University of Twente

Building an Inter-Organizational Community Strategy in an Innovative Business Environment

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Summary

This explorative research aims to identify the critical elements for developing a community communication approach for innovative high tech companies. Kennispark Twente is a high tech business cluster which suffers from low interaction rates between the companies, dropping visitor rates for network activities and a scattered information and communication landscape due to the highly fragmented business environment. These problems are detrimental to the possible benefits of being a high tech business cluster. In order to tackle these problems Foundation Kennispark Twente is interested in the possibilities of a community communication approach.

The research was divided in a qualitative network analysis and a semi-open interview section in which proximity domains and needs assessment were discussed. The network analysis was conducted on the whole network level. From the literature, community building theory was abstracted and adapted to form a framework in which the whole network analysis; proximity theory and needs assessment was fitted.

The results suggest that a community approach is an appropriate strategy for increasing interaction between companies and provide the companies a tool to stimulate their innovative activities. Furthermore the research supports the view that geographical proximity is neither a sufficient or necessary condition for inter-organizational interaction and knowledge sharing. Organizational and technological proximity are the primary reasons for initiating and maintain contact and should be the basis on which the community is built.

Contents

1 Introduction

1.1 Introduction

The rise of social media has amplified the interest in the possibilities of online communities in the field of inter organizational communication. In the past one spoke about network memberships, nowadays people are part of a community. This research is commissioned by Foundation Kennispark Twente. Kennispark Twente has showed great interest in the development of a community communication strategy. The aim of this exploratory research is investigating the feasibility and potential benefits and drawbacks of implementing a community strategy. Furthermore, this research aims to identify the criteria on which a possible community strategy should comply with.

1.2 Kennispark Twente

Foundation Kennispark Twente is an initiative of the Province of Overijssel, Region of Twente, the municipality of Enschede, University of Twente and Saxion University of Applied Sciences. Founded in 2006, Foundation Kennispark Twente has been appointed the task to stimulate the innovative entrepreneurial eco system in the region of Twente. This is executed along three main policy areas: (1) supporting Startups and growing companies, (2) increasing the innovative capacity of existing industry and (3) the development of physical business areas in Twente. The latter policy area is mainly executed on the business area Kennispark. The business area Kennispark is the innovative campus consisting of three adjoining areas in the Dutch city of Enschede. These areas are the university campus of the University of Twente, the business area Business and Science Park and the facilities area Twente Village.

Kennispark is a cluster location for innovative high tech companies. A business cluster is defined as a "geographical concentration of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate" (Porter, 2000).
The general idea is that business clusters can lower their coordination costs for learning and knowledge sharing by being co-located with complementary firms. Furthermore increased productivity, more rapid innovation and new business formation are advantages commonly associated with business clustering (Porter, 1998, 2000). The definition of a business cluster can be applied to Kennispark, therefore assuming that Kennispark wants to benefit from the advantages associated with business clustering.

1.3 Problem description

Previous research conducted by Foundation Kennispark Twente has showed a perceived lack of mutual contact and absence of clear insight in the presence and activities of companies. Furthermore, for networking events visiting rates are dropping. Also, the information supply and communication is perceived problematic because of the high number of facilitating organizations that all use their own information and communication channels. This causes a highly scattered information supply and potential information overload., as described by Porter (1998, 2000), because interaction and cooperation are essential for the well-functioning of a cluster. In order to tackle these problems Foundation Kennispark Twente is interested in the possibilities of a community communication approach. This approach has to unify the information supply and communication towards and among the companies. Furthermore, mutual contact between companies must be expanded and intensified to break down barriers for participation in events. Ultimately this has to lead to an increase of the dissemination and valorization of knowledge and innovation and the creation of a sense of community (in Dutch: wij-gevoel).

1.4 Research questions

The main research question is formulated as follows:

What are the critical elements for developing a community communication approach for Kennispark?

For supporting the main question, the following sub research questions are formulated:

1. Which networks and communities are already present within the Kennispark network?
2. What are the critical factors predicting participation and non participation in networking within the Kennispark environment?
3. What are the communicational and informational needs of these networks and communities?

Furthermore, two sub questions are formulated concerning the design of community.

4. How can Kennispark build sustainable online communities?
5. Which channels can be used for building communities and unifying her own communication

2 Theoretical Framework

2.1 Systems paradigm

To frame the research it is of importance to identify and choose a research paradigm. A paradigm is an angle of approach towards a certain case. In research a paradigm offers a coherent portfolio of theories and models. Kennispark mission is to stimulate and develop an innovative high-tech eco system. By denominating the work field as an eco system and regarding the environment as a system it is chosen to take the system paradigm as the paradigm of choice. In communication science the systems paradigm regards a phenomenon as an interconnected set of actors with its own rules and regulations which is embedded and in interaction with its environment. Also the community approach comes forth out of the systems perspective. The proper research method associated with the systems approach is network analysis.

2.2 Communication Networks

Network theory has been a longstanding tradition in communication and organizational research (Monge & Contractor, 2003; Provan, Fish, & Sydow, 2007). A communication network can be defined as a network of "interconnected individuals who are linked by patterned communication flows" (Rogers, 1986). Analysis can be performed on different levels of analysis (Monge & Contractor, 2003). Traditional network theory primarily goes into the relationship between two network members, also known as dyadic relationships. This perspective is known as the ego-centric perspective; looking at individual level relationships to explain individual level outcomes. In recent years more attention is given to the whole network perspective (Provan et al., 2007). The whole network perspective looks at the characteristics of the network as a whole and outcomes on the network level instead of the individual organizations level. An overview of inter-organizational network research is presented in table 1.

Table 1

A Typology of Inter-Organizational Network Research

	Outcome Focus	
Input Focus	Individual Organization	Collectivities of Organizations
Organizational Variables	Egocentric perspective	Impact of individual organizations on a network
Relational or Network variables	Impact of a network on individual organizations	**Whole network perspective**

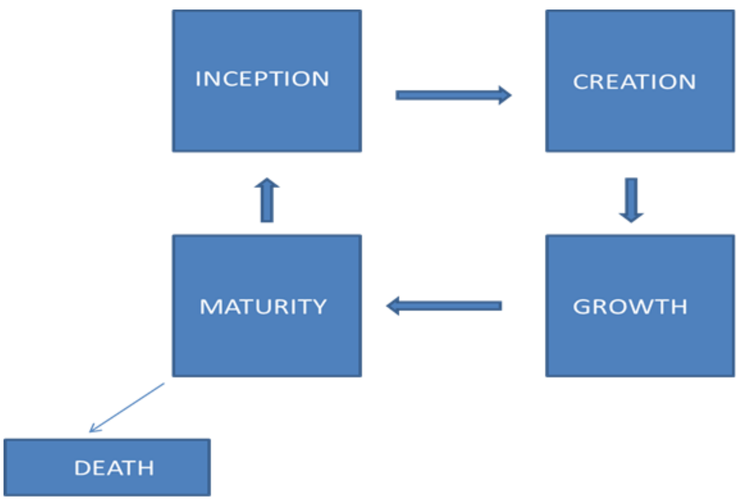
Provan et al., 2007

For this research the level of analysis will be on the whole network level. The whole network perspective presumes that a network involves many organizations collaboratively working toward a more or less common goal and that the success of one network organization may or may not be critical to the success of the entire network and its customer and client group (Provan et al., 2007). Whole network level analysis analyzes the network on the following properties: density, fragmentation, governance, and centrality (Monge & Contractor, 2003; Provan et al., 2007). *Density* is the level of interconnectedness among organizations in the network in relation to the potential amount of connections, *fragmentation* can be regarded as the degree of the existence of sub-networks and unconnected organizations. The *governance* characteristic describes how the network is governed; Is the governance of the network shared among the network members, does it lie with some dominant organizations or is there a formal institution entrusted with governing tasks? *Centrality* is the extent of the presence of organizations that are more central in the network than other organizations. Highly centralized networks may be organized in a hub-and-spoke pattern while decentralized networks are more dispersed, often fragmented (Monge & Contractor, 2003).By characterizing the network in terms of density, fragmentation, governance, and centrality, insight is provided in what communication structures exist and how interaction takes place and is maintained. Furthermore, network analysis can identify central organizations in the network which can be important for creating support for the implementation of a community approach.

2.3 Community

A network can be described as the collection of interconnected nodes, but says nothing about the connection itself. A community on the superficial level can be described as a network but the main difference lies in the quality of the connections. A community is a network "centered upon communication and interaction of participants, to generate member-driven content, resulting in a relationship being built" (Lee, Vogel, & Limayem, 2003). The core of this definition evolves around communication and interaction to build relationships. In contrary to a network, a community focuses on the processes within the group instead of focusing on the externality and boundedness of the group. The definition of Lee et al. (2003) underlines the importance of member involvement. Keeping the members central in the community asks for a user centered approach. Iriberri and Leroy (2009) propose a model for the design of a community. This Community Life Cycle model distinct five phases in the community building process in which user needs are central. According to Iriberri and Leroy (2009) the process of building a community should be user centered and iterative in nature. The model is presented in figure 1.

Figure 1 Community Life Cycle)



Iriberri & Leroy, 2009

The creation of an on online community starts in the Inception phase. During this phase the idea of a community is born. This precedes the determination of the technological conditions to which the platform has to comply with. During *Inception*, the community's purpose is defined, focus on the target group is set and primary codes of conduct are formulated. When these factors are determined, the creation of the community proceeds to the second phase, *Creation*. In this phase the technological components of the online community are selected based on the potential members' needs and the purpose of the community. Technological components have to meet the potential members' expectations and are usable and secure. In the *Growth* phase, members are attracted and community culture is grown. This is supported by offering high quality content and stimulating interaction both on the platform and off line events. A community manager monitors and stimulates the community. While the community grows, the phase of *Maturity* is reached. The community is mature when a critical mass of users is reached and content is generated by the members. The community evolves and changes by input of the members. From this point the community can be sustained by adapting the community to the evolved needs of the members. Adaptations are made to the community's purpose and focus based on the members' needs. Sustainability of the community is not always achieved and the community will no longer serve the members needs and expectations and the community will stop to exist.

2.5 Proximity

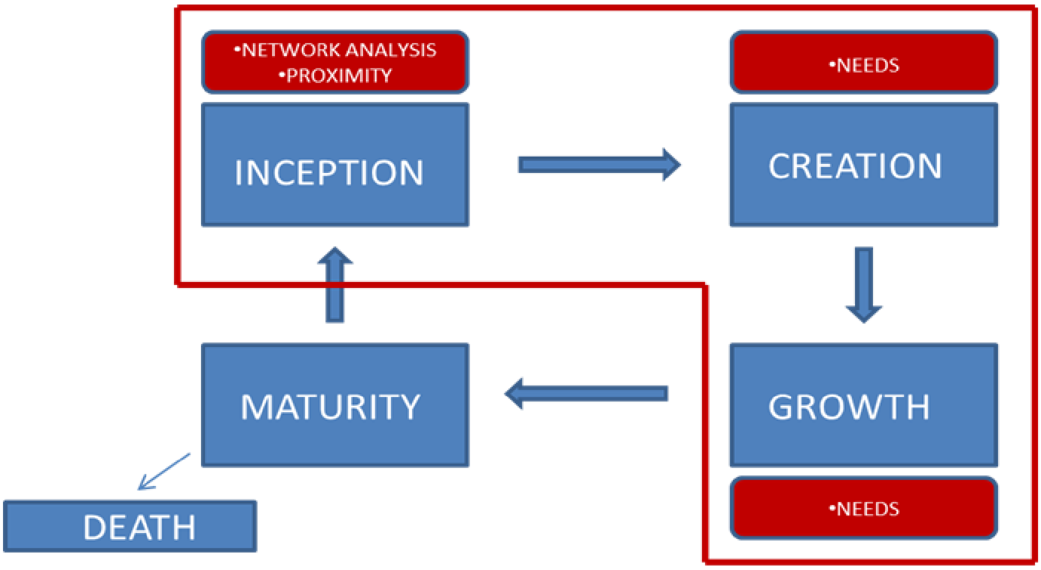
Proximity is the distance between 2 economic actors in both its absolute and relative meaning (Boschma, 2005). A distinction can be made between spatial and non-spatial proximity where the spatial dimension goes into the physical distance between firms and can be described in absolute or relative terms as distance, cost of time and money to access. Non-spatial dimensions of proximity are described in similarities in knowledge base, cultural and social aspects and organizational structure. The general concept behind the proximity framework is that inter organizational cooperation is facilitated by reducing the coordination cost in interactive knowledge creation (Hansen, 2014). These coordination costs are lowered by having a small spatial distance between the firms and having a high degree of similarity between the companies in terms of knowledge base and organizational preferences. In the past great emphasize was put on the spatial dimension of proximity but recent work in the research field shows that non-spatial dimensions of proximity are at least as important and can even substitute spatial proximity in innovation processes (Ala-Rämi, 2007; Boschma, 2005; D'Este, Guy, & Iammarino, 2013; Hansen, 2014; Knoben & Oerlemans, 2006; Torre & Rallet, 2005). Knoben and Oerlemans (2006), listed the available definitions of non-spatial dimensions of proximity. From the eleven dimensions found, Knoben and Oerlemans (2006) distilled 2 main types of non-spatial dimensions. The non-spatial dimensions distilled are technological proximity and organizational proximity. Technological proximity is the amount of similarity between two firms on the domain of technological knowledgebase and capacity, organizational proximity is the amount of similarity between two firms on the domains of cultural, social, institutional and organizational structure domain. Recent research shows that geographical proximity on its own is not the main prerequisite for inter-organizational contact and cooperation. Geographical proximity can be replaced by organizational and technological proximity when engaging in long term relations and contact (Boschma, 2005; D'Este et al., 2013; Hansen, 2014).

2.6 Framework

For this research the Community Life Cycle of Iriberri (2009) will be used as the framework for the research. The framework provides a roadmap for determining the critical success factors for building a community. The first three phases of the CLC model are of special interest for this research. The network analysis, domains of proximity and the needs assessments provide the necessary information to built a community.

Purpose and focus has to be established in the Inception phase. The network analysis offers information about the network of the potential community members. Insight in these processes is important because it identifies important organizations in the network based on their centrality and governance role. These organizations can potentially play a great role in the success of the community. The fragmentation of the network is of importance because the existence of sub networks and unconnected companies can have implications for the focus and purpose of the community. Sub networks can function as an accelerator for the dissemination of the community. The potential connections in a network are described by density. A low density rate signals lack of contact and interaction in the network. This is a potential danger for the innovativeness of the area and detrimental for the advantages normally associated with co-locating and clustering. Besides network outcomes the different domains of proximity are important. By identifying the most important domain of proximity, the main subject and purpose of the community can be established. Alongside the determination of the purpose, focus has to be set on the target group. In general, the target audience consists of Kennispark companies. The target audience can be divided on the basis of sector and organizational maturity. By establishing the main reasons for contact the target audience can be set. The Creation phase of the model focuses on specific user needs and usability issues. To identify the success factors, user needs have to be indexed. By surfacing user needs, the community can be designed according the potential users' needs and expectations. In the following phase, Growth, the needs concerning content and events can be implemented. These needs can also be identified during the interviews. For this research, the maturity phase will not be taken into account because this phase can only be addresses when the community is already established.

Figure 2 framework



3 Method

3.1 Introduction

The research is divided in a network analysis section and qualitative semi open interview section. The network analysis has been conducted by letting the respondents fill in a form in which innovative Kennispark based companies were listed. The question was asked to mark the companies which they had contact with and indicate the type of contact, formal or informal. Furthermore, the respondent had to indicate how often they had contact with that company. After filling out the form, interview questions were asked about the perception of the network traits and properties, domains of proximity and information and communication needs in the community. The semi open interview technique enables the respondent to discuss themes that are regarded important by themselves. Because the topics of the interview are not rigidly set, freedom exists to discuss themes not included in the topic list by the researcher. Because the community is built from a user centered perspective, it is necessary to let the potential members indicate their needs.

3.2 Participants

The sample was drawn from a selection of the 220 companies present on Kennispark. The selection criteria were formed on the basis of the traffic light model used by Foundation Kennispark Twente. The traffic light model distinguishes three types of companies based on their fit in the area's development plan: green, orange and red companies. Companies conducting their business in one of the Dutch top sectors (Rijksdienst_voor_Ondernemend_Nederland, 2014) were appointed the green status. Companies that did not conduct business in a top sector but did facilitate green companies were assigned the orange status. Companies that did not conduct business in one of the top sectors and did not facilitate green companies were assigned the red status. The research focused on the possibilities of a community approach among green companies. Therefore, the respondents were mined from these green companies. 126 of the 220 companies were assigned the green status. Within this group of 126 companies a selection of potential respondents was made based on business sector, development stage, and number of employees. The aim was to achieve a cross section from Kennispark based companies. From this deduction 35 companies remained as potential respondents. These 35 companies were sent an invitation letter with the formal request to participate in the research. The letter was drawn up on official Foundation Kennispark Twente paper and co signed by the director area development and communication to increase leverage. The invitation was sent to company owners or members of the company's higher management. This choice can be grounded in the assumption that official organizational contact is maintained by the decision making level of an organization. Follow up on the letter was done by email with a reminder message. Appointments with participating companies were made by email or telephone. Finally, a total of 15 companies agreed to cooperate.

3.3 Data-collection

The interviews were conducted in a private setting, mostly a conference room or personal office at the respondents' firm. The interviews were preferably conducted at the respondents' firm because of the familiarity of the environment. This increased the feeling of comfort and reduced possible anxiety. Preceding the interview, the respondent was instructed by the researcher about the content of the interview and asked permission to record the session, with the announcement that all data will be handled in an anonymous way.

The interview consisted of two parts: filling out the mutual contact form for the network analysis and the actual interview itself. First the respondent was asked to fill in the mutual contact form that consisted of the 126 green companies. The respondent checked if contact existed between his own company and the companies in the list. In the case of existing contact, the respondent had to fill in the incidence of contact in a weekly, monthly or yearly scale and explain the nature of contact. Nature of contact was divided into informal and formal contact, with informal contact defined as contact without direct business goals or gratifications and formal contact as contact with direct business goals and gratifications. Second, the interview was started. The filled in form was used as a starting point for the interview by discussing the nature of contact with the respondent. This provided a base for further questioning on the characteristics of the network. During the interview, a topic list was used to discuss the main themes Network, Proximity and Information and Communication Needs.

The interview started with questions about the perceived network characteristics of the respondent. The respondent had to indicate his perception of the fragmentation of the network and which organizations had a governing role within the network. The respondent was also asked about central organizations in the network. The qualitative approach of the network analysis offered the possibility to ask why certain organizations are central and why specific organizations had a governance role. By interviewing the respondents about the network, deeper understanding was gained about the networks processes and structures.

In the remaining part of the interview the respondent was asked about the nature of their contacts, related to the different domains of proximity. The respondents could indicate the value of the different domains of proximity in their interaction with other companies. By letting the respondents narrate about their interaction, the different domains of proximity were surfaced. An example of an interview question concerning proximity: “On the basis of the filled in list, can you further explain the nature of contact? Can you designate the most important contacts and why they are important for your organization?” Also the informational and communication needs of the respondents were discussed. The topics addressed were information, insight, interaction, knowledge and usability needs. Furthermore, the motivation for contact was asked for. A typical question concerning motivation was: If you initiate contact with someone, what is in general the main motivation? Cooperation on the long term, short term or expanding your network?

The semi open nature of the interviews enabled the respondents to discuss themes and issues that were important to them. The rationale behind this technique is that important themes will be discussed more than unimportant themes. By assessing the needs via semi open interviewing, the respondents could indicate critical needs perceived by the respondent. This makes the needs assessment very user centered. A drawback of this technique is the difficulty in analyzing the data because of the lack of integral structure within the interviews. The interviews had a length between 45 minutes and one hour.

3.4 Data analysis

The interview data have been analyzed by the grounded theory approach. The grounded theory approach consists of an inductive, iterative process in which three phases can be distinguished: open coding, axial coding and selective coding (Boeije, 2005). Open coding is the process in which codes are assigned to specific text fragments. Axial coding is the process of comparing the text fragments which have the same codes assigned on differences and correspondence. With selective coding the researcher looks for exceptions on the found codes. The aim of the grounded theory approach is reaching data saturation. This is achieved when no new concepts are found during the phase of data collection. To assign codes to text fragments a codebook has been developed. On the basis of the literature study and the iterative analysis process during the data collection phase a total of 34 codes, divided in three code families, were formulated. From the literature study seven codes were abstracted (Network: density, fragmentation, centrality, governance, Proximity: geographic proximity, technological proximity and organizational proximity). Besides these 7 seven codes, 27 codes were added on the basis of preliminary data analysis and the research' problem description.

To validate the codebook,10 percent of the transcribed interviews have been open coded by the researcher and the second coder. The aim of double coding was to achieve an acceptable value on the Cohen's Kappa measure. Cohen's Kappa is a measure to determine inter observer agreement, and should reach a minimum value of 0.7 in which a value of 1 represents a perfect agreement between the observers. In order to reach an acceptable Kappa value, the observers had to reach mutual agreement on concepts that did not correspond by discussion or by adapting the code book. To determine Cohen's Kappa, the interviews of respondent 4 and 7, have been open coded by the researcher and the second coder. This constitutes 13,3% of the dataset. Initially, Cohen's Kappa did not reach the minimal value (0,7) for acceptable agreement. After discussion with the second coder the conclusion was drawn that the low score was predominantly caused by the absence of code families and nuance differences between the codes. This made matching between the codes difficult although the main topic was corresponding. By combining the codes in families, Cohen's Kappa was raised to an acceptable value of K=0,918. To be able to keep nuances tangible, the original codes were not discarded. During the following analysis of the dataset, codes were assigned based on the sub codes. The overview of the calculation of Cohen's Kappa can be found in Appendix B.

3.5 Codebook

The codebook has been divided in three code families: Network, Proximity and Information and Communication Needs. In total 34 codes, divided over 11 main codes have been determined on the basis of the literature and during the data analysis. By constant comparison of the data and discussion with the second coder the definitive codebook was established. The Network family codes and Proximity family codes were abstracted from the literature review. The Needs family codes were abstracted from the literature review and problem description. Furthermore, the Needs codes family was complemented with codes abstracted from the preliminary analysis during the data collection phase. For the analysis of the whole network, four properties of the whole network were used as a code (Monge & Contractor, 2003; Provan et al., 2007). The following questions were asked to audit the whole network properties:

- Density : *Density was calculated on the basis of the filled in form*
- Fragmentation : Do you perceive the Kennispark environment as fragmented?
- Centralization : Which organizations take a central role in Kennispark and why?
- Governance : Which organizations have a governing role in Kennispark?

Proximity Codes

The three domains of proximity were used as a code. The codes were assigned when the respondent discussed reasons for contact based on one of the domains. The proximity codes correspond with the three domains of Knoben and Oerlemans (2006): Geographical proximity, Technological proximity and Organizational proximity. Furthermore, Geographical proximity was divided in the sub codes Control & Coordination, Marketing, Personnel and Cluster. Also Organizational proximity was divided in sub codes. These codes are Sector, Development Stage and Culture.

Information and Communication Needs

The needs codes are divided in seven Needs families. The following families were formulated: motivation, knowledge, information, insight, interaction, usability and us feeling. The Motivation family consists of four codes regarding the main motivation for interaction. The codes were tactical, strategic, historical and expanding networks. Tactical motivation is interaction with short term interaction with direct business goals, strategic motivation is interaction with long term interaction with direct business goals and Historical motivation is interaction out of former contact. Finally, the code expanding networks was formulated. This code was assigned to fragments discussing interaction with the purpose of building relationships with possible pay off on the long term.

The Knowledge family includes codes regarding knowledge sharing and acquisition needs. The knowledge intensive nature of the high tech companies suggests that knowledge needs are high. Following the problem description, this knowledge is preferably to be acquired within the Kennispark environment. The codes assigned to the Knowledge family were coaching, market knowledge, knowledge access, knowledge questions and knowledge sharing.

An important part of the problem description is the problematic information supply. The Information code family consists of codes regarding informational needs: Centralization of information, Quality of Information, Quantity of Information and Being Informed.

The Interaction family consists of two codes regarding the need for social or commercial interaction. This code was abstracted from the preliminary analysis of the interviews.

The Insight code was assigned to fragments discussing the need for insight in the presence and activities of Kennispark companies. The advantages of business clustering suppose interaction and contact within the cluster. In order to interact there is a need for insight in the presence and activities of companies. The problem description describes the lack of insight as one of the main reasons to implement a community communication approach.

Usability needs are necessary for the second phase of the framework, Creation. The codes included in the Usability family are Asynchronity, Freedom of Location, User Friendly Interface, Easy Access and Added Value.

Us Feeling is the last code included in the codebook. This code is assigned to fragments discussing the need for sense of community. This sense of community is one of the organizational goals of the community approach. The definitive codebook and code scheme can be found in Appendix C

4 Results

4.1 Network Analysis

4.1.1 Density

Although over 120 high tech innovative companies are located on Kennispark one cannot state that the network is very dense. Density of the network is the portion of the amount of possible connections between network members that are actual connections. The respondents had an average of 17 connections out of a possible 126 companies, this accounts for a density rate of 13,5 percent.

4.1.2 Fragmentation

Five of the respondents spoke of the Kennispark related network as fragmented. This does not mean the other respondents do not consider the network fragmented but they did not explicitly mention the fragmentation of the network. The general tenure of the answers given concerning the fragmentation of the network was that the network is too fragmented and there is a lack of volume in the events organized by the network members. In response to the question: "how do you experience the fragmentation of the network?" Respondent no. 2 answered:

> *"yes, like a quilt, definitely like that and sometimes a lot of blah blah (…) there is the IKT, TKT, OV-BSP, and besides that there is a lot organized from The Gallery. And nowadays there is Business meets Twente and many more."*

Respondent no. 15 answers as follows:

> *"So what happens, the Red Carpet, a very cool event, very well organized. But at some moment they say: this event is made possible by IKT, TKT, the this and the that. For fifteen minutes they were announcing all the business clubs and little foundations, all from the region and they all have their own activities. I am receiving invitations from almost all of them, I can attend a meeting two, three times a week. Do you know what that leads to? It's all fragmented, I am going nowhere. Please don't, why don't they throw it all in one large pot?"*

In addition to this fragment respondent no.6 says:

> *"We are a little overwhelmed, not only by Kennispark, Kennispark has great input. But there are forty, fifty more organizations from which we receive invitations. If we want to we can fill the whole week with it."*

4.1.3 Governance

On the specific domain of Governance respondents did not mention a specific governing task associated with a Kennispark organization. On the other hand, central organizations were mentioned often. Only respondent no. 14 mentioned the governance theme during the interview. The respondent questions if the information supply is subject of individual responsibility or governance.

> *"When you want something it is available, but you have to put effort in it. It is the question if information supply is the task of Kennispark or whether it is one's own responsibility to look for that information"*

4.1.4 Centralization
During the interviews some organizations were mentioned often, assuming a central position of these organizations. The main organizations mentioned were University of Twente, Foundation Kennispark and the TKT. The university was mentioned as a marketing tool, source of highly skilled personnel, knowledge resource and facilities resource. The University takes a central role in the Kennispark environment. Furthermore, Kennispark Twente and TKT seem to be central organizations within the environment. When asked for network membership, TKT is often mentioned. Kennispark Twente is regarded by some respondents as the facilitating organization in the Kennispark environment as respondent no. 6 explained:

> *"you learn some things, pick up a couple of things, but going in-depth like sparring, discussing figures, how do you do this and that, for that you will need a coach or a board of advice. I think Kennispark can be of great value in developing a coaching program or board of advice for organizations"*

The network and connections of Kennispark are of great value for the entrepreneurs, mature companies and startups alike. They indicate that Kennispark should operate as a knowledge and contact counter from which companies can be matched with the appropriated knowledge holder.

> *"I think this a huge opportunity for (foundation) Kennispark to take its role, to be a mediator. They know all the large companies and if they take their part, you can establish more growth."*

The entrepreneurs expect that Kennispark is pro-active in the dissemination of knowledge:

> *"if you are not accustomed with the subsidy arrangements it will be very difficult. But Kennispark has that knowledge. When I am made aware of that and I can do something with it, it can have a positive effect on employment rates, it creates an opening"*

The respondents indicated very different responsibilities for the university and Foundation Kennispark. The university is regarded as a passive institution on which companies can hook to make use of the facilities, use the university as a marketing tool and as a source of potential personnel. The companies do not expect a pro-active stance from the university towards the companies. In contrary, Kennispark Twente is seen as an organization intended for the facilitation of the companies needs. The companies expect a proactive stance from Foundation Kennispark and want Foundation Kennispark as a leading and facilitating organization in the Kennispark environment. TKT is a network organization for technology based companies. Their activities are regarded as very useful. Also it seems that informal contacts are maintained during TKT organized events. The Ondernemersvereniging Kennispark (OVK) is not mentioned by the respondents as a central organization within Kennispark. This is a notable observation regarding the official position of OVK within Kennispark as one of the main discussion partners concerning entrepreneurship on Kennispark.

4.2 Proximity

4.2.1. Geographic proximity
Geographical proximity is primarily appreciated because of the lowering of coordination and communication costs. Many respondents declared that being spatially proximate is of great value in

development projects. The code “Control and Coordination” was assigned 32 times in the interviews. The relation between development and control and coordination seems very strong:

> *R3 “that they are in the neighborhood is actually a great advantage. We are a startup company and developing products, so having contact with your suppliers is very important. If you can visit each other every day, have a short heads-up, that's convenient when you are close to each other. That works better than by telephone.”*

Respondent no. 7 also speaks about the advantages in control and coordination:

> *“Well, it is definitely convenient to be able to have direct interaction with regional suppliers, especially in the development and prototyping phase. For example, if I receive a part with a minor flaw, I am able to visit them on very short notice and get the part fixed or replaced.”*

In response to the question if being co-located with partners has advantages, respondent no.10 answered:

> *“Yes, on the domains of coordination, communication and logistics. So, co-operating with someone in the vicinity really has big advantages.”*

Also being proximate increases the chance of mutual understanding on the cultural domain as respondent no. 7 explains:

> *“Yes, communication is an important part. It is nice to be close to each other and having short lines and also understanding each other. It is valuable that our suppliers understand the way we work and vice versa as well, that we know how our suppliers work.”*

This cultural domain does not only apply to organizational culture but on national culture as well. Two companies have explicitly mentioned the disadvantages of having partnerships with other nationality companies. Respondent no. 10 says:

> *“We also have a location in China, so we do cooperate on long distances, but it takes a lot more effort”.*

Communication is also a difficulty in the international relationship of respondent no. 4:

> *“We prefer doing our business in the region. (…) The cooperation with Turkey is really bad; the communication is breaking down everywhere. That is why we are investigating cooperation with a local company, to investigate the possibilities. Because we can stay on top of it and monitor the development process”.*

In general, the respondents all value geographical proximity as an important dimension for initiating contact and cooperation. Also the university has a strong attraction on high tech companies because of the marketing and personnel possibilities. Especially the marketing opportunities are regarded as an important reason for establishment on Kennispark and in the vicinity of the university.
Respondent 10 explains:

"They see that our company is located at the university, which gives them the impression of "that is a knowledge intensive company that cooperates with the university". So I don't have to explain that anymore, that image is automatically planted. That is clearly a strategic advantage"

The vicinity of the university is not only used as a marketing tool inside Kennispark but is also used as a strategic advantage in the greater environment. Respondent 14 states that being connected to the university, physically and knowledge related, brings advantages:

"We had to arrange some pilot-projects at Rijkswaterstaat (Ministry of Infrastructure, red.), we always say we are from the University of Twente, so we do make use of it. We profile ourselves as University of Twente, the great idea that comes from the UT. Then Rijkswaterstaat is willing to cooperate. When you're a market player everybody is very reluctant. The civil servants and their administration are always reluctant concerning market players"

The other topic, often related with university-industry co-location is the access to highly skilled personnel. By being located near a university companies try to have easy access to interns and graduates. This process is not always easy as respondent 6 states:

"I find it difficult to get in contact with the university at the appropriate level to really get in touch with students. We have a great need for new people but it is very difficult"

On the other hand, other companies are capable of attracting students and personnel. Respondent 10 states that the company often makes use of graduate students. Having prior contact or relations with the university seems to facilitate access to students.

"We work together with the university on some research projects and concerning recruitment: we often have graduate students. It is a source of employees to attract fresh people with fresh knowledge".

But for the most companies it is difficult to get in touch with students. Respondent 14 states:

"We try to attract personnel from the UT. For two years we participate with the Bedrijvendagen, an event in which business meets students. But it takes some time."

Furthermore, the respondents did not have a clear recruitment strategy to attract personnel or interns from the university. One reason could be that attracting personnel is foremost a matter of fulfilling a direct need of filling a position although university students and graduates are valued high. This can be exemplified by the response of respondent no.11:

"One question that we can't get answered is skilled personnel. Because we really want the best in the technical field it is difficult to get employees. Despite our good network within the technical sector it is still difficult"

Followed by:

"I have got so say: there is a lot of talent at the university. And I really want to make use of that. But it is too busy at the moment…"

Geographical proximity as a reason for contact primarily constitutes university-industry contact. Co location with other innovative high tech companies seems less important for the respondents. This can be explained by the highly specialized nature of the companies which make them operate globally instead of locally.

4.2.3 Organizational proximity

The second dimension of proximity is organizational proximity. This dimension is audited by the codes sector, development stage and culture. The code sector has some overlap with technological proximity because of a sector consist of organizations that are active in the same technological area. Nevertheless, sector can be seen as a property of organizational proximity because of common, sector related organizational issues like sectorial regulations, subsidy and certification. These sectorial issues are for some organizations reason for contact. Also acquiring market knowledge can be seen as a part of sector related themes. Respondent no. 10 explains:

"Well, that is more about the medical market. Company x is a company that is also active on the medical market. We are looking for possibilities to export and they already export to several countries."

Also respondents value contact on the basis of sectorial similarity. These contacts are valuable because of the natural connection between the companies. It is not only valuable to meet sector related companies but the themes discussed are regarded valuable. Respondent no.7 highly values sector dedicated meetings:

"I am really fond of those dedicated meetings where you can meet other people who are active in the same area. There is a somewhat natural connection between us. I really like it when there is a sector related theme."

Also respondent no. 3 appreciates contact with same sector companies.

"The business where we are in, medical technology, there are some companies here on Kennispark that are active in the same area. They can always freshen up your views. Very useful."

The respondents appreciate contact with companies from the same sector. These contacts can help companies in broadening their view on the sector and market. When looking at contact based on organizational proximity growth and development stage related issues seem very important.

Development stage

Contact initiated from a developmental viewpoint is especially valuable for starting companies. When looking at the organizational codes assigned, startups mention developmental issues as important themes for contact. Mature companies also struggle with growth issues and value contact on development stage issues highly. Mature companies do distinguish between their development questions and startup development questions. Respondent no. 8 summarizes as follows:

"Actually (our development questions are) very generic. The last couple of years I have noticed that it doesn't really matter what kind of company you

are running, because we all have the same problems. I followed a management course at TSM and there were some people from the concrete industry; they all had the same problems. Financing, debtors, creditors, scaling up, but these are different problems than the problems high-tech startups run into. There lies a clear distinction."

Being a mature company does not mean developmental questions are not an issue anymore. In the contrary; mature companies are looking for the "next big step" as respondent no. 6 explains:

"I really enjoy talking with company x, but they will not teach me how to grow. For that I really need a different category company, but they are not on the list. I am talking about the large companies from the region, Ten Cate, Grolsch, whoever. These are the kinds of organizations which you want to get in contact with, who already went through this growth process."

Respondent no. 10 puts it as follows:

"Well, we have been around for some time now but we are still in development as a company. (…) The last couple of years we have been busy to take up our production management. So I introduced my operations manager at some other companies with the idea "why don't you go look over there, it could be very informative and helpful to see how they are handling things." "

These lessons from practice are regarded valuable and offer a central theme to build the community upon. Respondent no. 6 has an opinion about this topic:

"I want advice from entrepreneurs and not from people who got textbook knowledge. When you go to clubs like that (e.g. consultancy) you will get it out of the textbooks and we don't want that. We want information from practice."

This quote stresses the need for interaction between companies to exchange practical experiences.

Startups have a high need for interaction concerning development stage issues. Startups are often built around a product or technology. Entrepreneurship requires different knowledge than developing a product. Most startups do have the technological knowhow but not the entrepreneurial know how. Therefore, startups are often looking for contacts with like-minded starting entrepreneurs and companies who can take their role as a business coach. Respondent 1 is very positive about the startup conversations with other starting entrepreneurs:

"We had some contact with company x, we engaged in a kind of startup talk. They started a couple of years ago and already went through the phase we are in. That is primarily the type of contact I had with these companies. Really useful stuff for startups"

Respondent no. 3 talks about the high information need of startups

"Actually both, so one the one hand there are companies who already have real experience with regulations concerning the development of a medical device; who already know the routes and are also better connected in the industry. They can give advice who to turn to for certain issues. But on the other hand

> *there are other startups, they can tell you how to startup your company, what is necessary, giving useful and practical tips about applying for subsidies, which subsidies are available. Most of the time startups are craving this information, so you can learn a lot of each other."*

This inter-startup interaction is also mentioned by respondent no. 4 and no. 5. These respondents are co-located with other startup companies in the same building. This co-location offers the opportunity to talk with fellow starting entrepreneurs about many different topics:

> *"Yes of course, you discuss a lot of things but not everything.*
> ***Which themes do you discuss?***
> *All kind of things; legal issues, funding and financing, contracts, that kind of stuff"*

And:

> *"There is this guy at our office. He started a company like us. But he already sold his first company for a lot of money and he tells us how that works. He's also coaching us a little bit. Having someone like him close to you makes a big difference."*

The contacts based on developmental questions are primarily contacts that come forth out of informal contacts like network events or simple coffee appointments. The contacts are not yet institutionalized within the Kennispark environment. However, companies that are part of the TOP arrangement (Kennispark/University financing program, red.) do receive some matching help from foundation Kennispark. These contacts are highly valued by the companies that take part in the program.

> *"I already know many of these companies from my time studying, I studied here as well, so I already knew many companies. I also did internships and assignments at companies. When I started this company I applied for the TOP arrangement. For the application you're obligated to write a business plan and you are pushed to talk with entrepreneurs. You also automatically become a member of TKT, they organize a nice event, good food, informal setting. A good event to casually speak to people; if you have a click you just make an appointment and meet again. So I got in contact with other entrepreneurs quite quickly. Those are the people I now speak to regularly."*

A critical side note is that companies that do not take part in the TOP program are not receiving this help and causes some discomfort. Main reason is that Foundation Kennispark is seen as an organization that is responsible for the stimulation of the whole Kennispark and not only companies that take part in the TOP program.

> *"Foundation Kennispark is a non-profit organization, you don't necessarily have to take part in the TOP program but I can't help noticing that when you do take part, the company has a more active relationship with Foundation Kennispark. Whereas people who don't have a place in the TOP program, or didn't apply for it, well it still is a loan. You must be willing to take on a loan. But we are also located on Kennispark, working just as hard and having the*

same information needs as a TOP member. They say Foundation Kennispark is a non-profit and is always open and accessible and willing to arrange things for you. But then again, first you have to take part in the TOP arrangement and be personal responsible for €40.000, - with high interest."

Culture

Besides development stage related issues, similarities in company culture can be reason to have contact with each other. Culture is broadly defined as values and behaviors that contribute to the unique social and psychological environment of an organization (Business Dictionary, 2012). During the interviews, different kinds of values and behaviors were mentioned by the respondents, but they all had in common that a high degree of organizational cultural proximity was positive in inter organizational contact and cooperation. Respondent no.2 spoke about his own network and shared values within that network:

"We prefer to knuckle down things, be concrete and make agreements (…). Keep it practical. Then we can take action on certain things. I think the network that I am connected to thinks the same way about these matters."

In response to the question if business partners coming from informal networks share values and think alike about doing business with each other respondent no. 14 says:

"Yes off course, because you already have that click. Birds of a feather flock together"

Respondents used terms as "shared DNA" and "having a click" which implies that a personal connection is important. The importance of the cultural factor primarily lies in the second stage of contact, after the initiation stage. Cultural differences and similarities are a priori tacit similarities and differences which are surfaced during interaction. It is the question if cultural proximity can be holstered within the community approach. The community target group is heterogeneous in which culture can differ widely. Respondent no. 7 expresses this as follows:

"Yes, which technology do you have, in which market are you active, where can we supplement each other. But it is also important to have a click. Do we have the same DNA, do we allow each other opportunities, but also; when we are developing products, do we have the same vision?"

The cultural dimension of proximity can best be regarded as a facilitating condition for successful interaction between companies which can best be determined by exploratory conversation and interaction.

4.2.2 Technological Proximity

The interviews show that Kennispark based companies perceive a small geographical distance as valuable. But the interviews also showed that a small spatial distance between companies is not a sufficient condition for engaging interaction. An important reason for having contact with other companies is technology driven. Being proximate on the technological domain increases the chance on interaction because of specific technological knowledge. In practice this means that companies primarily look for partners and contacts because they can deliver a specific technology or know-how.

Respondent no. 7 explains:

“We develop innovative products so those products contain innovative components. These components aren’t always available in this region so we have to get them from faraway”

Although respondent no.7 still prefers local connections, respondent no. 3 is very clear in the choice between spatial or technological proximity:

“We choose quality, where ever we can get the best product, that’s where we’re going. And off course, price plays a role, distance plays a role but eventually it is all about quality. That is the most important”

Respondent no. 12 has a strong relationship with the technological facilities available at the university. This small technological distance between the companies’ technological needs and the capabilities of the facilities make that the company has a strong preference for locating on Kennispark.

“We have got a kind of Nano-playground here. Our company has been developed on that basis. Every other Nano-lab, for example Eindhoven, Delft, Dortmund or Hamburg is different in its own manner. It would be a huge waste of resources and money.

In reply to the question if being spatially proximate is a mandatory condition for cooperation respondent no. 14 answers:

“No, that is not a mandatory condition. We also have a software developer in The Hague. If we can find a better solution in The Hague we will go there.”

This exemplifies that the main reason for cooperation is technology driven. The position of geographic proximity in inter organizational interaction is subordinate to the dimension of technological proximity. This is in line with the findings of Boschma (2005) and Aguiléra, Lethiais, and Rallet (2012).

4.3 Information and Communication Needs

4.3.1 Motivation

Besides looking at the different dimensions of proximity to identify the themes on which the community approach should be built upon, it was also investigated what type of contact the companies were looking for. A distinction has been made between strategic motivation, tactical motivation and historical motivation. Furthermore, contacts arisen from a need for expanding the respondents’ informal networks were asked for.

Tactical motivation

During the interviews the respondents indicated that cooperation and contact was primarily initiated from a tactical motivation. Tactical motivation is defined as the need for interaction prompted by a need for short term cooperation with specific business goals. This can be explained by the fact that the audited companies are active in the research and development area. In research and product development cooperation is often necessary to acquire missing knowledge components. The need for cooperation ends when the knowledge component is acquired. Respondent no. 2 puts it as follows:

> *"I've got a reasonably large network over here, I also know a lot of fellow CEO's [of Kennispark based companies] but I only address them when there is a concrete question".*

Also respondent 3 looks for interaction when a concrete question arises:

> *"Yes, I make some calls, sent some emails with the question: "this and that is going on, do you want to think along? Well then, let's make a lunch appointment."*

Technological proximity and tactical motivation are related to each other. For acquiring a specific knowledge component in the development of a product it is necessary to select the potential partner on their technological capabilities. Because of the specialized nature of the components and the ending nature of a development project, short term cooperation is preferred. Respondent no 7 speaks about the matching between development and cooperation:

> *"Are there specific technical competences present at these companies from which I can say: "We are doing a project in this field and there is a company specialized in certain laser technology", that is the way we look at this list. You just mentioned competences; I differentiate on the basis of that."*

Strategic motivation

Some of the audited companies are reluctant to initiate strategic collaboration. These companies are sceptical about the value of long term cooperation because of differences in interests, lack of added value on the long term and threatening the decisiveness of the company. Respondent 8 articulates as follows:

> *"The total of a cluster of companies has to be more than the sum of the companies. One plus one should be three, but that is not easy to realize. Because not all partners have the same benefits, it just falls apart."*

Respondent 15 is also sceptic about long term cooperation

> *"… when you look at collaborations, half of the time is consumed by "how do we do this together", "who owns the intellectual property?", "what is your share of the pie?". So I have noticed, and noticed that all my life, that if you want to join things together it gets very complicated. "*

Respondent no. 7 does highly value strategic collaboration. This could be explained by the fact that company no. 7 is a large company constantly looking for ways to expand their business and knowledge base by acquiring smaller companies with very specific technological knowledge.

> *"You just know that that is the place to look for collaboration, that you can really be of value for each other. Then you can get business out of it because you're complementary. The same applies for X,(…) regarding high tech systems: there is a growing demand for apps. We can't develop apps and X can't develop a (high tech) product"*

Looking at the average size of Kennispark based companies it is not to be expected that the need for strategic collaboration is very large. When looking for a strategic partner specific requirements come into play. This is company specific and not suitable for integration with a community approach.

Historical motivation

Contact and interaction often comes forth out of prior contact via the informal network, previous employment or contacts related to the alma mater. The concept of historical motivation can be related to the organizational proximity dimension and specifically the cultural component. Shared values and behavior constitute trust which is important for engaging in collaboration at a later stage. Within the Kennispark environment the importance of historical ties is emphasized by statements as following:

> *"I studied mechanical engineering here. This study has a lot of research groups; one of those groups is specialized in thermo, so we spoke a couple of these people."*

In this fragment respondent 1 turns to knowledge he has about the structure of his former faculty. Having this knowledge allows for easy access to possible sources of knowledge. Respondent 7 goes into the historical relationships on the personal level. The personal informal network allows for low threshold contact from which future cooperation can arise.

> *"The informal network primarily comes out of personal relationships from the past from which you still have contact. Once in a while you run into each other, get talking about how things are going"*

Also former successful cooperation increases the chance on future cooperation. By having a successful former cooperation, trust is increased and expectations are clear. Respondent 12 speaks of the outsourcing of certain processes at a company they had a prior successful cooperation with:

> *"They work certain processes in production of which we also could have decided to invest in equipment and do it ourselves. But for now we decided to outsource it. In addition, it is an advantage that they are close and the communication lines short. In the past we have trained their operators. It really helps when you know each other."*

Respondent 10 also stresses the importance of successful former cooperation:

> *"We have got a network that is well developed in the past years. In networks it is quite normal that when collaboration in the past was successful you will turn to the same party when there is a similar question."*

Expanding Networks

Another motivation to initiate contact is the expanding of a company's network. This contact is primarily aimed on building up informal relationships with no concrete business goals on the short term. Relationships are maintained for possible opportunities in the future. Also the network is used for knowledge sharing on organizational and technological themes. These informal network contacts are generally valued high but in practice companies and entrepreneurs are not very pro-active in initiating new network contacts. A possible reason for this attitude is that visiting network events is not part of the core business and is one of the first things companies strike out. Respondent 6 phrases this as follows:

> *" You know what the problem is? I get three invitations every week, so there's so many, I just haven't got time for that. You have to be very selective. It is nice and a good thing that it exists, but I don't get anything out of it."*

Furthermore, there is no clear consensus on what kinds of network events are most valuable. Events can be divided in two types of events: small, dedicated events and larger generic events which both were valued high by different respondents. But it seems the tendency is that larger, generic events are visited more. Finally, the region of Twente has the highest density of network organizations in the Netherlands. This high degree of density causes a very fragmented landscape with numerous network organizations that all organize their own events.

4.3.2 Knowledge

As a high tech innovative business area, knowledge is an important part of daily processes. A community is a perfect way to stimulate knowledge sharing between people and companies without having to formalize their relationship. To investigate the knowledge needs of Kennispark based companies, questions were asked about the knowledge need of the respondents and their companies. The codes assigned to knowledge related fragments are coaching, market knowledge, knowledge access, knowledge questions and knowledge sharing.

Coaching

Coaching is the process of helping companies on a mentor – student way. In practice this means that companies interact with each other with a senior company and a junior company. The interaction often constitutes of debates about organizational themes. Startups benefit greatly from this kind of contact because startups are new in the world of entrepreneurship and have a high organizational knowledge need. Starting entrepreneur Respondent 1 about business coaching:

> *"Little things like what legal form should the company be, that little things. Afterwards we applied for a patent and we got directed very well: "You should go there and talk with this person". So, that's very convenient, I'm very happy with Kennispark, we get in touch with other people very easy."*

Also mature companies value this type of contact because they also struggle with growth issues, as already remarked in the organizational proximity section. As described in the organizational proximity section, the respondents expressed this a great need and important motivation to initiate and maintain contact. Respondent 6 states:

> *"I think that when Kennispark is helping with coaching or board of advice, setting up these coaching constructions for entrepreneurs from entrepreneurs, that is going to make the difference."*

Market knowledge

Market knowledge is a type of knowledge indispensible for entrepreneurs. Knowing their way into a certain market is invaluable for companies. Market knowledge is the type of knowledge that can be shared in an informal way. Respondent 10 makes use of his network to acquire knowledge of a potential market:

> *"Company X is also active in the medical market. Well, we are looking for export and they already have a lot of export to different countries. Then it goes like this: "The Australian market, how is it for you? Is it of interest for us?" or "do you have an acquaintance in the Australian market (…) that can help us finding out if that market is interesting for us to visit?"*

Although market knowledge is not discussed often during the interviews it is a potential theme to address in a community.

Knowledge access

Knowledge access goes into the position of the university as a source of knowledge and technology. Because the university is regarded as a closed bastion for outsiders it is of importance to audit the respondents' opinions and experiences in the need for having access to academic knowledge. From the interviews it became clear that having a historical bond with the university helps in finding their way to academic knowledge. The complex structure of the university is a barrier for companies who do not have a prior relationship with the university. The intention of the companies is to make more use of the knowledge and technology available at the university but it seems difficult to find the right entry points to this knowledge and technology.

Knowledge questions

knowledge questions are missing knowledge components at a company that are sought for at other companies instead of the university. Mature companies have a higher need for these components because of the ongoing development projects. Companies often drop these questions within their informal network. This makes it very suitable to incorporate in the community design. Respondent 10 states as follows:

> *"When we are doing an innovative project, it never occurs that such a project can be handled entirely by the internal team; there are always knowledge components for which you need a partner. The first thing you will do then is to look in the direct vicinity."*

Knowledge sharing

An important theme for the community to be built on is the potential of low threshold knowledge sharing via the community. The importance of this functionality is made clear by the responses of the respondents in which they indicate that contact via network events is very valuable in the domain of knowledge sharing. But because of different reasons respondents do not often attend these events. An online platform can stimulate knowledge sharing by letting people interact en share in their chosen location and time.

4.3.3 Information

Centralization of Information

A central component of the community strategy is the unification of communication towards and among the Kennispark network members. In the network section it was shown that the Kennispark environment is regarded as very fragmented. This fragmentation leads to a very diverse communication landscape in which each organization tries to disseminate its own message. This can lead to a situation in which entrepreneurs are flooded with messages or are not able to find the right messages. The respondents do prefer a central location for their information supply but are, on the other hand, reluctant in embracing a social networking approach. Terms like “landing page”, “portal” and “pin board” are used which can underline the entrepreneurs’ preference for a static central information location.

The reluctance towards a new social medium can be exemplified by the response of respondent 2:

> *“For the practical information supply: yes. A real social network: no. Not a Kennispark facebook or something similar”*

Respondent 14 does not have a negative attitude towards social media but places questions in launching a new social medium:

> *“I’m already on LinkedIn, already have a facebook group, I got this and that. I would foremost make it a landing page and have the discussions on LinkedIn.”*

In general, a central location for information is valued high, but there is no clear consensus about the specific input at this central location. The respondents indicated several themes like an event calendar, company profiles and financing and subsidiary information. Another advantage of a central location indicated by the respondents is that information becomes available for all members of an organization. This lowers the informational pressure on “central” persons in an organization. Information becomes easily accessible for all members of an organization.

Quality of Information

Going somewhat deeper into the information the respondents also indicated that the quality of information has to be good. Also the information has to be appropriate. Information needs to be suited for the platform and not to be used for acquisition. Although the respondents indicate that the information has to be of high quality and appropriate they are not very clear about what information should be placed and available. They are clear about that the information has to be up-to-date.

Quantity of Information

The need for a central location of information is illustrated by the respondents’ perception of the quantity of received information. The respondents indicated that the volume of information is very large and comes from many different sources. This makes the willingness to read all the information small and increases the chance of communication breakdown.

Respondent 3 explains:

> *“We receive a lot of invitations for events and we try to visit them as much as possible. We want to do that to meet and talk to people. But it is so much, you can't keep track of them all, so you make a selection.”*

Respondent 4 has his own strategy to cope with the information supply.

> *“It can be a bit of an information overload, but there is another thing: you don’t always feel like checking all those messages. So I check them once a week.”*

The problem of the abundant quantity of emails is also underlined by the response of respondent 6:

"I don't have a clear overview at all, I don't read half of it. It is too much; it is stacking up my mailbox."

With regard to the centralization of information as discussed above, a platform provides an opportunity to offer information at a central location. This lowers the pressure in the mailbox and messages are not discarded in advance. Downside of this approach is that people do have to visit the central location to get access to all the information. A possible solution for this problem is to incorporate a personal functionality in which a user can pick certain topics or senders.
Although the majority of the respondents perceive the quantity of information as high there were respondents that do not share this opinion. Respondent 5 complains about the fact that the respondent does not receive anything. The centralization of information could solve this problem. Some other respondents regard the information pressure as fine and not too much.

4.3.5 Interaction

In the codebook a distinction is made between commercial interaction and social interaction. The presupposition is that interaction can occur on the basis of commercial interest or a need for social interaction. This can be of importance for building the community and the type of events that are organized in the Kennispark environment. Should the focus be on the social character or the commercial character? After analyzing the quotations concerning interaction no clear distinction can be made between social interaction and commercial interaction regarded from the respondents' point of view. It seems that social and commercial interactions between companies are intertwined. The results do show social interaction is highly valued by the respondents. This can be explained by the preference of the respondents to do business with people they already know or have a click with. Commercial interaction often comes forth out of a social engagement.

4.3.4 Insight

Part of the problem description describes the lack of insight in Kennispark based companies. The results support the problem description and offer deeper understanding of the problem. The previous research only signaled that there is a lack of insight but does not deepen it out. The lack of insight can be divided in two types of insight: insight in Kennispark based companies' presence and activities and second insight in available knowledge of the educational institutes.
Furthermore insight in financing options and available subsidies is also welcome information.
Respondent 7 discusses the lack of insight in Kennispark based companies:

"To answer your question: I think there is a lot to gain on that topic. We should know who is actually established here, what we are doing and how we can get in touch."

Part of the main goals is improving the insight into Kennispark based companies and potential workforce present on Kennispark. Respondents do think that Kennispark offers a wide range of interesting companies but insight in the precise activities of these companies is absent.

"People always say that the university spun out 800 companies, but we really don't have sight on that. And I think that our company actually does know what is happening at the university because of all the alumni that work here and different networks we participate in. I hear from companies around us that they have much more problems with that then we do. They haven't got a clue about what is going on here."

Furthermore, the interviewed companies stated that there is a preference in doing business with geographical proximate companies. This complies with the results found regarding geographical proximity. If the possibility exists to find a potential partner in the vicinity a company will engage in interaction. Respondent 10 is very clear about their preference for local companies and stresses the importance of having insight in the presence and activities of other companies:

> *Regarding it structurally: what you can get from close by is better than what you can get from far away. But then off course it is very important to know what's available in the near surroundings. And vice versa as well, we are a service provider as well. So for us it could be advantageous when other companies are able to find us too"*

Increasing insight therefore is important for companies on both sides of the market. It can increase local interaction between supply and demand. Because technological proximity is the main reason for companies to initiate contact it is important to provide insight in a company's technological capacity.

4.3.6 Usability

The respondents did not mention concrete usability criteria for the potential community platform. The respondents did indicate that an online platform has to be easy to use and for all not be a complementary application but foremost an application to replace other applications. This indicates that the community platform has to be designed with as many partner organizations as possible and the need for a central location for information is high. Another usability issue that was mentioned was the social interaction functionality. According to several respondents, the community should not become a "Kennispark Facebook". Respondent 2 makes the following remark:

> *"Social Media takes it further, that expects input from the community and I don't see myself doing that"*

The respondents did indicate that a profile functionality is of great value. Profile functionality enables the members of the community to have insight in the presence and activities of other companies. Respondent 7 states:

> *"I can imagine that some parties have a short description with their competences and that you're able to search on those topics when you've got the need for it."*

4.3.7. Us Feeling

The sense of community was a topic mostly connected to the technological sector in which the respondent did business. The specialized nature of their activities make that few companies worldwide are active in the same field. Sense of community foremost exists in the specialized business sector of the respondents. On the other hand, companies are aware of their local environment and do wish their neighbors all the success.

5 Conclusions and discussion

In this section the conclusions of the research are presented. First, the different parts of the research will be discussed. Second the research questions will be answered on the basis of the conclusions presented. Finally, the research will be discussed.

5.1 Network

The Kennispark network is not very dense. With an average score of 17 connections out of 126 possible connections (13,5 %) one cannot say the Kennispark based companies are part of a very dense network. Moreover, The Kennispark environment is seen as fragmented. Especially in the field of network organizations the companies state that the environment is very fragmented. The downside of this fragmentation is the lack of volume. For networking purposes, companies prefer events with larger volume. The respondents did not designate specific organizations as governing organizations in Kennispark. This can be explained by the historical context in which Kennispark has to be placed. Many Kennispark based companies already established before the establishment of Kennispark in the current form. The respondents did indicate that Kennispark and the University of Twente should provide the entrepreneurs more access to knowledge and information about subsidies and financing options. The actual governing organization of Kennispark, Ondernemersvereniging Kennispark, has not been mentioned as an important organization in the Kennispark although all the respondents are a member of this organization. Regarding the centrality of organizations, the respondents did mention Foundation Kennispark, University of Twente and the TKT as central organizations in Kennispark. These organizations offer clear benefits to the Kennispark companies and should take part in the design of the community if possible.

5.2 Proximity

This research supports the theory concerning the value of geographical proximity in inter-organizational contact between innovative companies (Aguiléra et al., 2012; Boschma, 2005; Knoben & Oerlemans, 2006; Torre & Rallet, 2005). Geographical proximity is regarded as very useful and several companies prefer having contact with local companies, but small spatial distance is not the most important reason for initiating and maintaining contact. This is in line with Hansen (2014). Although geographical proximity in itself is not a sufficient reason to initiate contact, it is regarded as an important advantage to have a small spatial distance in terms of control and coordination and university-industry cooperation.

The results show us that in an innovative high tech environment, technological proximity is the most important reason to have contact. The similar knowledge base and potential benefits from possible cooperation are regarded as main reasons to initiate and maintain contact. Because of the high tech footprint of the companies it is not very likely to find technological connected companies in the close vicinity. These niche technologies are primarily globally dispersed instead of locally clustered. Nevertheless, Kennispark offers a wide variety of high tech companies in which less specialized technological knowledge can be diffused. Technological themes are regarded the most important themes to built a community around. However, because of the highly specialized character of Kennispark companies the question raises if the Kennispark community is not too heterogeneous on the technological domain to focus the community on the technological aspect.

Organizational proximity also is an important reason for initiating and maintaining contact. Especially startup companies indicate the organizational domain as the main reason for initiating contact. This can be explained by the nature of a startup company in which the technological component of the product is the reason to start a company. A startup company therefore does not have the external technological need that a research and development company has, but has a high need in organizational knowledge to build the company. Also mature companies indicated organizational proximity as an important reason for having contact. Besides developing products, companies want to grow and scale up their activities. In general, the same needs apply to mature companies as startup companies alike. Organizational themes are best suited for the Kennispark Community to be built around. Kennispark companies can find similarities between them and others on this domain. Technological heterogeneity can be circumvented by focusing on organizational similarities. Another critical element for successfully developing a community approach, besides the thematic input, is the usage of the platform. Usage of the platform can be increased by offering a central location for Kennispark' related information as an event calendar but also information about financing en subsidies is very welcome. The community approach has the focus on the entrepreneurs. This means that other parties also have to be involved like the University of Twente. The results show that despite the co location of university and industry, the knowledge spillover from university to industry is limited to students. The industry finds it very hard to find their way to potential knowledge and development on the academic level.

5.3 Information and Communication needs

The respondents indicated that because of the fragmentation of the Kennispark network, too many events are planned. Besides the sheer oversupply of events the following problem exists: the events are communicated very poorly and fragmented. Respondents call for a central location to find this information in the form of a Kennispark agenda. The fact that this agenda already exists but is not used very much, underlines the fragmentation and difficulties in findability of these services. Centralization of information could improve the use of the platform and community and eventually the participation in events. Social interaction is regarded important by the respondents but it is the question if the community platform can provide in this need because of the clear preference of a concise platform. Social interaction can best be achieved by offline community management. Insight in the presence and abilities of other companies have proven to be one of the most important themes for the community. Insight in other companies is not only important in the technological domain but can also be of value in the organizational domain. Providing insight should be one of the main themes in designing the community approach. Usability topics and issues can best be tackled during the actual trial stage of the community platform. Via an iterative design cycle, adaptations can be made in the community platform.

5.4 Research Question

The research question for this research has been:

"What are the critical elements for developing a community communication approach for Kennispark?"

By using the framework of Iriberri and Leroy (2009) a clear roadmap was provided on which an online community can be built. The model presented different essential elements for community building. Based on the conclusions the research question can be answered:

The critical elements for developing a community approach for Kennispark are establishing purpose and focus of the community. Furthermore, the community has to be need centered instead of technology centered. Purpose of the community should be focused on technological and organizational themes in which the spatial proximity of the members is subordinate, but is of importance for creating a sense of community. Because of the technological heterogeneous nature of the companies, technological themes can be problematic for a Kennispark wide community. Therefore, organizational themes are more likely to function as the purpose of the community. The focus of the community should lie on the companies. Organizational themes are suited for both mature and startup companies. The information and communication needs of the community lie primarily in the subject of centralization of the information and creating insight in the activities and presence of companies in the Kennispark environment. For the increase of interaction, offline events ,which are larger and generic, are preferred.

5.4. Discussion

The results of the research seem valid. The results support the existing theory on proximity (Ala-Rämi, 2007; Boschma, 2005; D'Este et al., 2013; Hansen, 2014; Knoben & Oerlemans, 2006; Torre & Rallet, 2005). Looking at the framework used in the research, network analysis did not have the impact for answering the research questions as expected. For establishing the purpose and focus of the community, the network analysis was too generic and small scaled to use for concrete input. Nevertheless, the network analysis did provide deeper insight in the processes and structures of the Kennispark network. Concerning the needs assessment, the results support the outcomes of the previous conducted research by Kennispark. The greatest advantage of the needs assessment, in comparison to the former research, was the qualitative nature of the research. The interviews provided a deeper understanding of the entrepreneurs needs, and the respondents could indicate concrete needs and problems. An interesting remark regarding the literature concerns the clustering theory of Porter (2000). Innovative business areas try to profit from cluster related benefits. While the first requisite of Porter's definition of a cluster is geographical concentration, it is the question if geographical concentration is the main element of a cluster. Being subordinate to technological and organizational domains it does not seem strange to place geographical concentration further back in the definition.
Building an online community for innovative high tech companies appears to be a great challenge. Online community building models are primarily focused on the B2C market. In the high tech environment of Kennispark these models do not always apply because of the specific needs of the potential members. Further research should be done into the differences of a high tech community in comparison to other business to business communities.

Limitations

like every research, this research also has its limitations. The limitations are discussed underneath. The first limitation of the research is the generalizability of the results. This is considered a common limitation for qualitative research. This research did however found themes that seem to be widely spread throughout the network. The recommendation is to further investigate these themes in a quantitative study. The second limitation concerns the choice for semi open interviewing. By conducting open interviews, deeper understanding was gained of topics important for the respondents. This has been very useful for identifying critical needs. However, the analysis of the data has proven to be very complex. In retrospection a combination of semi-structured and open interviewing seems to fit the research better. The open interview technique should be used during the needs assessment; the semi structured interview could have best been used during the network and proximity part of the interview. The last methodological limitation of the research is the use of too little distinctive codes. This caused difficulties in the coding process and reliability of the research. By combining the codes to more generic codes, reliability was raised but at risk of losing nuance differences. The consideration has to be made if nuances are important enough to justify the difficulties during analysis.

References

Aguiléra, A., Lethiais, V., & Rallet, A. (2012). Spatial and Non-spatial Proximities in Inter-firm Relations: An Empirical Analysis. *Industry and Innovation, 19*(3), 187-202. doi: 10.1080/13662716.2012.669609

Ala-Rämi, K. (2007). Communication and Distance in Collaboration between High-technology Enterprises in Northern Finland. [Article]. *European Planning Studies, 15*(8), 1047-1062. doi: 10.1080/09654310701448212

Boeije, H. R. (2005). *Analyseren in kwalitatief onderzoek: denken en doen*: Boom Koninklijke Uitgevers.

Boschma, R. (2005). Proximity and Innovation: A Critical Assessment. *Regional Studies, 39*(1), 61-74. doi: 10.1080/0034340052000320887

D'Este, P., Guy, F., & Iammarino, S. (2013). Shaping the formation of university–industry research collaborations: what type of proximity does really matter? *Journal of Economic Geography, 13*(4), 537-558. doi: 10.1093/jeg/lbs010

Hansen, T. (2014). Substitution or Overlap? The Relations between Geographical and Non-spatial Proximity Dimensions in Collaborative Innovation Projects. *Regional Studies*, 1-13. doi: 10.1080/00343404.2013.873120

Iriberri, A., & Leroy, G. (2009). A life-cycle perspective on online community success. *ACM Comput. Surv., 41*(2), 1-29. doi: 10.1145/1459352.1459356

Knoben, J., & Oerlemans, L. A. G. (2006). Proximity and inter-organizational collaboration: A literature review. [Article]. *International Journal of Management Reviews, 8*(2), 71-89. doi: 10.1111/j.1468-2370.2006.00121.x

Lee, F. S., Vogel, D., & Limayem, M. (2003). Virtual community informatics: A review and research agenda. *JITTA: Journal of Information Technology Theory and Application, 5*(1), 47.

Monge, P. R., & Contractor, N. S. (2003). *Theories of communication networks* (

ed.). New York: Oxford University Press.

Porter, M. E. (1998). Location, Clusters, and the" New" Microeconomics of Competition. *Business Economics*, 7-13.

Porter, M. E. (2000). Location, Competition, and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly, 14*(1), 15-34. doi: 10.1177/089124240001400105

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks. *Journal of Management, 33*(3), 479-516. doi: 10.1177/0149206307302554

Rijksdienst_voor_Ondernemend_Nederland. (2014). Topsectoren Retrieved 13-11-2014, 2014, from http://www.rvo.nl/onderwerpen/innovatief-ondernemen/topsectoren?gclid=Cj0KEQjwuLKtBRDPicmJyvu_qZMBEiQAzlGN5jUfXw-Xgdkibn1nEIGzTRONETgFb5NdXgp-z7N9dTcaArSS8P8HAQ

Torre, A., & Rallet, A. (2005). Proximity and Localization. *Regional Studies, 39*(1), 47-59. doi: 10.1080/0034340052000320842

APPENDIX A LITERATURE LOG

	Date	Data base	Search Action	Results
1	21/09/2014	Scopus	TITLE-ABS-KEY (**"communication network*"**) AND TITLE-ABS-KEY (**community**)) AND (LIMIT-TO (SUBJAREA , **"SOCI"**))	208
2	21/09/2014	Scopus	TITLE-ABS-KEY (**"online community building"**)	17
3	23/09/2014	Scopus	TITLE (**community** PRE/10 **practice** OR **interest** OR **prxim***) AND (LIMIT-TO (SUBJAREA , **"SOCI"**) OR LIMIT-TO (SUBJAREA , **"COMP"**)) AND (LIMIT-TO (EXACTKEYWORD , **"Knowledge anagement"**) OR LIMIT-TO (EXACTKEYWORD , **"Organization and management"**)	209
4	25/09/2014	Scopus	TITLE (**network*** AND **communit*** AND **practice**)	137
5	30/09/2014	Scopus	TITLE-ABS-KEY (**audit** AND **communication** AND **network** AND **analysis**) AND (LIMIT-TO (AU-ID , **"Zwijze-Koning, Karen H." 8918970200**))	2
6	30/09/2014	Scopus	TITLE-ABS-KEY (**"communit* building"** AND **"social media"** AND **practice**)	10
7	22/10/2014	Scopus	(TITLE-ABS-KEY (**proximity** AND **organization**) AND TITLE-ABS-KEY (**collaboration**))	96
8	23/10/2014	Scopus	TITLE-ABS-KEY (**proximity** AND **collaboration** AND **communication***)	96

APPENDIX B INTER RATER RELIABILITY CODE SCHEME

		Assigned codes first coder												
Assigned codes second coder		1	2	3	4	5	6	7	8	9	10	11	no code	TOTALS
	1	3												3
	2		11										1	12
	3			7										7
	4				10								1	11
	5					15							2	17
	6						6							6
	7							6						6
	8								5					5
	9									10				10
	10										4			4
	11													0
	no code				2									2
	TOTALS	3	11	7	12	15	6	6	5	10	4	0	4	83

The inter rater reliability is measured by the value of Cohen's Kappa. To calculate Cohen's Kappa, the following formula was used:

$$K = \sum a - \sum ef / N - \sum ef$$

In which ∑a is the observed fraction, ∑ef is the expected fraction and N the total observations

The value of the observed fraction ∑a = 77
The value of the expected fraction is ∑ef = 9.613
N = 83

The value of Cohen's Kappa is: (77-9.613) / (83-9.613)= **0.918**

APPENDIX C CODEBOOK AND CODING INSTRUCTION

	MAIN CODE	SUB CODE	CODE NAME	CODING INSTRUCTION
Network				
Network	1	1A	Density	Mentioning of the interconnectedness between Kennispark companies
		1B	Fragmentation	Mentioning of perceived fragmentation of the network
		1C	Governance	Mentioning of organizations with governance tasks
		1D	Centrality	Mentioning of central organizations in the network
Proximity				
Geographic proximity	2	2A	Control & Coordination	Spatial proximity has effect on control and coordination mechanisms
		2B	Marketing	Spatial proximity is used in the company’s marketing strategy
		2C	Personnel	Spatial proximity offers access to personnel
		2D	Cluster	Being co-located is reason for contact
Organizational proximity	3	3A	Sector	Mentioning of sector as reason for contact
		3B	Development stage	Mentioning of company's development stage as reason for contact
		3C	Culture	Mentioning of comparable culture as reason for contact
Technological proximity	4	4	Technological proximity	Mentioning of technological capabilities or similarities as reason for contact

Needs				
Motivation	5	5A	Strategic	Mentioning of long term cooperation with specific business goals as reason for contact
		5B	Tactical	Mentioning of short term cooperation with specific business goals as reason for contact
		5C	Historical	Contact out of former contact and trust
		5D	Expanding network	Need for building relationships with possible pay off in the long term
Knowledge	6	6A	Coaching	Business coaching between companies
		6B	Market knowledge	Acquiring market knowledge
		6C	Knowledge access	Access to UT/Saxion knowledge
		6D	Knowledge questions	Acquiring knowledge components from other companies
		6E	Knowledge sharing	Sharing knowledge by questions and answers
Information	7	7A	Centralization of information	Need for a central location for information
		7B	Quality of Information	Discussing the quality of information
		7C	Quantity of Information	Discussing the quantity of information
		7D	Being informed	Need to be informed about local and business issues
Interaction	8	8A	Commercial interaction	Interaction from a commercial need
		8B	Social	Interaction from a social/networking need

			interaction	
Insight	9	9	Insight	Mentioning the need of having insight in the presence and activities of Kennispark companies
Usability	10	10A	Asynchronity	Interaction is not time dependent
		10B	Freedom of location	Interaction is not location dependent
		10C	User friendly interface	Platform has to be easy to use
		10D	Easy access	Platform has to be accessed in a simple way, availability on different media
		10E	Added value	Platform has to offer added value in regard to present situation
Us Feeling	11	11	Us feeling	Interaction and contact because of the need for good neighbourship and us feeling

APPENDIX D QUOTATIONS AND INTERVIEW TRANSCRIPTS

Because of the large size of the Quotations List and Transcribed Interviews, an external Appendix has been created. This Appendix is in the possession of dr. J.F. Gosselt.