

CLUSTERING TENANTS BASED ON THE BUSINESS MODEL ONTOLOGY TO
STUDY THE INFLUENCE OF BUSINESS MODELS ON TENANT UTILITY

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ABSTRACT

The importance of entrepreneurship has been acknowledged in scientific research. Although entrepreneurship is associated with several economic trends a lot of new business fail due to lack of knowledge and resources. Business incubators help entrepreneurs' start-up, survive, and succeed. Business incubators can significantly improve the survival and growth prospects of new and small firms at an early stage of development. In order to add value and help maximising tenant growth incubators provide tenants with several incubator mechanisms. In order to develop a successful incubator and enhance the incubation process the incubator should gain understanding of tenant needs. However, there is unlikely to be a best practice towards incubation. This research is based on the assumption that tenants differ in regard to which mechanisms provided by incubators meets their needs and contributes to incubate performance. This research focuses on developing an advice for document services incubator, a business incubator located in Venlo, the Netherlands, brought into existence in collaboration with Canon/Océ, Excer and Maastricht University. This research is conducted among tenants in the DSV PADS I program.

OBJECTIVE

This research examines the possibility to identify tenants with a similar utility in order to optimise the incubation process. In addition, this research aims to gain a deep understanding of tenants needs and preferences.

METHODS

Through standardised abstract interviews with business developers at DSV the business models of tenants will be identified. The two-step cluster analysis identifies similar tenants based on these business models. Through a self-explicated conjoint analysis the preferences of tenants will be identified regarding incubator mechanisms. To examine if there is a significant relationship between business models and tenant utilities several statistical tests will be done.

FINDINGS

The two-step cluster analysis provided four clusters with a good cluster quality. The findings show that if tenants create value through innovation their segmentation deviates towards platforms, while their revenue model deviates towards selling.

The self-explicated conjoint analysis shows a strong tenant preference towards internal network, external network, internal financing and external financing and a low tenant preference towards administration assistance, infrastructure and training. Tenants that prefer external network are also likely to prefer business assistance, while tenants that prefer infrastructure are also likely to prefer administration assistance.

The MANOVA test shows no significant difference in tenant preferences among clusters. However, the business model elements value proposition and segmentation show that there is a strong significant difference on external financing among clusters.

The Kruskal-Wallis test indicates a significant difference regarding infrastructure between tenants in different PADS phases.

CONCLUSION

There is no statistical evidence to conclude that tenant utilities can be predicted using tenant business models. There is a universal preference for financing and networking among DSV tenants. Tenants creating value through innovation and platform-based tenants strongly prefer external financing compared to non-innovative tenants and application-based. In addition, start-ups tend to prefer infrastructure, while experienced entrepreneurs tend to prefer an external network.

KEY WORDS

Entrepreneurship, business incubator, tenant utility, business model ontology

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INTRODUCTION

1.1 INNOVATION, ENTREPRENEURSHIP AND BUSINESS ASSISTANCE PROGRAMS

Innovations profoundly altering the basis for competition in an industry (i.e., radical innovations), often rendering old products (O'Reilly and Tushman, 2004), are often developed by small or newly founded organisations guided by an entrepreneur (Baumol, 2004). Entrepreneurship has long been valued as a key contributor to the growth of an economy (Baumol, 2004; Moutray, 2010). Alongside similar lines Foss, Klein, Kor and Mahoney (2008) argue that entrepreneurship is the core of the dynamics of capitalism and the entrepreneur is the driving force of the whole market system (Foss, Klein, Kor & Mahoney, 2008).

The importance of entrepreneurship has been acknowledged in scientific research. However, there is little consensus regarding what can exactly be defined as entrepreneurship. Shane and Venkataraman (2000) define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited. According to Foss et al. (2008) occupational theories define entrepreneurship as self-employment – people who start their own business. In contrast the economic theory of entrepreneurship defines entrepreneurship as a function, activity, or process (Foss et al., 2008). The structural approach towards entrepreneurship defines the entrepreneurial firm as a new or small firm (Foss et al., 2008; Baumol, 2004). In this research entrepreneurship is referred to as a new or small firm as the research focuses on business incubators that tend to focus on existing small firms and new firms. Therefore the structural approach would yield more valid results for business incubators compared to the other definitions of entrepreneurship.

Although entrepreneurship is associated with several economic trends – like innovation, employment and economic growth – a lot of new businesses fail due to lack of knowledge and resources (Moutray, 2010). Business assistance programs are targeted at helping entrepreneurial ventures start up, survive, and succeed (Rice, 2002). In such business assistance programs – like business incubators – two parties engage in co-production to compensate for the firm's gaps in knowledge, competencies and resources (Rice, 2002). Business incubators can significantly improve the survival and growth prospects of new and small firms at an early stage of development (EC, 2002).

1.2 BUSINESS INCUBATOR CONCEPT

Definitional ambiguity exists in literature regarding business incubators (Hackett & Dils, 2004b). An extensive literature review will be examined and reviewed to create consensus regarding the business incubator concept. This research defines business incubators as facilitators of early-stage development to start-ups through shared services and business assistance (Hackett & Dils, 2004b). A business incubator is an innovative system designed to assist entrepreneurs, particularly technical entrepreneurs, in the development of new firms (Smilor, 1987) or existing small firms. By providing a variety of services and support to start-up and emerging companies, the incubator seeks to link effectively talent, technology, capital and know-how to leverage

entrepreneurial talent, accelerate the development of new companies, and thus speed the commercialisation of technology (Smilor, 1987).

According to a study of the European Commission (2000) 40,000 jobs are created in the EU by incubators each year. Business incubators add value by accelerating start-ups and helping them maximise their growth potential (EC, 2002). Rice (2002) defines incubates (small and medium-sized entrepreneurial ventures located in an incubator) as a consumer of business incubator services. In this research incubates (i.e., entrepreneurs participating in the business incubator) are referred to as tenants. Business incubators constitute an environment especially designed to develop businesses. They provide their tenants with several services, ranging from office space and capital to management support and knowledge. This allows the tenant to focus on its business plan and enhances the success rate (Aerts et al., 2007). The benchmark study of the European Commission (2002) revealed that the survival rate of tenants was significantly higher – 80% to 90% of tenant firms still exist after 5 years – than the business success rate amongst the wider SME community (Aerts et al., 2007). The success of an incubator depends on the performance of its tenants and thus an incubator benefits from limiting the tenant failure rate (Aerts et al., 2007).

In order to add value and help maximising tenant growth incubators provide several services to tenants. In this research these incubator services are referred to as incubator mechanisms. However, incubators differ in the mechanisms (e.g., office space, finance, learning or networks) they (can) offer to tenants. In addition, there is unlikely to be a best practice towards incubation due to the fact that tenants are contingent in their need for incubator mechanisms. In other words, not all tenants have the same utility – extend to which services provided to client companies meets their needs and contributes to incubate performance (EC, 2002). Tenants might benefit from financing while other tenants might benefit more from a network. However, how can incubators identify which mechanism(s) benefits tenants most? The assumption can be made that certain homogeneous groups of tenants might share a need for incubator mechanisms that would benefit their business most.

This research focuses on identifying tenant utility and investigating whether a significant relationship between homogeneous tenant groups (e.g., clusters) and their utility can be found. The first stage of this research examines whether tenants can be clustered into homogenous groups based on their business models. The second stage of this research examines whether tenants differ in their need of incubator mechanisms to maximise their growth potential and add value to their business (i.e., contribute to tenant performance). Finally, in the data analysis a profound analysis will be done to examine the correlation between clusters and their utility. However, all clusters might need capital to start up a business. Therefore this research tries to distinguish which incubator mechanisms are universal, contingent or configurational. Some authors have adopted a universalistic perspective and argue for a “best practice” approach (Delery and Doty, 1996). Delery and Doty (1996) argue that some practices are always better than others and all organisations should adopt these best practices (Delery and Doty, 1996). The universalistic perspective implies that the relationship between a given

independent variable and a dependent variable is universal across the population of organisations (Delery and Doty, 1996). However, the contingency perspective is more complex because it implies interactions rather than linear relationships incorporated in the universalistic perspective (Delery and Doty, 1996). Contingency theorists argue that, in order to be effective, organisations policies should be consistent with other aspects of the organisation (Delery and Doty, 1996). Research focused on contingency seeks to understand the behaviour of a social entity by separately analysing its components. Therefore, contingency theorists implicitly treat organisations as loosely coupled aggregates (Meyer, Tsui & Hinings, 1993). Some contingency theorists endorse the open system concept of equifinality – the idea that different forms can be equally effective. In other words, the contingency perspective implies that the relationship between the independent variable and the dependent variable will be different for different levels of the contingency variable (Delery and Doty, 1996). Configurational theory asserts that the parts of a social entity take their meaning from the whole and cannot be understood in separation. Configurational theorists are guided by the holistic principle of inquiry, based on typologies of ideal types (Delery and Doty, 1996). In general, configurational theories are concerned with how multiple independent variables are related to a dependent variable instead of how individual independent variables are related to a dependent variable (Delery and Doty, 1996). Variables found to be causal in one configuration may be unrelated or even inversely related in another. Configurations allow people to order and make sense out of their world by sorting things into distinct and relatively homogeneous groups (Meyer, Tsui & Hinings, 1993).

1.3 BUSINESS MODEL ONTOLOGY

In order to classify and cluster firms a model should be used that allows a general characterisation of the social entity – the tenant firm – as a whole. For this general characterisation business models – abstract representations of organizations – will be used in this research. Different variables influence firms' success and the business model ontology of Osterwalder (2004) allows this research to decompose tenant firms into four pillars, which can be further decomposed into nine building blocks, in order to make a general classification and group firms into clusters.

A new idea or new technology by itself has no single objective value. Therefore the economic value of a technology remains latent until it is commercialised through a business model (Chesbrough, 2010). The business model represents the gap between business strategy and business processes (Al-Debei & Avison, 2010). Established firms as well as start-ups take technology to the market through a venture shaped by a specific business model, whether explicitly considered or implicitly embodied in the act of innovation (Chesbrough & Rosenbloom, 2002). Osterwalder and Pigneur (2009) define business models as the underlying idea of how an organisation creates, delivers, and maintains value. The same idea or technology taken to market through two different business models will yield two different economic outcomes. Unless a suitable model can be found, these technologies will yield less value to the firm than they otherwise

might (Chesbrough, 2010). According to Morris, Schindehutte and Allen (2005) the business model can be used as a central construct in entrepreneurial research.

1.4 RESEARCH GOAL AND RESEARCH QUESTIONS

In order to develop a successful incubator and enhance the incubation process the incubator should gain a deep understanding of the tenant needs. Therefore the research goal is to provide business incubators with a profound way to identify tenants utilities and come to understand tenants utilities in order to optimise the incubation process. The practical implications deriving from this research could be that incubator should only allow certain types of tenants in the incubation process (i.e., specialise in a cluster), which the incubator can actually help add value and grow. This research aims at providing business incubators with a map stating which type of tenant will benefit from which incubator mechanism(s).

The main research question in this research is:

“How can tenants with a similar utility be identified through business models to contribute to the optimisation of the incubation process?”

To provide an answer to this research question sub-questions have been formulated. These sub-questions are:

- (1) How can business models be used to cluster homogenous tenant groups?
- (2) What other variables could be used to predict tenant utility?
- (3) Why should tenant utility be identified?
- (4) Which incubator mechanisms can be identified from literature?

1.5 RESEARCH STRATEGY

The research strategy in this research is two-staged. In the first stage this research aims to identify tenant clusters in the document services valley PADS program using business models. The second stage of this research aims to come to understand tenants utility. Therewith an advice can be given to enhance the incubation process and develop a successful incubator through a deeper understanding of tenant needs.

1.5.1 RESEARCH DESIGN

This research follows several steps to identify tenant needs. First a profound literature review will be conducted to identify business models and incubator mechanisms. There are several definitions of business models. Therefore a thorough analysis should be conducted to identify one business model that is most applicable for this research to analyse tenants. The business models of tenants will be clustered using a two-step cluster analysis. This cluster analysis will compose clusters of tenants with similar configurations. Only six variables can be used in the cluster analysis to render valid results. Therefore a distinction should be made between which elements of the business model ontology should be used.

Through a literature review several incubator mechanisms will be identified. This research will be conducted based on a multiple case study design to come to understand tenants utility through a self-explicated conjoint analysis. A multiple case study design is relevant when the research question seeks to explain some present circumstance (e.g., “how” or “why” some social phenomenon works) and the more the research question requires an extensive and “in-depth” description (Yin, 2009). This conjoint analysis will reveal the potential utility of each expected incubator mechanisms. The respondent (i.e., case) will evaluate each attribute (i.e., incubator mechanism) on a comparative and conjunctive scale and rate the attributes on their importance in this self-explicated conjoint analysis. Therewith revealing utility-scores for each attribute, providing a measure of the preference for each attribute.

1.5.2 DATA COLLECTION

The data will be collected through face-to-face interviews and videoconferences. Collecting data from tenants is considered a challenge due to money and time restrictions. In addition, most tenants have limited time for collaborating with researchers. Therefore the tenants cannot be interviewed individually. Hence data regarding business models will be collected through face-to-face interviews with business developers at document services valley. This will not limit the results of the research, due to profound knowledge of business developers regarding tenants in the PADSİ program, while the results are considered more objectively compared to interviews with tenants. The business models will be standardised, with six variables, which can be easily answered by business developers at document services valley that worked closely with the tenant firms throughout the PADSİ program.

Data in the second stage of this research will be collected through structured interviews with at least four tenants in each identified cluster. In these interviews the tenants are asked to evaluate incubator mechanisms on a conjunctive scale and on importance (i.e., compensatory scale). During this evaluation the tenants are asked to think aloud, in order to come to understand tenants utility.

In both phases of this research a pilot will be held in which a few interviews are done that will be reviewed. According to Gill, Stewart, Treasure and Chadwick (2008) it is often wise to first pilot the interview schedule on several respondents prior to proper data collection. This allows the research team to establish whether the interview is clear, understandable and capable of answering the research questions, and if any changes to the interview schedule are required (Gill et al., 2008).

1.5.3 DATA ANALYSIS

The data in the first stage of this research will be analysed using a two-step cluster analysis. The cluster analysis will identify clusters and define the cluster quality. If the identified clusters are strong, implications can be derived from these clusters. If the clusters are weak they should be further decomposed in more clusters to derive practical implications. If the cluster quality is still low with >6 clusters identified, the clustering method will not be considered as applicable for incubators based on the business model of tenants in this context. This analysis also identifies which business

model elements are important for the clustering method and which elements are not. This will be beneficial for the business incubator when more tenants join the incubation process to identify which clusters the new tenant should be in and therewith which incubator mechanisms will benefit the tenant most.

The data in the second stage of this research will be analysed by calculating the utility scores of each attribute. These utility-scores are obtained through a self-explicated conjoint analysis. This conjoint analysis contains a compensatory stage and a conjunctive stage. In the compensatory stage the participants are asked to rank incubator mechanisms on importance. In the conjunctive stage the participants are asked to value each mechanisms between 0-100. Self-explicated utility scores are obtained by multiplying the compensatory values with the conjunctive values divided by 100, for a more convenient range of 0 to 100. A correlation analysis will be conducted through IBM SPSS 20 to identify whether attributes are related to each other. Finally the study results of the two stages will be combined to determine whether there is a significant relationship between the clusters and the utility of tenants.

THEORY

2.1 BUSINESS INCUBATOR

States, regions, and cities have initiated economic development programs aimed at: (1) maintaining existing industries and firms, (2) recruiting established firms from other areas, and (3) creating new industries and enterprises (Rice, 2002). Regarding the third objective, there has been a proliferation of business and technical assistance programs aimed at increasing the formation, survival, and success rates of small and medium businesses (Rice, 2002). These include small business development centres, small business institutes, enterprise forums, university-based entrepreneurship centres, business incubators, and so forth (Rice, 2002). This research focuses on business incubators. Business incubators offer the opportunity to deploy multiple modes of assistance – including continual interaction (Rice, 2002). Incubators offer tenants a number of benefits – office space, funding and basic services such as recruiting, accounting, and legal – usually in exchange for equity stakes (Hansen et al., 2000). Without precise definitions it is difficult to ascertain the actual size of the incubator population to which systematic research efforts seek to generalize their findings.

2.1.1 BUSINESS INCUBATOR DEFINITIONS

There are several sources of definitional ambiguity towards business incubators (Hackett & Dilts, 2004b). In its generic sense, the term 'business incubator' is often used to describe a wide range of organisations that in one way or another help tenants develop their ideas from commencement and commercialisation to launching a new enterprise. A broad definition of the term embraces technology centres and science park incubators, business and innovation centres (Swierczek, 1992), and virtual incubators that endeavour to deliver business assistance services to incubates who are not co-located within the incubator (Hackett & Dilts, 2004b). The European Commission (2002) defines a business incubator as an organisation that accelerates and systematises the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including incubator space, business support services, and networking opportunities. Business incubators provide tenants with a supportive environment to help establish and develop their projects. In other words, business incubators facilitate the development of tenants through providing support in the early stages of their development. Through providing tenants with services and reducing cost through sharing and collaboration, business incubators can significantly improve the survival and growth prospects of tenants at an early stage of development (EC, 2002). A successful business incubator will generate a steady flow of new businesses with above average job and wealth creation potential (EC, 2002).

Hackett and Dilts (2004a) define business incubator as a shared office-space facility that seeks to provide its tenants with a strategic, value-adding intervention system (i.e., business incubation) of monitoring and business assistance. However, a shared office space is a service not offered by all incubators. Therefore this research uses the definition of Smilor (1987), which defines the business incubator as an innovative system designed to assist tenants, particularly technical tenants, in the development of

new firms. By providing a variety of services and support to tenants, the incubator seeks to link effectively talent, technology, capital and know-how to leverage entrepreneurial talent, accelerate the development of new companies, and thus speed the commercialisation of technology (Smilor, 1987). A business incubator is a facilitator of early-stage development of firms through shared-services and business assistance (Hackett & Dilts, 2004b). Hackett and Dilts (2004b) identified several taxonomies classify incubators more precisely; (1) the incubator's primary financial sponsorship (i.e., publicly-sponsored, non-profit-sponsored, university-sponsored, and privately-sponsored), (2) The type of tenant (i.e., spin-off or start-up), (3) the business focus of the tenants (i.e., product-development, manufacturing and mixed-use), and (4) the business focus of the incubator (i.e., property development or business assistance). However, the taxonomies of convenience that have been employed in the literature thus far have not been useful with regard to explaining variation in incubation outcomes (Hackett & Dilts, 2004b). The successful performance of a business incubator depends on the number and performance of the tenants they attract. It is clearly important to achieve a critical mass in order to maximise the economies of scale with regard to service provision and costs. Business incubators typically focus on attracting a combination of pure start-up companies and firms at an early stage of development (EC, 2002).

2.1.2 RESEARCH GAP

Hackett and Dilts (2004b) systematically reviewed 38 studies in a literature study regarding business incubators and business incubation. This research included all published research on incubators-incubation written in English between 1984 and 2002 in journals like: *American Journal of Small Business*, *Economic Development Quarterly*, *Economic Development Review*, *Harvard Business Review*, etc. Through chronologically examining business incubator/incubation literature five primary research orientations have been identified: incubator development studies, incubator configuration studies, incubate development studies, incubator-incubation impact studies, and studies that theorize about incubators-incubation (Hackett & Dilts, 2004b). Early studies (1984-1987) regarding incubator research focused on incubator definitions, taxonomies and policy prescriptions. The goal of early incubator-incubation researchers was to accurately and/or normatively describe incubators (Hackett & Dilts, 2004b). Later on (1987-1990) business incubator research focused on business incubators configurations. These studies examined conceptual frameworks and tenant selection (Hackett & Dilts, 2004b). During the third research stream, incubator development studies (1987-1988), incubator research focused on tenant development. Tenant development studies seek to explain new venture development within a business incubator (Hackett & Dilts, 2004b). From 1990 until 1999 business incubator research focused on incubator-incubation impact studies investigating whether the incubation concept influences incubate and incubator success (Hackett & Dilts, 2004b). Finally incubator research focused on explicit and implicit use of formal theories about incubator-incubation regarding the influence of incubators on entrepreneurship, business incubator antecedents and new incubator types (i.e., virtual and network

incubators) (Hackett & Dilts, 2004b). However, it is difficult to obtain data from early stage ventures irrespective of whether the firm is located in an incubator (Hackett & Dilts, 2004b).

Research in the incubator configuration studies generally limited their research scope to examining incubator configurations. Adding to that subsequent research streams focused on incubate development and incubator antecedents. However, this research aims to develop a method to cluster tenants and link these clusters to incubator mechanisms that contribute to incubate performance in order to optimise the incubation process. Hence this research aims to combine several research streams not previously examined in incubator literature.

2.2 INCUBATOR MECHANISMS

The characteristics of an incubator appear to influence the nature of the tenant and, to some degree, their subsequent patterns of success (EC, 2012). According to Abduh et al. (2007) business incubators provide their tenants with a wide range of business assistance services ranging from tangible (e.g., physical facilities and office equipment) to intangible services (e.g., direct counselling by incubator managers, interacting with other clients and bridging networks to businesses outside incubators). Fundamentally, there appear to be four substantial values added to the new business by the business incubator: (1) the provision of a growing network of business development expertise; (2) the provision of capital – if needed – to pay for product development and the business services provided by third party professionals; (3) the cost-effective selection, provision and monitoring of the acquisition, implementation and coordination of the various business services needed by the new business; (4) the diagnosis of the total business needs of a new business, from the collective experience of a diverse group of business generalists and specialists (Campbell, Kendrick & Samuelson, 1985).

This research identified four incubator mechanisms from business incubator literature – network, financial support, physical resources and incubator services (Table 2). These four mechanisms have been identified from several scientific studies regarding incubators and can be decomposed into different elements.

2.2.1 INCUBATOR MECHANISMS – NETWORK

It is important to recognize the key role the entire incubator network plays in incubating new ventures (Hackett & Dilts, 2004a). An incubator is not simply a shared-space office facility, infrastructure and mission statement (Hackett & Dilts, 2004b). Therefore it is important to keep the totality of an incubator in mind. The incubator network typically includes the incubator manager and staff, incubator advisory board, fellow incubator companies and employees, local universities and university community members, industry contacts, and professional services providers such as lawyers, accountants, consultants, marketing specialists, venture capitalists, angel investors, and volunteers (Hackett & Dilts, 2004a). An important role of the incubator, according to Bergek and Norman (2008), is to act as a mediator between tenants and external actors. The incubator acts as a bridge between tenants and their environment, to leverage entrepreneurial talent and/or resources. This network can provide information,

knowledge and expertise that are vital for the survival of tenants and may reduce failure. Partnering with other organisations offers the opportunity to acquire new knowledge and develop new capabilities. Building knowledge and capabilities through inter-organisational relationships is faster than if the firm were to develop the knowledge and capabilities internally (Bruneel, Yle-Renko, & Clarysse, 2010). Internally created ties can develop into strong ties that are expected to lead to knowledge sharing.

According to Totterman and Sten (2005) the social aspect of entrepreneurship is central for sustainable growth and the success of an entrepreneur. Business incubators can support potential tenants in their development process by helping them build promising support and business networks (Totterman & Sten, 2005). According to Rice and Matthews (1995) an incubator's network offers access to resources and know-how that tenants often do not have, but definitely need. The incubator has an important task in assisting and supporting the creation and development of value-adding network relations (Rice, 2002). A networked incubator can provide tremendous value to a start-up team through network connections that help to create partnerships, recruit talented people, and obtain advice from outside experts (Bøllingtoft & Ulhøi, 2005; Hansen, Chesbrough, Nohria & Sull, 2000). Lyons (2002) identified two different incubator categories regarding networks, *internal* linkages among community members and *external* linkages with other *communities*. The building of links between and among the various players in the enterprise development area (i.e., entrepreneurs, business development service providers, governments, private corporations, social service agencies, and others) can help to make the likelihood of successful business development, on a scale necessary to create community economic transformation, much greater (Lyons, 2002). In other words, the key to successful business development lies in the building of social capital (Lyons, 2002, p. 196).

According to Lyons (2002) the most important service offered by an incubator is an internal networking opportunity among tenants. Tenants located in one building will be more likely to collaborate (Lyons, 2002). The expected synergy generated from cooperating and learning with complementary tenants in the incubator or from more mature companies that have graduated from the incubator can provide tenants with great advantages (Grimaldi & Grandi, 2005). An incubator and its external networks are useful to social capital building. They link tenants with service providers and with other local businesses for partnership purposes (Lyons, 2002). Business incubators can be of great help in this process if they themselves have good networks and they know how and which tenants can benefit from these networks. Furthermore, business incubators should carefully consider what kind of tenant mix and industry focus would most effectively stimulate the existence of synergies and commitment among tenants (Totterman & Sten, 2005). The focus of business incubators should be on selecting companies that are particularly well suited to the program, which means that tenants are able to mutually benefit from other tenants' proximity. In addition, the incubator should carefully consider what range of business types should be accepted. Too wide a range will diminish synergic opportunities among tenants, whereas too industry-specific a range might raise competitive issues (Totterman & Sten, 2005).

2.2.2 INCUBATOR MECHANISMS – FINANCIAL SUPPORT

The business incubator can either provide for or arrange access to the sources of financial support needed by the new company (Campbell et al., 1985; Zedtwitz & Grimaldi 2006). This is considered as an important incubator mechanism to tenants, because capital is the lifeblood of emerging businesses (Smilor, 1987). Consequently, access to working capital financing is incredibly important to tenant companies. A study by Smilor (1987) shows that access to and evaluating financial options, access to loans and grants, loan packaging, and introduction to venture capital institutions and venture capitalists are important to tenants. Given the range of complexity of financing alternatives, tenants need assistance in understanding the alternatives and determining which alternative may be best for them (Smilor, 1987). The ability to perceive and appreciate what tenants give up and what they get through any particular financial option is important in launching and developing a new business. This process involves understanding the technical and financial dimensions of an alternative and recognizing the attitudes, perspectives and concerns – the mind set – of those providing funds to the venture (Smilor, 1987). There are a number of different ways to finance businesses; through personal loans, government grants, and individuals, institutions and agencies that provide loans and grants as well as newer mechanisms such as business angels (i.e., private individuals using their own money directly in unquoted companies in which they have no family connection (Sørheim, 2003). Therefore, an incubator can provide an important link to the venture capital community by focusing early attention on tenants, by making introductions as the business proves itself in the marketplace, and especially by educating tenants to the venture capital process and the mind-set of the venture capitalist (Smilor, 1987).

2.2.3 INCUBATOR MECHANISMS – PHYSICAL RESOURCES

Certain business incubators offer private office spaces, sharing common equipment such as computers, copy machines, and common areas as the reception area, conference rooms, libraries, and storage areas to tenants (Zedtwitz & Grimaldi, 2006). Offering affordable, flexible office space and conference rooms have a significant value adding contribution to tenant firms (Mian, 1996). Some business incubators even offer shared office, secretarial and telecommunication services (Campbell et al., 1985). Smilor (1987) distinguishes three types of in-kind support services; secretarial, administration, and facilities support. These in-kind support services incubators provide a range of basic, but much-needed services that tenants require but may often neglect, ignore or cannot afford (Smilor, 1987). Tenants can pay the cost of these services in a variety of ways (low or subsidised rent, competitive rent, equity share in the company, or on an as-used basis). The most important secretarial in-kind service support services are (photo-) copying, a receptionist, word processing, and general typing. The most important administrative services are equipment rental, mailing, accounting help, and contract administration (Smilor, 1987). The most important shared facility services (i.e., infrastructure) are security, computers, and conference rooms (Smilor, 1987). However, the underlying business premise of private sector business incubators is that the

primary needs of a new business relate to access to business services and support networks, and less to capital and cheap space (Campbell et al., 1985).

2.2.4 INCUBATOR MECHANISMS – INCUBATOR SERVICES

Tenants often have the talent and ideas to launch a new venture, but lack the business know-how to transform these assets into viable businesses (Smilor, 1987). Hence, emerging businesses often require business expertise. The incubators primary role is to assist tenants with the ability to acquire knowledge (Hansen et al., 2000). The main reason for entering an incubator for tenants is to take advantage of the greater knowledge and experience of the incubator manager (Rice, 2002). The incubator manager or, when the manager lacks the capabilities to provide the needed services, external sources can provide these services. The incubator services provided by incubator manager(s) or external partner(s) operating in the incubator include business assistance (e.g., counselling, coaching and support) and training services on issues in management, business and marketing plans, public relations, accounting, legal and human resources (Campbell et al., 1985; Grimaldi & Rice, 2002; Grandi, 2005; Zedtwitz & Grimaldi, 2006; Abduh et al., 2007; Bollingtoft, 2012). Services thus include advice in several forms, like workshops and coaching. The incubator services accommodated by the incubator are valuable sources of (entrepreneurial) knowledge that can have a positive effect on the tenant. Counselling refers to the actual diffusion of knowledge and advice to tenants and has been emphasized as a critical part of business assistance (Rice, 2002).

According to a study of Smilor (1987) the most important services for tenants include business planning, marketing, accounting, and management. The marketing service is essential in both differentiating the product of the company and establishing the credibility of the firm in a highly competitive environment (Smilor, 1987). Management determines how emerging businesses respond to changes in the marketplace and especially how effectively they will deal with growth. Managing human, financial, and technological resources demand skills that very often need to be learned by tenants and then enhanced through experience (Smilor, 1987). Business planning requires that tenants look past their first product. They need to anticipate new products and chart the general direction and future needs of the business. The accounting function for tenants is a key part of the control and oversight mechanisms for the business. It is particularly important to tenants in terms of coming in grips with cash flow (Smilor, 1987). Business developers in the incubator as well as external partners (e.g., universities and large companies) can provide these services by offering training or workshops. Mian (1996) identified several university-related services, like faculty consultants, university library services, technology education and training, and sport and social activities. These university-related services, as well as business assistance service provide a value-adding contribution to tenants (Mian, 1996).

Incubator mechanism	Elements	Source(s)
<i>Network</i>	Internal network	Lyons (2002); Hackett & Dilts (2004a); Hackett & dilts (2004b); Totterman & Sten (2005); Grimaldi & Grandi (2005); Bruneel, Yle-Renko & Clarysse (2010)
	External network	Rice & Matthews (1995); Hansen, Chesbrough, Nohria & Sull, (2000); Rice (2002); Lyons (2002); Hackett & Dilts (2004a); Hackett & dilts (2004b); Bøllingtoft & Ulhøi (2005); Totterman & Sten (2005); Bergek & Norman (2008);
<i>Financial support</i>	Internal access to financial support	Campbell et al. (1985); Zedtwitz & Grimaldi (2006)
	External access to financial support	Smilor (1987); Campbell et al. (1985); Zedtwitz & Grimaldi (2006)
<i>Physical resources</i>	Administration assistance	Smilor (1987); Zedtwitz & Grimaldi (2006)
	Infrastructure	Campbell et al. (1985); Smilor (1987); Mian (1996); Rice (2002); Zedtwitz & Grimaldi (2006)
<i>Incubator services</i>	Business assistance	Campbell et al. (1985); Hansen et al. (2000); Rice (2002); Grimaldi & Rice (2002); Hackett & Dilts (2004b); Grandi (2005); Zedtwitz & Grimaldi (2006); Abduh et al. (2007); Bollingtoft (2012)
	Entrepreneurial training services/education programs	Campbell et al. (1985); Hansen et al. (2000); Rice (2002); Grimaldi & Rice (2002); Grandi (2005); Zedtwitz & Grimaldi (2006); Abduh et al. (2007); Bollingtoft (2012)

Table 1 Incubator mechanism elements

2.2.5 INCUBATOR MECHANISMS – VALUE ADDING MECHANISMS

According to Grimaldi and Grandi (2005) there is a shift of attention from old services to new services (adding value to tenants). This shift of attention increased the focus on intangible and high-value services (access to advanced competencies, learning experiences, knowledge, networking, synergies, etc.). The term value-added refers to those specific ways that an incubator program enhances the ability of its tenants to survive and grow in business (Mian, 1996). Initially the objective of incubators was to

provide logistical services, like reducing the start-up costs for new businesses. The focus of high value incubator services seem to be shortening tenants time-to-market, providing more specialised services, and bringing tenants, technological and commercial big players into a common network (Grimaldi & Grandi, 2005). Incubators also seem to monitor their tenants more carefully, providing day-to-day operational support, and access to advanced sources of technical and management expertise. The focus of incubators should be on offering more direct access to capital, more intangible assets and high-quality and specialised services (Grimaldi & Grandi, 2005).

However, a study performed by Lee and Osteryoung (2004) on 54 incubators in the United States and Korea shows several critical success factors on a Likert-scale of 1 (very unimportant) to 7 (very important). Regarding the network incubator mechanism, the tenant firms identified networking of entrepreneurial support (6.03), networking of tenant firms (5.58) and networking of financing and business consulting firms (5.80) as important to their business. Lee and Osteryoung (2004) study shows that tenant firms identify financial support and consulting (6.01) and networking of financing and business consulting firms (5.80) important to their business. Therefore Lee and Osteryoung (2004) show that financial support, consulting and providing a network for financing add value to their firm. Lee and Osteryoung (2004) study shows that tenants identify easy access to facilities and equipment (5.76) and common access to service space and office equipment (5.71) as important to their business. Finally, Lee and Osteryoung (2004) show that tenants identify expert organisation (6.26), business and law consulting (6.02), entrepreneurial education programs (5.54) as important to their business. Therefore Lee and Osteryoung (2004) show that (internal and external) networking, financial support, physical resources and incubator services add value to tenants.

2.2.6 INCUBATOR MECHANISMS – INCUBATOR OFFERINGS

Hansen et al. (2000) conducted an extensive research, including in-depth analyses of leading-edge incubators and a survey with 169 incubators, regarding services offered by incubators. Their analysis shows that 84% of the incubators offered office space to their tenants. The vast majority of the incubators offered coaching (97%). 86% of the incubators offered internal funding to their tenants. Adding to this the vast majority of the business incubators offered basic incubator services to their tenants, like information technology (93%), public relations (90%), recruiting (91%), legal services (87%), and accounting (88%). Clients' admission into an incubator facility implies that the incubates are provided with a wide access to incubator network as a mean of broadening sources of information, transmitting information between tenants, building markets, lowering business costs and saving time for their client firms (Hansen et al., 2000; Abduh et al., 2007). However, only 26% of the incubators offer organised networking that enables tenants to obtain resources and partner with others quickly (Hansen et al., 2000). Most business incubators provide office space, funding, and basic services. The better ones also offer an extensive network of powerful business connections, enabling tenants to beat their competitors to market (Hansen et al., 2000,

p. 75). Based on the research of Hansen et al. (2000) the conclusion can be made that business incubators differ mostly on their offering of a network. This mechanism can be crucial to the added value offered by incubator to tenants.

2.3 BUSINESS MODELS

According to Chesbrough (2010) technology itself has no single objective value. The economic value of a technology remains latent until it is commercialized in some way through a business model. Hence companies commercialize new ideas and technologies through their business models (Chesbrough, 2010). For managers it is difficult to keep track of how their companies work and how and where exactly the money is made – how value is created. Every manager and entrepreneur does have an intuitive understanding of how his business works and how value is created (Osterwalder & Pigneur, 2004). In other words entrepreneurs do have an intuitive understanding of the company's business model, but even though business models influences all the important decisions, in many cases entrepreneurs are rarely able to communicate it in a clear and simple way (Linder and Cantrell, 2000). For entrepreneurs it is difficult to decide on a particular business issue or change it, when it is not clearly understood (Osterwalder & Pigneur, 2004).

The rise of the Internet in the 1990s and the adoption of e-business (i.e., the buying and selling on the Internet) and e-commerce (i.e., conduct of business on the Internet, hence also servicing customers and collaborating with business partners) have drastically changed the way companies do business (Osterwalder, 2004). Consequently, from the 1990s, scholars have been studying the business model topic, due to the expectation that e-business, e-commerce and the so-called new economy – or the Internet – would make traditional business models inapplicable (Osterwalder, 2004). Business models have become more complex with the emergence of these new and affordable information and communication technologies (ICTs). Companies increasingly act in networks and offer complex value proposition through a multitude of distribution channels.

As a consequence of ICTs the traditionally isolated organisation shifted to new forms of network organisations. Therefore managers had a much larger choice of possible business configurations (Osterwalder, 2004). Due to ICTs organisations have the possibility to reach customers in new and innovative ways through a multitude of channels (Osterwalder, 2004). From basic definitions and taxonomies scholars have developed more articulated definitions and identified business model blocks and components. From its initial focus on internet-based business, the business model concept became more universally applicable to other types of firms. The strengths of business models lie in efforts to understand businesses by decomposing strategy into a system of inter-related decisions, relationships and organizational boundaries (Onetti, Zucchella, Jones & McDougall-Covin, 2010). A weakness of the business model concept is its failure, to date, to accommodate location decisions and internationalization. The business model logically is presented at operational level, since it defines how to execute

the strategy, representing the firm's underlying core logic and strategic choices (Onetti et al., 2010).

2.3.1 BUSINESS MODEL DEFINITIONS

Definitions in the business model literature are fragmented and heterogeneous (Onetti et al., 2010) and no generally accepted definition of the term business model has emerged to date (Morris, Schindehutte & Allen, 2005). A lot of the confusion stems from the fact that when different authors write about business models they do not necessarily mean the same thing (Linder & Cantrell, 2000). According to Osterwalder, Pigneur and Tucci (2005) the expression stands for various things, such as parts of a business model (e.g., auction model), types of business models (e.g., direct-to-customer model), concrete real world instances of business models (e.g., the Dell model) or concepts (elements and relationships of a model). According to Shafer, Smith and Linder (2005) this lack of consensus may be attributed to interest in business models from a wide range of disciplines (i.e., e-business, strategy, technology, and information systems). Despite the growing interest towards the subject of business models, it is still poorly understood as a research area (Linder & Cantrell, 2001) and a dominant and widely accepted definition is still missing (Onetti et al., 2010). Therefore, the vagueness concerning the concept's definition and lack of a clear conceptualization of business model makes it difficult to perform valid comparative empirical research (Onetti et al., 2010).

Afuah and Tucci (2001) described the business model as "a model designed to make money for their owners in the long term" composed of ten blocks (i.e., profit site, customer value, scope, price, revenue sources, connected activities, implementation, capabilities, sustainability and cost structure). Hamel (2002) defined the business model starting from four main building blocks (i.e., customer logic, strategy, resources and network). Osterwalder (2004) proposed a framework based on four pillars (product, customer interface, infrastructure management, financial aspects) and nine building blocks (value proposition, target customer, distribution channel, relationship, value configuration, capability, partnership, cost structure and revenue model). Yip (2004) posited that a business model defines the value proposition, the nature of inputs and outputs, the scope (vertical, horizontal, and geographical), the target customers and the structure. Chesbrough (2006) described the business model as "a cognitive map across domains", able to help managers in identifying a target market, articulating the value proposition, building the value chain and the costs/margins structure, describing the position of the firm in the value network and formulating the competitive strategy. Richardson (2008) categorized the business model as an integrative framework for strategy execution based on three blocks: the value proposition (the offering, the target customer, the basic strategy), the value creation and delivery system (resources and capabilities, organization, position in the value network) and the value capture (revenue sources and the economics of the business).

Based on a literature review by Osterwalder, Pigneur and Tucci (2005), using the term business model, a continuum between authors is identified. Several authors use the term business model to simply refer to the way a company does business (e.g.,

Chesbrough, 2006; Al-Debei & Avison, 2010) and other authors that emphasize the model aspect (e.g., Afuah & Tucci, 2001; Hamel, 2002; Osterwalder 2004; Richardson, 2008). These two viewpoints differ, because the former generically refers to the way a company does business; whereas the latter refers to a conceptualization of the way a company does business in order to reduce complexity to an understandable level. Proponents of the latter viewpoint propose meta-models that consist of elements and relationships that reflect the complex entities that they aim to describe. In other words, for business models, the quest is to identify the elements and relationships that describe the business a company does. Thus, the business model concept can best be understood as a conceptual view of a particular aspect of a specific company (Osterwalder, Pigneur & Tucci, 2005).

Diversity in the available definitions poses substantive challenges to define the nature and components of a model and determine what constitutes a good model (Morris, Schindehutte & Allen, 2005). This research intends to find a relationship between business models configurations and incubator mechanisms to enhance tenant – and thus implicitly incubator – success. Therefore an abstract representation of tenant firms in the business incubator needs to be identified to cluster tenant firms. Hence this research focuses on the model aspect of business models in order to conceptualise the way the company does business. This kind of business model proposes meta-models consisting of several components – or building blocks. Shafer, Smith and Linder (2005) identified 42 different business components of business models in their review on business models between 1998-2002. Building on Shafer et al. (2005) Onetti et al. (2010) identified 48 different components of business models in their literature review. After a screening process the list of business model components was reduced to 26 components. One of the authors reviewed in this literature review was Osterwalder (2004) and Osterwalder and Pigneur (2005). Osterwalder (2004) proposed a business model ontology based on four pillars – the what, who, how and how much of a firm. Osterwalder (2004) business model canvas model included 10 out of the 26 identified components in the literature review of Onetti et al. (2010), including components in all meta level components – like strategy, mission/objectives, focus, modus and finance. Based on an analysis of the literature review of Onetti et al. (2010) this research will focus on the business model canvas model of Osterwalder (2004) in order to identify tenants underlying business value. Osterwalder (2004) identified which business model building blocks have been proposed by other authors in the field and constructed a new model. All nine components in the business model canvas model will be operationalized in order to make a business model measureable and identify clusters.

The reasoning behind business model research is not the understanding of a phenomenon; rather it is a problem – solution-finding approach (Osterwalder, 2004, p. 4). Business model research refers to finding the concepts and relationships that allow expressing the business logic of a firm in order to be able to formally seize this business logic. It means designing and building a model that makes it possible to represent the business model of a firm. According to Osterwalder (2004) a business model is a tool that helps identify a manager or an entrepreneur how his business works and how value

is created. In general the purpose of creating a model is to help understand, describe, or predict how things work in the real world by exploring a simplified representation of a particular entity or phenomenon. Thus the business model (i.e., representation) shall help understand, describe and predict the "activity of buying and selling goods and services" and "earning money" of a particular company (Osterwalder, 2004, p. 14). In other words, the business model is an abstract representation of the business logic of a company (i.e., an abstract comprehension of the way a company makes money, what it offers, to whom it offers this and how it can accomplish this). Osterwalder (2004) describes a business model as an abstract conceptual model that represents the business and money earning logic of a company as a business layer between business strategy and processes.

2.3.2 PRACTICAL ROLES OF BUSINESS MODELS IN BUSINESS MANAGEMENT

In order to get a better understanding of the business model and its role, it is important to explain how it is positioned in organisations. The business model translates the organisational strategy into value proposition, customer relations, and value networks (Osterwalder, 2004, p. 17). Furthermore Osterwalder (2004) states that business models are influenced by technological change (i.e., pressures managers to reflect how new technology can be adopted to improve the business logic of the firm), competitive forces (i.e., new dynamic competitors can influence changes in an organisations business models), customer demand (i.e., pressure from the customer demand side to adapt an organisations business model), social environment (i.e., stakeholders for instance) and legal environment (i.e., new privacy laws can make the use of some business models illegal).

Osterwalder (2004) identified five categories of functions outlining some of the practical roles of the business model concept in business management. The first practical category in which business models can contribute is in understanding and sharing the business logic of a firm. Business models help to capture, visualize, understand, communicate and share the business logic. The second category in which the business model concept can contribute is in analysing the business logic of a company. Business models can improve measuring, observing and comparing the business logic of a company. The third category of business models is in improving the management of the business logic of the firm. The business model concept helps with enhancing the design, planning, changing and implementation of business models. Additionally, the business model concept improves the alignment of strategy, business organization and technology. A fourth category of contribution of business models refers to the possible futures of a company. The final category identified by Osterwalder (2004) is patenting. Osterwalder (2004) states that the business model concept can help foster innovation and increase readiness for the future. Increasingly entrepreneurs and companies in e-business seek to patent e-business processes and even entire aspects of their business model. Therefore business modelling may potentially have an important role to play in this legal domain.

2.4 BUSINESS MODELS ONTOLOGY

Osterwalder (2004) designed and proposed a rigorous conceptual model of business models. This ontology can be understood as a description (a formal specification of a program) of the concepts and relationships in a specific domain. This ontology describes the business model of a firm. Norton and Kaplan (1992) identified four perspectives – in the balanced scorecard approach – based on the perception that managers require to have information covering all relevant aspects of a business in order to lead it. Markides (1999) identified a simple recipe to business strategy in which he recommends looking at the “who”, the “what”, and the “how” of the business. Osterwalder (2004) identified four pillars that constitute the fundamental business model issues of a company. Osterwalder (2004) suggests, based on Kaplan and Norton (1992) and Markides (1999), to emphasise four pillars – product, customer interface, infrastructure management, and financial aspects – that a business model has to address.

The first pillar – product – emphasises what business the company is in, the products and the value propositions offered to the market (Osterwalder, 2004, p. 42). The second pillar – customer interface – emphasises who the company’s target customers are, how it delivers products and services to the target customers, and how it builds a strong relationship with them (Osterwalder, 2004, p. 42). The third pillar – infrastructure management – emphasises how the company efficiently performs infrastructural or logistical issues, with whom, and as what kind of network enterprise (Osterwalder, 2004, p. 42). The fourth pillar – financial aspects – constitutes what are the revenue model, the cost structure and the business model’s sustainability (Osterwalder, 2004, p. 42).

The business model ontology is a set of elements and their relationships that aim at describing the money earning logic of a firm. Every business model element can be decomposed into a set of defined sub-elements. This decomposition allows studying business models on different levels of granularity in more or less detail and according to specific needs (Osterwalder, 2004, p. 47). Therefore, Osterwalder (2004) constitutes that, in order to create a more detailed and formal description of the business model, the four pillars need to be split up. Hence, Osterwalder (2004) breaks these four pillars down into nine interrelated building blocks that allow a comprehensive business model. Osterwalder (2004) studied the most common building blocks among business models in the business model literature. This synthesis – consisting of nine building blocks emerging from most used components in business model literature – consist of value proposition, target customer, distribution channel, relationship, value configuration, capability, partnership, cost structure, and revenue model (Osterwalder, 2004, p. 43).

The business model of businesses changes over time. In other words, there is a difference between the business model of entrepreneurs now and in the future. This concept is called business model innovation (Chesbrough, 2010). Only the future business model is difficult to measure, since even the entrepreneur does not know how the business model might develop over time. Therefore this research focuses on the current business model of tenants.

Pillar	Building Blocks of Business Model	Description
Product	<i>Value Proposition</i>	An overall view of a company's bundle of products and services that are of value to the customer
Customer interface	<i>Target Customer</i>	A segment of customers a company wants to offer value to
	<i>Distribution Channel</i>	A means of getting in touch with the customer
	<i>Relationship</i>	Describes the kind of link a company establishes between itself and the customer
Infrastructure Management	<i>Value Configuration</i>	Describes the arrangement of activities and resources that are necessary to create value for the customer
	<i>Capability</i>	The ability to execute a repeatable pattern of actions that is necessary in order to create value for the customer
	<i>Partnership</i>	A voluntarily initiated cooperative agreement between two or more companies in order to create value for the customer
Financial Aspects	<i>Cost Structure</i>	The representation in money of all the means employed in the business model
	<i>Revenue Model</i>	Describes the way a company makes money through a variety of revenue flow

Table 2 The nine business models building blocks (Osterwalder, 2004, p. 43)

2.4.1 BUSINESS MODEL ONTOLOGY – PRODUCT

The product pillar covers all aspects of what a firm offers its customers. This comprises not only the company's bundles of products and services. Also the way in which the company differentiates itself from its competitors is included in this pillar. Product is composed of the element value proposition, which can be decomposed into its elementary offerings. Osterwalder (2004) describes value proposition as the definition of how items of value, such as products and services as well as complementary value-added services, and how they are packaged and offered to fulfil customer needs (Kambil & Ginsberg, 1997). This element is an overall view of one of the firm's bundles of products and services that together characterise value for a specific customer segment. It describes the way a firm differentiates itself from its competitors and is the reason

why customers buy from a certain firm and not from the competition (Osterwalder, 2004, p. 50; Osterwalder & Pigneur, 2004, p. 5). While the value proposition element gives an aggregated view of a value bundle that a company offers a customer segment it can be further decomposed into a set of elementary offerings. By describing these different components of a value proposition a firm can better observe how it situates itself compared to its competitors. This will potentially allow a company to innovate and differentiate to achieve a competitive position. An elementary offering describes a part of a firm's bundle of products and services. It illustrates a specific product, service, or even product or service feature and outlines its assumed value to the customer. A set of elementary offerings together represents a value proposition (Osterwalder, 2004, p. 50; Osterwalder & Pigneur, 2004, p. 5).

A value proposition is characterized by its attributes: reasoning, life cycle, value level and price level (Osterwalder & Pigneur, 2004). The reasoning attribute captures the logic on why the firm thinks its value proposition or a specific elementary offering could be valuable to the customer. Normally value is created either through *use* (e.g., driving a car), reduction of the customer's *risk* (e.g., car insurance) or by making his life easier through reduction of his *efforts* (e.g., home delivery of groceries) (Osterwalder, 2004, p. 51; Osterwalder & Pigneur, 2004, p. 5). Measuring the utility for the customer by measuring the value level of a company's offer allows a firm to compare itself to its competitors. Therefore Osterwalder (2004) introduced a qualitative value scale that relates to the value offered by competitors rather than using a quantitative scale that ranges from low to high. The measure goes from *me-too value* (i.e., in which the firms offering does not differentiate itself from its competitor's offerings), over *innovative imitation* (i.e., improving value by adding innovative elements to an existing value proposition or offering) and *excellence* (i.e., value is pushed to its extremes) to *innovation* (i.e., a firm introduces either a completely new product or service or a revolutionary combination of products and services) (Osterwalder, 2004, p. 51-52; Osterwalder & Pigneur, 2004, p. 6). The attribute price level compares the value proposition's price level with the one's of their competitors. The scale goes from *free* (i.e., companies offering a value proposition to the customer without asking for financial compensation) over *economy* (i.e., the low-end of the price scale where a company offers a price that is more attractive than the one of the bulk of its competitors) and *market-price* (i.e., pricing with little price demarcation from the rest of the market) to *high-end* (i.e., the upper boundary of the price scale) (Osterwalder, 2004, p. 53; Osterwalder & Pigneur, 2004, p. 6). Osterwalder (2004) also distinguishes between applications (i.e., software, websites, applications) and platform services/products. A platform is the type of computer system that determines which kind of software can be used on it (Cambridge dictionary, 2013). Osterwalder (2004) identifies businesses like Ebay and Napster as platforms. An application is a computer program that runs on a platform (Cambridge dictionary, 2013). Therefore platforms can be identified as more technological complex services/product compared to applications.

A value proposition should be studied over its entire life cycle (Anderson & Narus, 1998). Therefore Osterwalder (2004) introduce an attribute, which has the goal of

capturing at which one of the five stages of the value life cycle an elementary offering creates value. This can be at the moment of the value creation (e.g., customization, customer participation), its purchase (i.e., value created during the purchasing phase by facilitating the customer's buying experience), its use (e.g., listening to music), its renewal (e.g., software updates) or its transfer (e.g., selling of used books) (Osterwalder, 2004, p. 55-56; Osterwalder & Pigneur, 2004, p. 6).

Analysing these value propositions offers a better understanding of the value a firm offers to its customers and provides the possibility to compare the firm to competitors value proposition (Osterwalder, 2004; Osterwalder & Pigneur, 2004). The core elementary offerings of tenants can be identified and analysed. A simplified strategy canvas for the tenants visualises where the main differentiations between tenants can be found. By capturing the two elementary characteristics of an offering, the value level and the price level (Anderson & Narus, 1998), a company can draw a so-called value map (Kambil & Ginsberg, 1997). This helps defining its relative position in an industry along the price-value axis. The value map can help identify the price/value differentiation between tenant firms.

2.4.2 BUSINESS MODEL ONTOLOGY – CUSTOMER RELATIONSHIP

The relationship with customers is vital for companies. The customer relationship pillar refers to the way a firm goes to the market, how it actually reaches its customers and how it interacts with them (Osterwalder, 2004, p. 59). ICT also helps companies to provide their customers and prospects with richer information (Evans & Wurster, 1997) and offer them innovative ways of interaction and thus contribute to the firms' value proposition. Generally the falling cost and improving performance of ICT has contributed to the facilitation of customer-related information gathering and customer- and product-related information diffusion. Data mining and business intelligence, for example, are technologies that have allowed managers to gain insight on their customers buying behaviour and improve customer relationship. A firm with a large base of users, and a way of rapidly extracting feedback and information from those users, may be able to improve its products and services faster than its competitors. Furthermore, exploiting customer information can allow managers to discover new and profitable business opportunities and can allow them to ameliorate customer satisfaction (Osterwalder, 2004). The customer interface covers all customer related aspects. This includes the choice of a firm's target customers, the channels through which it gets in touch with them and the kind of relationships the company wants to establish with its customers. The customer interface describes how and to whom it delivers its value proposition, which is the firm's bundle of products and services (Osterwalder, 2004, p. 60; Osterwalder & Pigneur, 2004, p. 7).

The second element of the business model ontology is the target customer. The identification of target customer groups is called "segmentation", where customers with similar requirements and buying characteristics are aggregated into the same group (i.e., segment) (Kara & Kaynak, 1997). Selecting target customers for the company enables a company to allocate investment resources to target customers that will be

most attracted by its value proposition (Osterwalder, 2004). According to Kara and Kaynak (1997) markets and customers who form those markets are homogeneous in nature. Consumers differ in terms of individual preferences and choice behaviours. Market segmentation refers to the heterogeneity in demand functions such that market demand can be disaggregated into segments with distinct demand functions (Dickson & Ginter, 1987, p. 4). The most general distinction between target customers exists between business customers – referred to as business-to-business (B2B) and/or individual customers – referred to as business-to-consumer (B2C). A company should make the strategic choice to target their market at any level between mass, segments, and niche – a more narrowly defined group of customers – markets (Kara & Kaynak, 1997). A target customer segment defines the type of customer a company wants to address and is composed of a set of one-or-more criterion(s). An elementary criterion defines a set of characteristics of a target customer group (Osterwalder, 2004; Osterwalder & Pigneur, 2004).

The third element of the business model ontology is the distribution channel. The distribution channel is the connection between a firm's value proposition and its target customer(s) (Osterwalder, 2004, p. 63). The distribution channel allows a company to deliver value to its customers (Osterwalder & Pigneur, 2004, p. 9). Through the expansion of ICT, such as Internet, new successful distribution channels have developed. The distribution channel can be defined as the organisation of a set of mechanisms or a network through which a company "goes to the market" (Osterwalder, 2004, p. 63). While the distribution channel elements gives an aggregated view of how a company reaches its customers, it can be further decomposed into distribution channel link(s) (Osterwalder & Pigneur, 2004, p. 9). Through describing different components of a distribution channel a firm can observe in what way it gets in touch with its customers compared to its competitors (Osterwalder, 2004, p. 64). A channel link describes part of a firm's channel and illustrates specific marketing tasks. A set of channel links together represents a channel. The channel links of different channels may sometimes be interrelated, in order to exploit cross-channel synergies. Modern distribution channels and their channel links have the potential for value creation and potentially contributes to a firm's value proposition (Osterwalder, 2004). The distribution channel should be studied over the customer's entire buying cycle. Therefore Osterwalder (2004) introduced an attribute, identifying which one of the function of the customer buying cycle a channel link fulfils. The cycle is divided into four phases, namely the customer's *awareness* (e.g., advertising, promotions, public relations and partnerships), the *evaluation* providing detailed information on the organisation and its references, the value proposition, or availability of products (e.g., sales force or website), the actual transaction – or *purchase* (e.g., negotiation, decision, contract, order & tracking, billing & payment and fulfilment), and *after sales* (e.g., maintenance).

The fourth element of the business model ontology concerns the relationships; referring to the relationships a company builds with its customers (Osterwalder, 2004). The relationship element describes the relationship a company establishes with a target customer segment. A relationship is based on customer equity and can be decomposed

into several relationship mechanisms. Osterwalder (2004) classifies relationships according to their customer equity goals, which are the *acquisition* of new customers, the enhancement of profitability of existing customers – referred to as *retention* – and the extension of the duration of existing customer relationships – referred to as *add-on selling*. A relationship mechanism is part of a relationship and describes the function it accomplishes between the company and its customers. According to Osterwalder (2004) and Osterwalder & Pigneur (2004) the relationship mechanism can *personalise* a relationship (i.e., establish information strategies to gather and exploit knowledge about companies customer in order to personalise interactions; e.g., one-to-one relationship, learning relationship, recommending systems), contribute to customer *trust* (i.e., virtual communities or accumulated feedback of second parties), or contribute to *brand building*. Brands constitute a pivotal resource for generating and sustaining competitive advantage. A brand is influenced by every interaction with a customer or with a firm's environment.

2.4.3 BUSINESS MODEL ONTOLOGY – INFRASTRUCTURE MANAGEMENT

The infrastructure management pillar describes the value system configuration (Gordijn & Akkermans, 2001) that is necessary to deliver the value proposition and maintain customer interfaces (Osterwalder, 2004, p. 79). Infrastructure management outlines the value network that generates economic value through complex dynamic exchanges between one or more enterprises, its customers, suppliers, strategic partners and the community (Allee, 2000). This pillar comprises the activities to create and deliver value, and, how they relate to one another, specifies the business model's in-house capabilities and resources, as well as capabilities and resources acquired through the firm's partnership network (Osterwalder, 2004).

The fifth element of the business model ontology is capability. Capabilities are repeatable patterns of action in the use of assets to create, produce, and/or offer products and services to the market (Osterwalder, 2004; Osterwalder & Pigneur, 2004). Thus, a firm has to position a set of capabilities in order to provide its value proposition (Osterwalder, 2004). These capabilities depend on the assets or resources of the firm (Bagchi & Tulske, 2000). Capabilities and resources are either assured in-house or can involve outside actors with whom a firm enters a partnership to provide a specific business service (Osterwalder, 2004). Increasingly these assets and/or resources are outsourced to partners. Using e-business technologies the tight integration, necessary for a firm to function efficiently, is maintained. Hence ICT has made it possible for companies to outsource non-core capabilities and resources (Hagel III and Singer, 2000). Focusing on core capabilities helps companies streamline their organization and build competitive advantages (Osterwalder, 2004, p. 79). In order to create value, a firm needs resources (Wernefelt, 1984). Resources are inputs into the value-creation process and the source of the capabilities a firm needs in order to provide its value propositions (Osterwalder, 2004, p. 82). Grant (1991) makes a distinction between tangible (e.g., plants, equipment) and intangible (e.g., patents, copyrights, reputation, brands and trade secrets) assets and people-based skills (e.g., the people a firm needs in order to create

value with tangible and intangible resources) (Osterwalder, 2004). Tangible assets concern the most conventional resources, such as plants, equipment's and cash reserves. These resources traditionally appear in a company's balance sheet (Osterwalder, 2004). Intangible assets have gained importance over the last decade. Even though intangible assets are difficult to evaluate and sometimes absent on the balance sheet, intangible assets are of great value to the modern-day firm (Osterwalder, 2004).

The sixth element of the business model ontology is value configuration. The main purpose of a company is the creation of value that customers are willing to pay for. This value is the outcome of a configuration of inside and outside activities and processes (Osterwalder, 2004). According to Osterwalder (2004) the value configuration describes the arrangement of one or several activities in order to provide a value proposition (i.e., create value for the customer). In order to define the value creation process in a business model, Osterwalder (2004) distinguishes between three basic value configuration types; the *value shop*, the *value network* (Stabell & Fjeldstad, 1998), and the *value chain framework* (Porter, 2001). The value shop describes the value creation process of service providers (e.g., consultancies), whereas the value network describes brokering and intermediary activities (e.g., banks and communication companies) (Osterwalder, 2004). The value chain contains the different activities a firm performs to deliver low-cost or differentiated products (Porter, 2001). The main activities of the value chain framework (Porter, 2001) include inbound logistics, operations, outbound logistics, marketing and sales, and service. The value creation logic of a value chain is the transformation of inputs into products. The value shop represents an extension to the value chain framework provided by (Porter, 2001). According Stabell and Fjeldstad (1998) service provisioning has different value creation logic than manufacturing. In this value configuration a firm concentrates on discovering what the client wants, figures out a way to deliver value, determines whether the customer's needs were fulfilled and repeats the process in an iterative way if necessary. The proposed main activities of a value shop contain problem finding and acquisition, problem solving, choice, execution and control and evaluation. The value creation logic of a value shop is resolving customer problems (Stabell & Fjeldstad, 1998). In the value network linking clients or customers who are or wish to be interdependent creates value. The firm itself is not the network, but it provides a networking service. The value creation logic of a value network is linking customers (Stabell & Fjeldstad, 1998). The proposed main activities of the value network configuration are network promotion and contract management, service provisioning and network infrastructure operation (Osterwalder, 2004).

The seventh element of the business model ontology is the partnership network. A company's partner network outlines, which parts of the activity configuration and which resources are distributed among the firm's partners (Osterwalder, 2004, p. 89). According to Osterwalder (2004) a partnership is a voluntarily initiated cooperative agreement formed between two or more independent companies in order to carry out a project or specific activity jointly by coordinating the necessary capabilities, resources and activities. The underlying goals behind many partner agreements are the

optimisation of a company's operations, increasing anticipation, reducing risk premium or acquiring specific resources (Osterwalder & Pigneur, 2004). A firm can benefit from the partners economies of scale, specialised knowledge, which it could not achieve on its own, spread the risk of innovation or acquire specific resources, which the company does not possess itself (Osterwalder & Pigneur, 2004). Partnership are cooperative arrangements initiated voluntarily between two or more independent companies and therefore are based on commonly negotiated terms and conditions (Osterwalder, 2004; Osterwalder & Pigneur, 2004). Therefore Osterwalder (2004) developed the agreement sub-element, aimed at explaining the motivation, function and conditions of an arrangement between business partners (i.e., actors). Companies engage partnerships for specific reasons. The reasoning attribute describes the firm's motivation to conclude a partner agreement. Osterwalder (2004) distinguishes between three categories of motivation – optimisation of a company's operations and economies of scale, reduction of risk and uncertainty, or acquisition of resources. The function and condition of an arrangement can be quantified on a scale – ranging from 0 to 5 – of strategic importance (i.e., how relevant a relationship is to the business success of a company), the degree of competition (i.e., if partners with whom the firm has signed an agreement is a competitor or not), the degree of integration (i.e., how closely two actors are linked together), and substitutability (i.e., indicates how easy it would be to find a substitute partner offering the same arrangement).

2.4.4 BUSINESS MODEL ONTOLOGY – FINANCIAL ASPECTS

The last block of the business model framework is financial aspects. All other pillars influence the financial aspects and this building block is the product of the rest of the business model's configuration. This building block is composed of the company's revenue model and its cost structure and they determine the company's profit- or loss-making logic (Osterwalder, 2004).

The eight element of the business model ontology is the revenue model and measures the ability of a firm to translate the value of its offerings into money and incoming revenue streams. The revenue model is built on and depends of the firm's value proposition(s) and describes the way the company makes money. A company's revenue model can be composed of different revenue streams that can all have different pricing mechanisms (Osterwalder, 2004, p. 95). The revenue model is a set of revenue streams and pricing. The revenue streams a company can capture from its value creating activities are pivotal to its long-term survival (Osterwalder, 2004, p. 96). Company's can have many different revenue streams and each of them can have one or several different pricing mechanisms. The revenue stream type describes the type of economic activity with which a company generates a revenue stream. A company can generate income through selling (i.e., the activity of giving away certain aspects of ownership of a good or service in exchange for money), lending (i.e., the activity of giving something to someone for a period of time, expecting it to be given back, in exchange for money) or licensing (i.e., giving someone official permission to do or have something in exchange for money) a product or service, taking a cut of a transaction (e.g., commission fee; i.e., paid to the

party that has organised, facilitated, or performed the deal), or relying on different sources of advertising (e.g., press, TV, web, billboard, etc.). Osterwalder (2004) distinguishes three main categories of pricing mechanisms, which are fixed pricing (i.e., prices do not differentiate in function of customer characteristics, are not volume dependant and are not based on real-time market conditions), differential pricing (i.e., pricing based on customer or product characteristics, volume dependant, or linked to customer preferences, but not based on real-time market conditions), and market pricing (i.e., prices based on real-time market conditions; e.g., stock markets).

The final element of the business model ontology is the cost structure. This element measures all monetary costs incurred by the company in order to create, market and deliver value to its customers. It sets a price tag on all the resources, assets, activities and partner network relationships and exchanges that cost the company money (Osterwalder, 2004). An account defines a specific type of expenditures. This can be a detailed account according to accountancy theory or an aggregate of expenditures. Osterwalder (2004) uses revenues, cost of goods sold, gross margin and operating expenses to present the financial situation of different business models. Furthermore, operating expenses in R&D, S&M and general and administrative expenses are divided for a more detailed representation (Osterwalder, 2004, p. 102). The sum measures the monetary value of an account. Percentage measures how much a specific account contributes to the total cost structure.

METHODOLOGY

3.1 RESEARCH DESIGN

This research is based on the assumption that tenants differ regarding their preferences towards business incubator services. This research aims to come to understand tenant preferences and predict their preferences based on tenants business models. Hence this research aims to understand what preferences tenants have (descriptive perspective), why tenants have these specific preferences (explanatory perspective) and how these preferences can be predicted (explorative perspective).

There are two general approaches to reasoning, which may result in the acquisition of new knowledge, inductive reasoning and deductive reasoning (Hyde, 2000). This research follows a deductive reasoning. Deductive reasoning moves from the general to the specific. Deduction moves from a pattern that might be logically or theoretically expected to observations that test whether the expected patterns actually occurs (Babbie, 2007; Neuman, 2014). Hence hypothesis are developed based on logical or theoretical expectations (Babbie, 2007). Deductive reasoning is a theory testing process that commences with an established theory or generalisation and seeks to see if the theory applies to specific instances (Hyde, 2000). This research is based on a cross-sectional study in which observations of a sample of a population represent a single point in time (Babbie, 2007). Explorative, explanatory and descriptive studies are often cross-sectional (Babbie, 2007). Explanatory cross-sectional studies have an inherent problem. Although their conclusions are based on observations made at a single point in time, they typically aim at understanding causal processes that occur over time (Babbie, 2007).

The main research question this research aims to answer is: *“How can tenants with a similar utility be identified to contribute to the optimisation of the incubation process?”* To provide an answer on this question a two-staged research approach has been designed. In the first stage a cluster analysis will be conducted based on tenant business models. The aim of this cluster analysis is to identify tenants with similar characteristics. In the second stage of this research the tenants’ preferences will be identified using a self-explicated conjoint analysis.

The distinction between qualitative and quantitative data in social research is essentially the distinction between numerical and nonnumerical data (Babbie, 2007, p. 23). Every observation is qualitative at the outset as nothing is inherently numerical or quantitative. However, converting them to a numerical form is sometimes useful (Babbie, 2007, p. 23). Quantification often makes observations explicit and makes it easier to aggregate, compare, and summarize data and opens up the possibility of statistical analyses (Babbie, 2007, p. 23). Quantitative research refers to research that can be handled numerically, based on quantitative data (e.g., surveys, questionnaires) (Vogt & Johnson, 2011, p. 315). However there is a possibility of losing the richness of meaning. Qualitative research can be richer in meaning than quantified data (Babbie, 2007, p. 24). Qualitative research refers to studies relying on qualitative data (e.g., interviews, participation observation, open-ended questions) (Vogt & Johnson, 2011, p.

314-315). Qualitative data analysis refers to methods for analysing verbal data and methods for analysing categorical data with statistical methods (Vogt & Johnson, 2011, p. 314). However, the qualitative/quantitative distinction is often overdrawn. It is difficult to avoid quantitative elements in the most qualitative subject matter (Vogt & Johnson, 2011, p. 314). Moreover, both approaches present considerable “grey area”. Recognizing the distinction between qualitative and quantitative research does not mean that one research activity excludes the other (Babbie, 2007). Many researchers lend themselves well to collecting both quantitative and qualitative data, and many variables can be handled either qualitatively or quantitatively (Vogt & Johnson, 2011, p. 315). In this research both quantitative and qualitative data will be collected. Quantitative data will be collected to compare data and conduct statistical analyses. Qualitative data will be collected to interpret observations to discover underlying meanings and patterns of relationships.

3.1.1 CLUSTER ANALYSIS RESEARCH DESIGN

For the identification of configurational groups it is useful to split up the treatments into reasonably homogeneous groups (Scott & Knott, 1974). The need to classify cases into several dimensions and the upcoming objectivity standards of modern science have given rise to so-called automatic classification procedures (Kaufmann & Rousseeuw, 2005). For this purpose multiple comparison procedures are often used, however a more direct method is the cluster analysis technique (Scott & Knott, 1974). Vogt and Johnson (2011) describe cluster analysis as several procedures in multivariate analysis designed to determine whether individuals, cases, or other units of analysis are similar enough to be grouped into clusters. The individuals within a cluster are similar on some variable(s), while the clusters are dissimilar from one another (Vogt & Johnson, 2011, p. 55). This approach is illustrated for several sets of data, and a likelihood ratio test is developed for judging the significance of differences among the resulting group (Scott & Knott, 1974, p. 507). Creating a cluster analysis, based on tenant business models, provides incubators with the advantage to target offers to subgroups that are most likely to be receptive of them. In order to distinguish between several homogeneous groups using cluster analysis, classified tenants must be available to conduct this analysis (Norušis, 2005).

In hard clustering data is divided into hard clusters, where each tenant belongs to exactly one cluster. In fuzzy clustering or soft clustering the tenants can belong to more than one cluster, and associated with each of the points are membership grades that indicate the degree to which the data points belong to the different clusters (Stachowicz & Beall, 2003). The objective of this cluster analysis is to identify tenant groups that are similar with regard to their business models and assign them into clusters. In this research the hard clustering method will be used to identify tenants that are similar to each other and dissimilar from other clusters. In a cluster analysis the first step is to decide the number of cases that need to be subdivided into homogenous groups (Norušis, 2005). In order to perform this analysis the appropriate variables on which the groups should be similar on should be chosen (Norušis, 2005; Mooi & Sarstedt, 2005).

These variables need to be standardised in some way so they can all contribute equally to the distance or similarity between cases (Norušis, 2005). Therefore, coding the variables would lead to invalid results. If the variables, like value proposition, would be coded in for instance value creation (1), use (2) and renewal (3) IBM SPSS would make the assumption that the difference between 1 and 2 is less than the difference between 1 and 3. Therefore the variables will be standardised with a yes-or-no nominal scale to render valid results from the cluster analysis.

Adding to this, multiple elements of the building blocks can be applicable to tenants. For example, smartphone apps often have different revenue streams, paying for the app or a free app that renders revenues through advertisements. However, for most organisations there is one element most important for their firm. Therefore the most important element should be selected. Selecting the right variables is of utmost importance, because faulty assumptions may lead to improper clusters. Thus, great care should be taken when selecting the clustering variables (Mooi & Sarstedt, 2011). Generally, an abundance of clustering variables should be avoided, since this increases the odds that the variables are no longer dissimilar (Mooi & Sarstedt, 2011). If highly correlated variables are used for cluster analysis, specific aspect covered by these variables will be overrepresented in the clustering solution (Mooi & Sarstedt, 2011).

There are numerous ways to sort cases into groups (Norušis, 2005). The choice of a method depends on, among other things, the size of the data file (Norušis, 2005). According to Norušis (2005) three different procedures that can be used to cluster data using IBM SPSS: hierarchical cluster analysis, k-means cluster, and two-step cluster. For a large data file or a mixture of continuous and categorical variables, the SPSS two-step procedure should be used. For a small data set with an increasing number of clusters, the hierarchical clustering method should be used. For an analysis on a known amount of clusters with a moderately sized data set, the k-means clustering method should be used (Norušis, 2005). In this qualitative research the sample size is not the same as for quantitative research. A large sample size is not >1000, but renders more to a hundred. Adding to that a small sample size is not >20, but is closer to <10. Therefore the choice of the clustering method should be made in the perspective of qualitative research. The data sample size for this research is too large (84) for the hierarchical cluster analysis method. Therefore, either the k-means or the two-step cluster analysis method should be used.

An important problem in the application of cluster analysis refers to how many clusters should be derived from the data (Mooi & Sarstedt, 2011). On the one hand, few clusters make them easy to understand. However, making the cluster size too small can make the clusters too generalised. On the other hand, having too many clusters would not make the incubation process efficient. Therefore this research can't determine beforehand how many clusters should be identified in the cluster analysis. Hence the k-means clustering method will not be used in this research.

In this research mixed variables on different scale levels will be measured. The two-step cluster analysis has been specifically designed to handle this problem (Mooi & Sarstedt, 2011; Norušis, 2005). This clustering method is based on a two-stage

approach. In the first stage the algorithm undertakes a procedure that is very similar to the k-means algorithm. Based on the results, the two-step procedure conducts a modified hierarchical agglomerative clustering procedure that combines the objects sequentially to form homogenous clusters (Mooi & Sarstedt, 2011). This method offers the user the flexibility to specify the cluster numbers as well as the maximum numbers of clusters, or to allow the technique to automatically choose the number of clusters on the basis of statistical evaluation criteria (Mooi & Sarstedt, 2011).

In order to conduct the two-step cluster analysis a distinction should be made between categorical variables or continuous variables. In this research all variables are categorical, because all variables have been standardised on a nominal scale. The Log-likelihood can be used for categorical and continuous variables, while the Euclidean distance can only be applied when all variables are continuous (Mooi & Sarstedt, 2011). Therefore in this research the Log-likelihood should be used. In the box number of clusters, a fixed number of clusters or a maximum number of clusters can be selected. For the convenience of incubators it is useful to have a maximum of four clusters in the clustering process. Next the choice can be made between two criteria, namely Akaike's information criterion (AIC) and Bayes information criterion (BIC), in which SPSS picks an appropriate number of clusters. SPSS computes solutions for different cluster numbers (up to the maximum number of clusters specified before) and chooses the appropriate solution through looking for the smallest value in the chosen criterion (Mooi & Sarstedt, 2011; Norušis, 2005). AIC is well known for overestimating the correct number of clusters, while BIC has a slightly tendency to underestimate this number. Therefore it is worthwhile to run two separate analyses, one based on AIC and one on BIC (Mooi & Sarstedt, 2011). An additional option in the two-step cluster analysis is the outlier handling option that creates a separate cluster for cases that don't fit well into any other clusters (Norušis, 2005). This option will reduce the impact of these cases on the clustering formation through increasing the overall number of clusters or making clusters less homogeneous (Norušis, 2005). In order to use this option the outlier treatment box has to be selected in the options dialog box. To determine which tenant is clustered into which cluster the create cluster membership variable should be checked. This will determine in what cluster the tenants are categorised.

From a statistical perspective every additional variable requires an over-proportional increase in observation to ensure valid results (Mooi & Sarstedt, 2011). Unfortunately, there is no generally accepted rule of thumb regarding minimum sample sizes. In a related methodological context, Mooi and Sarstedt (2011) recommend a sample size of at least 2^m , where m equals the number of clustering variables. However, this can only provide a rough guidance. The choice of clustering variables depends on contextual influences such as data availability or resources to acquire additional data. The choice of clustering variables is closely connected to data quality. Therefore, only those variables that ensure that high quality data should be included in the analysis (Mooi & Sarstedt, 2011). Using the formula of Mooi and Sarstedt (2011) the maximum number of clustering variables can be established. In the data sample a maximum of 84 cases can be examined. Therefore, using the formula 2^m , a maximum of 6 clustering

variables should be used in order to maintain valid results. However, Mooi and Sarstedt (2011) state that no matter the amount of cases and variables, the cluster analysis will always render results.

3.1.2 SELF-EXPLICATED CONJOINT ANALYSIS IN A MULTIPLE CASE STUDY DESIGN

It is interesting to not only identify tenant preferences but also to come to understand the needs of tenants better. In such explanatory research the “how” or “why” research question is most applicable. According to Yin (2009) the first and most important condition for differentiating among various research methods is to classify the type of research question being asked. According to Yin (1994) a case study research design is preferred when “how” or “why” research questions are being posed (Hyde, 2000). In addition, qualitative inquiry often takes the form of a case study (Hyde, 2000). A case study is simply an in-depth study of a particular instance, or a small number of instances, of a phenomenon (Hyde, 2000). Therefore an observational explanatory multiple case study design (i.e., explaining a phenomenon within its context) will be used in the self-explicated conjoint analysis. A case study design gathers and analyses in-depth data about a small number of examples (i.e., cases) as a way of studying a group (Vogt & Johnson, 2011; Babbie, 2007). As a research method, the case study is used in many situations (Yin, 2009). When generalising beyond the cases this is done based on the assumption that the case is in some way typical of a broader group (Vogt & Johnson, 2011). The aim of multiple case studies is to come to understand the population better (Stake, 2005). Ordinary measurement of the case fails to give adequate attention to the ways the case interacts (Stake, 2005). The first objective in a case study is to understand the case (Stake, 2005). In this research the cases that are to be examined are tenants. For multiple case studies the cases need to be similar in some ways (Stake, 2005). Thus the individual cases are somehow categorically bound together (Stake, 2005). A wide variety of methods can be used to study the cases (Vogt & Johnson, 2011).

Since the early 1970s conjoint analysis has been a popular technique for measuring customers' preference structures (Srinivasan & Park, 1997). Conjoint analysis is the most used marketing research method for analysing consumer trade-offs (Green, Krieger & Wind, 2001). Preference measurement has been used mostly in contexts in which the user is assumed to be a profit-maximizing firm seeking to estimate consumer preferences (partworths) in order to design new products or services, or to predict market shares. However, the types of problems being addressed by preference measurement studies are evolving (Netzer et al., 2008) and conjoint analysis can be useful in almost any scientific or business field in which measuring people's perceptions or judgements is important. The information obtained from a conjoint analysis can be applied to a wide variety of market research questions (IBM, 2012). Conjoint analysis is one of many techniques for handling situations in which a decision maker has to deal with options that simultaneously vary across two or more attributes (i.e., multi-attribute) (Green, Krieger & Wind, 2001). A full-profile conjoint analysis works well for a small number of attributes (i.e., <6), it places severe information overload on respondents for a larger number of attributes. Faced with such tasks, respondents

resulting data can distort the true preference structures (Srinivasan, 1988; Srinivasan & Park, 1997). The self-explicated approach minimizes the information overload as respondents are questioned for each attribute separately (Srinivasan & Park, 1997). An empirical application shows that the self-explicated approach yields a slightly larger predictive validity than traditional conjoint analysis (Srinivasan, 1988). Therefore, in this research the self-explicated conjoint analysis will be used to examine the cases (i.e., tenants).

According to Srinivasan (1988) it is reasonable to conclude that a simple compensatory model (i.e., trade-off model) does not adequately capture consumer decision processes. A more appropriate model of consumer choice would be a two-stage model in which a conjunctive stage (minimum acceptable level) is followed by a compensatory stage (Srinivasan, 1988). In the self-explicated preference-data collection technique each respondent rates the desirability of each attribute on a 0 to 100 scale and then rates the attributes on an importance scale (Green, Krieger & Wind, 2001). Using this approach the bias of tenants, in which they assign all attributes to add value to their firm is avoided. Therefore using the self-explicated conjoint analysis each tenant is assumed to choose the attribute that yields the highest overall utility in both the compensatory part as the conjunctive part of the analyses.

3.1.3 CORRELATION

It is interesting to measure correlation between tenants utility. This test can also be conducted on tenants' business models. This provides insights in the relationship among variables. The simplest way to look at whether two variables are related is to look at whether they covary (Field, 2009, p. 167). Calculating the covariance is a good way to assess whether two variables are related to each other (Field, 2009, p. 169). With the data obtained in interviews to identify clusters a covariance test can be implemented.

This covariance test measures whether and how variables are related with each other through showing whether variables deviate from their mean and if other variables deviate from its mean in a similar way or the directly opposite way (Field, 2009, p. 168). Thus this test will examine whether the business model variables and utility variables are related to other variables and whether these variables are positively or negatively related. A positive covariance indicates that as one variable deviates from the mean, the other variable deviates in the same direction. A negative covariance indicates that as one variable deviates from the mean (i.e., increases), the other deviates from the mean in the opposite direction (i.e., decreases) (Field, 2009, p. 169).

One problem with covariance is that it depends upon the scales of measurement used. Thus covariance is not a standardised measure. Therefore, covariance cannot be compared in an objective way (Field, 2009, p. 169). To overcome this problem the covariance needs to be converted into a standard set of units. By standardising the covariance the correlation value has to lie between -1 and +1. A coefficient of +1 indicates that the two variables are perfectly positively correlated. Conversely, a coefficient of -1 indicates a perfect negative relationship. A coefficient of zero indicates no linear relationship (Field, 2009, p. 170). However, the correlation coefficient gives no

indication of the direction of causality. Therefore no conclusions can be made about what causes the correlation. There is a possibility of a third variable and the direction of the causal relationship cannot be indicated (Field, 2009, p. 174).

In order to measure the correlation a distinction should be made between two types of correlation: bivariate and partial. A bivariate correlation is a correlation between two variables whereas a partial correlation looks at the relationship between two variables while controlling the effect of one or more additional variables (Field, 2009, p. 175). In this research it is not beneficial to control an effect and therefore the bivariate correlation test will be performed. To conduct the bivariate correlation a two-tailed pearson test will be performed because the nature of the relationship cannot be predicted. In IBM SPSS 20 the main dialog box is accessed by selecting analyse, correlate followed by bivariate (Field, 2009, p. 176).

3.1.4 RELATIONSHIP CLUSTERS AND TENANT UTILITY

In the final stage of this research a statistical test will be done to determine whether clusters differ significantly in their preferences. In order to determine which statistical model should be used to analyse the data the decision tree of Field (2009, p. 822) will be used. First a distinction must be made whether the dependent and independent variable are continuous or categorical variables. According to Field (2009, p. 783) a continuous variable is a variable that can be measured to any level of precision. A categorical variable is any variable made up of categories of objects/entities (Field, 2009, p. 782).

The dependent variable in this research is tenant utility. This variable can be labelled as a continuous variable because the relative extent of the numeric values regarding tenant utilities is significant. In other words, a value of 2 indicates a value twice as high as 1 (Gravetter, 2012). The independent variable in this research is business model clusters. This variable can be labelled as a categorical variable because the clusters are categorized in either cluster 1, 2, 3 or 4 and the actual magnitude of the value is not significant; the distance between cluster 1 and 2 is the same as the distance between 1 and 3 (Gravetter, 2012). Thus there are two or more continuous outcome variables and one categorical predictor variable. The predictor variable consists of four categories from different participants in each category. Therefore multivariate analysis of variance (Field, 2009, p. 584) should be used to determine whether business model clusters have an influence on tenant utility. The MANOVA test is an extension of the ANOVA that can be used to detect group differences on several dependent variables (Field, 2009, p. 585). The ANOVA test could also be used but does enhance the chance of making a Type 1 error (Field, 2009, p. 586).

However, the MANOVA lumps all the dependent variables together. Therefore the MANOVA test examines whether a combination of dependent variables can be predicted with business model clusters. In addition, it is also interesting to examine whether only one or two incubator mechanisms can be predicted through business model clusters. Therefore, besides the MANOVA test another statistical test will be done to determine whether business model clusters can predict internal network preferences or external financing preferences instead of all incubator mechanisms combined. Therefore either

the One-Way Independent ANOVA test (Field, 2009, p. 375) or the Kruskal-Wallis test (Field, 2009, p. 562) should be used to determine whether business model clusters have an influence on individual tenant incubator mechanism preferences. To determine between the two statistical models a test of normality should be done to determine if the data meets assumptions for parametric (Field, 2009, p. 822). A parametric test requires data from one of the largest catalogue of distributions that statisticians have described. Normally this term is used for parametric tests based on the normal distribution, which requires four basic assumptions that must be met for the test to be accurate: a normally distributed sampling distribution, homogeneity of variance, interval or ratio data, and independence (Field, 2009, p. 791).

In order to determine whether the data has a normal distribution a test of normality should be performed. The Kolmogorov-Smirnov test and the Shapiro-Wilk test compare the scores in the sample to a normally distributed set of scores with the same mean and standard deviation. If the test is non-significant ($p > .05$) the distribution of the sample is not significantly different from a normal distribution. If the test is significant ($p < .05$) the distribution in question is significantly different from a normal distribution (Field, 2009, p. 144). Thus a significant value indicates a deviation from normality (Field, 2009, p. 146).

The results of the Kolmogorov-Smirnov and Shapiro-Wilk test are shown in appendix F. Data of the cluster analysis shows a significant different distribution, while some data of the self-explicated conjoint analysis also shows a significant different distribution. Therefore to determine whether there is a relationship between incubator mechanism preferences and business model clusters the Kruskal-Wallis test should be done. The Kruskal-Wallis test is a nonparametric test of statistical significance used when testing more than two independent samples. It is an extension of the Mann-Whitney U and the Wilcoxon test and equivalent to the one-way ANOVA test. It is a nonparametric one-way ANOVA for rank order data and is based on medians rather than means (Vogt & Johnson, 2011).

3.2 RESEARCH CONTEXT

3.2.1 RESEARCH SETTING

This research focuses on developing an advice for document services incubator, a business incubator initiative that will be launched in 2013. Document services incubator is located in Venlo, the Netherlands, and brought into existence in collaboration with Canon/Océ, Excer and Maastricht University (Document services valley, 2012). Document services incubator is developed based on the successful document services valley program, which has been committed to understanding and extending information and document services innovation through open innovation. Document services valley is a virtual incubator that facilitated collaboration and support for European entrepreneurs with ideas for new service propositions in information-intensive environments.

Document services valley consists of an open innovation centre (OIC) and a business services school (BSS). The open innovation centre supports existing and new

entrepreneurs – large and small – with the development of new ideas for new service propositions in information-intensive environments. The only requirement – the concept and facilitated collaboration for document and information services innovation is about the creation, storage, distribution or comprehension of information, like “cloud-based” automation, social media applications or innovative applications on smartphones or tablets (Document services valley, 2012). Business developers from document services valley screen and fine-tune business ideas and help find partners and initial customers. At the open innovation centre document services valley offers a wide range of shared services and facilities for employment in document services innovation. These services and facilities are available to open innovation initiatives and to individual companies active in document service innovation. The business services school is a partnership between government, education and businesses, with the aim of continuous learning for higher vocational educations and universities in the specific field of business services (Document Service Valley, 2012). Document services valley is primarily sponsored through public – Limburg – and private – companies like Océ/Canon and Excer, and – organisations. Document service valley primarily focused on start-ups and existing firms that focus on document and information services. Document services valley does not offer a physical location to tenants and can therefore be labelled as a virtual business incubator.

PADSI is an acronym for program for acceleration of document services innovation. The PADSI program by document services valley supports tenants who want to develop innovative document and information services. A PADSI project is a phased process. The first phase (38 tenants are currently involved in this phase) is the research phase in which a validation of market and technology is developed, providing insight in the commercial feasibility. The research phase ends with a business plan. The second phase (24 tenants are currently involved in this phase) is the test phase in which the concept is tested with at least one customer and an investment plan is created. The final phase (4 tenants are currently involved in this phase) is the market phase in which the new document service is scaled up with an additional two customers (Document services valley, 2012). This program offers expertise and up to 22,500 euros in financial support (Document service valley, 2012). The document services valley PADSI program ran for two years for tenants associated with document services and the program ended as of April 1st 2013 (Document Services Valley, 2012). Based on the success of the document services valley PADSI program for >85 tenants and their project, document services valley is working on a successor program; document services incubator (Document Services Valley, 2012).

3.2.2 DATA SAMPLE

The cost of studying an entire population to answer a specific question is usually prohibitive in terms of time, money and resources. Therefore, a sample of subjects representative of a given population must be selected (Lunsford & Lunsford, 1995). In some cases, the population is too large or too spread out to allow for measuring or evaluating each member of the population. Therefore researchers have developed a

number of techniques in which only a small portion of the total population is sampled to generalize results and conclusions for the entire population (Lunsford & Lunsford, 1995). Advantages of sampling include time efficiency, less costs, and potentially more accurate research (Lunsford & Lunsford, 1995). Disadvantages include potential bias in the selection of subjects, which may lead to error in interpretation of results and decrease the ability to generalize results beyond the studied subjects (Lunsford & Lunsford, 1995).

This research aims to enhance the incubation process of incubators through identifying tenant utility. Thus the population in this research is tenants. However, incubators differ in their approach and therefore it is convenient to define a more explicit target population. Thus this research focuses on all tenants in the DSV PADS program (i.e., new or small entrepreneurs with a focus on document services). A sample is a small subset of the target population that has been chosen for this research (Lunsford & Lunsford, 1995; Neuman, 2014). The sample should represent the target population and have sufficient size that can be subjected to a fair statistical analysis (Lunsford & Lunsford, 1995). The primary data samples are tenants in the document services valley PADS program. For the cluster analysis the tenants will not be interviewed to determine their business models. To identify their business models, interviews will be held among business developers of document services valley that are able to identify business models of tenants on an abstract level. The business model ontology has been standardised for the convenience of the business developers and for SPSS purposes. These interviews will be held in Venlo, at the document services valley location, and will identify tenants involved in the incubation program. Each tenant will be analysed using the incubator interview (appendix B), based on the standardised business model ontology-coding scheme (appendix A).

There are 86 tenants involved in the PADS program. The sample size calculator recommends a minimum sample size of 71 tenants with a population of 86 for this quantitative questionnaire based interview. Therefore, a minimum of 71 tenant business models will be determined (Raosoft). Hence a proportion of 82,5% of the PADS population will be interviewed (i.e., the sampling fraction). Thus each tenant of the sample represents 1.2 tenants (i.e., the elevation fraction). Based on these numbers the confidence interval can be determined. The confidence interval is the range of values within which a population parameter is estimated to lie (Babbie, 2007, p. 197). The confidence interval is measured using the confidence level that is an estimated probability that a population parameter lies within a given confidence interval (Babbie, 2007, p. 197; Neuman, 2014). With a confidence level of 95%, a sample size of 71 for $N = 86$ and a confidence percentage of 50% the confidence interval is determined on 4.89 (Creative Research Systems). Hence if 80% of the sample is innovative the conclusion can be made that with a 95% certainty between 75,11% and 84,89% of the population would have given the same answer as the sample.

In the conjoint analysis it is convenient to use a smaller sample of tenants to reduce the necessary resources, time and money needed to conduct qualitative interviews with all tenants. Therefore, a multiple case study design will be used to gather and analyse

data on a small number of examples (Vogt & Johnson, 2011, p, 44). According to Stake (2005) the best research sample for a multiple case study is between 4 and 10 samples. Thus the benefits of multiple case studies will be limited if fewer than 4 cases or more than 10 are chosen (Stake, 2005, p. 22). Two or three samples do not show enough of the interactivity, whereas 15 or 30 cases provide more uniqueness or interactivity than the researcher can come to understand (Stake, 2005, p. 22).

For this research a data sample of at least 8 tenants will be used. Hence, the sample population used in this research is a suitable and unbiased quantity. To reach at least 8 tenants and provide certain diversity amongst tenants, for each cluster at least two tenant firms will be interviewed to identify their incubator mechanism needs. In each cluster 5 tenants will be randomly selected using the cluster sampling technique, based on an expected response rate of at least 40%. Thus the samples in this research are selected random and therefore this sampling technique produces probability samples. Randomisation is important because it provides a sample that is not biased and meets the requirements for statistical validity (Lunsford & Lunsford, 1995). Therefore, it may be assumed that the sample fully represents the target population (Lunsford & Lunsford, 1995).

Guest, Bunce and Johnson (2006) conducted a literature review of guidelines for qualitative research and found that most articles recommended theoretical saturation to determine purposive sample sizes. Theoretical saturation can be used as a criterion through which adequate sample sizes in qualitative research can be justified (Guest, Bunce & Johnson, 2006). The majority of articles and books reviewed by Guest, Bunce and Johnson (2006) recommended that the sample size should be continued until theoretical saturation occurs. However, Morse (1995, p. 147) noted that there are no published guidelines or tests for estimating the sample size required to reach saturation. Glaser and Strauss (1967, p. 65) first defined theoretical saturation as the point at which no additional data are being found. In this research a more general notion of data saturation will be used and operationalized as the point in data collection and analysis when new information produces little or no change to the codebook (Guest, Bunce & Johnson, 2006). To document the progression of theme identification a codebook was developed based on a coding scheme for each set of three interviews to identify theoretical saturation. So in the first analysis three interviews were analysed, in the second analysis three additional interviews were analysed for an n of six, and so on. For all these analyses, the unit of analysis is the participant (i.e., tenant) and the data items are the individual codes (i.e., expressions of themes).

Romney, Batchelder, and Weller (1986) found that small samples could be quite sufficient in providing complete and accurate information within a particular cultural context, as long as the participants possess a certain degree of expertise about the domain of inquiry ("cultural competence"). Romney, Batchelder, and Weller (1986, p. 326) calculated that samples as small as four individuals can render extremely accurate information with a high confidence level (.999) if they possess a high degree of competence for the domain of inquiry in question. The more similar participants in a sample are in their experiences with respect to the research domain, the sooner

saturation can be expected to occur. These similarities appear to have been enough to render a fairly exhaustive data set within twelve interviews (Guest, Bunce & Johnson, 2006).

In table 3 a summary of the data is provided. After analysing all interviews, the codebook contained 128 codes, all of which had been applied to at least one transcript. Coding is the process whereby raw data is transformed into a standardised for suitable for processing and analysis (Babbie, 2007). 50 (39%) of these codes were identified within the first three transcripts. An additional 30 codes were identified in the next three transcripts, for a cumulative percentage of 63% of all codes applied to the data. As shown in table 3 the full range of thematic discovery occurred almost completely within the first 12 interviews.

Interview	Number of codes	Percentage	Cumulative percentage
1	22	17%	17%
2	17	13%	30%
3	11	9%	39%
4	14	11%	50%
5	6	5%	55%
6	10	8%	63%
7	8	6%	69%
8	7	5%	74%
9	4	3%	77%
10	6	5%	82%
11	7	5%	88%
12	3	2%	90%
13	4	3%	93%
14	5	4%	97%
15	4	3%	100%

Table 3 Theoretical saturation

Based on this analysis the conclusion can be made that saturation occurred by the time 12 interviews had been analysed. After 12 interviews 90% (115) of the total number of codes had been developed. Therefore after analysing 12 interviews new themes emerged infrequently as the analysis continued. Hence the conclusion can be made that a sample size of 15 interviews would suffice to generate valid results.

3.3 DATA COLLECTION METHODS

3.3.1 INTERVIEW DESIGN CLUSTER ANALYSIS

When designing an interview it is imperative to ask questions that are likely to yield as much information about the research phenomenon as possible (Gill et al., 2008). In an interview, good questions should be open-ended (i.e., require more than a yes/no answer), neutral and understandable (Gill et al., 2008). Usually it is best to start with

questions that participants can answer easily and then proceed to more difficult or sensitive topics. This can put respondents at ease, build up their confidence and generate rich data that subsequently develops the interview further (Gill et al., 2008). As in any research, it is often wise to first pilot the interview schedule on several respondents prior to data collection proper. This allows the research team to establish whether the interview is clear, understandable and capable of answering the research questions, and if, therefore, any changes to the interview schedule are required (Gill et al., 2008).

Before an interview takes place, respondents should be informed about the study details and given assurance about ethical principles, such as anonymity and confidentiality. This gives respondents some idea of what to expect from the interview, increases the likelihood of honesty and is also a fundamental aspect of the informed consent process (Gill et al., 2008). At the end of the interview it is important to thank respondents for their time and ask them if there is anything they would like to add. This gives respondents an opportunity to deal with issues that they have thought about, or think are important but have not been dealt with by the interviewer. This can lead to the discovery of new, unanticipated information. Respondents should also be debriefed about the study after the research has finished (Gill et al., 2008).

All interviews should be recorded and transcribed accurately afterwards, as this protects against bias and provides a permanent record of what was and was not said (Gill et al., 2008). It is often also helpful to make 'field notes' during and immediately after each interview about observations, thoughts and ideas about the interview, as this can help in data analysis process (Gill et al., 2008).

All interviews in this research will be recorded and transcribed to enhance data quality and limit biased conclusions. After 20 interviews the data will be analysed to identify whether any changes to the interview are necessary. The interviews will be held among business developers at document services valley to help identify business models of tenant firms. The tenant firms will be coded to ensure anonymity and confidentiality. Appendix B provides a detailed interview structure.

3.3.2 VARIABLES CLUSTER ANALYSIS

In the business model ontology four pillars have been identified, decomposed in nine elements. Each of these nine elements will be evaluated regarding the data quality it can render. Therewith deciding on which clustering variables should be used in this research to render valid results. Osterwalder (2004) decomposes some of these elements into several sub-elements, however in the cluster analysis high correlated variables should be avoided, due to their influence on the clusters. To ensure valid results each element will be evaluated on its ability to gather high quality and relevant data. A detailed coding scheme has been developed based on the business model ontology (appendix A).

Most business model elements are not [yet] applicable to new and small businesses, like cost structure and relationships. These businesses are still developing and therefore most business will not have acquired customers at this stage. Therefore a distinction will be made regarding which business model [sub-] elements are most applicable in

this cluster analysis. For small and new businesses the most important business model element is the value proposition element. Therefore this research will focus most on the value proposition to determine tenants business models.

Osterwalder (2004) decomposed the first element (value proposition) into four sub-elements; reasoning, value level, price level and life cycle. The price level sub-element is a financial aspect as well and therefore will be dealt with later in this chapter. The other three sub-elements can be considered as uncorrelated and can therefore all be measured and included in the cluster analysis rendering valid results. However, only six variables can be used in the cluster analysis and therefore choices have to be made which of these variables need to be left out. The sub-element scores will be measured according to an ordinal scale. Therefore, the sub-element reasoning, consisting of use, risk and effort should be conjoint into two measures. Analysing the four sub-elements of this building block, the conclusion can be made that the reasoning and value level (i.e., how the company creates value and the utility) are the most important elements for the value proposition. Therefore the life cycle sub-element will be left out in this research. Using the reasoning and value level elements a distinction can be made on how the company offers value to customers and on what level, using a qualitative scale. The reasoning sub-element will make a distinction between use and reducing a customer's risk/efforts on an ordinal scale. Using an ordinal scale, the value level element will distinguish between me-too value/innovative imitation (i.e., incremental innovation) and excellence/innovation (i.e., radical innovation). Another important distinction in the product-offering element, especially in technological complex businesses, is the distinction between applications (i.e., software and apps) and platform (i.e., an infrastructure for one or more applications). This distinction is considered as very important to compare businesses and identify value configuration for technological businesses. Therefore this element will be measured on a binary ordinal scale that distinguishes between application and platforms.

The second element, target customer, is an important element to distinguish between tenants, since a tenant focusing on offering value to businesses is radically different from a tenant focusing on consumers. The most general distinction is between business-to-business and business-to-consumer.

The third element of the business model ontology is the distribution channel. The channel links can either be direct (i.e., no intermediaries involved), agent intermediary (i.e., acting on behalf of the producer), or broker intermediary (buy and resell). A distinction can also be made between online and offline offering. However, this element is not considered as important for distinguishing tenant clusters, because the assumption is made that most tenants offer their services online and/or in an online environment. Hence this element is left out of this research.

The fourth element of the business model ontology (i.e., relationship) focuses on the relationship a company builds with its customers. This element is decomposed into the equity goals of the firm towards customers: acquisition, retention and add-on selling. However, since this research looks at the business model at this moment and not the business model in the future, most tenants in the document services valley focus on the

acquisition of new customers, since they do not have any customers yet. Therefore this element will not be measured in this research.

The fifth element of the business model ontology is value configuration. Osterwalder (2004) distinguishes between the value shop (service providers), the value network (brokering and intermediary activities), and the value chain framework (products). However, document services valley focuses on information and document service start-ups and therefore a useful distinction between tenants will not be made using this variable since all tenants [should] offer a service. Therefore this element is left out of this research.

The sixth element (i.e., capability) can be decomposed into two sub-elements; developed in-house or insourced and tangible, intangible resources or people-based skills. However, because this research focuses on the business model at this moment it is hard to identify their [core] capabilities. Often start-ups do not have enough knowledge to distinguish their core capabilities. In addition, start-ups do not have enough equity to outsource certain capabilities or resources. Most of the capabilities at this moment are intangible and are developed in-house. Therefore this element is left out of this research.

The seventh element (i.e., partnership) is decomposed into two sub-elements – partnership agreements and reasoning. The partnership agreement sub-element is hard to operationalize and hence high quality data cannot be gathered. Therefore this sub-element will not be measured in this research. The reasoning sub-element will be hard to measure using an ordinal scale. However, partnerships can be established by start-ups and can offer benefits to tenants. In addition, start-ups already in a partnership might have different needs regarding incubator mechanisms and can therefore be distinguished as an important element in this research. Therefore this research focuses on whether the tenant has a partnership.

The eighth business model element is the cost structure. This research focuses on the current business model. However, most of these tenants are in the development stage. Hence most of these tenants do not have an outlined cost structure. Hence this element will not be measured in this research.

The ninth business model element (i.e., revenue model) describes the way the company generates money. This element is decomposed into two uncorrelated sub-elements: revenue streams and pricing mechanisms. The pricing mechanism sub-element depends on data regarding how the price for a certain product or service will be determined. However, this research focuses on tenants in their development stage and most tenants might have an idea on their pricing mechanism, but this element will change during the development stage. Therefore the data quality for pricing mechanism will be low. The revenue mechanism however, can be determined on the current business model, because the change in this sub-element will be significantly lower than in the pricing mechanism. Therefore this research focuses on the revenue stream regarding the revenue model of the start-ups. A distinction will be made between selling (including lending and licensing) and intermediating/advertising.

After analysing all building blocks and associated elements six variables have been acknowledged for identifying clusters. These variables (appendix A) will be measured using an interview with business developers at document services valley.

3.3.3 INTERVIEW DESIGN CONJOINT ANALYSIS

This interview is designed to identify utility scores of tenants. The interview is decomposed into two stages, a conjunctive stage followed by a compensatory stage. Before the interview takes place, respondents should be informed about the study details and given assurance about ethical principles, such as anonymity and confidentiality. This provides respondents with some idea of what to expect from the interview, increases the likelihood of honesty and is a fundamental aspect of the informed consent process (Gill et al., 2008).

This research proceeds on the assumption that tenants do not possess any information or knowledge regarding possible incubator mechanisms. Therefore the interviewer will explicitly explain each of the identified incubator mechanisms to the interviewee(s) to yield as much information as possible. In the conjunctive stage the tenant is asked to rate the desirability of each attribute on a 0 to 100 scale. In the compensatory stage the respondent is asked to categorise incubator mechanisms from most valuable to least valuable. During both stages the respondent is asked to think aloud and rationalise their thoughts/decisions in order to come to understand their preferences.

At the end of the interview it is important to thank respondents for their time and ask them if there is anything they would like to add. This gives respondents an opportunity to deal with issues that they have thought about, or think are important but have not been dealt with by the interviewer. This can lead to the discovery of new, unanticipated information. Respondents should also be debriefed about the study after the research has finished (Gill et al., 2008). As in any research, it is often wise to first pilot the interview schedule on several respondents prior to data collection proper. This allows the research team to establish whether the interview is clear, understandable and capable of answering the research questions, and if, therefore, any changes to the interview schedule are required (Gill et al., 2008).

All interviews will be recorded and transcribed, as this protects against bias and provides a permanent record of what was and was not said (Gill et al., 2008). It is often also helpful to make 'field notes' during and immediately after each interview about observations, thoughts and ideas about the interview, as this can help in data analysis process (Gill et al., 2008). After two interviews the data will be analysed to identify whether any changes to the interview are necessary. The interviews will be held with two tenants from each identified cluster in the cluster analysis. The tenant firms will be coded to ensure anonymity and confidentiality. Appendix C provides a detailed interview structure.

The results of this research are as good as the collected data. Several authors have utilized protocol analysis, wherein consumers are asked to "think aloud" as they choose, as a method for understanding consumers' choice preferences (Srinivasan, 1988).

Therefore data collection and processing techniques must be fairly simple and routinized (Green, Krieger & Wind, 2001). Meaning that all interviews held should be equal from one tenant to another, to avoid differences in interpretation. In the attribute importance procedure it is important to note that attribute importance must mean the value of the tenant getting an improvement from the least preferred to the most preferred attribute (Srinivasan, 1988). Hence the ambiguous question “how important is each attribute?” should be avoided. It should be explicitly explained to the respondent that all attributes should be ranked on importance, with each attribute being more important than the next. Adding to that Haaijer, Kamakura and Wedel (2000) demonstrated that response time is related to preference by means of choice uncertainty, whereby shorter response times represent more certain choices (Netzer et al., 2008). Alternatives with higher quality are assumed to generate signals at a faster rate, and the threshold value determines the diligence of the decision maker. For moderate values of the threshold, the response time and choice probability are less extreme (Otter, Allenby & van Zandt, 2007). Therefore, during the interview the response time is taken into account. Fast response times will be imposed with an added score on the alternative and slow response times will be imposed with a subtracted score on the alternative. Preference measurement models have almost exclusively assumed that consumers make choices independently of one another (Netzer et al., 2008). However, the polarizing effects of group decision-making should be included if this could play a role in the choices of tenants. These social interactions play a role when multiple entrepreneurs are engaged with the start-up. Recent research in marketing has highlighted and illustrated the importance of social interactions in choices (Godes & Mayzlin, 2004; Goldenberg, Libai & Muller, 2002). Therefore, if multiple entrepreneurs are engaged in the start-up it would yield better results when these entrepreneurs are interviewed together for the conjoint analysis interview.

3.4 DATA ANALYSIS METHODS

3.4.1 CLUSTER ANALYSIS

SPSS offers numerous displays and tables to help determine the composition of the clusters and the importance of each variable in determining the cluster (Norušis, 2005). SPSS produces a very simple output. The upper part of the output describes the algorithm applied, the number of variables used, and the final number of clusters retained from the data (Mooi & Sarstedt, 2011). The lower part of the output, silhouette measure of cohesion and sepearation, indicates the quality of the cluster solution. It is essentially based on the average distances between the objects and can vary between -1 and +1. Specifically, a silhouette measure of less than 0.20 indicates a poor cluster quality, a measure between 0.20 and 0.50 a fair cluster quality, whereas values of more than 0.50 indicate a good cluster quality (Mooi & Sarstedt, 2011). The model viewer graphically presents the structure of the revealed clusters. The model viewer shows two windows: the main view (shows a model summary) and an auxiliary view (features cluster sizes). At the bottom of each window different information can be gathered, such as an overview of the cluster structure and the overall variable importance. Using the

model viewer, the tenants in each cluster and the most important variables can be identified. Additionally the variable distribution per cluster can be examined, showing which cluster can be characterized by which variables (Norušis, 2005). Adding to that it is important to analyse the ratio of sizes in the results. This provides an indication of how the largest cluster compares to the smallest cluster. A rule of thumb is that the ratio of sizes should not be higher than 3.00.

3.4.2 MULTIPLE CASE STUDY CONJOINT ANALYSIS

The basic idea of the self-explicated approach is to first evaluate the different levels of an attribute on a 0-100 desirability scale where the most preferred level of an attribute gets the value 100 and the least preferred level on that attribute is assigned the value 0 (Srinivasan, 1988). After the attributes are evaluated on a 0-100 scale, the respondent is asked to rate the importance of the attributes. The tenant rates the eight identified incubator mechanisms from 1 (for most valuable) to 8 (least valuable). Each score is rated on a constant sum ranging from 0-100 on an ordinal scale (0-12,5-25 etc.). Part-worths (i.e., utility scores) are then obtained by multiplying the importance ratings with the attribute level desirability values (Srinivasan, 1988). To make the part-worths fall in more convenient range 0 to 100, the part-worths are set equal to the importance rating times the desirability rating divided by 100 (Srinivasan, 1988). The part-worth scores provide a measure of the preference for each attribute, with large values corresponding to greater preferences.

3.4.3 RELATIONSHIP CLUSTERS AND TENANT UTILITY DATA ANALYSIS

After all interviews have been held and data of the cluster analysis and conjoint analysis has been analysed the relationship between clusters and utility should be analysed. Both the multivariate analysis of variance (MANOVA) (Field, 2009, p. 584) and the Kruskal-Wallis test (Field, 2009, p. 562) will be executed to determine whether business model clusters has a relationship with tenant utility. A distinction can be made between the relationships of tenants' utility and the cluster (i.e., the whole business model of tenants) and between tenants' utility and specific business model building blocks. Therefore the relationship between tenants utility and the cluster as well as the individual building block scores will be analysed in the statistical test. The tests show descriptive statistics of each separate cluster (e.g., N, Mean, Std. Deviation, Minimum, Maximum) and test the hypothesis whether the variances of the groups are the same (Field, 2009, p. 382). If Levene's test is significant (i.e., the value of Sig. is less than .05) then the variances are significantly different. This would mean that there is a significant difference in the preferences between the identified clusters.

3.5 VALIDITY AND RELIABILITY

Validity refers to the approximate truth of an inference (Shadish, Cook & Campbell, 2002). Shadish, Cook and Campbell (2002) elaborated validity into four related components that will be analysed, in the perspective of this research. These four components entail: statistical conclusion validity, internal validity, construct validity, and external validity (Shadish, Cook & Campbell, 2002).

Statistical conclusion validity refers to the appropriate use of statistics to infer whether and how strongly the variables covary (Shadish, Cook & Campbell, 2002). In order to determine a relationship between business model clusters and tenant utility the MANOVA test will be used. This statistical test examines whether a statistical difference can be found between utilities among clusters. This test is considered to be valid to determine whether the business model clusters differ with regard to their (bundled) utility. The MANOVA test also produces several ANOVA tests that examine the relationship between business model clusters and tenant utility per incubator mechanism. However, data is not considered parametric and therefore the Kruskal-Wallis test should be used to test this relationship. In order to examine correlation between business model elements the bivariate correlation test will be done. All these tests have been thoroughly selected and examined and can be considered as the right statistical tests to examine all possible relationships.

Internal validity refers to whether the covariation of independent and dependent variables resulted from a causal relationship (Shadish, Cook & Campbell, 2002). To support such an inference, the researcher must show that a business model precedes incubator mechanism needs and that no other explanation for the relationship is plausible (Shadish, Cook & Campbell, 2002). This research implicitly states that tenants have a certain need or preference and that this need can be predicted based on the tenants business model. In other words, the business model (e.g., independent variable) precedes the incubator mechanism need (e.g., dependent variable). This research makes the assumption that there is a causal relationship between the business model clusters and incubator mechanisms. However, there is a possible third variable influencing tenant utility, like experience, strategy or the type of business.

Construct validity refers to inferences about the higher order constructs that represent sampling particulars (Shadish, Cook & Campbell, 2002). In practice, construct validity is used to describe a scale, index, or other measure of a variable that correlates with measures of other variables in ways that are predicted by or make sense according to a theory of how the variables are related (Vogt & Johnson, 2011). The statistical method used, cluster analysis, is assumed to be valid in order to determine whether cluster can be identified. However, the use of business models remains latent until the analysis has been conducted and results can be determined. Hence the inference can be underestimated or overestimated (type II error) due to the use of business models to cluster tenants. In addition, in order to use a cluster analysis in this research setting (i.e., DSV) only six variables could be used to still generate valid results. Therefore some elements, and sub-elements, of the business model ontology have been left out. This makes the construct validity lower, because other elements, which have not been operationalized, might be more important than the elements that will be used. This validity can be enhanced by creating a sample size of >512, to measure all the building blocks of the business model ontology, and even more to include all the sub-elements. The self-explicated conjoint analysis used in the second part of the research has mostly been used in marketing research to determine consumer preferences regarding new product development research. However, this method is applicable on any subject to

determine preferences. This analysis determines the preferences of tenants through a compensatory and conjunctive way. Therefore the construct validity of the self-explicated conjoint analysis is considered to be high.

External validity refers to inferences about whether the cause-effect relationship holds variation in persons, settings, treatment variables, and measurement variables. The external validity for this research is high for tenants in the DSV PADSİ program. In the first stage of this research clusters will be identified based on business models to identify tenants with similar characteristics. In each of these clusters several tenants will be randomly selected to participate in the second stage. Hence the assumption can be made that the participants (i.e., the sample) in the second stage represent all tenants of that particular cluster. Hence results of the self-explicated conjoint analysis can be generalised to all tenants involved in the DSV PADSİ program. However, generalisations to other business incubators would be invalid. DSV concentrates on certain tenants (information service entrepreneurs) and therefore the research will not be externally applicable to incubators/tenants in other industries. However, the method used in this research, cluster analysis based on business models and a self-explicated conjoint analysis, can be performed by other business incubators. Therewith the results might not be applicable for other business incubators, but the research method is.

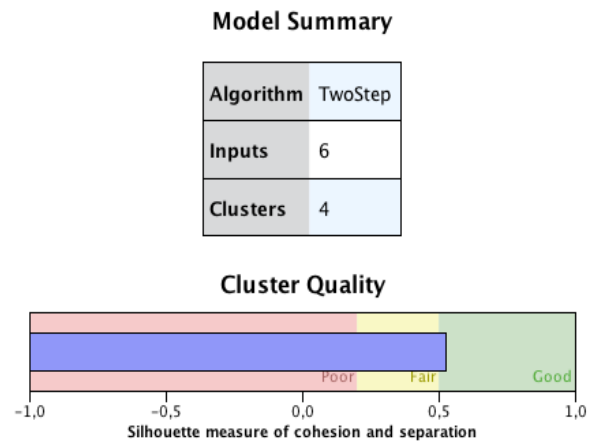
FINDINGS

4.1 FINDINGS CLUSTER ANALYSIS

Interviews have been carried out face-to-face and through videoconference, due to time/money restrictions and geographical location, with business developers at document services valley. All interviews have been recorded and analysed thoroughly. These interviews are available, on request, in a private folder. The model summary is given in appendix D. This summary is the result of a two-step cluster analysis carried out with IBM SPSS 20 using a Bayes information criterion (BIC).

The Two-Step Cluster Analysis provides two clusters from an input of six variables. The cluster quality has a silhouette measure of cohesion and separation of 0,3, a fair cluster quality. However, a good cluster quality is desirable, as this would render better results and therefore derive better conclusions. Therefore another cluster analysis has been done using the outlier handling option. The result of this cluster analysis is given in figure 1.

Figure 1 Model Summary Two-Step Cluster Analysis



The model summary of the cluster analysis using the outlier handling option provides four clusters from an output of six variables with a cluster quality of 0,6. This cluster analysis therefore provides a better result than the initial cluster analysis. There is no difference between the results of the AIC or the BIC method and the cluster quality does not improve radically if one of the variables is left out of the clustering process. Therefore the findings of the second cluster analysis will be used in this research. A more detailed report of the results of this cluster analysis is given in appendix E.

The distribution of tenants' ratio is 1.33. This means that the largest cluster is 1.33 times as large as the smallest cluster. The largest cluster, cluster 2 and 3 contain 16 tenants (equivalent to 27,6%), cluster one contains 14 tenants (equivalent to 24,%) and the smallest cluster contains 12 tenants (equivalent to 20,7%). Thus 58 tenants have been used to compute the clusters from the initial 71, leaving 13 tenants out of the clustering process to enhance the cluster quality. Figure 2 of appendix E shows the importance of the variables. The first question, regarding value proposition is the most important variable in the clustering process with a predictor importance of 1,00. The least important variable is the third question regarding segmentation with a predictor importance of 0,04. This figure shows that the variables value proposition, innovativeness and partnership are important variables for the clustering process. The variables segmentation and revenue model are less important variables for the clustering process.

Comparing the different clusters gives a thorough impression in the variables of the clusters. The first cluster has a value proposition through use, uses innovative ideas/technologies, the vast majority has (a) partnership(s), the vast majority is application-based, generates revenues through selling and focuses on the B2B market. Therefore this cluster is identified as the innovation-based cluster. The second cluster creates value through reducing effort or risk, does not use an innovative idea/technology, the vast majority has (a) partnership(s), is application-based or software, generates revenues through selling and focuses on the B2B market. Therefore cluster 2 is, from now on, identified as the effort/risk-based cluster. The third cluster generates value through use, does not use an innovative idea/technology, does not have partnership, is application-based, generates revenues through selling, and the vast majority focuses on the B2B market. Therefore the third cluster is, from now on, identified as the non-partnership-based cluster. The fourth cluster creates value through use, does not use an innovative idea/technology, has (a) partnership(s), is application-based, generates revenue through selling, and focuses on the B2B market. Therefore the fourth cluster is, from now on, identified as the standard-based cluster.

Based on these findings the tenants have been identified for the conjoint analysis. The cluster quality shows that the clusters that have been identified are a solid foundation and derive valid conclusions.

The output of the two-tailed pearson bivariate correlation, as shown in figure 2, shows that value proposition is positively related to segmentation, with a coefficient of $r = .262$, which is significant at $p < .05$. The output also shows that value proposition is negatively related to revenue model, with a coefficient of $r = -.239$, which is significant at $p < .05$.

		Q1_USE_RISK EFFORT	Q2_INNOVAT IVENESS	Q3_B2B_B2C	Q4_APPLICAT ION_PLATFO RM	Q5_PARTNER SHIP	Q6_REVENUE _MODEL
Q1_USE_RISKEFFORT	Pearson Correlation	1	-,138	,066	-,112	-,124	-,056
	Sig. (2-tailed)		,250	,586	,354	,303	,641
	N	71	71	71	70	71	71
Q2_INNOVATIVENESS	Pearson Correlation	-,138	1	,166	,262*	-,099	-,239
	Sig. (2-tailed)	,250		,165	,028	,413	,045
	N	71	71	71	70	71	71
Q3_B2B_B2C	Pearson Correlation	,066	,166	1	,150	-,030	-,144
	Sig. (2-tailed)	,586	,165		,216	,805	,230
	N	71	71	71	70	71	71
Q4_APPLICATION_PLATFORM	Pearson Correlation	-,112	,262	,150	1	-,221	,111
	Sig. (2-tailed)	,354	,028	,216		,066	,362
	N	70	70	70	70	70	70
Q5_PARTNERSHIP	Pearson Correlation	-,124	-,099	-,030	-,221	1	-,044
	Sig. (2-tailed)	,303	,413	,805	,066		,714
	N	71	71	71	70	71	71
Q6_REVENUE_MODEL	Pearson Correlation	-,056	-,239*	-,144	,111	-,044	1
	Sig. (2-tailed)	,641	,045	,230	,362	,714	
	N	71	71	71	70	71	71

*, Correlation is significant at the 0.05 level (2-tailed).

Figure 2 Results bivariate correlation

The output shows that if the business model of tenant deviates from the mean on their value proposition the value proposition deviates positively in the similar direction while the revenue model deviates negatively in the opposite direction. In other words, when tenants offer value through innovation (i.e., mean is imitation) their value proposition

deviates towards platform-based (i.e., instead of application-based). When tenants offer value through innovation their revenue model deviates towards selling. However, the correlation coefficient gives no indication on the direction of causality.

4.2 FINDINGS SELF-EXPLICATED UTILITY

The self-explicated conjoint analysis output, as shown in figure 3, shows that on average all tenants prefer incubator services like internal network, external network, internal financing and external financing. There is a particularly low preference for administration assistance, infrastructure and training. The conjoint analysis score is based on the preference of tenants from a conjunctive and compensatory analysis with a minimum of 0 and a maximum of 100. The part-worth scores provide a measure of the preference for each attribute, with large values corresponding to greater preferences. The conjunctive analysis identifies tenant preferences based on a 0-100 scale. If tenants presume an incubator mechanism as valuable for their business they score high and when tenants presume an incubator mechanism as invaluable for their business they score low. The compensatory analysis measures tenant preferences by explicitly stating which incubator mechanism is most, second most, third most, etc. These conjunctive and compensatory scores are combined to obtain part-worth scores. The part-worth scores provide a measure of the preference for each attribute, with large values corresponding to greater preferences. Hence tenants show a strong preference for internal financing, external financing and external network. Tenants show a smaller preference for internal network and business assistance, while tenants show the least preference for training, infrastructure and administration assistance.

The results of the conjunctive and compensatory test show some interesting insights in the reasoning of tenants. Several incubator mechanisms show a larger preference on the conjunctive score, while this preference is lower in the compensatory score. This shows that tenants would value from a certain incubator mechanism, but do prefer other incubator mechanisms as more valuable if a choice has to be made. Incubator mechanisms, like internal/external network and business assistance have a relatively constant score. Financing, internal and external, already show a high preference in the conjunctive score, but show an even higher score in the compensatory score. Hence the conclusion can be made that if tenants would have to choose between incubator mechanisms they strongly prefer financing.

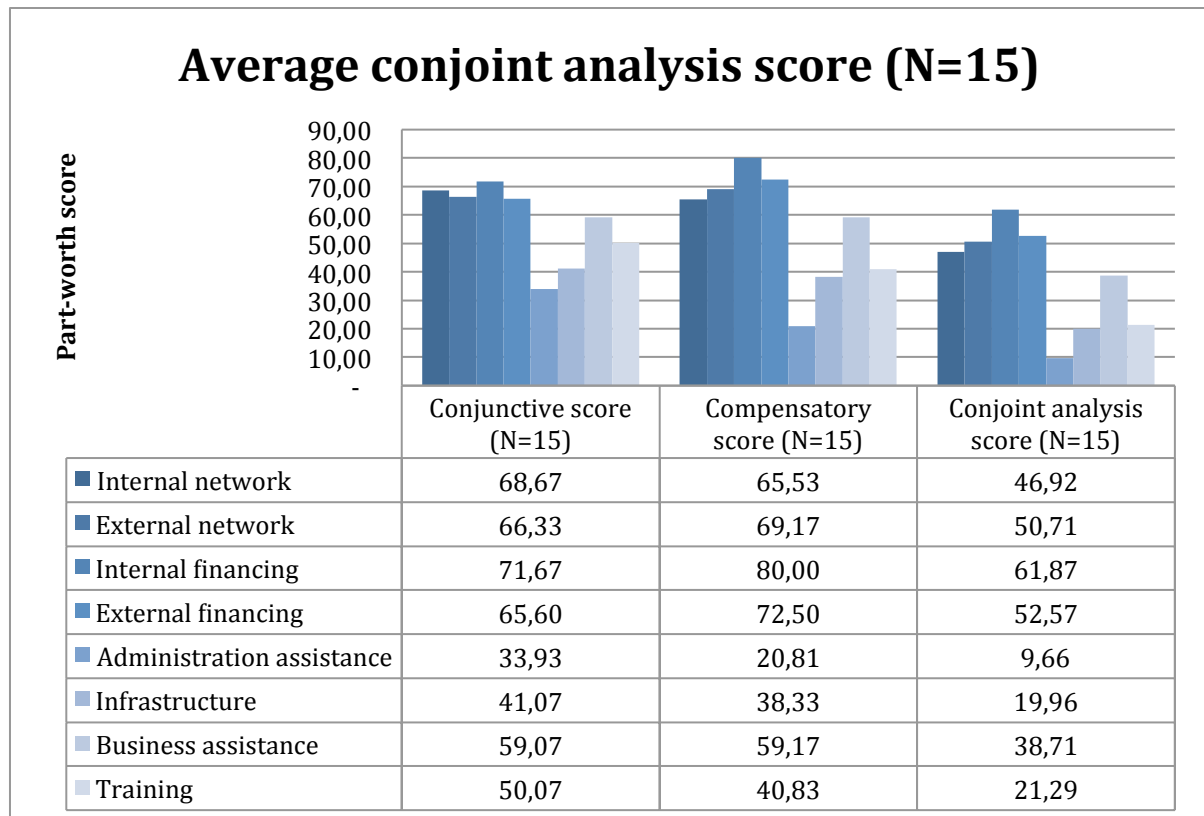


Figure 3 Part-worth scores of the self-explicated conjoint analysis

Asking participants to justify their part-worth scores helps identify why they prefer a certain incubator mechanism. Out of all participants, 80% described the financial support as the most important reason for joining a business incubator. Some participants also describe business assistance (13%), network (53%), and knowledge (20%) as a reason for joining a business incubator. Participants justify customers and money for their preference for an internal network. Hence, for some participants, the internal network within a business incubator is important because they are potential customers. Two participants state that the internal network could be valuable if the group were relevant for their business. This could be enhanced through selecting more rigorously. Four participants state that an internal network is valuable for collaborating with people with specific knowledge (like designers and developers). Another participant states that it is important but for specific knowledge you need an external network. Two participants do not find an internal network important to their business.

The justification for external network is different among participants. Most participants describe the external network is valuable but their reasoning differs. Four (26%) participants focus on large organisations and therefore describe the external network of a business incubator as customers. Other participants describe the external network as important because this is where revenues are generated, this could give the business a kick-start, as valuable to know the right people and as a marketing function. Two participants do not find an external network relevant for their business while one participant states that it could be important but it depends on the conditions.

Most participants describe internal financial support as the most important reason for joining a business incubator. Only two participants describe internal financial support as not important. Participants describe internal financing as the first basic need, the most tangible incubator mechanism and as important to fund things you would otherwise be reluctant to. One participant describes internal financing important if done in stages to maintain participation among tenants. Seven (46%) participants describe external access to financing as very important for entrepreneurs. Four participants also identify advice from the incubator regarding external financing as important. One participant does not identify external financing as important while three participants do not identify this as important right now, but perhaps in the foreseeable future.

Most participants validate their low preference for administration assistance and infrastructure through describing that they are already provided. Most tenants in the DSV PADSI program are relatively experienced entrepreneurs, who joined DSV to fund a specific project while they already have a core business including administrative and infrastructure resources. Four participants state that administrative assistance and/or infrastructure might be convenient in the foreseeable future. One participant states that infrastructure would be convenient when the location is nearby while another participant states that it would be convenient if the internal network would be relevant for their business. Another participant states that it would be valuable if it were possible to have morning or afternoon sessions and it would not be mandatory to be there 5 days a week.

Four participants (26%) state that they are already provided with business assistance services and hence have no need for this incubator mechanism. Other participants state that business assistance would be convenient on specific subject you don't constantly need (13%), on specialised knowledge like intellectual property (20%), important for big issues (7%), valuable if not expensive (13%), valuable when in-house (20%) and the first basic need of a business (13%). One participant states that business assistance is only valuable when the business developer or external consultant has knowledge on the specific business. Seven participants (46%) state that training and development is not important for their business, while 13% states that entrepreneurial knowledge is gained in practice. In addition, 20% of the participants state that it is always nice to receive training and gain knowledge. Another 26% states that it can always be valuable.

Without performing a statistical test a clear difference is visible in the part-worth scores between clusters. Hence the identified clusters show a different preference regarding incubator mechanisms. The part-worth scores provide a measure of the preference for each attribute, with large values corresponding to greater preferences. For example, the innovation-based cluster shows a stronger preference for external access to financial support compared to the effort/risk-based and the non-partnership-based cluster. Cluster four shows a stronger preference for infrastructure compared to the other clusters, which show no preference at all for infrastructure. The scores per cluster are shown in figure 4. An interesting value is visible in the different preferences between the innovation-based cluster and the other clusters. As can be seen in the

cluster analysis the innovation-based cluster is characterised as innovative. This cluster shows a lot of different part-worth scores in comparison with the other clusters, like external financing and business assistance are relatively higher while internal network is lower. Hence it will be interesting to see whether there is a significant difference in the preferences of innovative tenants in comparison to innovative imitation tenants.

Average conjoint analysis scores per cluster

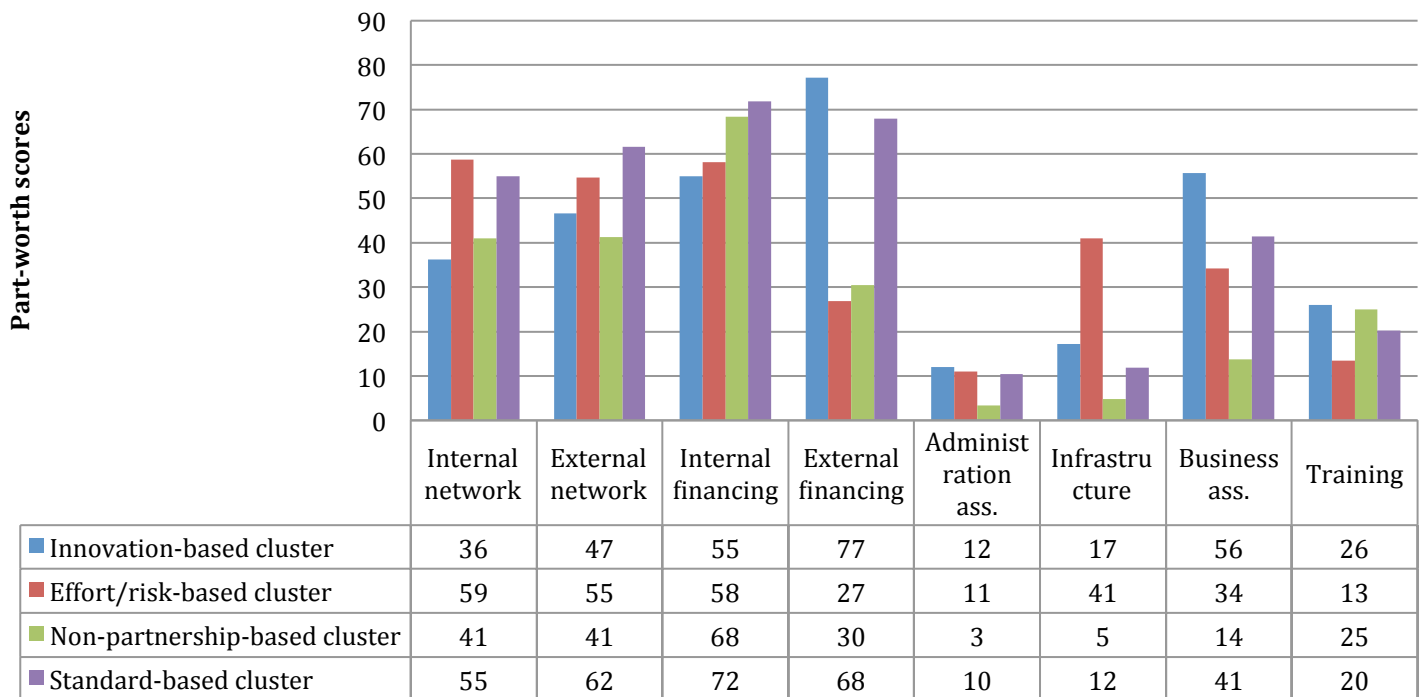


Figure 4 Part-worth conjoint analysis scores per cluster

The output of the two-tailed pearson bivariate correlation, as shown in appendix G (i.e., conjunctive), H (i.e., compensatory) and I (i.e., self-explicated), shows several correlations between part-worth scores. The findings of the conjunctive two-tailed correlation test show a significant correlation between internal network and external network ($r = .645$, Sig. = .009). These findings indicate that tenants that prefer an internal network will also prefer an external network, while tenants that do not prefer an internal network will also not prefer an external network. Other significant findings in the conjunctive two-tailed correlation test are; internal financing and training ($r = .552$, Sig. = .033), external financing and business assistance ($r = .892$, Sig. = .00), external financing and training ($r = .612$, Sig. = .015), administration assistance and infrastructure ($r = .821$, Sig. = .00), administration assistance and infrastructure ($r = .656$, Sig. = .008), business assistance and infrastructure ($r = .753$, Sig. = .001) and business assistance and training ($r = .616$, Sig. = .014).

However, tenants can score high on each of these scores without making any consensus in their decisions (i.e., if they score high on internal network this does not have an influence on their possible score for the other elements). Therefore a

compensatory correlation test will also be conducted. These findings, as shown in appendix H, indicate that there is a significant correlation between external network and infrastructure ($r = .607$, $\text{Sig.} = .016$). This correlation indicates that tenants that prefer an external network will also prefer an infrastructure.

Combined the conjunctive and compensatory scores provide the self-explicated conjoint analysis part-worth scores. These scores provide the most accurate indication of tenant preferences regarding incubator mechanisms. The findings of the self-explicated two-tailed correlation test, as shown in appendix I, indicate two correlations. The first correlation shows a significant relationship between administration assistance and infrastructure ($r = .545$, $\text{Sig.} = .036$), which indicates that tenants with a preference for administration assistance also show a preference for infrastructure. The second correlation shows a significant relationship between external network and business assistance ($r = .670$, $\text{Sig.} = .006$), which indicates that tenants with a preference for an external network will also prefer business assistance. Hence, the conclusion can be made that in the presence of a preference for an external network the likelihood of a preference for business assistance increases. While in the presence of a preference for administration assistance the likelihood of a preference for infrastructure increases.

4.3 FINDINGS RELATIONSHIPS

In order to test the assumption that there is a significant difference in the preferences between clusters the MANOVA and Kruskal-Wallis test will be conducted using IBM SPSS 20 in order to test if enough evidence exists to reject the null hypothesis ($H_0 : Cl_1 = Cl_2 = Cl_3 = Cl_4$).

The Multivariate test table, as shown in appendix J, shows the tenant utility variance among clusters. There is no significant difference in tenant preferences among clusters, $F(24, 12) = .505$, $p > .05$, Wilk's $\Lambda = .135$. Hence the conclusion can be made that based on business model clusters no precise prediction can be made regarding tenant preferences. The MANOVA test also produces one-way ANOVA tests on all dependent variables individually. This gives a good insight in a possible relationship between clusters and separate incubator mechanism preferences. This table, as shown in appendix J, provides an estimate that indicates no relationship between business model clusters and internal network ($p = .422$), external network ($p = .894$), internal financing ($p = .848$), administration assistance ($p = .808$), infrastructure ($p = .246$), business assistance ($p = .198$), and training ($p = .697$). This test however does show a possible relationship between business model clusters and external financing ($p = .030$). The one-way ANOVA test shows that the relationship differs most between cluster 1 and cluster 2 regarding external financing. Therefore a Kruskal-Wallis test will be performed to test how the dependent variables relate (individually) to the business model clusters. The results of the one-way ANOVA test cannot be used because data is not parametric (i.e., normally distributed).

The Kruskal-Wallis test shows the Chi-square value (Kruskal-Wallis H), degrees of freedom and the level of significance. There is no statistically significant difference between the clusters regarding their preference part-worth scores of the conjunctive

and compensatory conjoint analysis, with a significance of $p > .05$, as shown in appendix K. Therefore not enough evidence exists to conclude that there is a difference in preferences among clusters. However, there is a small effect size that shows a small difference in tenant preferences for external financing ($p = .58$) and business assistance ($p = .198$) among clusters.

Test Statistics^{a,b}

	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_F INANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ FINANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _ADMINISTRA TION_ASSIST ANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INFRASTRUC TURE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _BUSINESS_AS SISTANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _TRAINING
Chi-Square	3,045	,736	1,610	7,469	2,987	3,827	4,660	2,354
df	3	3	3	3	3	3	3	3
Asymp. Sig.	,385	,865	,657	,058	,394	,281	,198	,502

a. Kruskal Wallis Test

b. Grouping Variable: CLUSTER

Figure 5 Kruskal-Wallis test self-explicated conjoint analysis

In the Kruskal-Wallis test regarding the self-explicated part worth scores no statistical significant difference is found between the clusters, with a significance of $p > .05$, as shown in figure 5. This indicates that there is not enough evidence to conclude that there is a difference in preferences among clusters. However, like the one-way ANOVA test indicated there is a big difference in preferences regarding external financing. To examine if parts of the business model have a significant relationship with tenant preferences the Mann-Whitney test will be done with each business model element (i.e., value proposition, segmentation, etc.). Examining business model elements individually enhances generalizability because it increases the sample size. In addition findings in individual business model elements are easier to generalise than business model clusters.

Tenant utility scores did not significantly differ on their value proposition (value through use or reducing effort/risk) according to the Mann-Whitney U test, as shown in appendix L. Internal network ($U = 12.5$, $p > .05$), external network ($U = 19$, $p > .05$), internal financing ($U = 19$, $p > .05$), administration assistance ($U = 17$, $p > .05$), infrastructure ($U = 20$, $p > .05$) and business assistance ($U = 18$, $p > .05$) show no significant difference at all, while external financing ($U = 8.5$, $p = .077$) and training ($U = 11$, $p = .150$) show a small difference on their value proposition. Therefore the conclusion can be made that there is a small difference in the preferences of tenants creating value through usage compared to tenants creating value by reducing effort or risk. Tenants creating value through usage tend show more preference for external financing and training.

Tenant utility scores did significantly differ between innovative-based tenants and non-innovative tenants according to the Mann-Whitney U test, as shown in appendix L, on external financing preferences ($U = 9$, $p = .05$). However, external network ($U = 22$, $p > .05$), internal financing ($U = 17.5$, $p > .05$), administration assistance ($U = 20$, $p > .05$), infrastructure ($U = 15.5$, $p > .05$) and training ($U = 17.5$, $p > .05$) show no significant difference, while internal network ($U = 12.5$, $p > .121$) and business assistance ($U = 11$, $p = .085$) show a small difference on value proposition. Therefore the conclusion can be

made that there is a significant difference in the preferences regarding external financing and a small difference regarding internal network and business assistance of tenants creating value through innovation compared to tenants creating value through innovative imitation. Tenants creating value through innovation (i.e., radical innovation) tend show more preference for external financing and business assistance than non-innovative tenants (i.e., incremental innovation), while non-innovative tenants show more preference for internal network than innovative tenants.

Tenant utility scores did significantly differ on their product offering according to the Mann-Whitney U test, as shown in appendix L, on external financing preferences ($U = 3, p = .03$). However, internal network ($U = 9.5, p > .05$), external network ($U = 12, p > .05$), internal financing ($U = 14.5, p > .05$), administration assistance ($U = 18, p > .05$), infrastructure ($U = 13, p > .05$), business assistance ($U = 9, p > .05$) and training ($U = 14, p > .05$) show no significant difference. Therefore the conclusion can be made that there is a significant difference in the preferences regarding external financing of platform-based tenants compared to application-based tenants. Platform-based tenants tend to show more preference for external financing than application-based tenants.

Tenant utility scores did not significantly differ from tenants with a partnership and tenants without a partnership according to the Mann-Whitney U test, as shown in appendix L. Internal network ($U = 23, p > .05$), external network ($U = 20, p > .05$), internal financing ($U = 20, p > .05$), administration assistance ($U = 15, p > .05$), infrastructure ($U = 18, p > .05$) and training ($U = 14.5, p > .05$) show no significant difference at all, while external financing ($U = 13, p = .141$) and business assistance ($U = 14.5, p = .197$) show a small difference. Therefore the conclusion can be made that there is a small difference in the preferences of tenants with a partnership compared to tenants without a partnership. Tenants with a partnership tend show more preference for external financing and training.

Tenant utility scores did not significantly differ based on tenants revenue models according to the Mann-Whitney U test, as shown in appendix L. External network ($U = 20, p > .05$), internal financing ($U = 20, p > .05$), external financing ($U = 4, p > .05$), administration assistance ($U = 15, p > .05$), infrastructure ($U = 18, p > .05$), business assistance ($U = 6, p > 0.05$) and training ($U = 14.5, p > .05$) show no significant difference at all, while internal financing ($U = .000, p = .104$) shows a small difference. Therefore the conclusion can be made that there is a small difference in the preferences of tenants generating revenues through intermediating or advertising compared to tenants generating revenues through selling, lending or licensing.

Business model element	Incubator mechanism	Relationship (significance)
Value proposition (usage or risk/effort)	External financing Training	Small effect size (p = .077) Small effect size (p = .150)
Value proposition (innovative or non-innovative)	External financing Internal network Business assistance	Strong effect size (p = .05) Small effect size (p = .121) Small effect size (p = .085)
Product offering (platform or application)	External financing	Strong effect size (p = .03)
Segmentation (B2B or B2C)	-	-
Partnership	External financing Business assistance	Small effect size (p = .141) Small effect size (p = .197)
Revenue model (selling/lending or intermediating/advertisement)	Internal financing	Small effect size (p = .104)

Table 4 Relationship between individual business model elements and incubator mechanisms

In addition to predicting tenant preferences based on business model clusters the assumption can be made that preferences differ between tenants in different phases of their business (i.e., start-ups differ in preferences from experienced entrepreneurs). Hence a Kruskal-Wallis test will be done to examine if tenants differ significantly in their preferences in DSV PADS I phase 1, phase 2 and phase 3. The results, as shown in figure 6, show a statistically significant difference in preferences regarding infrastructure between PADS I phases ($H = 6.626$, $p = .036$) with a mean rank of 4.38 for phase 1, 10.75 for phase 2, and 5.5 for phase 3. In addition there is a small difference in preferences regarding training between PADS I phases ($H = 3.462$, $p = .177$) with a mean rank of 11.50 for phase 1, 6.00 for phase 2 and 7.00 for phase 3. Therefore the conclusion can be made that there is a difference in preferences among tenants regarding infrastructure and training. Therefore a follow-up survey has been performed to examine if this difference is only applicable on PADS I phases or also on experience. In the follow-up questionnaire tenants were asked when their business was founded. To test this relationship a Spearman's Correlation test will be conducted. The results, as shown in appendix M, shows a small, positive correlation between experience and external network ($r_s = .396$, $p = .181$) as well as experience and infrastructure ($r_s = .406$, $p = .169$).

Test Statistics ^{a,b}								
	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_F INANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ FINANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _ADMINISTRA TION_ASSIST ANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INFRASTRUC TURE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _BUSINESS_AS SISTANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _TRAINING
Chi-Square	1,732	,825	1,414	,721	2,267	6,626	2,305	3,462
df	2	2	2	2	2	2	2	2
Asymp. Sig.	,421	,662	,493	,697	,322	,036	,316	,177

a. Kruskal Wallis Test

b. Grouping Variable: ADDITIONAL_INFO_PHADSI_PHASE

Figure 6 Kruskal-Wallis test PADS I phase

CONCLUSION

This research is based on the assumption that tenants differ in regard to their preferences towards business incubator mechanisms. This research aims to come to understand tenant preferences and predict their preferences based on tenants business models. The main research question this research aims to answer is: *“How can tenants with a similar utility be identified using business models to contribute to the optimisation of the incubation process?”* To provide an answer on this question a two-staged research design has been conducted. In the first stage a cluster analysis will be conducted based on tenant business models. The aim of this cluster analysis is to identify tenants with similar characteristics. In the second stage of this research the tenants’ preferences have been identified using a self-explicated conjoint analysis.

The results of the cluster analysis show a good cluster quality based on six important business model elements. Four business model clusters have been identified with a distribution ratio of 1.33. The most important business model elements in the cluster analysis are value proposition, innovativeness and partnership. The variables segmentation and revenue model are less important variables for the clustering process. The correlation test indicates a correlation between innovativeness and platforms-based products as well as innovativeness and generating revenue through selling.

The results of the tenant utility interviews show a strong tenant preference for financing and network business incubator mechanisms, while a low tenant preference is identified regarding administration assistance, infrastructure and training. Therefore one can conclude that most tenants identify internal financing, external financing, external networks and internal networks as most valuable for their business. Although some tenants do identify administration assistance, infrastructure and training as valuable for their business the overall tenant population would benefit more from other incubator mechanisms. To justify their low preference for administration assistance and infrastructure most tenants indicate that they are already provided with office space and administrative resources. The low score for training can be rationalised through the simple explanation that most tenants would not refuse training opportunities but, if a choice has to be made, would benefit more from other incubator mechanisms like financing. Most tenants identify internal financing as the reason for joining a business incubator. In addition they would also value external financing opportunities as well as advice from the incubator on the terms of these financing opportunities. Tenants justify their preference for internal network for a variety of reasons. The most common reasons are potential customers and collaboration to attract specific knowledge. The justification for a preference for the external network varies from customers and generating revenues to knowing the right people. The justification for business assistance varies a lot in terms of the condition, which will be discussed in the recommendation.

The results of the correlation test regarding tenant preferences identify two correlations. The first correlation shows a significant relationship between administration assistance and infrastructure, while the second correlation shows a

significant relationship between external network and business assistance. Hence, the conclusion can be made that tenants that prefer an external network also prefer business assistance, while tenants that prefer administration assistance also prefer infrastructure.

The results from this research show no significant relationship between business model clusters and tenant utility, which indicates that no predictions can be made on tenant preferences based on their business model as a whole. However, there is a small effect size that shows a small difference in tenant preferences for external financing and business assistance. Tenants in the innovative-based and standard-based cluster strongly prefer external financing compared to tenants in the effort/risk-based and non-partnership-based cluster, while tenants in the innovative-based cluster strongly prefer business assistance compared to the standard-based cluster. This could indicate that innovative tenants would prefer external financing and advice (i.e., business assistance) more than innovative-imitation tenants. As the Mann-Whitney test shows, innovative tenants strongly prefer external financing to non-innovative tenants. In addition, innovative tenants tend to prefer business assistance compared to non-innovative tenants, while non-innovative tenants tend to prefer internal network more than innovative tenants. This could indicate that creating value through innovation requires more funding and knowledge while non-innovative tenants require more collaboration and (small) customers.

Adding to that there is a small difference in the preferences of tenant creating value through usage compared to tenants creating value by reducing effort or risk. Tenants creating value through usage show more preference for external financing and training than tenants creating value through effort or risk. This could indicate that creating value through usage requires more funding and knowledge. Platform-based tenants show a significantly higher preference for external funding than application-based tenants. This could indicate that platform-based tenants require more funding. Tenants with a partnership tend show more preference for external financing and training. This could indicate that tenants already provided with a partnership are further along the line of developing their business and therefore need more funding and training if they wish to sustain this development. Tenants generating revenues through intermediating or advertising tend to prefer internal financing to tenants generating revenues through selling, lending or licensing. This could indicate that tenants generating revenues through intermediating or advertising require less radical investments than tenants generating revenues through selling, lending or licensing.

Throughout the research the assumption that preferences differ based on experience developed. To examine this assumption a follow-up questionnaire has been performed among the participants. The results of this test indicate a statistically significant difference in preferences regarding infrastructure between PADS phases. This indicates that tenants in PADS phase 2 significantly prefer infrastructure to tenants in PADS phase 1 and 3. Furthermore experienced tenants (based on their years running their business) show a correlation between external network and experience as

well as infrastructure and experience. Therefore one can conclude that start-ups tend to prefer infrastructure and an external network compared to experienced entrepreneurs.

An advice regarding business incubators is to enhance their internal network through selecting more rigorously to enhance the relevance for tenants. This enhances the quality of the internal network, which in turn enhances the value the internal network can have for tenants. Although some tenants indicate that they value infrastructure, administration assistance and training the business incubator should focus on developing an internal and external network that can generate value for tenants and develop internal and external funding opportunities. Besides funding and networking business incubators should also develop internal business assistance skills and external business assistance opportunities on specific subjects like intellectual property and terms for external investment, which would generate value for (technical) tenants if they are either available in-house or easily and lucratively accessed externally. Business developers at business incubators can assume that start-ups might prefer infrastructure, which in turn would also indicate a preference for administrative assistance. In addition, business developers can assume that certain business model elements indicate a preference for a certain tenant utility, like innovative tenants that prefer external financing more compared to non-innovative tenants.

Returning to the main research (i.e., how can tenants with a similar utility be identified to contribute to the optimisation of the incubation process?) one can conclude that certain elements, like innovativeness or revenue model, of the business model can predict tenants utility. Adding to that it is possible to predict certain preferences of tenants based on their experience. However, further research is needed to examine these relationships further in different settings and with a larger sample size.

DISCUSSION

6.1 DISCUSSION

Data regarding tenant business models was collected between July 16th and August 16th, 2013 through face-to-face interviews in Venlo, the Netherlands and videoconference. Data regarding tenant utility was collected between September 2nd and October 11th in Eindhoven, Tilburg, Amsterdam and Rotterdam through face-to-face interviews and through several telephone conferences. All interviews were conducted in Dutch. All interviews were recorded and responses were transcribed using a standardized transcription protocol.

Throughout the business model interviews 71 (i.e., response rate 82,5%) tenants in the DSV PADSI program were examined. Throughout the tenant utility interviews 15 tenants were interviewed, which provides a sample population of 17.4% and a response rate of 75%. A non-response bias assumes that scores differ between participants and non-participants. However, 82,5% and 75% selected randomly provide a good indication that the participants can provide valid results. Therefore one can conclude that a non-response bias is not present.

Throughout the tenant utility interviews a difference was perceived in the scores tenants provided to the incubator mechanisms. Several participants score extreme, which provides extremely low values (i.e., 0-10) when a service is not valuable for their business and extremely high values (i.e., 90-100) when a service is valuable for their business. Other participants score moderately, not very high or low, which provides answers between 40-80. This influences the results in several ways. First of all if a lot of participants have extreme scores the data will not be normally distributed. Second these extreme scores can influence statistical test. Statistical tests exclude extreme scores or value extreme scores higher that produces different results than data from medium scores only. In addition, these effects are much higher in small sample sizes than in large sample sizes. Therefore the distinction between extreme and medium scores could affect the results, which can be countered through larger sample sizes.

This research assumes that tenant utility differs among tenants and can be predicted based on tenant business models and experience. However, there are other variables that might influence tenant utility besides business models and experience. The type of tenant might also have an influence on their preferences. The DSV PADSI program almost exclusively entails technical tenants, while other incubators might have non-technical or a mix of technical and non-technical tenants.

Comparing the findings of this research to findings in literature shows some similarities. Lee and Osteryoung (2004) identified network, financing, infrastructure and business assistance as value adding incubator mechanisms for tenants, while this research identified network and financing as the most important incubator mechanisms from the perspective of tenants, while business assistance shows some preferences and infrastructure, administration assistance and training are not valued as important by tenants. A possible explanation of the different findings in the research of Lee and Osteryoung (2004) could be that they did not include a compensatory analysis. Tenants

might value all incubator mechanisms as high while they would actually value incubator mechanisms like network and financing as higher if they have to choose. The research findings are in line with research done by Grimaldi and Grandi (2005). According to Grimaldi and Grandi (2005) there is a shift of attention from old services (i.e., infrastructure, administration assistance) towards value adding services. Grimaldi and Grandi (2005) identified incubator mechanisms like network, financing and business assistance as most important for tenants. Hence the trend in recent research towards tenant needs in term of incubator mechanisms is confirmed in the findings of this research. In addition, the reasoning and justification behind these preferences are examined in this research, while most previous research focused on quantitative research.

Comparing the findings of this research to the incubator offerings found in literature reveals several contradictions. Most business incubators provide tenants with office space, funding and other basic services (Hansen et al., 2000). Thus most incubators provide tenants with incubator mechanisms like business assistance (96%-88%), infrastructure (84%) and internal financing (86%). However, only 26% of business incubators offer organised networking, while this is considered a very important incubator mechanism in the findings of this research. Adding to that, infrastructure, which is considered as a less important incubator mechanism from the perspective of tenants is offered by most business incubators.

6.2 LIMITATIONS

The main limitation of this research is the low number of conjoint analysis performed. Only 25-33% of the tenants in each cluster have been interviewed. Hence it is difficult to identify statistical significant difference between clusters. More interviews, while also identifying reasoning's behind preferences, were not possible in the scope of this research. Although no statistical evidence has been found to conclude significant differences among clusters, figure 3 does provide some insights in possible differences (i.e., innovation, product offering). Therefore this research has not been a waste of effort and a significant relationship could be found in future research with a larger sample size. These limitations were noticed before conclusions had been derived from the findings. Therefore this research also included statistical tests with separate business model elements to verify whether a significant difference in tenant preferences could be found in separate business model elements, like innovativeness. In addition, these individual statistical tests include 15 tenants, which enhances generalizability. Adding to that, the cluster characteristics might change if more business models are included, which will create differences from findings in this research. While the individual business model elements (i.e., product offering, innovativeness) remain constant.

Besides, this research provides a limited generalisation beyond its current research setting. Vogt and Johnson (2011) state that a limited number of cases in multiple case studies make it harder to generalise the results to other cases. In addition, Yin (2009) states that case studies provide little basis for scientific generalisation. Case studies are generalizable to theoretical propositions but not to populations or universes (Yin,

2009). This research setting focuses on a homogeneous type of entrepreneurs (i.e., technical entrepreneurs focusing on document and information services), which limits generalisation towards other types of tenants. Furthermore only samples were used from one business incubator, which limits generalisation towards other business incubators. In addition, in the tenant utility interviews only business-to-business tenants were interviewed, which limits generalisations towards tenants focusing on business-to-consumer.

A sample population of 15 tenants was used to determine tenant utility. Therefore 17.4% of all tenants involved in the DSV PADSI program were interviewed. According to several qualitative research method authors (Guest, Bunce & Johnson, 2006; Stake, 2005; Romney, Batchelder & Weller, 1986) this should provide complete and accurate information to generate valid results. In addition, theoretical saturation occurred within 12 interviews. Adding to that, several tenants have been selected randomly from each cluster. The assumption can be made that the tenants in each cluster are comparable based on their similar business model and different from the tenants of other clusters. Therefore the cases provided diversity across contexts as in every cluster at least 4 tenants have been interviewed. However, a larger sample size is desirable to conduct statistical tests and enhance internal and external validity.

Several limitations of this research relate to construct validity. This refers to the constructs used to measure business models and tenant preferences. The self-explicated conjoint analysis is mostly used in marketing research to determine consumer preferences for certain products. However, it is perfectly applicable to determine tenant preferences towards business incubator mechanisms. One evident limitation is the limited possibility in terms of business model elements. Osterwalder (2004) describes four business model pillars, which can be further decomposed into nine building blocks with each building block contained several sub-elements. However, due to the limited sample population of the cluster analysis (i.e., 86 tenants) only 6 business model elements can be used to generate acceptable clusters. Therefore, other possible relationships between business models and tenant utility could not be found. In addition, the business model ontology has several limitations that limit the possible relationships with tenant utility. One of those limitations is the lack of describing the network in the business model. In the current business environment a network is very important for businesses. This trend can also be seen in the results of tenants' preferences, where tenants value both the internal and external network of business incubator as valuable for their business. However, the business model ontology does not describe the network, unless there is a certain kind of collaboration (i.e., partnership) or transaction (i.e., customers). Adding to that, the business model ontology lacks strategy. In business administration it is evident to think about the business strategy, like does the business generate competitive advantage through differentiation or through costs? In addition, the business model shows no focus on competition, which might influence the other business model elements. Tenants generating competitive advantage through differentiation could have different preferences (like financing) than tenants generating

competitive advantage through costs, while tenants already provided with a network might prefer other business incubator mechanisms than tenants with no network.

Due to money and time restrictions interviews regarding tenant business models were conducted among business developers at DSV. These business developers provide tenants with advice and are reasonably capable of determining standardised abstract business model of tenants. In addition, business developers are likely to produce more objective opinions than tenants. Especially in terms of innovativeness, tenants are more likely to find themselves innovative than an objective business developer would.

6.3 IMPLICATIONS FUTURE RESEARCH

This research examined the possibilities to identify tenants with similar preferences to optimise the incubation process. This research contributes to incubator research in several ways. In recent research several trends have been identified. As described earlier tenants deviate from earlier preferences, like office space, towards more 'value added' incubator services. This trend is also evident in the results of this research. Perhaps the most significant contribution of this research is the identification of contradictions regarding incubator mechanism offerings and tenant preferences. Most business incubator do offer an infrastructure towards tenants and do not offer an internal or external network, while the results of this research indicate that tenants strongly prefer both an internal and an external network above incubator services like infrastructure and administration assistance. To generate a more explicit advice to business incubators the self-explicated conjoint analysis could be done among tenants with their score for the specific incubator and for the potential this particular incubator mechanism could have for their business. Often there is a lot of potential value from a network, but this might be lower in practice that might indicate a mismatch between value in practice and potential value.

In addition, previous research has identified tenants utilities (Grimaldi & Grandi, 2005; Lee & Osteryoung, 2004). However, this research identified the underlying justification for these preferences, examined how tenant preference differ and how these different preferences can be predicted. However, future research should examine these relationships further in a larger sample and with other prediction variables. Adding to that, future research should be conducted in other research settings (i.e., in another business incubator or several other business incubators). If future research were to be conducted with a larger sample more business model elements could be included. In addition, a larger sample size and other research settings would increase external generalizability. Furthermore research should be conducted on different preferences among experienced entrepreneurs and pure start-ups.

The business model ontology cluster method could be used in future research to identify, which types of tenants participate in certain business incubators. One can assume that tenants from Amsterdam join an incubator in Venlo for a certain reason. This could be the external network of DSV. However, it could also be the specific focus of DSV on document services. Therefore it would be interesting to identify tenant business models from different business incubator throughout the Netherlands (e.g., UtrechtInc,

Kennispark Twente, DSV, Venturelab, YES!Delft). A distinction could be made between innovative tenants, B2B or B2C tenants, etc. The bivariate standardised business model identification method would be applicable for such a research, while there are no restrictions in terms of business model elements (i.e., business model variables) that were present in this research. Therefore the whole business model could be included with over 22 sub-variables. Business incubators could identify weaknesses and strengths very easily, while the business model could also serve to separate which tenants should be allowed in the incubator program. Furthermore a comparison could be made between the business model when entering the incubator program and the business model when leaving the incubator program. This could provide insights in the innovation process of tenant business model in an incubator.

6.4 IMPLICATIONS BUSINESS INCUBATORS

This research shows that tenants differ in their preferences regarding incubator mechanisms. Hence business incubators should think about which tenants would benefit from which mechanisms. Start-ups might benefit more from infrastructure and administration assistance to limit their initial start-up costs. Innovative tenants might benefit more from external funding and business assistance to gain money and knowledge to successfully develop their business. Perhaps the most significant contribution of this research is the identification of different needs among tenants. Although most business incubators offer the same service towards tenants this incubation process could be improved. However, further research is needed to thoroughly examine this assumption.

In addition to these findings, this research shows that, overall, tenants identify funding and networks as the incubator mechanisms that create most value for their business. Also the preference for in-house or inexpensive external business assistance has been identified. Therefore one can conclude that business incubators should focus most on offering networking opportunities, funding opportunities and business assistance instead of infrastructure.

Innovative tenants and platform-based tenants have a significantly higher preference for external financing compared to non-innovative tenants and application-based tenants. This could indicate that more investments are needed to develop innovative and/or platform-based business. Therefore business incubators should assist innovative and platform-based tenants in attracting external funding through their network and consult them about possible terms of these potential investments. Adding to that, tenants in the early PADSIs phases significantly prefer infrastructure to tenants in later PADSIs phases. Tenants that show a preference for infrastructure are most likely to also show a preference for administration assistance. Therefore business incubators could offer (shared) office space and administration assistance to tenants in the first phases of the PADSIs program.

In addition, the identification of tenants business model can support business developers in identifying weaknesses. This can also support the entrepreneurs through

identifying how the business creates value. The business model ontology is often used to visualise business value and help identify possible innovation opportunities.

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APPENDIXES

APPENDIX A OPERATIONALISATION OF THE BUSINESS MODEL ONTOLOGY

Pillar	Building Blocks of Business Model	Description (Coding mechanism)
Product	Value Proposition	Reasoning - Use - Risk/effort Value level - Me-too value/innovative imitation - Excellence/innovation Technology product offering - Platform - Application
Customer interface	Target Customer	Segmentation - Business to business - Business to consumer
	Distribution Channel	
	Relationship	
Infrastructure Management	Value Configuration	
	Capability	
	Partnership	- Yes - No
Financial Aspects	Cost Structure	
	Revenue Model	Revenue streams - Selling (including lending and licensing) - Intermediating and advertising

APPENDIX B INTERVIEW IDENTIFYING BUSINESS MODELS OF TENANTS

Introductie

In dit onderzoek zullen enkele vragen aan u gesteld worden betreffende business modellen. Het doel van dit onderzoek is om de business modellen van ondernemers in het document services valley PADSII programma te identificeren. Deze business modellen zullen worden gebruikt om bepaalde cluster te vormen. Hetgeen dit onderzoek probeert aan te tonen is dat business modellen gebruikt kunnen worden om betere en specifiekere incubator assistentie te verlenen aan ondernemers. Het business model helpt bij het identificeren van clusters. Deze clusters van ondernemingen delen dezelfde eigenschappen en de aanname die dit onderzoek doet is dat de clusters verschillen in de services die zij van de incubator nodig hebben om waarde toe te voegen aan de onderneming.

Description

Een business model is een middel dat een ondernemer helpt te identificeren hoe de onderneming werkt en hoe waarde gecreëerd wordt. Voor dit onderzoek wordt de business model ontology van Osterwalder gebruikt. Osterwalder onderscheidt 9 bouwstenen. Het business model canvas ontwikkeld door Osterwalder is te zien in de bijlage. Voor dit onderzoek zullen echter niet alle bouwstenen gebruikt worden. 4 elementen van het business model zullen worden onderzocht in dit onderzoek. Deze elementen worden onderzocht omdat deze (waarschijnlijk) het meest onderscheidend vermogen hebben om clusters te identificeren.

Vraag 1: Value proposition

De redenering van het value proposition in het business model geeft inzicht in hoe de onderneming waarde aan haar klanten aanbiedt. Dit element maakt onderscheidt tussen het creëren van waarde door *gebruik* (bv. het gebruik maken van een auto), *en* het reduceren van de *moeite* (thuisbezorgen bijvoorbeeld) of het *risico* (verzekering) van de

klant. Hoe zou u de waarde die de onderneming creëert voor haar klanten karakteriseren?

Vraag 2: Value proposition

Het waarde level van het value proposition geeft inzicht in de innovativiteit van de onderneming ten opzichte van haar concurrenten. Hierbij maakt Osterwalder onderscheidt tussen *me-too value* (waarin de onderneming zich niet onderscheidt van haar concurrenten), *innovative imitation* (waarin de onderneming enigszins waarde toevoegt aan bestaande producten/services), *excellence* (waarin de onderneming veel waarde toevoegt aan bestaande producten/services) en *innovation* (waarin de onderneming of geheel nieuwe producten/services aanbiedt dan wel revolutionaire combinatie maakt van bestaande producten/services). Op welk niveau voegt de onderneming volgens u waarde toe aan haar klanten?

Vraag 3: Segmentation

Segmentatie geeft inzicht in de klanten waar de onderneming zich op richt. De markt waar een onderneming zich in bevindt kan worden gesplitst in segmenten met gelijke voorkeuren en een gelijke vraag. Bij segmentatie kan onderscheidt worden gemaakt tussen bedrijven (*business-to-business*) of consumenten (*business-to-consumer*). Richt de onderneming zich volgens u op bedrijven of op consumenten?

Vraag 4: Value proposition

Document service valley concentreert zich op ondernemingen die services aanbieden in de document en informatie markt. Op dit gebied zijn de laatste tijd vooral veranderingen voelbaar in de digitalisering (e-reader, tablets, ect.). Daarom kan er ook onderscheidt gemaakt worden tussen *applicaties* (software of apps) en *platformen* (infrastructuur). Kan volgens u de segmentatie van de onderneming beter worden getypeerd als een applicatie of als een platform?

Vraag 5: Partnership

Een partner kan voor een onderneming veel voordelen opleveren. Echter niet alle startende ondernemingen hebben een partner en moeten daardoor nog een bruikbaar netwerk ontwikkelen. De behoeften van een startende onderneming kan dan ook erg verschillen wanneer zij een partner heeft van een onderneming die geen partner heeft. Daarom is het van belang te identificeren of het bedrijf een samenwerkingsverband heeft met een andere onderneming. In hoeverre maakt de onderneming naar uw kennis gebruik van een partner?

Vraag 6: Revenue model

Het inkomsten model van een onderneming meet het vermogen van de onderneming om geld en inkomsten te genereren uit de waarde die zij aan consumenten aanbiedt. Het inkomsten model beschrijft hoe het bedrijf geld verdiend. Er zijn vele verschillende manieren waarop een onderneming inkomsten kan generen, zoals het verkopen van producten/services of het uitlenen van producten/services, het verlenen van een vergunning van een product/service of bemiddelaars- en advertentiekosten. Op welke wijze genereert de onderneming volgens u inkomsten uit de diensten die zij aanbiedt?

Partnership	Value configuration	Value proposition	Relationships	Target customer
	Capabilities		Distribution channel	
Cost structure			Revenue streams	

APPENDIX C INTERVIEW IDENTIFYING UTILITY OF TENANTS

Introductie

Mijn naam is Ruud Telman en ik doe momenteel onderzoek bij Océ, Document Services Valley over de behoefte van ondernemers t.o.v. een incubator voor mijn master business administration. Alle informatie vergaard in dit onderzoek zal vertrouwelijk worden behandeld en enkel anonieme en enkel samengevoegde data zal worden weergegeven in mijn scriptie. In dit onderzoek zullen enkele vragen aan u gesteld worden betreffende business incubators. Een business incubator assisteert ondernemers met de ontwikkeling van een nieuw bedrijf. Dit wordt gedaan door middel van verschillende incubator services om ondernemingen te ondersteunen en assisteren. Echter dit onderzoek stelt dat ondernemers verschillen in hun behoeften voor incubator services. Het doel van dit onderzoek is om de behoeftes van ondernemers te identificeren betreft business incubators. Alle vergaarde data zal betrouwbaar en anoniem verwerkt worden.

Instructies

Dit onderzoek is ontwikkeld om aan te tonen welke incubator services u als ondernemer, voor uw bedrijf, belangrijk zou vinden. Dat wil zeggen, welke services zouden waarde toevoegen aan uw bedrijf. Eerst zullen de verschillende services die een incubator kan aanbieden aan u worden toegelicht. Aan de hand van een uitgebreid literatuur onderzoek betreffende business incubators zijn acht incubator services geïdentificeerd. Vervolgens zal u worden gevraagd de verschillende services een score tussen de 0 en de 100 te geven in ordinale stappen van 5 (dus 0, 5, 10 ect.), waarbij 0 staat voor voegt totaal geen waarde toe aan mijn onderneming en 100 voor voegt heel veel waarde toe aan mijn onderneming. In het tweede deel van dit onderzoek zult u de incubator services moeten ordenen van belangrijk naar onbelangrijk. De service die in uw ogen het belangrijkste is (het meest waarde toevoegt aan uw bedrijf) krijgt een score van 1, de service die u hierna het belangrijkste vindt krijgt de score 2, ect.

Om niet alleen te identificeren welke incubator services meer waarde toevoegen aan uw bedrijf, maar om ook de oorzaak hiervan te identificeren vraag ik u om hardop te denken terwijl u beslissingen maakt en wat u denkt tijdens het lezen over de verschillende incubator services. Daarom zal dit interview worden opgenomen en naderhand worden uitgeschreven om te identificeren waarom incubator services voor uw onderneming belangrijk, dan wel onbelangrijk, zijn.

Naam interviewer: Ruud Telman

Code interview: TEN

Naam bedrijf:

Website bedrijf:

Naam contactpersoon:

Kunt u een korte beschrijving geven van uw onderneming?

Wat is volgens u een business incubator?

Waarom heeft u besloten zich aan te sluiten bij DSV (of een andere incubator)?

Element 1: Intern netwerk

In een incubator bevinden zich meerdere ondernemingen (i.e., tenants). Deze ondernemingen onderling vormen het interne netwerk van de incubator. Lyons (2002) stelt dat samenwerking en het delen van kennis tussen deze tenants en geslaagde tenants (ondernemingen die in de incubator hebben gezeten, maar nu zelfstandig opereren) grote voordelen kunnen opleveren voor ondernemingen. Samenwerken met tenants biedt de mogelijkheid tot het verwerven van nieuwe kennis en competenties. Het ontwikkelen van nieuwe kennis en competenties door middel van onderlinge samenwerking is sneller dan wanneer het bedrijf de kennis en competenties intern ontwikkelt.

Element 2: Extern netwerk

Volgens Totterman en Sten (2005) is het sociale aspect van een incubator van belang voor duurzame groei en succes van een onderneming. Het netwerk van een incubator biedt toegang tot middelen en kennis die ondernemers vaak niet hebben, maar wel nodig zijn voor een succesvolle onderneming. Een belangrijke rol van een incubator hierbij is de rol van bemiddelaar tussen tenants en externe actoren. Dit externe netwerk bestaat onder meer uit universiteiten, bedrijven en professionele services als advocaten, accountants, consultants, marketing specialisten, venture capitalists en business angels. Dit externe netwerk kan onderneming voorzien van informatie, kennis en expertise die belangrijk zijn voor de onderneming en de kans op mislukking verminderen.

Element 3: Interne toegankelijkheid tot financiële ondersteuning

Kapitaal is volgens Smilor (1987) essentieel voor opkomende ondernemingen. Zodoende is toegang tot kapitaal van groot belang voor tenants. Een incubator kan tenants toegang verlenen tot financiële ondersteuning. Dit kan in de vorm van een financiële bijdrage aan het bedrijf bij de binnenkomst in de incubator of als gevolg van een programma, waarbij de tenants bij elk stadium waaraan voldaan wordt een financiële bijdrage krijgt.

Element 4: Externe toegankelijkheid en advies tot financiële ondersteuning

Er zijn veel manieren om een ondernemingen te financieren: persoonlijke leningen, (overheids-) beurzen, instellingen en agentschappen die leningen verschaffen en nieuwe mechanismen zoals business angels (individuele die eigen vermogen investeren in ondernemingen). Deze financiële bijdrage van investeerders is wezenlijk groter dan de financiële bijdrage die de tenants intern zouden kunnen krijgen, echter hangen hier dan ook meer/zwaardere voorwaarden aan zoals hoge rente. Gezien de complexiteit van de verschillende financiële alternatieven hebben tenants (vaak) ondersteuning nodig in het begrijpen van de alternatieven en het vaststellen van welke alternatieven het best zijn voor hun onderneming. Een incubator kan tenants dus ondersteunen en als een belangrijke link functioneren tussen de venture capital gemeenschap door tenants te introduceren aan investeerders en het opleiden van ondernemers betreft het venture capital proces en de mind-set van de venture capitalist.

Element 5: Administration assistance

Volgens Smilor (1987) kunnen incubators bepaalde in-kind ondersteuning services aanbieden. Deze ondersteuning biedt tenants bepaalde broodnodige, fundamentele diensten aan die startende ondernemingen vaak niet kunnen veroorloven of verwaarlozen. Bij administration assistance kan men denken aan diensten als een receptionist, een bibliotheek, kopieerdiensten, het huren van uitrusting, mailing (versturen van brieven e.d. aan klanten, leveranciers of potentiële klanten), accounting ondersteuning en contract administration.

Element 6: Infrastructuur

Naast administration assistance kunnen incubators bepaalde infrastructuur diensten aan tenants aanbieden. De meest belangrijke infrastructuur diensten bestaan uit opslagruimtes, beveiliging, computers en conference rooms. Daarnaast kunnen incubators tenants betaalbare, flexibele kantoorruimtes aanbieden. De tenants krijgen dus beschikking over een flexibele werkruimte met andere tenants in één gebouw en

beschikt daarnaast ook over vergaderruimtes of ruimtes om klanten te ontvangen voor bijvoorbeeld pitches.

Element 7: Business assistance

Ondernemers hebben vaak het talent en de ideeën om een nieuwe onderneming op te zetten, maar hebben een gebrek aan bedrijfs- en vakkennis om hun ideeën te transformeren in een succesvolle onderneming (Smilor, 1987). Daardoor hebben startende ondernemers vaak behoefte aan vakkennis. De incubator manager, of bij gebrek aan kennis van een incubator manager een externe bron van bijvoorbeeld een universiteit of een professioneel bedrijf, kan ondernemers hierbij ondersteunen. Business assistance kan onder andere bestaan uit het coachen, ondersteunen en begeleiden van ondernemers op het gebied van management, bedrijfs- en marketing plannen, public relations, accounting, recht en human resources. Deze incubator services zijn een waardevolle bron van vakkennis die een positief effect kunnen hebben op startende ondernemers.

Element 8: Ondernemerschapstraining en opleiding programma's

Naast het begeleiden en ondersteunen van ondernemingen kunnen incubators ook trainingen en opleidingen aanbieden. Hierbij wordt ondernemers vakkennis bij gebracht op het gebied van management, bedrijfs- en marketing plannen, public relations, accounting, recht en human resources. Hierbij ligt de focus niet op het helpen van ondernemers, maar op het trainen van ondernemingen zodat zij in de toekomst zelf de benodigde vakkennis hebben om hun bedrijf te blijven ontwikkelen.

Onderzoek deel 1

U heeft net kunnen lezen welke incubator services er zijn geïdentificeerd uit het literatuuronderzoek. In dit deel van het onderzoek zal u worden gevraagd de waarde die de incubator services kunnen hebben voor uw onderneming. Hierbij moet u in uw achterhoofd houden dat het gaat om de behoeftes van uw onderneming in de startende fase. U kunt in de tabel hieronder de scores aangeven van elke incubator service. Hierbij vraag ik u om hardop te denken en hierbij uw redenering van de score [kort] toe te lichten.

Element	Score (0-100)
Internal network	
External network	
Internal access to financial support	
External access to financial support	
Administration assistance	
Infrastructure	
Business assistance	
Entrepreneurial training services/education programs	

Onderzoek deel 2

In het tweede deel van het onderzoek zult u de elementen moeten ordenen van belangrijk naar onbelangrijk. Hierbij zult u dus moeten kiezen welk element u het meest waardevol vindt voor uw onderneming tot het element dat volgens u het minst waarde toevoegt aan uw onderneming. Hieronder kunt u in de tabel invullen welk element het belangrijkste is (1) tot welke u het minst belangrijk vindt (8).

Waarde	Element
1	
2	
3	
4	
5	
6	
7	
8	

Elementen
Internal network
External network
Internal access to financial support
External access to financial support
Administration assistance
Infrastructure
Business assistance
Entrepreneurial training services/education programs

Is er verder nog iets is dat u van belang acht te zijn of wilt u nog iets toevoegen?

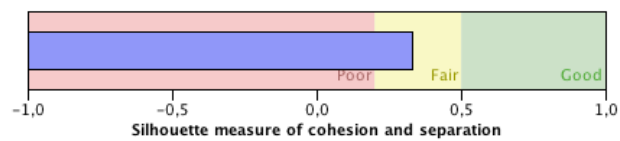
Bedankt voor uw deelname aan dit onderzoek!

APPENDIX D FINDINGS INITIAL CLUSTER ANALYSIS

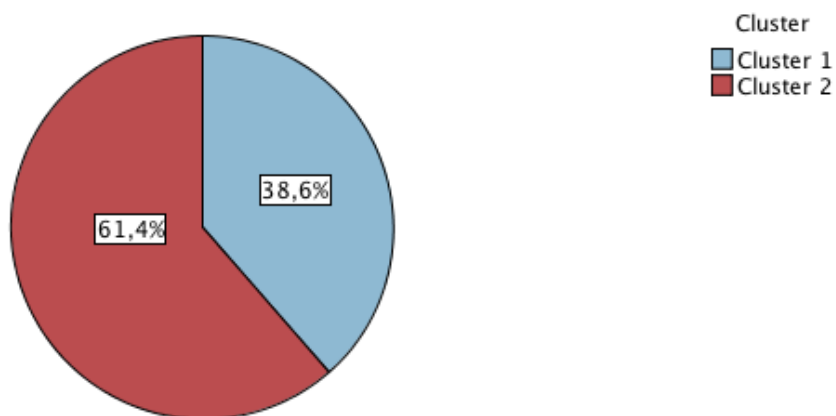
Model Summary

Algorithm	TwoStep
Inputs	6
Clusters	2

Cluster Quality



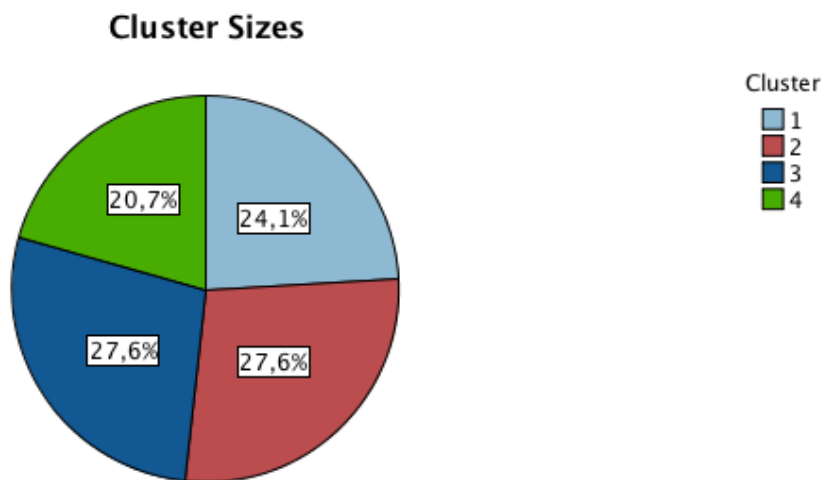
Cluster Sizes



Size of Smallest Cluster	27 (38,6%)
Size of Largest Cluster	43 (61,4%)
Ratio of Sizes: Largest Cluster to Smallest Cluster	1,59

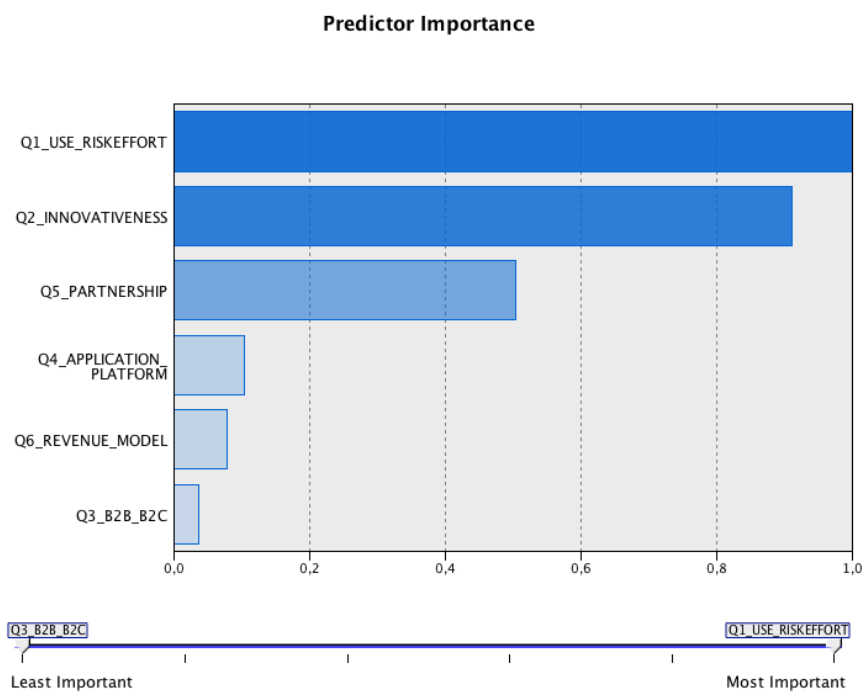
APPENDIX E FINDINGS OUTLIER HANDLING CLUSTER ANALYSIS

Clusters

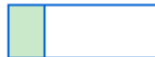
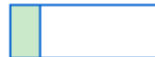


Size of Smallest Cluster	12 (20,7%)
Size of Largest Cluster	16 (27,6%)
Ratio of Sizes: Largest Cluster to Smallest Cluster	1,33

Predictor Importance



Cluster input importance per cluster

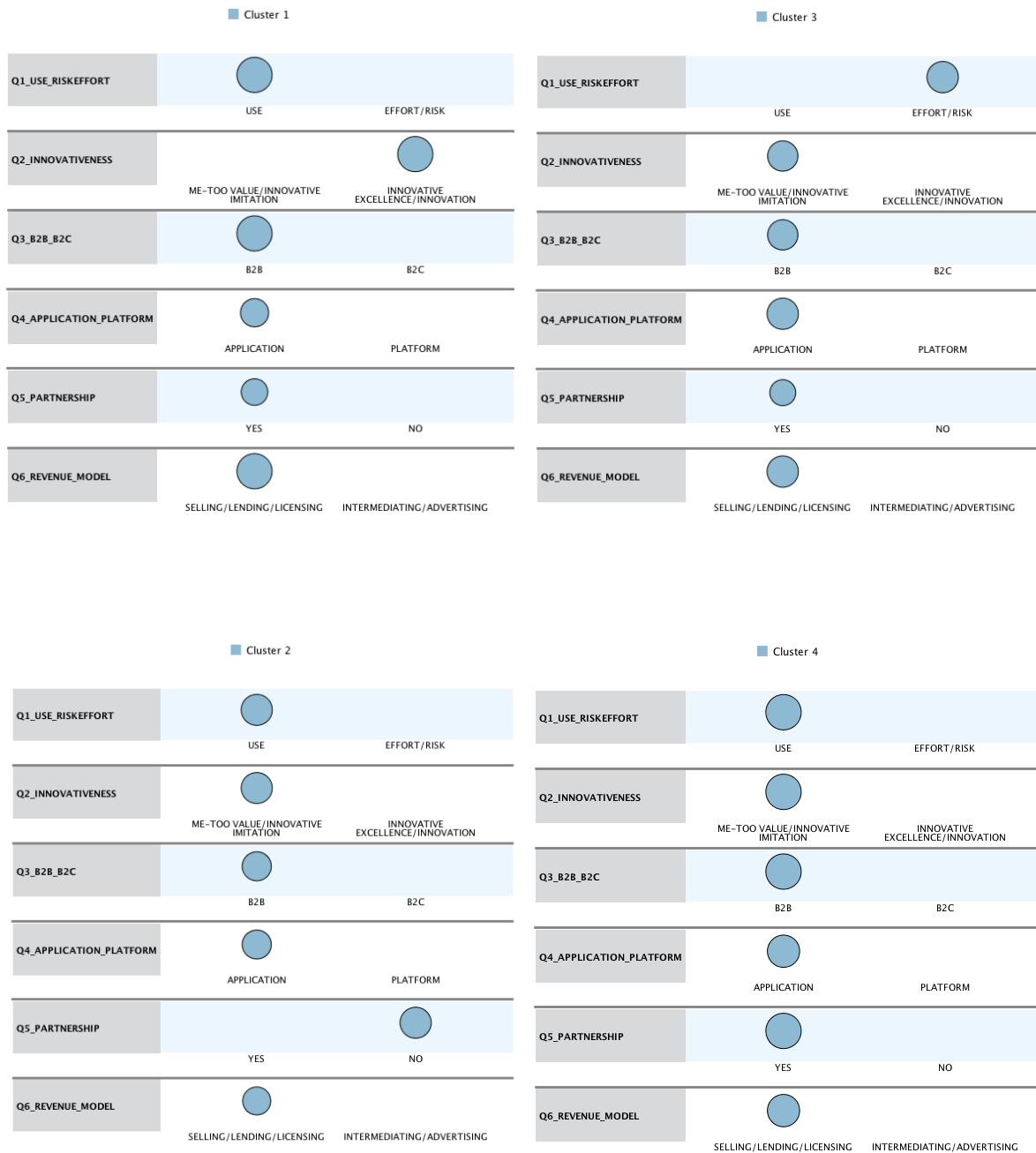
Cluster	2	3	1	4
Label				
Description				
Size	 27,6% (16)	 27,6% (16)	 24,1% (14)	 20,7% (12)
Inputs	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT
	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS
	Q5_PARTNERSHIP NO (100,0%)	Q5_PARTNERSHIP YES (68,8%)	Q5_PARTNERSHIP YES (57,1%)	Q5_PARTNERSHIP YES (100,0%)
	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM
	Q6_REVENUE_MODEL	Q6_REVENUE_MODEL	Q6_REVENUE_MODEL	Q6_REVENUE_MODEL
	Q3_B2B_B2C B2B (87,5%)	Q3_B2B_B2C B2B (93,8%)	Q3_B2B_B2C B2B (100,0%)	Q3_B2B_B2C B2B (100,0%)

Clusters

Input (Predictor) Importance
 1,0 0,8 0,6 0,4 0,2 0,0

Cluster	2	3	1	4
Label	Cluster 2	Cluster 3	Cluster 1	Cluster 4
Size	 27.6% (16)	 27.6% (16)	 24.1% (14)	 20.7% (12)
Inputs	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT	Q1_USE_RISKEFFORT
	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS	Q2_INNOVATIVENESS
	Q3_B2B_B2C	Q3_B2B_B2C	Q3_B2B_B2C	Q3_B2B_B2C
	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM	Q4_APPLICATION_PLATFORM
	Q5_PARTNERSHIP	Q5_PARTNERSHIP	Q5_PARTNERSHIP	Q5_PARTNERSHIP
	Q6_REVENUE_MODE	Q6_REVENUE_MODE	Q6_REVENUE_MODE	Q6_REVENUE_MODE

Cluster comparison



APPENDIX F KOLMOGOROV-SMIRNOV AND SHAPIRO-WILK TEST

Tests of Normality^b

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q1_USE_RISKEFFORT	,470	13	,000	,533	13	,000
Q2_INNOVATIVENESS	,431	13	,000	,592	13	,000
Q4_APPLICATION_PLATF ORM	,505	13	,000	,446	13	,000
Q5_PARTNERSHIP	,392	13	,000	,628	13	,000
Q6_REVENUE_MODEL	,532	13	,000	,311	13	,000
ADDITIONAL_INFO_PHA DSI_PHASE	,281	13	,006	,811	13	,009
CLUSTER	,185	13	,200 [*]	,861	13	,039
EXPERIENCE	,177	13	,200 [*]	,843	13	,023
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_NETWORK	,192	13	,200 [*]	,918	13	,234
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_NETWORK	,132	13	,200 [*]	,945	13	,532
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_FINANCE	,206	13	,136	,891	13	,101
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_FINANCE	,155	13	,200 [*]	,946	13	,546
SELF_EXPLICATED_CONJ OINT_ANALYSIS_ADMINIS TRATION_ASSISTANCE	,227	13	,066	,738	13	,001
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INFRAST RUCTURE	,331	13	,000	,656	13	,000
SELF_EXPLICATED_CONJ OINT_ANALYSIS_BUSINES S_ASSISTANCE	,142	13	,200 [*]	,913	13	,201
SELF_EXPLICATED_CONJ OINT_ANALYSIS_TRAININ G	,148	13	,200 [*]	,914	13	,205

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

b. Q3_B2B_B2C is constant. It has been omitted.

APPENDIX G CORRELATION CONJUNCTIVE CONJOINT ANALYSIS

		Correlations							
		CONJUNCTIVE_INTERNAL_NETWORK	CONJUNCTIVE_EXTERNAL_NETWORK	CONJUNCTIVE_INTERNAL_FINANCE	CONJUNCTIVE_EXTERNAL_FINANCE	CONJUNCTIVE_ADMINISTRATION_ASSISTANCE	CONJUNCTIVE_INFRASTRUCTURE	CONJUNCTIVE_BUSINESS_ASSISTANCE	CONJUNCTIVE_TRAINING
CONJUNCTIVE_INTERNAL_NETWORK	Pearson Correlation	1	,645**	-,236	,160	,065	,124	,096	-,396
	Sig. (2-tailed)		,009	,398	,568	,817	,659	,733	,144
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_EXTERNAL_NETWORK	Pearson Correlation	,645**	1	-,025	,277	,411	,382	,158	-,273
	Sig. (2-tailed)	,009		,931	,317	,128	,160	,575	,325
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_INTERNAL_FINANCE	Pearson Correlation	-,236	-,025	1	,357	,374	,148	,291	,552
	Sig. (2-tailed)	,398	,931		,192	,170	,599	,293	,033
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_EXTERNAL_FINANCE	Pearson Correlation	,160	,277	,357	1	,509	,487	,892**	,612
	Sig. (2-tailed)	,568	,317	,192		,052	,065	,000	,015
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_ADMINISTRATION_ASSISTANCE	Pearson Correlation	,065	,411	,374	,509	1	,821**	,656**	,432
	Sig. (2-tailed)	,817	,128	,170	,052		,000	,008	,107
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_INFRASTRUCTURE	Pearson Correlation	,124	,382	,148	,487	,821**	1	,753**	,230
	Sig. (2-tailed)	,659	,160	,599	,065	,000		,001	,409
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_BUSINESS_ASSISTANCE	Pearson Correlation	,096	,158	,291	,892**	,656**	,753**	1	,616
	Sig. (2-tailed)	,733	,575	,293	,000	,008	,001		,014
	N	15	15	15	15	15	15	15	15
CONJUNCTIVE_TRAINING	Pearson Correlation	-,396	-,273	,552	,612	,432	,230	,616	1
	Sig. (2-tailed)	,144	,325	,033	,015	,107	,409	,014	
	N	15	15	15	15	15	15	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX H CORRELATION COMPENSATORY CONJOINT ANALYSIS

		Correlations							
		COMPENSATORY_INTERNAL_NETWORK	COMPENSATORY_EXTERNAL_NETWORK	COMPENSATORY_INTERNAL_FINANCE	COMPENSATORY_EXTERNAL_FINANCE	COMPENSATORY_ADMINISTRATION_ASSISTANCE	COMPENSATORY_INFRASTRUCTURE	COMPENSATORY_BUSINESS_ASSISTANCE	COMPENSATORY_TRAINING
COMPENSATORY_INTERNAL_NETWORK	Pearson Correlation	1	-,094	-,014	-,118	-,267	-,005	-,419	,117
	Sig. (2-tailed)		,738	,962	,675	,336	,986	,121	,677
	N	15	15	15	15	15	15	15	15
COMPENSATORY_EXTERNAL_NETWORK	Pearson Correlation	-,094	1	-,382	-,024	-,099	-,029	-,376	-,092
	Sig. (2-tailed)	,738		,160	,932	,726	,917	,167	,745
	N	15	15	15	15	15	15	15	15
COMPENSATORY_INTERNAL_FINANCE	Pearson Correlation	-,014	-,382	1	-,250	,199	-,189	-,263	,010
	Sig. (2-tailed)	,962	,160		,369	,476	,499	,344	,973
	N	15	15	15	15	15	15	15	15
COMPENSATORY_EXTERNAL_FINANCE	Pearson Correlation	-,118	-,024	-,250	1	,166	-,607	,289	-,162
	Sig. (2-tailed)	,675	,932	,369		,555	,016	,297	,564
	N	15	15	15	15	15	15	15	15
COMPENSATORY_ADMINISTRATION_ASSISTANCE	Pearson Correlation	-,267	-,099	,199	,166	1	,270	,090	-,642**
	Sig. (2-tailed)	,336	,726	,476	,555		,331	,751	,010
	N	15	15	15	15	15	15	15	15
COMPENSATORY_INFRASTRUCTURE	Pearson Correlation	-,005	-,029	-,189	-,607	,270	1	,110	-,377
	Sig. (2-tailed)	,986	,917	,499	,016	,331		,695	,166
	N	15	15	15	15	15	15	15	15
COMPENSATORY_BUSINESS_ASSISTANCE	Pearson Correlation	-,419	-,376	-,263	,289	,090	,110	1	-,451
	Sig. (2-tailed)	,121	,167	,344	,297	,751	,695		,092
	N	15	15	15	15	15	15	15	15
COMPENSATORY_TRAINING	Pearson Correlation	,117	-,092	,010	-,162	-,642**	-,377	-,451	1
	Sig. (2-tailed)	,677	,745	,973	,564	,010	,166	,092	
	N	15	15	15	15	15	15	15	15

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX I CORRELATION SELF-EXPLICATED CONJOINT ANALYSIS

Correlations									
		SELF-EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELF-EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELF-EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELF-EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELF-EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELF-EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELF-EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELF-EXPLICATED_CONJOINT_ANALYSIS_TRAINING
SELF-EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	Pearson Correlation Sig. (2-tailed) N	1 15	,188 ,502 15	-,313 ,256 15	-,229 ,412 15	-,246 ,376 15	-,031 ,913 15	-,183 ,513 15	-,280 ,312 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	Pearson Correlation Sig. (2-tailed) N	,188 ,502 15	1 15	-,334 ,224 15	-,026 ,928 15	,003 ,992 15	,110 ,696 15	-,166 ,554 15	-,388 ,153 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	Pearson Correlation Sig. (2-tailed) N	-,313 ,256 15	-,334 ,224 15	1 15	,015 ,959 15	,283 ,307 15	-,077 ,786 15	-,100 ,722 15	,079 ,781 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	Pearson Correlation Sig. (2-tailed) N	-,229 ,412 15	-,026 ,928 15	,015 ,959 15	1 15	,142 ,613 15	-,176 ,529 15	,670** ,006 15	,097 ,730 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	Pearson Correlation Sig. (2-tailed) N	-,246 ,376 15	,003 ,992 15	,283 ,307 15	,142 ,613 15	1 15	,545 ,036 15	,333 ,226 15	-,382 ,160 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	Pearson Correlation Sig. (2-tailed) N	-,031 ,913 15	,110 ,696 15	-,077 ,786 15	-,176 ,529 15	,545 ,036 15	1 15	,413 ,126 15	-,475 ,073 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	Pearson Correlation Sig. (2-tailed) N	-,183 ,513 15	-,166 ,554 15	-,100 ,722 15	,670** ,006 15	,333 ,226 15	,413 ,126 15	1 15	-,295 ,286 15
SELF-EXPLICATED_CONJOINT_ANALYSIS_TRAINING	Pearson Correlation Sig. (2-tailed) N	-,280 ,312 15	-,388 ,153 15	,079 ,781 15	,097 ,730 15	-,382 ,160 15	-,475 ,073 15	-,295 ,286 15	1 15

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

APPENDIX J MULTIVARIATE ANALYSIS OF VARIANCE (MANOVA)

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	,991	53,917 ^b	8,000	4,000	,001
	Wilks' Lambda	,009	53,917 ^b	8,000	4,000	,001
	Hotelling's Trace	107,834	53,917 ^b	8,000	4,000	,001
	Roy's Largest Root	107,834	53,917 ^b	8,000	4,000	,001
CLUSTER	Pillai's Trace	1,350	,613	24,000	18,000	,869
	Wilks' Lambda	,135	,505	24,000	12,202	,926
	Hotelling's Trace	3,309	,368	24,000	8,000	,972
	Roy's Largest Root	2,277	1,707 ^c	8,000	6,000	,265

a. Design: Intercept + CLUSTER

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	1433,017 ^a	3	477,672	1,018	,422
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	775,339 ^b	3	258,446	,201	,894
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	717,608 ^c	3	239,203	,267	,848
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	7849,608 ^d	3	2616,536	4,367	,030
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	155,614 ^e	3	51,871	,324	,808
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	2686,674 ^f	3	895,558	1,598	,246
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	3402,864 ^g	3	1134,288	1,841	,198
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	402,381 ^h	3	134,127	,489	,697
Intercept	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	32641,051	1	32641,051	69,583	,000
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	37351,838	1	37351,838	29,023	,000
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	57471,881	1	57471,881	64,260	,000
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	36702,674	1	36702,674	61,261	,000
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	1204,774	1	1204,774	7,534	,019
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	5000,999	1	5000,999	8,926	,012
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	18841,779	1	18841,779	30,579	,000
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	6416,091	1	6416,091	23,371	,001
CLUSTER	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	1433,017	3	477,672	1,018	,422
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	775,339	3	258,446	,201	,894
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	717,608	3	239,203	,267	,848
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	7849,608	3	2616,536	4,367	,030
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	155,614	3	51,871	,324	,808
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	2686,674	3	895,558	1,598	,246
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	3402,864	3	1134,288	1,841	,198
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	402,381	3	134,127	,489	,697
Error	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	5160,042	11	469,095		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	14156,589	11	1286,963		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	9838,010	11	894,365		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	6590,360	11	599,124		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	1758,934	11	159,903		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	6162,872	11	560,261		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	6777,757	11	616,160		
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	3019,828	11	274,530		
Total	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	39634,125	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	53501,953	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	67982,734	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	55891,413	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	3315,539	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	14824,572	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	32655,647	15			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	10222,022	15			
Corrected Total	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_NETWORK	6593,058	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_NETWORK	14931,927	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INTERNAL_FINANCE	10555,619	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_EXTERNAL_FINANCE	14439,968	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	1914,549	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_INFRASTRUCTURE	8849,546	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_BUSINESS_ASSISTANCE	10180,621	14			
	SELF_EXPLOCATED_CONJ_OINT_ANALYSIS_TRAINING	3422,209	14			

a. R Squared = ,217 (Adjusted R Squared = ,004)

b. R Squared = ,052 (Adjusted R Squared = -,207)

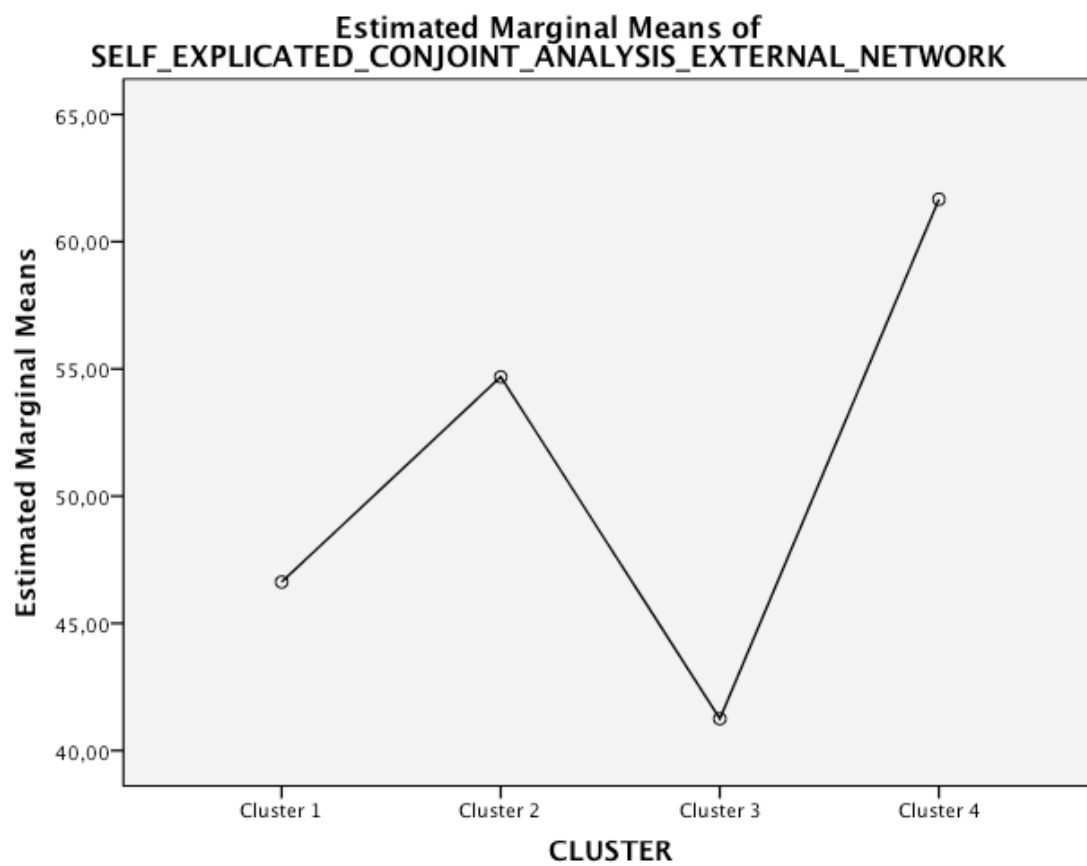
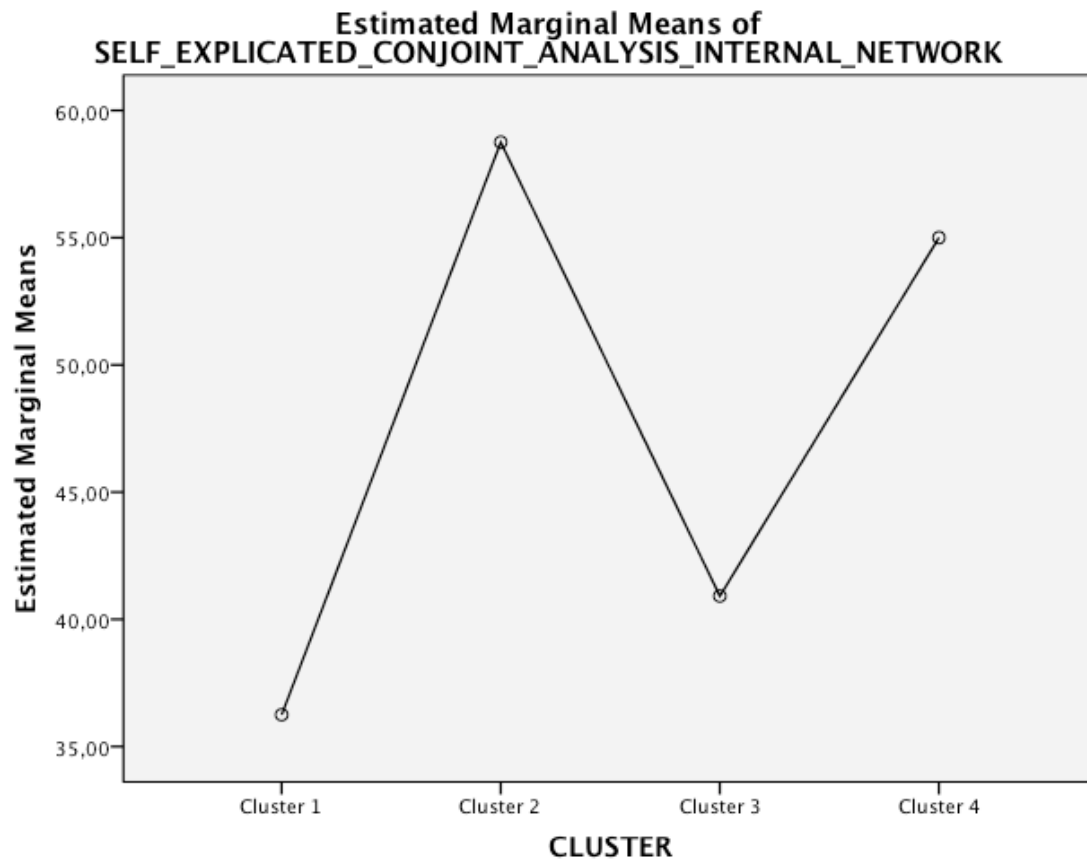
c. R Squared = ,068 (Adjusted R Squared = -,186)

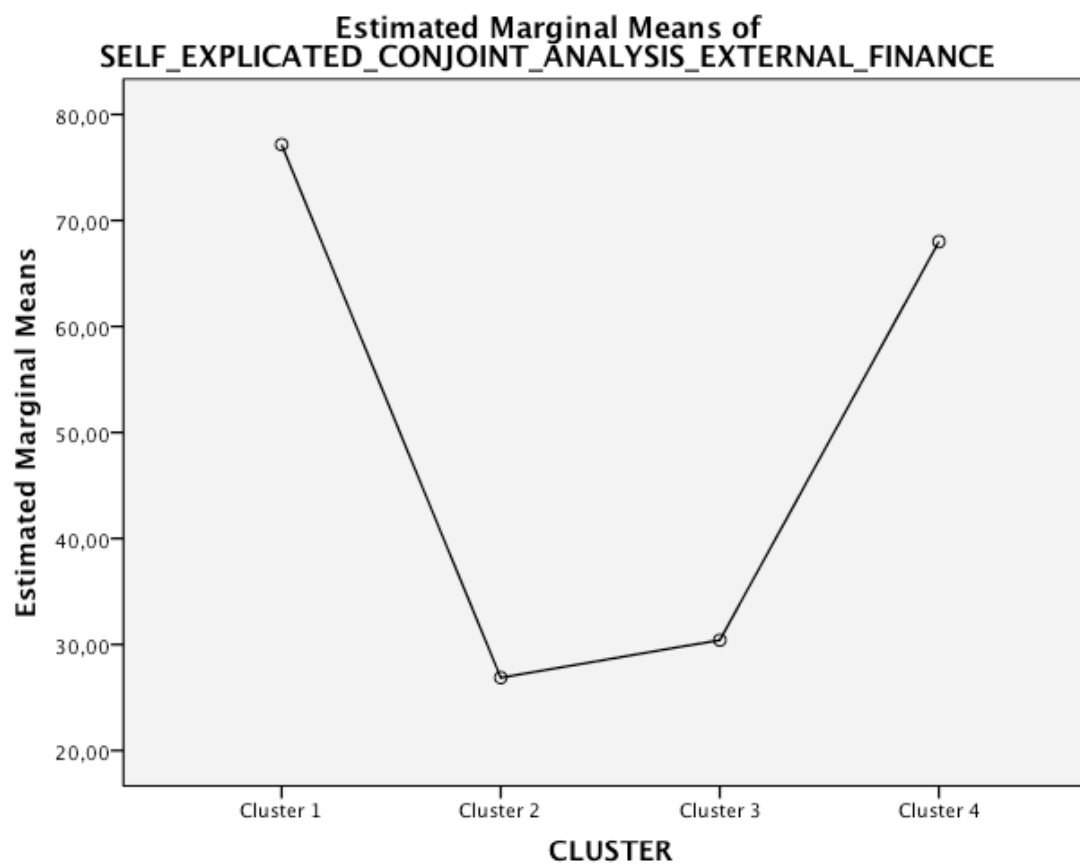
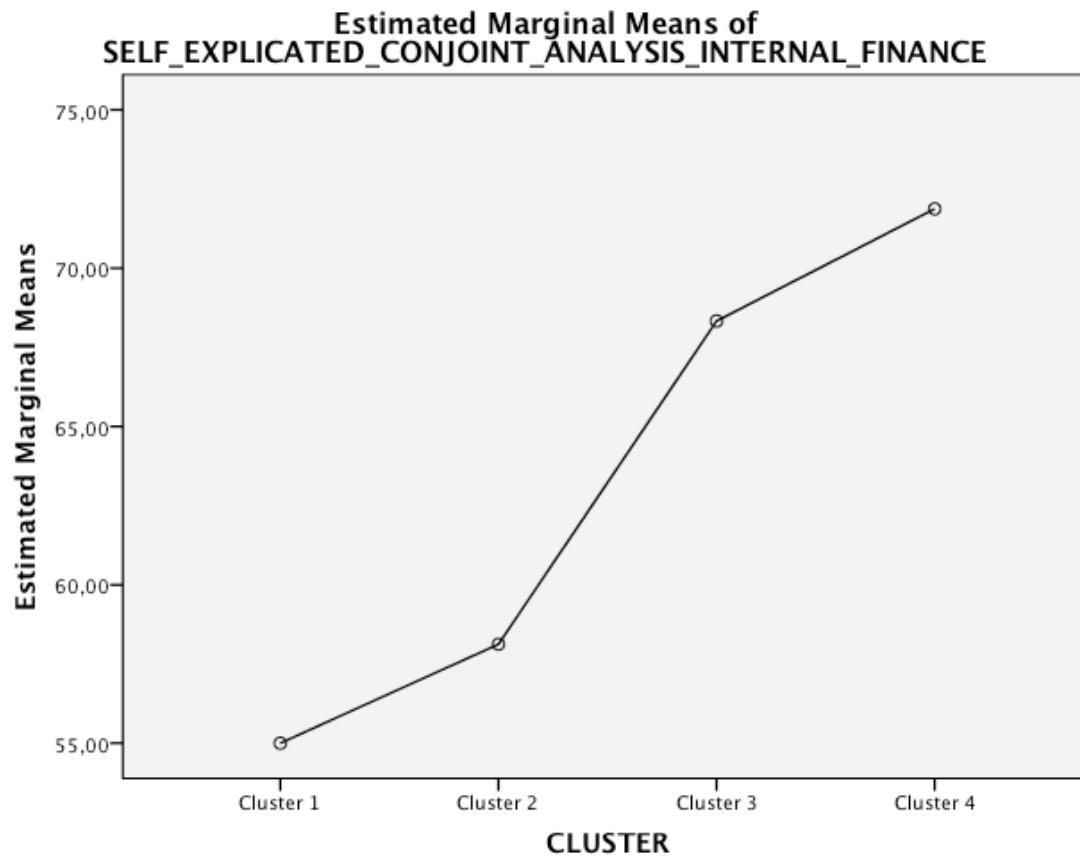
Multiple Comparisons

Tukey HSD

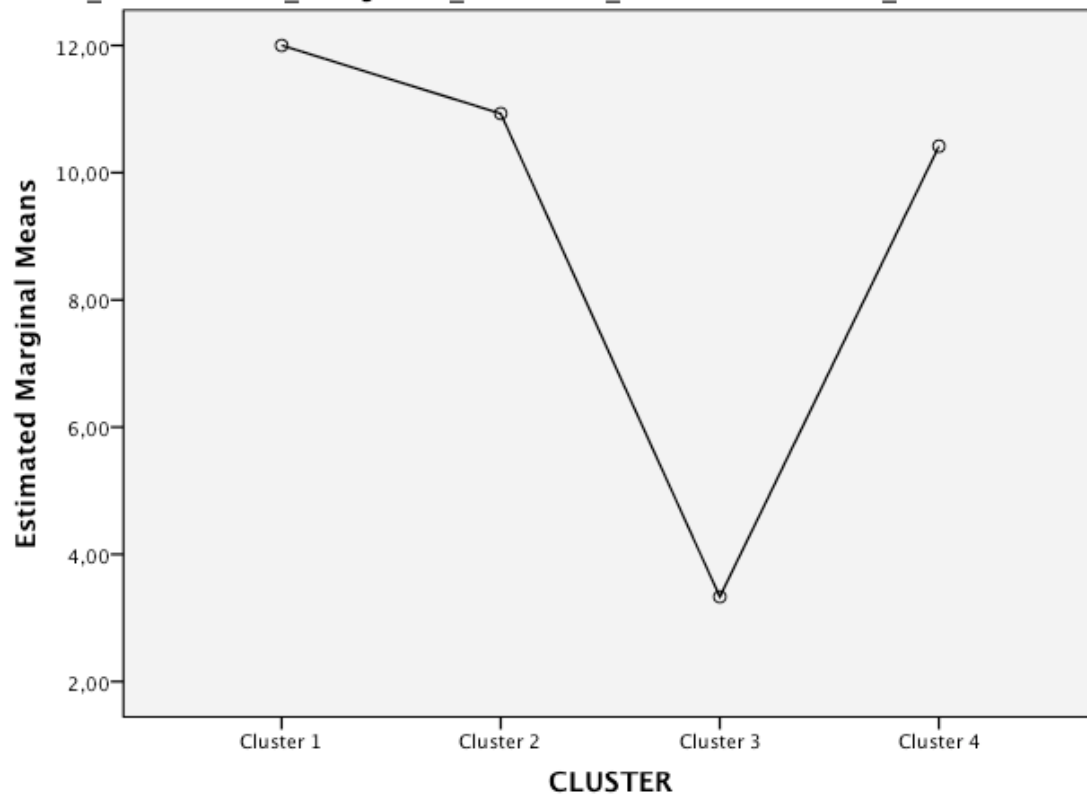
Dependent Variable	(i) CLUSTER	(j) CLUSTER	Mean Difference (i-j)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_NETWORK	Cluster 1	Cluster 2	-22,5000	14,52903	,444	-66,2258	21,2258
		Cluster 3	-4,6667	15,81720	,991	-52,2693	42,9360
		Cluster 4	-18,7500	15,81720	,648	-66,3526	28,8526
	Cluster 2	Cluster 1	22,5000	14,52903	,444	-21,2258	66,2258
		Cluster 3	17,8333	16,54202	,709	-31,9507	67,6173
		Cluster 4	3,7500	16,54202	,996	-46,0340	53,5340
	Cluster 3	Cluster 1	4,6667	15,81720	,991	-42,9360	52,2693
		Cluster 2	-17,8333	16,54202	,709	-67,6173	31,9507
		Cluster 4	-14,0833	17,68417	,855	-67,3047	39,1380
	Cluster 4	Cluster 1	18,7500	15,81720	,648	-28,8526	66,3526
		Cluster 2	-3,7500	16,54202	,996	-53,5340	46,0340
		Cluster 3	14,0833	17,68417	,855	-39,1380	67,3047
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_NETWORK	Cluster 1	Cluster 2	-8,0625	24,06519	,986	-80,4878	64,3628
		Cluster 3	5,3750	26,19886	,997	-73,4717	84,2217
		Cluster 4	-15,0417	26,19886	,938	-93,8884	63,8050
	Cluster 2	Cluster 1	8,0625	24,06519	,986	-64,3628	80,4878
		Cluster 3	13,4375	27,39942	,960	-69,0224	95,8974
		Cluster 4	-6,9792	27,39942	,994	-89,4390	75,4807
	Cluster 3	Cluster 1	-5,3750	26,19886	,997	-84,2217	73,4717
		Cluster 2	-13,4375	27,39942	,960	-95,8974	69,0224
		Cluster 4	-20,4167	29,29121	,896	-108,5700	67,7366
	Cluster 4	Cluster 1	15,0417	26,19886	,938	-63,8050	93,8884
		Cluster 2	6,9792	27,39942	,994	-75,4807	89,4390
		Cluster 3	20,4167	29,29121	,896	-67,7366	108,5700
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_FINANCE	Cluster 1	Cluster 2	-3,1250	20,06151	,999	-63,5011	57,2511
		Cluster 3	-13,3333	21,84020	,927	-79,0625	52,3958
		Cluster 4	-16,8733	21,84020	,865	-82,6025	48,8558
	Cluster 2	Cluster 1	3,1250	20,06151	,999	-57,2511	63,5011
		Cluster 3	-10,2083	22,84103	,969	-78,9495	58,5328
		Cluster 4	-13,7483	22,84103	,929	-82,4895	54,9928
	Cluster 3	Cluster 1	13,3333	21,84020	,927	-52,3958	79,0625
		Cluster 2	10,2083	22,84103	,969	-58,5328	78,9495
		Cluster 4	-3,5400	24,41809	,999	-77,0274	69,9474
	Cluster 4	Cluster 1	16,8733	21,84020	,865	-48,8558	82,6025
		Cluster 2	13,7483	22,84103	,929	-54,9928	82,4895
		Cluster 3	3,5400	24,41809	,999	-69,9474	77,0274
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_FINANCE	Cluster 1	Cluster 2	50,2800	16,41967	,046	,8642	99,6958
		Cluster 3	46,7383	17,87547	,096	-7,0588	100,5354
		Cluster 4	9,1550	17,87547	,954	-44,6421	62,9521
	Cluster 2	Cluster 1	-50,2800	16,41967	,046	-99,6958	-,8642
		Cluster 3	-3,5417	18,69462	,997	-59,8040	52,7207
		Cluster 4	-41,1250	18,69462	,183	-97,3873	15,1373
	Cluster 3	Cluster 1	-46,7383	17,87547	,096	-100,5354	7,0588
		Cluster 2	3,5417	18,69462	,997	-52,7207	59,8040
		Cluster 4	-37,5833	19,98539	,290	-97,7303	22,5636
	Cluster 4	Cluster 1	-9,1550	17,87547	,954	-62,9521	44,6421
		Cluster 2	41,1250	18,69462	,183	-15,1373	97,3873
		Cluster 3	37,5833	19,98539	,290	-22,5636	97,7303
SELF_EXPLICATED_CONJ OINT_ANALYSIS_ADMINIS TRATION_ASSISTANCE	Cluster 1	Cluster 2	1,0712	8,48271	,999	-24,4579	26,6004
		Cluster 3	8,6667	9,23481	,785	-19,1259	36,4593
		Cluster 4	1,5833	9,23481	,998	-26,2093	29,3759
	Cluster 2	Cluster 1	-1,0712	8,48271	,999	-26,6004	24,4579
		Cluster 3	7,5954	9,65799	,859	-21,4708	36,6616
		Cluster 4	,5121	9,65799	1,000	-28,5541	29,5783
	Cluster 3	Cluster 1	-8,6667	9,23481	,785	-36,4593	19,1259
		Cluster 2	-7,5954	9,65799	,859	-36,6616	21,4708
		Cluster 4	-7,0833	10,32483	,900	-38,1564	23,9897
	Cluster 4	Cluster 1	-1,5833	9,23481	,998	-29,3759	26,2093
		Cluster 2	-,5121	9,65799	1,000	-29,5783	28,5541
		Cluster 3	7,0833	10,32483	,900	-23,9897	38,1564
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INFRASTR UCTURE	Cluster 1	Cluster 2	-23,8125	15,87821	,470	-71,5987	23,9737
		Cluster 3	12,3317	17,28600	,890	-39,6914	64,3547
		Cluster 4	5,2517	17,28600	,990	-46,7714	57,2747
	Cluster 2	Cluster 1	23,8125	15,87821	,470	-23,9737	71,5987
		Cluster 3	36,1442	18,07813	,246	-18,2628	90,5512
		Cluster 4	29,0642	18,07813	,414	-25,3428	83,4712
	Cluster 3	Cluster 1	-12,3317	17,28600	,890	-64,3547	39,6914
		Cluster 2	-36,1442	18,07813	,246	-90,5512	18,2628
		Cluster 4	-7,0800	19,32634	,982	-65,2435	51,0835
	Cluster 4	Cluster 1	-5,2517	17,28600	,990	-57,2747	46,7714
		Cluster 2	-29,0642	18,07813	,414	-83,4712	25,3428
		Cluster 3	7,0800	19,32634	,982	-51,0835	65,2435
SELF_EXPLICATED_CONJ OINT_ANALYSIS_BUSINES S_ASSISTANCE	Cluster 1	Cluster 2	21,4050	16,65148	,590	-28,7084	71,5184
		Cluster 3	41,8750	18,12784	,155	-12,6816	96,4316
		Cluster 4	14,1683	18,12784	,861	-40,3883	68,7249
	Cluster 2	Cluster 1	-21,4050	16,65148	,590	-71,5184	28,7084
		Cluster 3	20,4700	18,95855	,708	-36,5867	77,5267
		Cluster 4	-7,2367	18,95855	,980	-64,2933	49,8200
	Cluster 3	Cluster 1	-41,8750	18,12784	,155	-96,4316	12,6816
		Cluster 2	-20,4700	18,95855	,708	-77,5267	36,5867
		Cluster 4	-27,7067	20,26754	,543	-88,7028	33,2895
	Cluster 4	Cluster 1	-14,1683	18,12784	,861	-68,7249	40,3883
		Cluster 2	7,2367	18,95855	,980	-49,8200	64,2933
		Cluster 3	27,7067	20,26754	,543	-33,2895	88,7028
SELF_EXPLICATED_CONJ OINT_ANALYSIS_TRAININ G	Cluster 1	Cluster 2	12,5625	11,11478	,680	-20,8880	46,0130
		Cluster 3	1,0000	12,10024	1,000	-35,4163	37,4163
		Cluster 4	5,7933	12,10024	,962	-30,6229	42,2096
	Cluster 2	Cluster 1	-12,5625	11,11478	,680	-46,0130	20,8880
		Cluster 3	-11,5625	12,65474	,798	-49,6475	26,5225
		Cluster 4	-6,7692	12,65474	,949	-44,8542	31,3159
	Cluster 3	Cluster 1	-1,0000	12,10024	1,000	-37,4163	35,4163
		Cluster 2	11,5625	12,65474	,798	-26,5225	49,6475
		Cluster 4	4,7933	13,52848	,984	-35,9213	45,5080
	Cluster 4	Cluster 1	-5,7933	12,10024	,962	-42,2096	30,6229
		Cluster 2	6,7692	12,65474	,949	-31,3159	44,8542
		Cluster 3	-4,7933	13,52848	,984	-45,5080	35,9213

Based on observed means.
The error term is Mean Square(Error) = 274,530.
*. The mean difference is significant at the

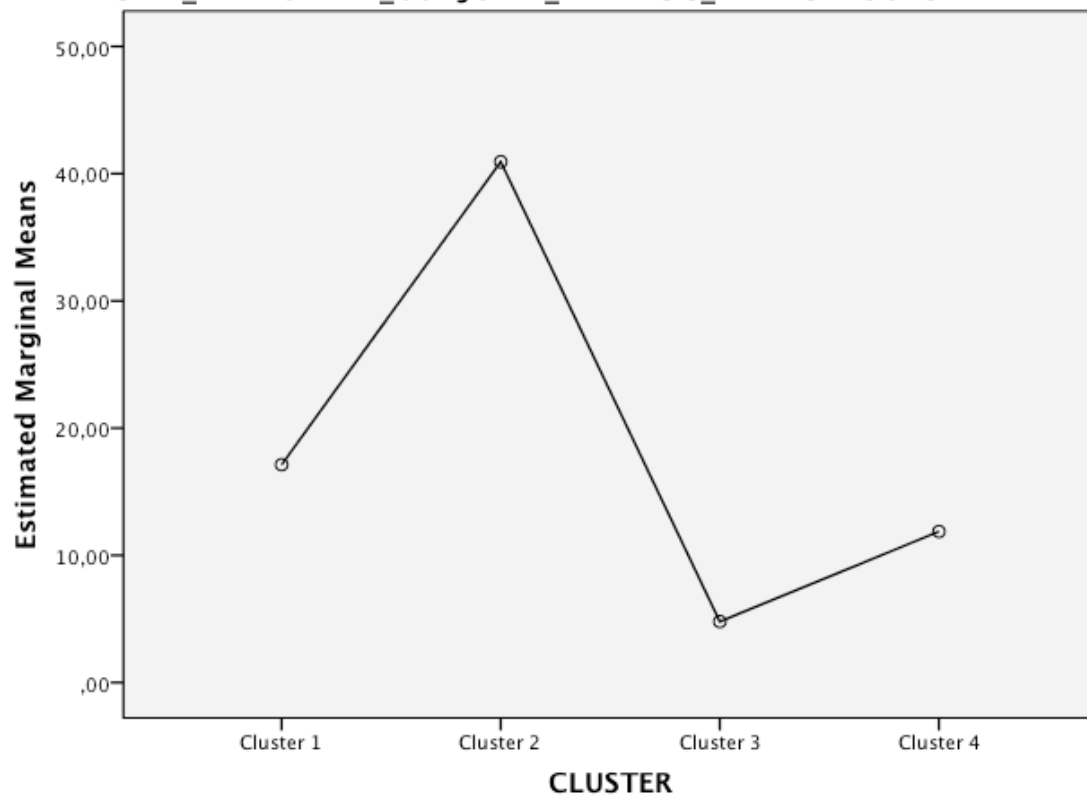


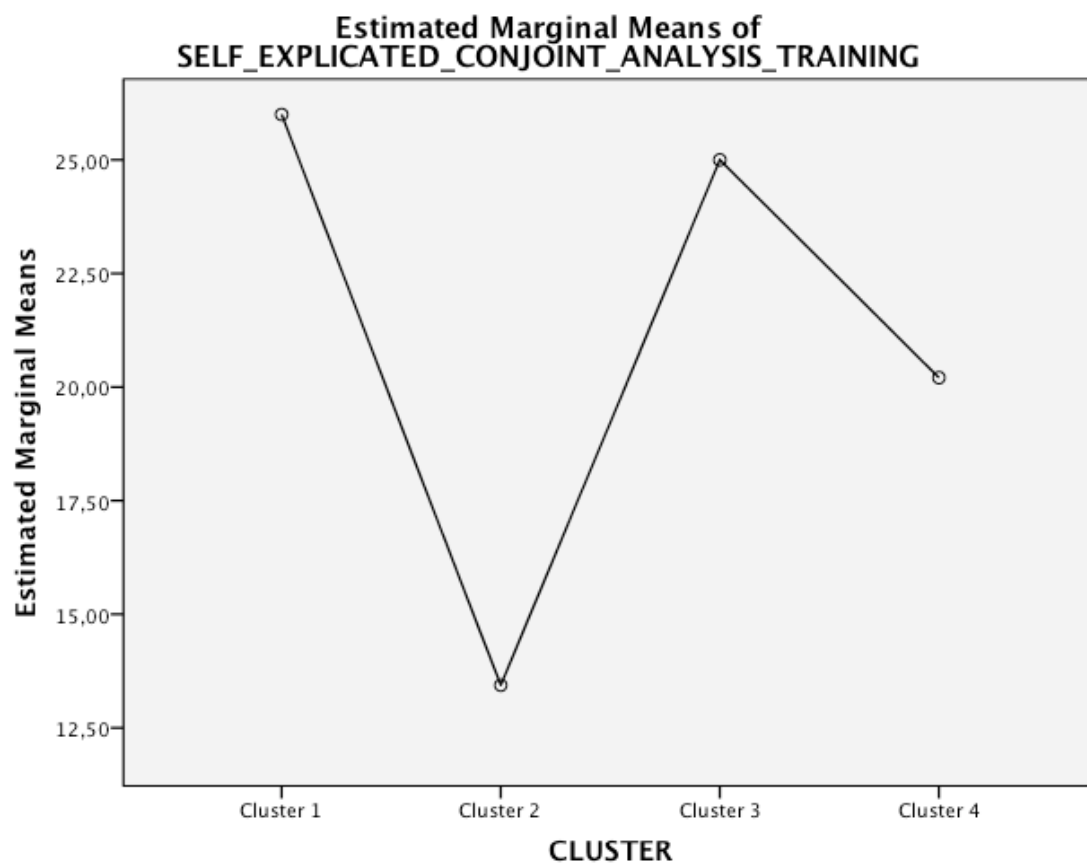
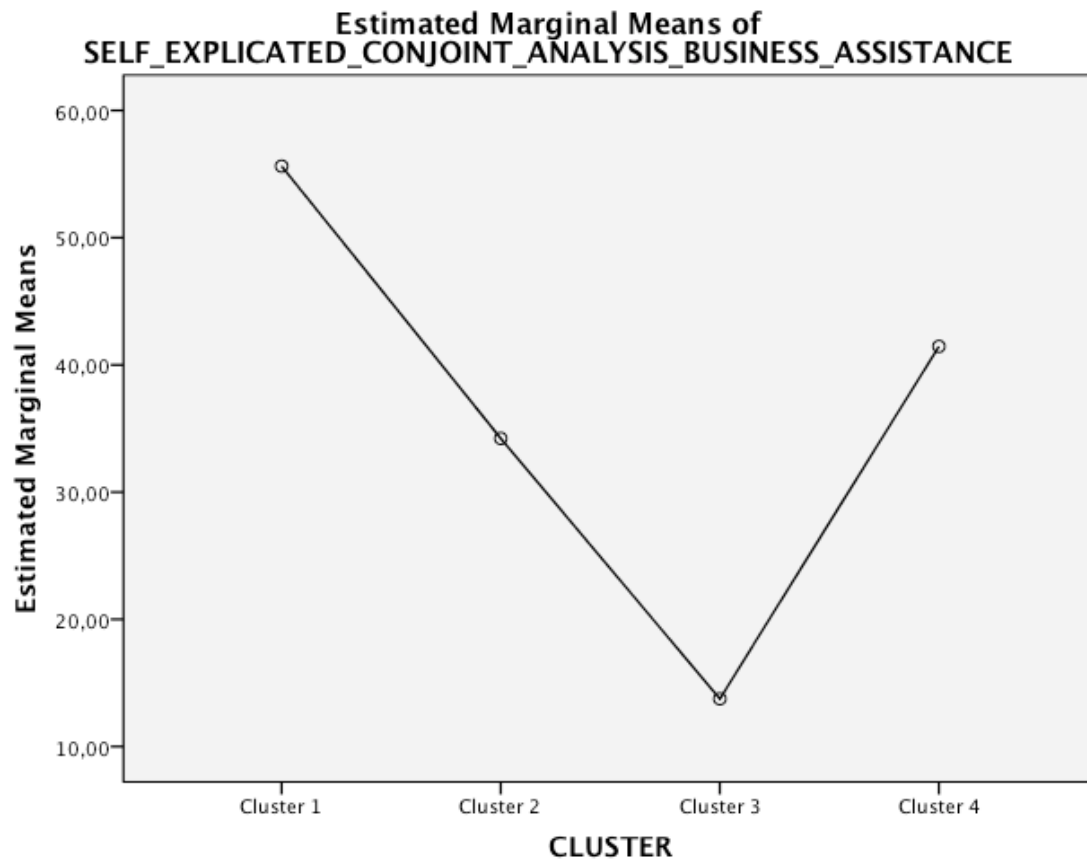


**Estimated Marginal Means of
SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE**



**Estimated Marginal Means of
SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE**





APPENDIX K KRUSKAL-WALLIS TEST

Test Statistics^{a,b}

	CONJUNCTIV E_INTERNAL_ NETWORK	CONJUNCTIV E_EXTERNAL_ NETWORK	CONJUNCTIV E_INTERNAL_ FINANCE	CONJUNCTIV E_EXTERNAL_ FINANCE	CONJUNCTIV E_ADMINSTR ATION_ASSIS TANCE	CONJUNCTIV E_INFRASTRU CTURE	CONJUNCTIV E_BUSINESS_ ASSISTANCE	CONJUNCTIV E_TRAINING
Chi-Square	3,545	1,179	1,730	6,111	3,224	3,783	4,120	6,745
df	3	3	3	3	3	3	3	3
Asymp. Sig.	,315	,758	,630	,106	,358	,286	,249	,080

a. Kruskal Wallis Test

b. Grouping Variable: CLUSTER

Test Statistics^{a,b}

	COMPENSAT ORY_INTERN AL_NETWORK K	COMPENSAT ORY_EXTERN AL_NETWORK K	COMPENSAT ORY_INTERN AL_FINANCE	COMPENSAT ORY_EXTERN AL_FINANCE	COMPENSAT ORY_ADMINIS TRATION_AS SISTANCE	COMPENSAT ORY_INFRAST RUCTURE	COMPENSAT ORY_BUSINES S_ASSISTANC E	COMPENSAT ORY_TRAININ G
Chi-Square	3,156	,220	2,340	7,449	2,608	2,275	2,703	3,194
df	3	3	3	3	3	3	3	3
Asymp. Sig.	,368	,974	,505	,059	,456	,517	,440	,363

a. Kruskal Wallis Test

b. Grouping Variable: CLUSTER

APPENDIX L MANN-WHITNEY U TEST PER BUSINESS MODEL ELEMENT

Ranks

	Q1 USE RISKEFFORT	N	Mean Rank	Sum of Ranks
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	USE	11	7,14	78,50
	EFFORT/RISK	4	10,38	41,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	USE	11	7,73	85,00
	EFFORT/RISK	4	8,75	35,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	USE	11	8,27	91,00
	EFFORT/RISK	4	7,25	29,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	USE	11	9,23	101,50
	EFFORT/RISK	4	4,63	18,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	USE	11	8,45	93,00
	EFFORT/RISK	4	6,75	27,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	USE	11	7,82	86,00
	EFFORT/RISK	4	8,50	34,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	USE	11	8,36	92,00
	EFFORT/RISK	4	7,00	28,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_TRAINING	USE	11	9,00	99,00
	EFFORT/RISK	4	5,25	21,00
	Total	15		

Test Statistics^a

	SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELF_EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_TRAINING
Mann-Whitney U	12,500	19,000	19,000	8,500	17,000	20,000	18,000	11,000
Wilcoxon W	78,500	85,000	29,000	18,500	27,000	86,000	28,000	21,000
Z	-1,255	-,392	-,393	-1,766	-,655	-,262	-,524	-1,439
Asymp. Sig. (2-tailed)	,209	,695	,694	,077	,513	,793	,600	,150
Exact Sig. [2*(1-tailed Sig.)]	,226 ^b	,753 ^b	,753 ^b	,078 ^b	,571 ^b	,851 ^b	,661 ^b	,177 ^b

a. Grouping Variable: Q1_USE_RISKEFFORT

b. Not corrected for ties.

Ranks

	Q2 INNOVATIVENESS	N	Mean Rank	Sum of Ranks
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	ME-TOO VALUE/INNOVATIVE IMITATION	10	9,25	92,50
	INNOVATIVE EXCELLENCE/INNOVATION	5	5,50	27,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	ME-TOO VALUE/INNOVATIVE IMITATION	10	8,30	83,00
	INNOVATIVE EXCELLENCE/INNOVATION	5	7,40	37,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	ME-TOO VALUE/INNOVATIVE IMITATION	10	8,75	87,50
	INNOVATIVE EXCELLENCE/INNOVATION	5	6,50	32,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	ME-TOO VALUE/INNOVATIVE IMITATION	10	6,40	64,00
	INNOVATIVE EXCELLENCE/INNOVATION	5	11,20	56,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	ME-TOO VALUE/INNOVATIVE IMITATION	10	7,50	75,00
	INNOVATIVE EXCELLENCE/INNOVATION	5	9,00	45,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	ME-TOO VALUE/INNOVATIVE IMITATION	10	7,05	70,50
	INNOVATIVE EXCELLENCE/INNOVATION	5	9,90	49,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	ME-TOO VALUE/INNOVATIVE IMITATION	10	6,60	66,00
	INNOVATIVE EXCELLENCE/INNOVATION	5	10,80	54,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_TRAINING	ME-TOO VALUE/INNOVATIVE IMITATION	10	7,25	72,50
	INNOVATIVE EXCELLENCE/INNOVATION	5	9,50	47,50
	Total	15		

Test Statistics^a

	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_F INANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ FINANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _ADMINISTRA TION_ASSIST ANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INFRASTRUC TURE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _BUSINESS_AS SISTANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _TRAINING
Mann-Whitney U	12,500	22,000	17,500	9,000	20,000	15,500	11,000	17,500
Wilcoxon W	27,500	37,000	32,500	64,000	75,000	70,500	66,000	72,500
Z	-1,549	-,367	-,923	-1,963	-,614	-1,167	-1,721	-,920
Asymp. Sig. (2-tailed)	,121	,713	,356	,050	,539	,243	,085	,357
Exact Sig. [2*(1-tailed Sig.)]	,129 ^b	,768 ^b	,371 ^b	,055 ^b	,594 ^b	,254 ^b	,099 ^b	,371 ^b

a. Grouping Variable: Q2_INNOVATIVENESS

b. Not corrected for ties.

Ranks

	Q3 B2B B2C	N	Mean Rank	Sum of Ranks
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_NETWORK	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_NETWORK	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_FINANCE	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_FINANCE	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_ADMINIS TRATION_ASSISTANCE	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_INFRASTR UCTURE	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_BUSINES S_ASSISTANCE	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		
SELF_EXPLICATED_CONJ OINT_ANALYSIS_TRAININ G	B2B	15	8,00	120,00
	B2C	0 ^a	,00	,00
	Total	15		

a. Mann-Whitney Test cannot be performed on empty groups.

Ranks

	Q4_APPLICATION_PLATFORM	N	Mean Rank	Sum of Ranks
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	APPLICATION	12	8,71	104,50
	PLATFORM	3	5,17	15,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	APPLICATION	12	8,50	102,00
	PLATFORM	3	6,00	18,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	APPLICATION	12	8,29	99,50
	PLATFORM	3	6,83	20,50
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	APPLICATION	12	6,75	81,00
	PLATFORM	3	13,00	39,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	APPLICATION	12	8,00	96,00
	PLATFORM	3	8,00	24,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	APPLICATION	12	7,58	91,00
	PLATFORM	3	9,67	29,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	APPLICATION	12	7,25	87,00
	PLATFORM	3	11,00	33,00
	Total	15		
SELF_EXPLICATED_CONJOINT_ANALYSIS_TRAINING	APPLICATION	12	7,67	92,00
	PLATFORM	3	9,33	28,00
	Total	15		

Test Statistics^a

	SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELF_EXPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELF_EXPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELF_EXPLICATED_CONJOINT_ANALYSIS_TRAINING
Mann-Whitney U	9,500	12,000	14,500	3,000	18,000	13,000	9,000	14,000
Wilcoxon W	15,500	18,000	20,500	81,000	24,000	91,000	87,000	92,000
Z	-1,241	-,866	-,507	-2,169	,000	-,724	-1,304	-,578
Asymp. Sig. (2-tailed)	,214	,386	,612	,030	1,000	,469	,192	,563
Exact Sig. [2*(1-tailed Sig.)]	,233 ^b	,448 ^b	,633 ^b	,031 ^b	1,000 ^b	,536 ^b	,233 ^b	,633 ^b

a. Grouping Variable: Q4_APPLICATION_PLATFORM

b. Not corrected for ties.

Ranks

	Q5 PARTNERSHIP	N	Mean Rank	Sum of Ranks
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	YES	10	8,20	82,00
	NO	5	7,60	38,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	YES	10	7,50	75,00
	NO	5	9,00	45,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	YES	10	8,50	85,00
	NO	5	7,00	35,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	YES	10	9,20	92,00
	NO	5	5,60	28,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	YES	10	9,00	90,00
	NO	5	6,00	30,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	YES	10	8,70	87,00
	NO	5	6,60	33,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	YES	10	9,05	90,50
	NO	5	5,90	29,50
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_TRAINING	YES	10	7,25	72,50
	NO	5	9,50	47,50
	Total	15		

Test Statistics^a

	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_TRAINING
Mann-Whitney U	23,000	20,000	20,000	13,000	15,000	18,000	14,500	17,500
Wilcoxon W	38,000	75,000	35,000	28,000	30,000	33,000	29,500	72,500
Z	-,248	-,612	-,615	-1,472	-1,228	-,860	-1,291	-,920
Asymp. Sig. (2-tailed)	,804	,540	,538	,141	,219	,390	,197	,357
Exact Sig. [2*(1-tailed Sig.)]	,859 ^b	,594 ^b	,594 ^b	,165 ^b	,254 ^b	,440 ^b	,206 ^b	,371 ^b
Exact Sig. (2-tailed)	,833	,594	,572	,155	,243	,421	,215	,389
Exact Sig. (1-tailed)	,420	,297	,286	,078	,122	,211	,107	,195
Point Probability	,027	,040	,022	,010	,013	,019	,011	,021

a. Grouping Variable: Q5_PARTNERSHIP

b. Not corrected for ties.

Ranks

	Q6_REVENUE_MODEL	N	Mean Rank	Sum of Ranks
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELLING/LENDING/LICENSING	14	8,04	112,50
	INTERMEDIATING/ADVERTISING	1	7,50	7,50
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELLING/LENDING/LICENSING	14	7,93	111,00
	INTERMEDIATING/ADVERTISING	1	9,00	9,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELLING/LENDING/LICENSING	14	7,50	105,00
	INTERMEDIATING/ADVERTISING	1	15,00	15,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELLING/LENDING/LICENSING	14	7,79	109,00
	INTERMEDIATING/ADVERTISING	1	11,00	11,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELLING/LENDING/LICENSING	14	7,89	110,50
	INTERMEDIATING/ADVERTISING	1	9,50	9,50
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELLING/LENDING/LICENSING	14	8,29	116,00
	INTERMEDIATING/ADVERTISING	1	4,00	4,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELLING/LENDING/LICENSING	14	8,07	113,00
	INTERMEDIATING/ADVERTISING	1	7,00	7,00
	Total	15		
SELF_EXPPLICATED_CONJOINT_ANALYSIS_TRAINING	SELLING/LENDING/LICENSING	14	8,00	112,00
	INTERMEDIATING/ADVERTISING	1	8,00	8,00
	Total	15		

Test Statistics^a

	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_NETWORK	SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_NETWORK	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INTERNAL_FINANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_EXTERNAL_FINANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_ADMINISTRATION_ASSISTANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_INFRASTRUCTURE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_BUSINESS_ASSISTANCE	SELF_EXPPLICATED_CONJOINT_ANALYSIS_TRAINING
Mann-Whitney U	6,500	6,000	,000	4,000	5,500	3,000	6,000	7,000
Wilcoxon W	7,500	111,000	105,000	109,000	110,500	4,000	7,000	8,000
Z	-,117	-,231	-1,627	-,696	-,348	-,928	-,232	,000
Asymp. Sig. (2-tailed)	,907	,817	,104	,487	,728	,353	,816	1,000
Exact Sig. [2*(1-tailed Sig.)]	,933 ^b	,933 ^b	,133 ^b	,667 ^b	,800 ^b	,533 ^b	,933 ^b	1,000 ^b
Exact Sig. (2-tailed)	1,000	,933	,133	,667	,933	,533	,867	1,000
Exact Sig. (1-tailed)	,600	,467	,067	,333	,467	,267	,467	,533
Point Probability	,267	,067	,067	,067	,133	,067	,067	,067

a. Grouping Variable: Q6_REVENUE_MODEL

b. Not corrected for ties.

APPENDIX M PEARSON'S RHO TEST EXPERIENCE TENANT UTILITY

Correlations											
			SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ NETWORK	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INTERNAL_F INANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _EXTERNAL_ FINANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _ADMINISTRA TION_ASSIST ANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _INFRASTRUC TURE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _BUSINESS_AS SISTANCE	SELF_EXPLICA TED_CONJOI NT_ANALYSIS _TRAINING	EXPERIENCE
Kendall's tau_b	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_NETWORK	Correlation Coefficient Sig. (2-tailed) N	1,000 .15	,100 ,616 15	-,203 ,313 15	-,201 ,314 15	-,131 ,512 15	-,091 ,650 15	-,203 ,313 15	-,141 ,481 15	-,131 ,565 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_NETWORK	Correlation Coefficient Sig. (2-tailed) N	,100 ,616 15	1,000 .15	-,223 ,252 15	-,067 ,728 15	,135 ,487 15	,155 ,427 15	-,126 ,518 15	-,433 ,026 15	,275 ,211 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_FINANCE	Correlation Coefficient Sig. (2-tailed) N	-,203 ,313 15	-,223 ,252 15	1,000 .15	-,010 ,960 15	,177 ,369 15	-,099 ,617 15	-,059 ,764 15	,088 ,653 15	-,028 ,900 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_FINANCE	Correlation Coefficient Sig. (2-tailed) N	-,201 ,314 15	-,067 ,728 15	-,010 ,960 15	1,000 .15	,254 ,195 15	,059 ,765 15	,539* ,006 15	,146 ,456 15	,167 ,451 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_ADMINIS TRATION_ASSISTANCE	Correlation Coefficient Sig. (2-tailed) N	-,131 ,512 15	,135 ,487 15	,177 ,369 15	,254 ,195 15	1,000 .15	,578* ,003 15	,345 ,081 15	-,332 ,090 15	-,028 ,900 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INFRASTR UCTURE	Correlation Coefficient Sig. (2-tailed) N	-,091 ,650 15	,155 ,427 15	-,099 ,617 15	,059 ,765 15	,578* ,003 15	1,000 .15	,414 ,036 15	-,351 ,073 15	,294 ,187 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_BUSINES S_ASSISTANCE	Correlation Coefficient Sig. (2-tailed) N	-,203 ,313 15	-,126 ,518 15	-,059 ,764 15	,539* ,006 15	,345 ,081 15	,414 ,036 15	1,000 .15	-,108 ,583 15	,056 ,802 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_TRAINING	Correlation Coefficient Sig. (2-tailed) N	-,141 ,481 15	-,433 ,026 15	,088 ,653 15	,146 ,456 15	-,332 ,090 15	-,351 ,073 15	-,108 ,583 15	1,000 .15	,056 ,802 13
	EXPERIENCE	Correlation Coefficient Sig. (2-tailed) N	-,131 ,565 13	,275 ,211 13	-,028 ,900 13	,167 ,451 13	-,028 ,900 13	,294 ,187 13	,056 ,802 13	,056 ,802 13	1,000 .13
Spearman's rho	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_NETWORK	Correlation Coefficient Sig. (2-tailed) N	1,000 .15	,107 ,705 15	-,271 ,328 15	-,253 ,364 15	-,156 ,579 15	-,135 ,632 15	-,299 ,279 15	-,195 ,487 15	-,160 ,602 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_NETWORK	Correlation Coefficient Sig. (2-tailed) N	,107 ,705 15	1,000 .15	-,343 ,211 15	-,079 ,780 15	,251 ,368 15	,229 ,411 15	-,238 ,392 15	-,512 ,051 15	,396 ,181 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INTERN AL_FINANCE	Correlation Coefficient Sig. (2-tailed) N	-,271 ,328 15	-,343 ,211 15	1,000 .15	,004 ,987 15	,260 ,350 15	-,130 ,643 15	-,074 ,794 15	,137 ,625 15	-,064 ,837 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_EXTERN AL_FINANCE	Correlation Coefficient Sig. (2-tailed) N	-,253 ,364 15	-,079 ,780 15	,004 ,987 15	1,000 .15	,349 ,202 15	,148 ,599 15	,655* ,008 15	,181 ,519 15	,241 ,429 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_ADMINIS TRATION_ASSISTANCE	Correlation Coefficient Sig. (2-tailed) N	-,156 ,579 15	,251 ,368 15	,260 ,350 15	,349 ,202 15	1,000 .15	,688* ,005 15	,464 ,082 15	-,422 ,117 15	,000 1,000 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_INFRASTR UCTURE	Correlation Coefficient Sig. (2-tailed) N	-,135 ,632 15	,229 ,411 15	-,130 ,643 15	,148 ,599 15	,688* ,005 15	1,000 .15	,558 ,031 15	-,461 ,084 15	,406 ,169 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_BUSINES S_ASSISTANCE	Correlation Coefficient Sig. (2-tailed) N	-,299 ,392 15	-,238 ,392 15	-,074 ,794 15	,655* ,008 15	,464 ,082 15	,558 ,031 15	1,000 .15	-,144 ,610 15	,056 ,855 13
	SELF_EXPLICATED_CONJ OINT_ANALYSIS_TRAINING	Correlation Coefficient Sig. (2-tailed) N	-,195 ,487 15	-,512 ,051 15	,137 ,625 15	,181 ,519 15	-,422 ,117 15	-,461 ,084 15	-,144 ,610 15	1,000 .15	,077 ,802 13
	EXPERIENCE	Correlation Coefficient Sig. (2-tailed) N	-,160 ,602 13	,396 ,181 13	-,064 ,837 13	,241 ,429 13	,000 1,000 13	,406 ,169 13	,056 ,855 13	,077 ,802 13	1,000 .13

*, Correlation is significant at the 0.05 level (2-tailed).

**, Correlation is significant at the 0.01 level (2-tailed).