted in Figure 16. The chart shows a large difference between the BI management and the tenants view on value creation in the tenant firms. This is due to the questionnaire as explained in 3.2.3 Step 3: Questionnaires among tenant firms. It is managed with a laissez-faire style as mentioned in 1.1.2 Supporting activities, so the co-working space does not have a programme laid out for the tenants. The tenants filled the survey, which was aimed at value creation in their own start-up process so far. This leaves some services out of the sample, as one can see at HR problem assistance for example (as their teams were simply too young and small to encounter these kind of issues).
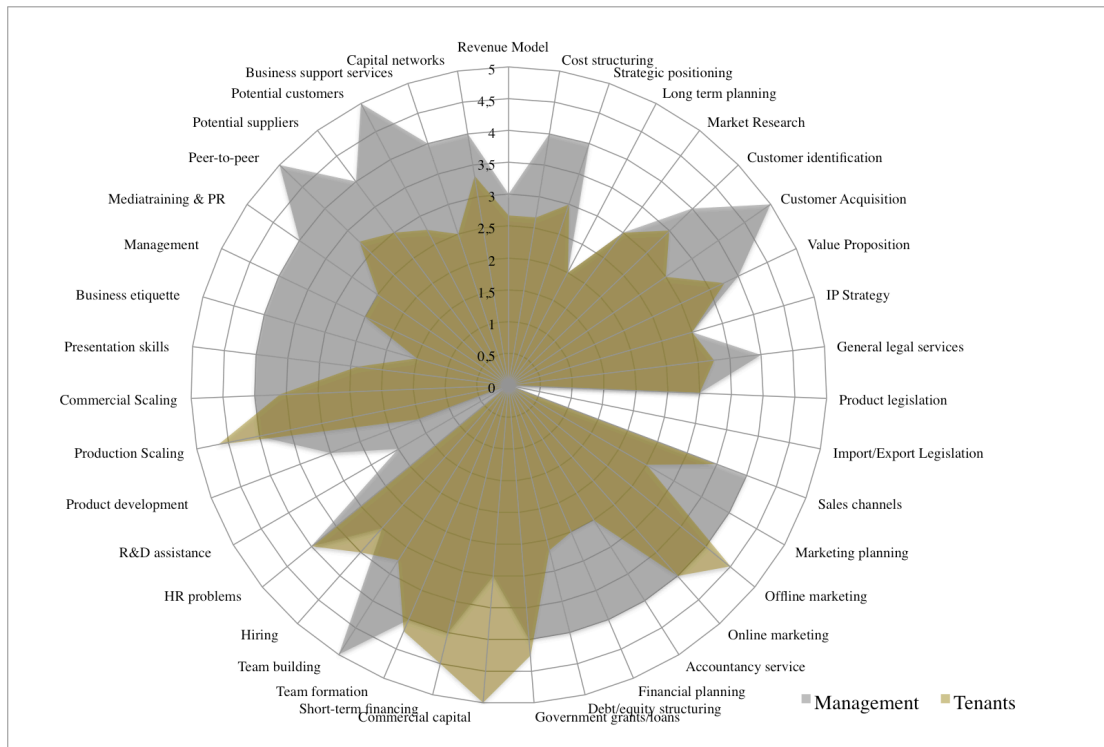
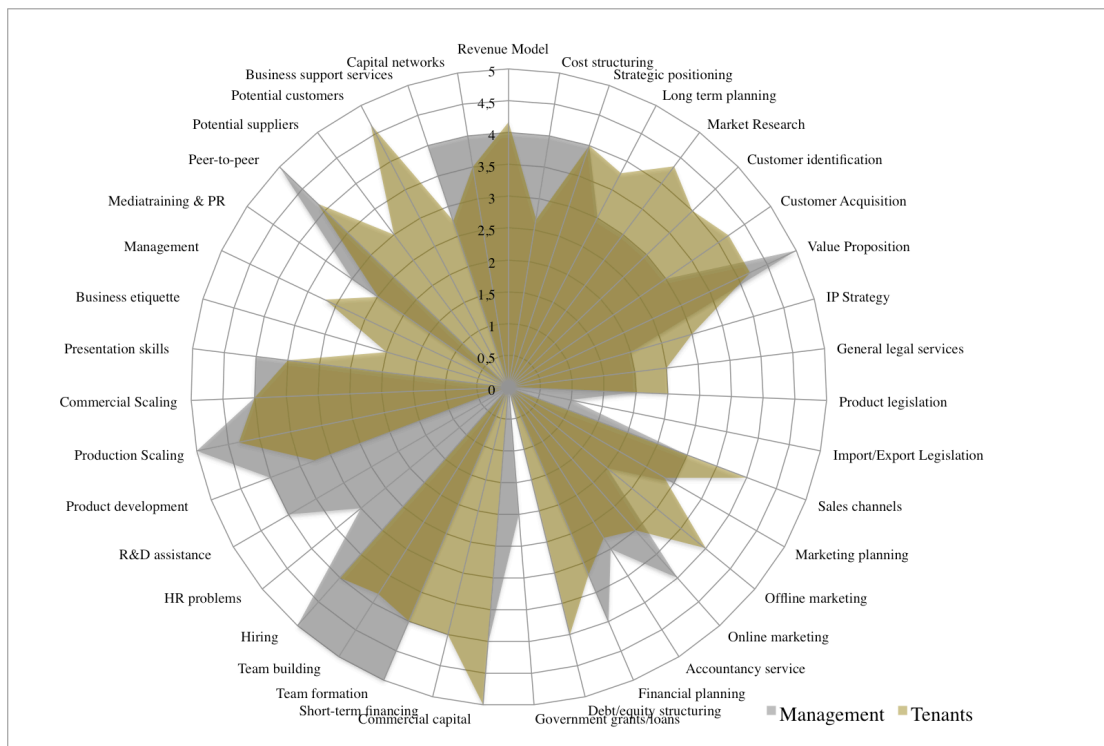*Figure 15 - Comparison between management and tenants (software BI)*

Figure 16 - Comparison between management and tenants (co-working space)

Chapter 5 – Implications

Based on the outcomes of the research, several recommendations can be made, for the BI's that participated in this study, the principle of this research (GoldenEggCheck) and academic literature.

5.1 Managerial recommendations for the BI's

5.1.1. *The hardware incubator*

Based on this research and its respective outcomes as discussed in §4.2.4 Comparison with the management's view, the hardware incubator can choose to adapt its programme. This would mean that some aspects of the programme could be intensified, while on others the focus can be lessened.

Table 9 - Programme change recommendations for the hardware BI

Increase assistance in:	Decrease focus of programme on
Market research	Revenue model
Marketing planning	Cost structuring
Offline marketing	Long term planning
Online marketing	Customer identification
Accountancy service	Customer acquisition
Assistance to gain government grants and loans	Value proposition
Acquisition of commercial capital	IP strategy
Team formation	Import/export legislation
Team building	Development of sales channels
Hiring strategies	Access to capital networks
R&D assistance	
Mediatraining	

5.1.2. *The software incubator*

Likewise, recommendations for the software BI can be made. However, the current programme equals or surpasses the tenant firms' ratings on value creation, with the exception of the acquisition of commercial capital.

Table 10 - Programme change recommendations for the software BI

Increase assistance in:	Decrease focus of programme on
Acquisition of commercial capital	Cost structuring
	Strategic positioning
	Customer acquisition
	Marketing planning
	Accountancy service
	Financial planning
	Debt/equity structuring
	Team building
	R&D assistance
	Presentation skills
	Business etiquette
	Management
	Mediatraining
	All the networking services!

For both the software and the hardware incubator, these adjustments can lead to a focus on the value creating activities for start-ups. This focus allows the start-ups to grow as quickly as possible, while not being distracted with activities on subjects that do not seem to matter.

5.1.3. Co-working space

For the co-working space, the tenants were asked to fill the questionnaire based the value creation in their firms so far, as the co-working space has more of a *laissez-faire* management style and the tenants don't follow the same programme. The management can use the outcomes to further shape the co-working space and its environment. The co-working space is commercially viable as is, and has purposefully chosen not to change into a BI. The insights this study has brought to the table can be used to further cater the tenants' needs.

Table 11 – Programme change recommendations for the co-working space

Increase assistance in:	Decrease focus of programme on
Long term planning	Cost structuring
Market research	Import/export legislation
Customer identification	Online marketing
Customer acquisition	Financial planning
IP strategy	Assistance to gain governmental grants and loans
Commercial capital	Team formation
	Team building
	Hiring
	Capital networks
Start offering assistance in:	
Debt/equity structuring	
Short-term financing	
Business Etiquette	
Management	
Networks with potential suppliers	
Networks with potential customers	
Networks with business support services	

5.2 Recommendations for GoldenEggCheck

Based on the outcomes of this research, the most value creating support services for start-ups in Dutch incubators and co-working spaces have been determined. The outcomes can be used to design roadmaps for start-ups currently using the software. The GEC provides the start-ups with an overview of their current investor readiness, indicating which aspects require improvement to ensure a high investment chance.

With the use of this research, the start-ups can work with the value creating support services to further strengthen their investor readiness. The online platform allows for multiple parties to actively engage with the progress of the start-up. In order to structure and prioritize the directions of its progress, the outcomes of this research can be used. The different sectors and moments in the start-up process allow for custom service profiles to be offered to the start-ups.

5.3 Academic literature

The creation of the framework, based both on scientific literature and on information gained through interviewing BI programme managers, has provided a new way to determine the value creation through supporting activities by BI's. This framework allows for more detailed views and a comparison between the view of the BI programme managers and the tenants of the BI. The outcomes of this study have provided a more detailed view of the value creation by supporting activities in BI's that has been constructed in academic literature so far. The spread in different aspects of supporting services indicate that the outcomes of previous studies cannot sufficiently provide directions for BI management. The difference among sectors has also shown that sector-specific studies are needed.

6. Limitations and further research

Like any other study, this research comes with its limitations. This study has had two major stages; the development of the framework and the application of the framework in the Netherlands. In both stages improvements can be made to ensure further development of the framework and more transposable outcomes of the application.

The framework development can be further enhanced by additional literature studies as the new era of business incubation brings many developments to the table. Business acceleration, lean start-up and customer development are just a few of the new practices in the start-up scene. There is a lot of information available on these practices, but barely any empirical scientific literature studies are finished. These changes may have a significant impact on the BI programmes. The high exit sums (investment rounds at the end of the acceleration programmes) in Silicon Valley have gotten the attention of European BI's and parts of their programmes are not only being applied in newly found business accelerators in Europe, but also entering the BI's.

Application of the framework will be more useful as the scale improves. The research sample of 21 tenants in 3 BI's is too small to perform any statistical analysis. Without the uses of statistics the outcomes are strongly influenced by coincidence, interpretation and bias. During this research, multiple tenants have used the interview to distance themselves from their BI and criticised the programmes in which they were participating.

Further research should be focussed on increasing the scale, both in the number of BI's and the number of tenants. Once these samples become large enough, a study can be performed to find sector specific profiles based on the framework. A similar approach can be used along the start-up process, where multiple co-working spaces are aggregated, multiple BI's are aggregated and multiple business accelerators are aggregated to gain data specific for phases in the start-up processes. Preferably, large-scale research is conducted in BI's that have used the same approach to develop their programmes, as this ensures further uniformity in the BI sample (which in this study has been limited to 1 per sector).

As a final directive for any further research, the outcomes of this thesis should be subject to additional research. As now some service components have been identified, but not verified. So, do commercial capital, team formation and value proposition lead to value creation in tenant firms? This should be based on more than merely the view/ideas of the founder of the tenant firms. Further studies can focus on the differences between the progress results of start-ups that are focussed on these aspects and start-ups that don't apply this focus.

Bibliography

Abduh, M., et al. (2007). "Investigating and classifying clients' satisfaction with business incubator services." Managing Service Quality **17**(1): 74-91.

Adkins, D. and N. B. I. Association (2003). A Brief History of Business Incubation in the United States, National Business Incubation Association.

Amit, R. and C. Zott (2001). "Value creation in e-business." Strategic Management Journal **22**(6-7): 493-520.

Arlotto, J., et al. (2011). "What is the performance of incubators? The point of view of coached entrepreneurs." International Journal of Business **16**(4): 341-352.

Bergek, A. and C. Norrman (2008). "Incubator best practice: A framework." Technovation **28**(1-2): 20-28.

Bruneel, J., et al. (2012). "The evolution of Business incubators: Comparing demand and supply of business incubation services across different incubator generations." Technovation **32**(2): 110-121.

Campbell, C. (1987). Change agents in the new economy: Business incubators and economic development, NBIA.

Carter, N. M., et al. (1996). "Exploring start-up event sequences." Journal of Business Venturing **11**(3): 151-166.

Clarysse, B., et al. (2005). "Spinning out new ventures: A typology of incubation strategies from European research institutions." Journal of Business Venturing **20**(2): 183-216.

Enter, M. (2006). Identifying factors that contribute to high-growth knowledge-intensive ventures, Master's Thesis, University of Twente, Enschede.

Groen, A. J. (2005). "Knowledge intensive entrepreneurship in networks: towards a multi-level/multi dimensional approach." Journal of Enterprising Culture **13**(01): 69-88.

Groen, A. J., et al. (2002). "Creating and justifying research and development value: Scope, scale, skill and social networking of R&D." Creativity and Innovation Management **11**(1): 2-16.

Hackett, S. and D. Dilts (2004). "A Systematic Review of Business Incubation Research." The Journal of Technology Transfer **29**(1): 55-82.

Hansen, M. T. C., H.W. Nohria, N. Sull, D.N. (2000). "Networked Incubators: Hothouses of the New Economy." Harvard Business Review **September-October**: 10.

Jones, R. and S. Parry (2011). "Business support for new technology-based firms: A study of entrepreneurs in north Wales." International Journal of Entrepreneurial Behaviour and Research **17**(6): 645-662.

Lewis, D. A. (2001). "Does technology incubation work: A critical review of the evidence." U.S. Department of Commerce Economic Development Administration.

Lewis, D. A. H.-A., E.; Molnar, L.A. (2011). "Incubating succes: Incubation Best practices That Lead to Successful New Ventures." NBIA.

Lichtenstein, G. A. (1992). The Significance of Relationships in Entrepreneurship: A Case Study of the Ecology of Enterprise in Two Business Incubators, Graduate School of Arts and Sciences, University of Pennsylvania.

Mian, S. A. (1996). "Assessing value-added contributions of university technology business incubators to tenant firms." Research Policy **25**(3): 325-335.

Moroz, P. W. and K. Hindle (2012). "Entrepreneurship as a Process: Toward Harmonizing Multiple Perspectives." Entrepreneurship Theory and Practice **36**(4): 781-818.

Nieri, A. H., et al. Fostering entrepreneurship for school-to-business transition a challenging role for postsecondary education. [Washington, DC], U.S. Dept. of Education, Office of Educational Research and Improvement, Educational Resources Information Center.
        1 v.

OECD, O. f. e. C. a. D. (1999). "Business Incubation: International Case Studies." OECD Publications, Paris.

Rice, M. P., et al. (1995). Growing New Ventures, Creating New Jobs: Principles and Practices of Successful Business Incubation, Quorum Books.

Scillitoe, J. L. and A. K. Chakrabarti (2010). "The role of incubator interactions in assisting new ventures." Technovation **30**(3): 155-167.

Smallbone, D., et al. (2002). "Targeted support for high-growth start-ups: Some policy issues." Environment and Planning C: Government and Policy **20**(2): 195-209.

Smilor (1987). "Managing the Incubator System: Critical Success Factors to Accelerate New Company Development." Transactions on engineering management **Em-34**(3): 10.

Tornatzky, L. B., Y.; McCrea, N.; Lewis, M.; Quittman, L; (1996). "The art & craft of technology business incubation: Best practices, strategies and tools from 50 programs." Southern Technology Council, NBIA and Ohio University INstitute for local government administration & rural development.

Vanrie, P. E. (2010). "The Smart Guide to Innovation-Based Incubators (IBI)." European Office of Publications: 41.

Yusuf, J. E. (2010). "Meeting entrepreneurs' support needs: Are assistance programs effective?" Journal of Small Business and Enterprise Development **17**(2): 294-307.

Appendix 1 – Initial Interview set-up

Interviews will have a semi-structured from and discussion is used to have the value-creating supporting activities emerge.

General information

Name	
Partners	
City	
Contact	
Since	
Sectors	
Financed by	
Number of employees	
Number of coaches	

Points of discussion:
Current programme (full overview)?

Intensity?   Number of start-ups?   Entry demands?   Exit policy?

Origin of current programme, which sources are used?

Literature?   Best practices?   Partner institutions?   Branch organisations?

How is the programme kept up to date?

Literature?   Best practices?   Partner institutions?   Branch organisations?

What does the incubator do in order to keep start-ups satisfied?

Reviews?   Feedback?   Similar studies?

Discussion on the framework

Appendix 2 – Selection Process of BI's

Incubator	Website	Problem?
ACE	http://www.ace-amsterdam.org	Wrong sector
Amborio	http://www.amborio.com/	Too small
Amersfoort Inc	http://www.taskforceinnovatie.nl/tfi-inspireert/amersfoort-inc	Broken link
Arnhem Mode Incubator	http://arnhemmodeincubator.blogspot.nl	Wrong sector
BID network	http://www.bidnetwork.org	International/outside Netherlands
Biopartner Center Leiden	http://www.biopartnerleiden.nl	Wrong sector
Biopartner Center Leiden	http://www.biopartnerleiden.nl	Wrong sector
BioPartner Center Maastricht	http://www.bpcm.nl	Wrong sector
Biopartner Center Wageningen	http://www.biofacilities.nl	Wrong sector
Brainport Eindhoven	http://www.brainportdevelopment.nl	Selected, refused
Bright Move	http://www.brightmove.nl	Not an Incubator
BTC (Bedrijfstechnologisch Centrum Twente BV)	http://www.btc-twente.nl	First generation
BViT innovatienetwerk	http://www.bvit.net	Second generation
Chemelot	http://www.chemelot.nl	Wrong sector
Cleantech	http://www.cleantechbusinessclub.com	Wrong sector
Creative Factory	http://www.creativefactory.nl	Wrong sector
CUBE050	http://www.cube050.nl	Second generation
CvJO (Centrum voor Jong Ondernemerschap)	http://doetinchem.cvjo.nl	Wrong sector
CWI Incubator	http://www.cwi-incubator.nl	Not an Incubator
Dialogues Incubator	http://www.dialogueshouse.nl/residents.html	Not an Incubator
Dnamo	Creative Factory	Wrong sector
Document Services Valley	http://www.documentservicesvalley.com/en	Wrong sector
Dutch Game Garden	http://www.dutchgamegarden.nl/incubator	Wrong sector
Dutch Institute of Management and Innovation	http://www.dimi.org	Broken link
eFuture	http://www.efuture.nl	Not an Incubator
Enginn	http://www.enginn.nl	Too small
Enter-prize	http://www.enter-prize.nl	Wrong sector
Erasmus MC	http://www.erasmusmc.nl/tto-cs/ondernemerschap/incubator	Wrong sector
ESA BIC Noordwijk	http://www.esa-bic.nl	Wrong sector
geomaticapark noordoostpolder	http://www.geomaticspark.com	Wrong sector
Healthy Ageing Campus Netherlands	http://www.healthyageingcampus.nl	Wrong sector
HUB	http://www.the-hub.net/	Wrong sector
IDEA Centers	http://www.ideacenters.nl	First generation
Immovator - Cross Media Innovation Center	http://www.immovator.nl	Not an Incubator
Incubator E	http://www.incubator-e.nl/	Too small
Inqubator	http://www.inqubator.nl	Too small
Internet Valley	http://www.griv.nl	Not an Incubator
LaunchCafé Groningen	http://www.launchcafe.nl	Selected
Life Science Center Oostervaart	http://www.mac3park.nl	First generation
MediaGilde	http://www.mediagilde.nl	Not an Incubator
New Energy Docks	http://www.newenergydocks.nl	Too small
Pivato Park	http://www.pivotpark.nl	Wrong sector
Rotterdam Internet Valley	http://www.r-iv.nl	Too small
Science Port Holland	http://www.scienceportholland.nl	Wrong sector
Startlife Breda	https://www.starterslift.nl	Selected, refused
StartupPush	http://www.startuppush.com	Too small
Stichting Business Generator Groningen	http://www.sbgg.nl	Wrong sector
TGN-Taiwan Globalization Network	http://www.taiwanglobalization.net	International/outside Netherlands
The Grounds	http://www.thegrounds.com	Wrong sector
THNK	http://www.thnk.org	Not an Incubator
Tilburg Innovation Centre	http://www.t-ic.nl	Selected, refused
Universitair Bedrijven Centrum Nijmegen	http://www.ru.nl/mercator/	Second generation
Universiteit Utrecht Holding B.V.	http://www.utrechtholdings.nl/stichting-incubator-utrecht.html	Wrong sector
Utrechtinc	http://www.utrechtinc.nl	Selected
Venture IT	www.venture-it.nl	Too small
VentureLab	http://www.venturelabinternational.com	Not an Incubator
Workalot (Caballerofabriek)	http://www.workalot.nl	First generation
WTC Twente - International Incubator Center	http://www.wtctwente.eu/nl/Services/International+Offices/Incubator+Center	Too small
YBP (Young Business Professionals)	http://www.ybp.nu	Too small
YEAH	http://www.yeahincubator.nl	Not an Incubator
Yes!Delft Incubator	http://www.yesdelft.nl	Selected

The list shows all the examined business incubators in the Netherlands. Six were selected and contacted, three of these were included in the sample. Of the three that refused, one had no time, one would not let me interview tenants and a third stopped all correspondence. It was later in the process that the co-working space was added to the sample.

Appendix 3 – Figures
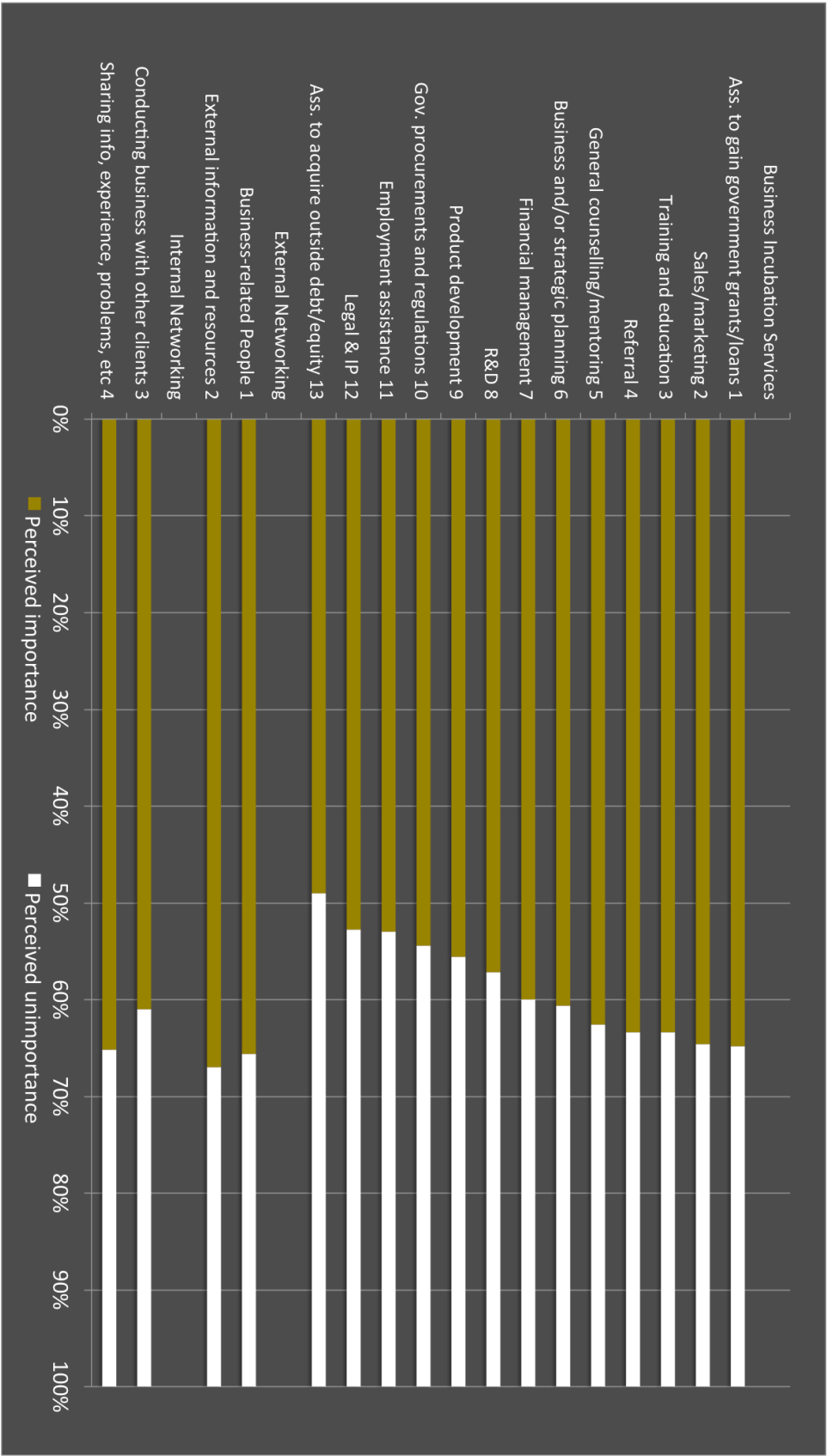
Figure 17 - Perceived importance of counselling related business incubation services. (Abduh, D'Souza et al. 2007)
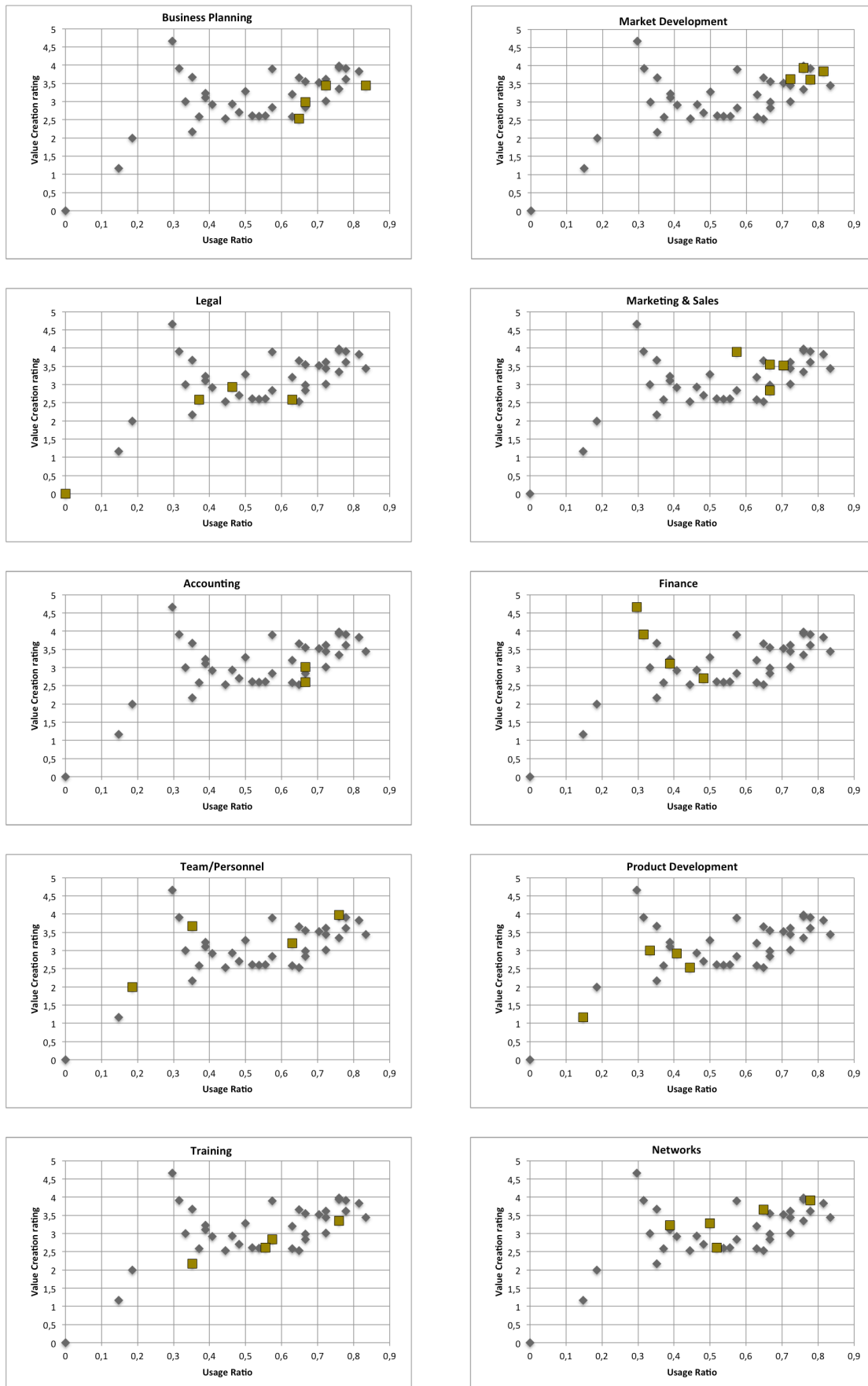
Figure 18 - Full overview of all the tenant responses. The gray series is the full set, the gold series are highlights to indicate the position of the segments (as noted in graph titles)
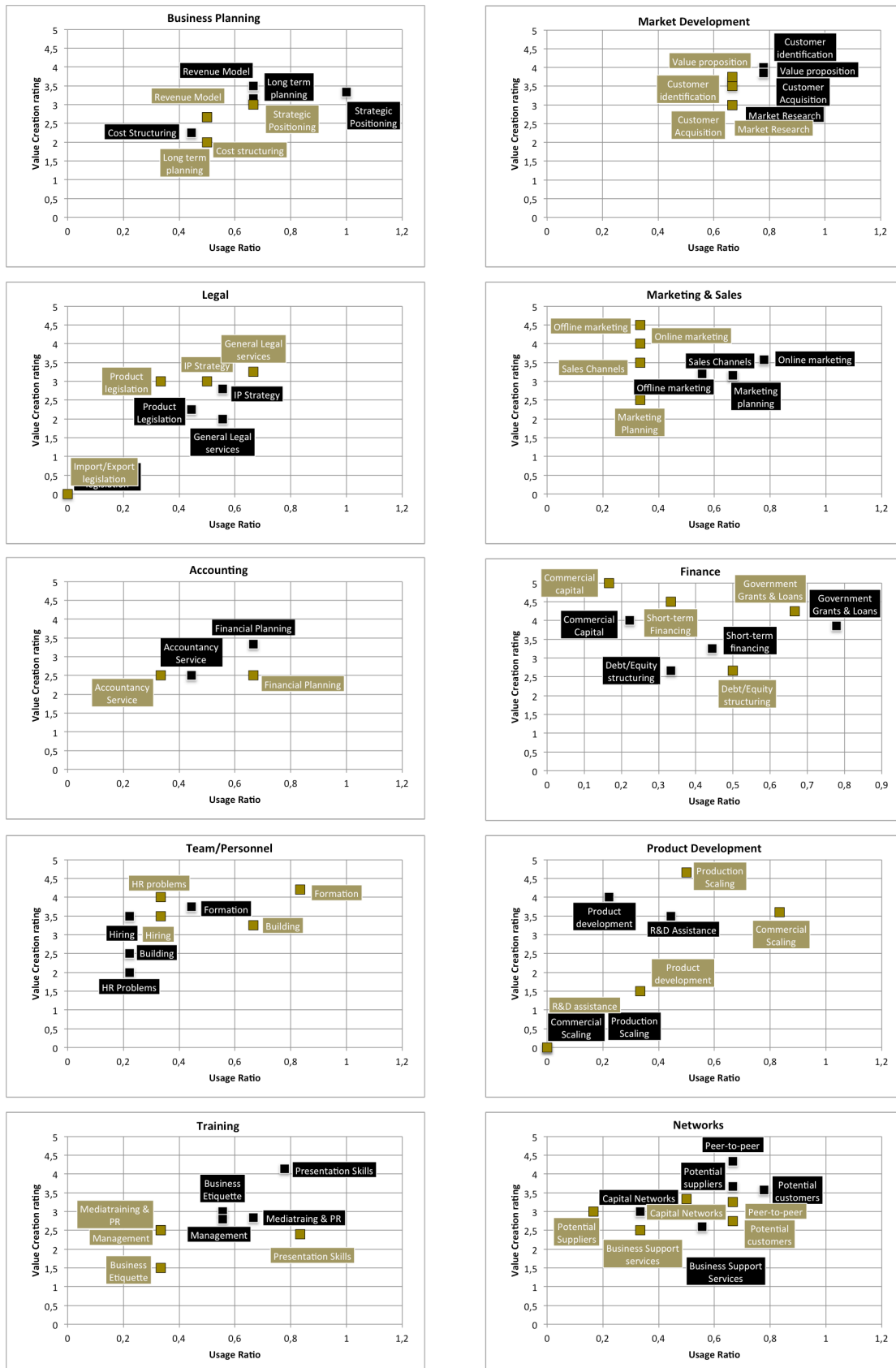
Figure 19 - Overview of the differences between the hardware (black) and software (gold) incubator. These series represent the results of the questionnaires under the tenants
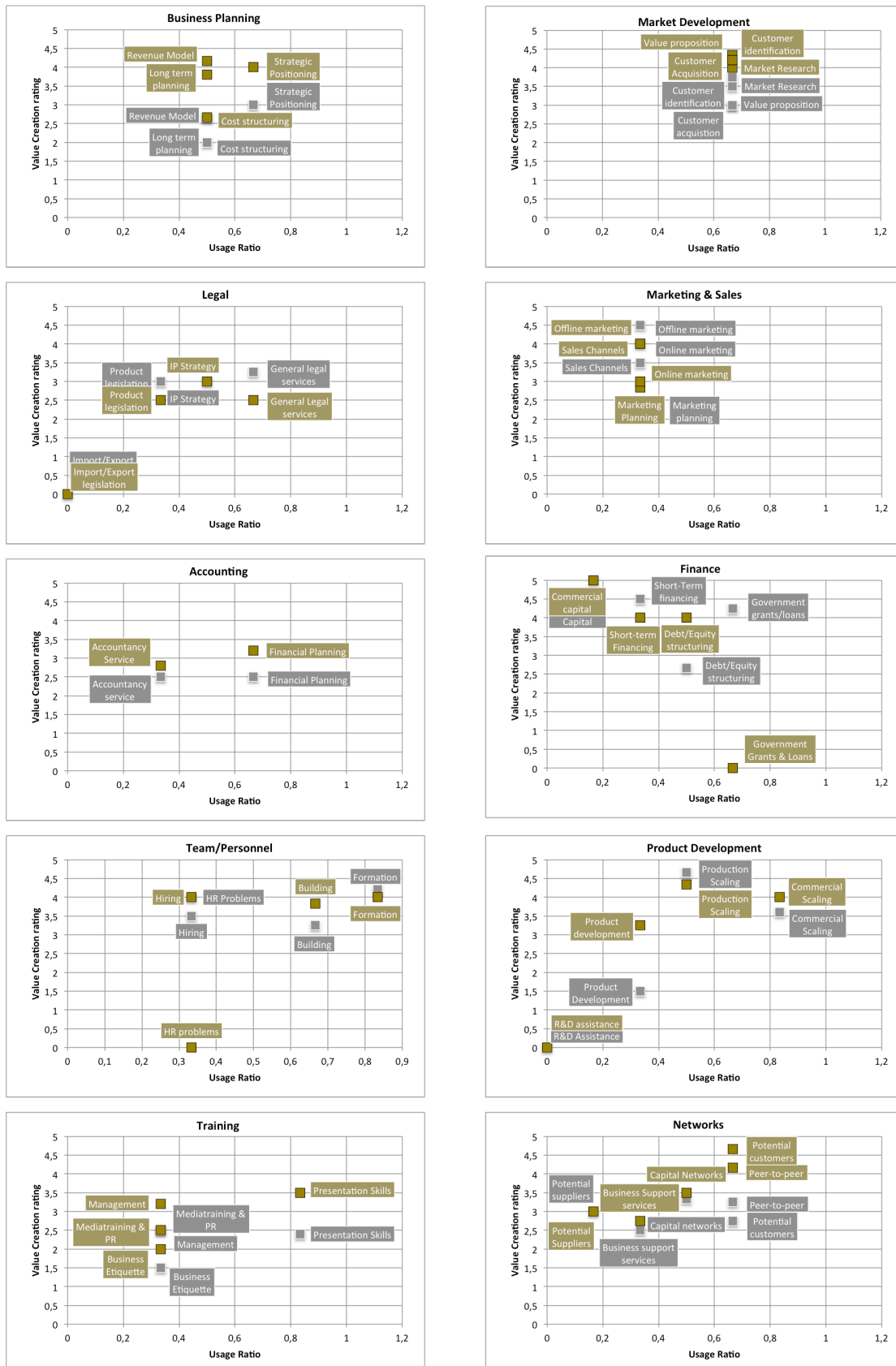
Figure 20 - Overview of differences between software start-ups in the start-up process. The co-working space is in gold, the software incubator in gray.

Appendix 4 – Questionnaire

The table shows the questionnaire that was handed to the tenants. The participants were asked to rate all the aspects on a 1-5 scale. At every rating a clarification or explanation could be given.

|	
Thank you for taking the time to participate in this survey. The goal of my thesis is to identify the supporting services and networks supplied by the incubator that create the most value for the start-ups. So, what are the aspects of the incubator program that enhance your abilities to survive and grow in business. Or, in other words, which services did enable you to grow and strengthen your start-up? And likewise, which didn't? The following pages will show different business incubator services and provide a 1-5 scale in order to rate these services. After the services a small number of networks will be discussed. Please rate the services and networks from a value creation perspective. All answers are treated confidentially and are not traceable to the respondent.	
Business planning	Revenue model planning Did your start-up structurize the way how it is going to monetize its services/products? If so, how much did this help your start-up to survive or grow in business?
	Cost structuring Did your start-up structurize the way costs are distributed in the organization? If so, how much did this help your start-up to survive or grow in business?
	Strategic positioning Did your start-up set out goals for the forseeable future and determine on how to reach those goals, in order to create the desired future? If so, how much did this help your start-up to survive or grow in business?
	Long term planning Did your start-up map its future needs and future goals, and ways to achieve those goals? If so, how much did this help your start-up to survive or grow in business?
Market development	Market Research Did your start-up map the target market? This involves the identification of competitors, trends, developments, market growth etc. If so, how much did this help your start-up to survive or grow in business?
	Customer identification Did your start-up identify potential customers and their needs/wants? If so, how much did this help your start-up to survive or grow in business?
	Customer Acquisition Did your start-up take action to gain customers and identify the ways by which the customers are the most easily attracted? If so, how much did this help your start-up to survive or grow in business?
	Value Proposition Did your start-up identify products and/ or services it delivers to the customers that create value for the customer? If so, how much did this help your start-up to survive or grow in business?
Legal	IP Strategy Did your start-up map out the best way to keep the intellectual property safe? If so, how much did this help your start-up to survive or grow in business?
	General legal services Did your start-up make use of general legal services? The spectrum of these services varies from composing contracts to writing service terms and agreements. If so, how much did this help your start-up to survive or grow in business?
	Product legislation Did your start-up make use of legal advice concerning product/service legislation? If so, how much did this help your start-up to survive or grow in business?
Marketing/Sales	Sales channels Did your start-up select or develop channels through which the customers can acces your product/ service? If so, how much did this help your start-up to survive or grow in business?
	Marketing planning Did your start-up map the activities it has to take to acheive the marketing goals set for the forseeable future? If so, how much did this help your start-up to survive or grow in business?
	Online marketing Did your start-up engage in in any online marketing activities? If so, how much did this help your start-up to survive or grow in business?
	Offline Marketing Did your start-up engage in any real-life marketing activities? If so, how much did this help your start-up to survive or grow in business?
Accounting	Accountancy service Did your start-up make use of accountancy services? If so, how much did this help your start-up to survive or grow in business?
	Financial planning Did your start-up use financial planning to gain insights in the financial performance of the start-up? If so, how much did this help your start-up to survive or grow in business?
Finance	Debt/equity structuring Did your start-up structure the debt/equity it has on the balance

	sheet? If so, how much did this help your start-up to survive or grow in business?	
	Government grants/loans Did your start-up make use of any grants or loans issued by the government? If so, how much did this help your start-up to survive or grow in business?	
	Commercial capital Did your start-up make use of any commerical capital? If so, how much did this help your start-up to survive or grow in business?	
	Short-term financing Did your start-up make use of short-term financing (i.e. Loan money to finance production runs, or pay employees etc)? If so, how much did this help your start-up to survive or grow in business?	
Team/Personnel	Team formation Did your start-up deliberatly shape the team as it is now? If so, how much did this help your start-up to survive or grow in business?	
	Team building Did your start-up engage in team building activities to increase benefits of teamworking? If so, how much did this help your start-up to survive or grow in business?	
	Hiring Did your start-up work on its hiring strategies? If so, how much did this help your start-up to survive or grow in business?	
	HR problems Did your start-up gain better understanding of how to handle with HR problems? If so, how much did this help your start-up to survive or grow in business?	
Product	Product development Did your start-up make use of product development services? If so, how much did this help your start-up to survive or grow in business?	
	R&D assistance Did your start-up work with R&D assistance? If so, how much did this help your start-up to survive or grow in business?	
Training	Presentation skills Did your start-up work on developing the presentation skills of the team? If so, how much did this help your start-up to survive or grow in business?	
	Business etiquette Did your start-up work on the business etiquette of the team members? If so, how much did this help your start-up to survive or grow in business?	
	Management Did your start-up gain help on the general management of the start-up? If so, how much did this help your start-up to survive or grow in business?	
	Mediatraining & PR Did your start-up get mediatraining, or learn how to handle the PR of the company? If so, how much did this help your start-up to survive or grow in business?	
Networks	Peer-to-peer Did your start-up participate in peer-to-peer networks? If so, how much did this help your start-up to survive or grow in business?	
	Potential suppliers Did your start-up participate in networks with potential suppliers? If so, how much did this help your start-up to survive or grow in business?	
	Potential customers Did your start-up participate in networks with potential customers? If so, how much did this help your start-up to survive or grow in business?	
	Business support services Did your start-up participate in networks with businesses that provide supporting services? If so, how much did this help your start-up to survive or grow in business?	
	Capital networks Did your start-up participate in capital networks? If so, how much did this help your start-up to survive or grow in business?	
	Do you have any remarks concerning the questionnaire? Feel free to leave them here.	

Appendix 5 – Dataset

Overall		Hardware BI		Software BI		Co-working space	
Service	*Score*	*Service*	*Score*	*Service*	*Score*	*Service*	*Score*
Acces to commercial capital	4,67	Peer-to-peer	4,33	Commercial capital	5,00	Commercial capital	5,00
Team formation	3,98	Presentation skills	4,14	Production Scaling	4,67	Potential customers	4,67
Value Proposition	3,94	Customer identification	4,00	Offline Marketing	4,50	Market Research	4,33
Short-term financing	3,92	Commercial capital	4,00	Short-term financing	4,50	Production Scaling	4,33
Peer-to-peer	3,92	Product development	4,00	Government grants/loans	4,25	Customer Acquisition	4,20
Offline Marketing	3,90	Value Proposition	3,86	Team formation	4,20	Value Proposition	4,20
Customer identification	3,83	Government grants/loans	3,86	Online marketing	4,00	Revenue Model	4,17
Hiring	3,67	Team formation	3,75	HR problems	4,00	Peer-to-peer	4,17
Potential customers	3,66	Customer Acquisition	3,67	Value Proposition	3,75	Strategic positioning	4,00
Customer Acquisition	3,62	Potential suppliers	3,67	Commercial Scaling	3,67	Customer identification	4,00
Market Research	3,61	Online marketing	3,57	Customer identification	3,60	Sales channels	4,00
Sales channels	3,56	Potential customers	3,57	Sales channels	3,50	Offline Marketing	4,00
Online marketing	3,52	Revenue Model	3,50	Hiring	3,50	Debt/equity structuring	4,00
Revenue Model	3,44	Market Research	3,50	Capital networks	3,33	Short-term financing	4,00
Strategic positioning	3,44	Hiring	3,50	General legal services	3,25	Team formation	4,00
Presentation skills	3,35	R&D assistance	3,50	Team building	3,25	Hiring	4,00
Capital networks	3,28	Strategic positioning	3,33	Peer-to-peer	3,25	Commercial Scaling	4,00
Potential suppliers	3,22	Financial planning	3,33	Strategic positioning	3,00	Team building	3,83
Team building	3,19	Short-term financing	3,25	Market Research	3,00	Long term planning	3,80
Debt/equity structuring	3,11	Offline Marketing	3,20	Customer Acquisition	3,00	Presentation skills	3,50
Financial planning	3,01	Long term planning	3,17	IP Strategy	3,00	Capital networks	3,50
Production Scaling	3,00	Sales channels	3,17	Product legislation	3,00	Product development	3,25
Long term planning	2,99	Marketing planning	3,17	Potential suppliers	3,00	Financial planning	3,20
IP Strategy	2,93	Business etiquette	3,00	Potential customers	3,00	Management	3,20
Product development	2,92	Capital networks	3,00	Revenue Model	3,00	IP Strategy	3,00
Marketing planning	2,83	Mediatraining & PR	2,83	Cost structuring	2,83	Online marketing	3,00
Management	2,83	IP Strategy	2,80	Debt/equity structuring	2,80	Potential suppliers	3,00
Government grants/loans	2,70	Management	2,80	Marketing planning	2,67	Accountancy service	2,80
Business support services	2,62	Debt/equity structuring	2,67	Accountancy service	2,67	Business support services	2,75
Mediatraining & PR	2,61	Business support services	2,60	Financial planning	2,60	Cost structuring	2,67
Accountancy service	2,60	Accountancy service	2,50	Management	2,50	General legal services	2,50
General legal services	2,58	Team building	2,50	Mediatraining & PR	2,50	Product legislation	2,50
Product legislation	2,58	Cost structuring	2,50	Business support services	2,25	Mediatraining & PR	2,50
Commercial Scaling	2,53	Product legislation	2,25	Presentation skills	2,25	Business etiquette	2,00
Cost structuring	2,53	General legal services	2,25	Long term planning	2,00	Import/Export Legislation	0,00
Business etiquette	2,17	HR problems	2,00	Product development	2,00	Government grants/loans	0,00
HR problems	2,00	Import/Export Legislation	2,00	Business etiquette	0,00	HR problems	0,00
R&D assistance	1,17	Production Scaling	0,00	Import/Export Legislation	0,00	R&D assistance	0,00
Import/Export Legislation	0,00	Commercial Scaling	0,00	R&D assistance	0,00		