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Does context matter? Study of knowledge sharing in European Institute of Innovation and Technology

Master Thesis

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ABSTRACT

Title	Does context matter? Study of knowledge sharing in interorganizational networks
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Authors	Kristina Černaitė & Laura Sudintaitė
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Keywords	Interorganizational networks, knowledge sharing, contextual sensitivity, trust, social capital theory
Thesis purpose	To investigate perceptions of knowledge sharing in complex interorganizational networks.
Methodology	Research draws from interpretive perspective and adopts a method of qualitative interview study
Theoretical perspective	Some previous attempts to draw research on social constructs as if they are operating in a vacuum were missing some valuable information and could not provide deep insights into the matter. As this, contextual sensitivity, approach is not yet popular in network research, we adopt this stance to provide valuable insights into knowledge sharing in complex interorganizational networks.
Empirical foundation	The empirical study was based on interviews, observations and focus groups implemented in two interorganizational networks: knowledge and innovation communities (KICs).
Conclusion	The perceptions of network's context and content of their members provide deeper insights into all the other issues of networking, knowledge sharing included. In our research these perceptions were related to member's discourses to knowledge sharing. Even though this finding should not be adopted as a framework for future research, the contextual sensitivity approach should not be neglected in network research.

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I. INTRODUCTION

Human beings have long realized the necessity for cooperation. In modern times, the business organization has been heralded as the pinnacle of human cooperation in order to reach synergetic effects. As Child puts it, “organization is a product of “organizing”, namely the process of arranging collective effort so that it achieves an outcome potentially superior to that of individuals acting or working alone” (2005, p. 23).

The early organizations and the cooperation between them might be considered relatively simple by today’s standards. For instance, the flow of information between and within them was quite stable, predictable and usually one-directional. However, this limited approach to knowledge sharing practices started to be seen as limiting the potential of cooperation as new, flatter forms of organizations and new ways of cooperation between them emerged (Sandberg and Targama, 2007).

One of the possible ways of interorganizational cooperation is to engage in networking activities. From the structural standpoint, a network consists of actors (nods), the links between them and the mesh that the links and the nods create (van Loost, 2006), while networking is the activity of individuals or organizations that allows them to come together for the purpose of exchange of ideas, products or services. As we are mostly interested in the complex interorganizational networks, in this case networking refers to crossing the organizations’ boundaries in order to engage in a relationships with a wide set of partners (Child., 2005). The members of such networks usually have multiple interactions with the other partners, which in turn, result in multidirectional flow of information, goods or, if the right conditions are created, knowledge.

The possibility to share knowledge is perceived as one of the biggest advantages of networks and networking (Alvesson, 2004; Rangachari 2009). It is also perceived as the key factor for enhancing organizational recourses, innovativeness and boosting companies’ competitive advantage (Castell, 2000; Porter, 2000). Thus, organizations have shifted their focus towards attempts to create novel and exceptional products (Beeby and Booth, 2000) and joined networks as a means for gaining some additional knowledge.

Without doubt, such shift towards networks and knowledge sharing gained great interest among scholars (Cowan and Jordan, 2004). However, some scholarly works limit their scope to investigating only one-to-one organizational relationships or providing a structure-based

perspective on networks and networking (e.g. Hislop, 2002; Granovetter, 1983). Such approaches reduce our understanding to studies of relational ties Azarian (2010), failing to acknowledge the individuals and context behind these ties.

There are other gaps in the research, namely how knowledge sharing differs in different types of networks (Inkpen and Tsang, 2005). Scholars propose that research of networks should be more contextualized (Azarian, 2010; Inkpen and Tsang, 2005). For instance, Inkpen and Tsang (2005) acknowledge importance of conceptual differences between different network types, which cannot be exhaustively represented through broad theoretical discussions. This acknowledgement might also be related with a shifting approach in social studies: from a rationalistic, objective world view, to interpretive as more subjective and contextual (Sandberg and Targama, 2007).

We had the possibility to implement our research with the help of European Institute of Innovation and Technology (EIT) which was established to enhance innovation in Europe. This organization stimulates development of knowledge and innovation communities (KICs) in Europe that are created to address broad societal challenges in different thematic areas through innovation.

In an attempt to simplify the presentation of their complex structure, the EIT and the KICs could be compared with the Solar system: EIT being the Sun, the centre which contributes to the establishment and development of its' (currently three) planets: Climate-KIC, KIC InnoEnergy, and EIT ICT Labs (Appendix 1). While the EIT (the Sun) offers light and influences the cycle of life (provides money and regulations), the KICs, as separate planets, operate on their own and try to provide the right conditions for their 'inhabitants' (the partners). KICs bring together three main groups of partners: business companies, research and technology units, and high education institutions. These three pillars of the so-called knowledge triangle collaborate to achieve innovative solutions in their thematic areas.

We have travelled throughout all the structural levels of this Solar system to find out where knowledge sharing practices are most intense. After realising that the KICs are the places we want to investigate, we concentrated on Climate-KIC and CLC PolandPlus (Appendix 2) to learn how their members perceive knowledge and knowledge sharing within their networks. Even though we acknowledge that individual perceptions were the core for data analysis, the fact that individuals are embedded in their organization's contexts quite often revealed organizational standpoints instead of their own. We believe that this finding allows shedding some light onto the interorganizational relations rather than staying on the interpersonal level of networking.

Moreover, even though both networks under investigation emerged from same rules and regulations, we have discovered that their member's perceptions of their external environment (the context) and internal orientation and values (the content) were very different. We believe that this finding enriches our research as, having this data at hand, we could understand if perceptions of knowledge sharing are related to perceptions of the context that the sharing is taking place in.

Hence, by adopting an interpretive perspective, we aim to investigate perceptions of knowledge and knowledge sharing in context embedded interorganizational networks. We are drawing our empirical analysis from two main research questions:

- How do members of Climate KIC UK and CLC PolandPlus perceive the context and content of their network?
- How do members of these networks perceive knowledge and knowledge sharing *within* their network?

Answers to these questions will contribute to these issues in networks research: it will deepen the theoretical understanding about knowledge sharing in interorganizational networks and will let to test the importance of context.

We divide our empirical study in five main sections. We started with the introduction which is followed by literature review in chapter two. The review of literature will provide a better understanding of previous research, theories and concepts that are related to the issues of networks and knowledge sharing. In chapter three we will disclose our methodical and methodological considerations, including our research reflexivity and credibility. A part of the methodological section will be appointed for a better explanation of the complex structure of the network under research. The accumulated results from the research sites (empirical analysis) will be provided in chapter four. Finally, in chapter five we will provide main findings of this study and implications for future research.

II. SHORT OVERVIEW ON EXISTING LITERATURE

In this section we will present some theories on networks and knowledge sharing. We will describe some concepts that will be further used in our research and explain our stance, related to the existing theories. It is worth mentioning that we will not present all the theories in the fields of networks and knowledge sharing, but will shortly present parts of the ones we found of value to our research.

Conceptualizing networks

As globalization of markets is creating greater pressure on companies, states and even unions of states to innovate, new forms of synergy creation are being sought. It is not surprising that the interest in networking and different possibilities and drawbacks it might provide is growing, whether in the corporate, policy-making or the scholarly world.

There are different motives for networking as well as different attributes one can assign to certain networks. For instance, the networks might be considered different in the quantity of interactions its members can make (the intensity of the network), whether the interactions of its partners are primarily based on contract of trust, whether it is designed to have a limited life or greater permanency (Child, 2005, p. 15). Every choice comes with benefits and constraints. However, the choices within networks and possible insights into their content are far from being limited with this list. As organizational networks are becoming more and more common and complex, our understanding of them would be very narrow without scholarly insights. Some of them will be presented in this chapter.

From value chain thinking to interorganizational networks

The modern western thought about organizational cooperation has undergone a change. According to Allee (2003), organizations are evolving from value chain thinking originally presented by Porter (1985). Under this approach, the networking activities are perceived as a linear process, where the value added is created by partners acting one after another instead of engaging in a multi-layered collaboration activities. Due to the nature of the linear process of the creation of products, these organizations do not have to open their boundaries and/or engage in intense knowledge sharing activities with other partners.

However, the chosen approach towards cooperation did not seem to bring enough synergistic effects and/or competitive advantages to its members. To address this challenge, new types of networks, the so-called value networks, emerged. In these networks, value creation is more usually based on knowledge and information than physical products (Kothandaraman & Wilson, 2001). Such organizations are increasingly relying on knowledge assets and learning processes that are situated outside their boundaries (Swart et al., 2011 p. 372-373) and their members seem to be more willing to engage in active cooperation with other organizations within the network. Thus, where organizations were once closed and remiss to actively engage in collaboration with others, today, they are increasingly seeking to increase their profitability, competitiveness and/or innovation capacity via multifaceted networking activities. This, in turn, requires multiple participants in order to create a net of weak ties (Granovetter, 1983) engaging multidimensional interaction processes (Borgatti & Foster, 2003).

There are several different stances that could be taken when investigating and writing about networks. One of them suggests that networks can be understood through logic and mathematics (the structural approach), where the other one implies that networks are socially constructed and therefore must be explored as fluid and shifting (the content based perspective). We will briefly present some ideas from both campuses.

The structural approach campus

The authors adopting this view perceive the network as somewhat static and seek to ‘capture’ its parts in order to make sense of it. The roots of the approach undoubtedly steam from the rationalistic line of thought.

For instance, there are numerous studies that adopt the structural approach and technical or statistical techniques when analysing (social) networks. As it is argued by Borgatti and Halgin (2011), “the network is not only a sociological construct but also a mathematical object. As a result, it is sometimes possible to use the machinery of mathematics to generate new theory” (p. 1174). A more vivid explanation of a network as a concept is sometimes illustrated by adopting a metaphor of a fish net, making it easier to describe the overall structure, pattern and shape of the network (van Loost, 2006).

Some very influential work in the model-based theorizing of networks is provided by Granovetter (1973, 1983) and Burt, (1992). For these authors, “a network consists of a set of actors or nodes along with a set of ties (...) that link them” (Borgatti and Halgin, 2011, p. 1169). Granovetter (1983) suggests that individuals with more, but weaker ties will have access to more novel ideas in comparison to the ones that do not: “Individuals with few weak ties will be deprived of information from distant parts of the social system (...). Social systems lacking in weak ties will be fragmented and incoherent” (p. 202). The ties between several nodes are called “bridges”. The theory proved to be very popular and thus started to be applied at group and interorganizational levels (Granovetter, 1983; Borgatti and Halgin, 2011; Gulati et al., 2011).

Burt’s structural holes theory of social capital (1992) is mainly “concerned with ego networks: the clouds of nodes surrounding a given node, along with all the ties among them” (Borgatti and Halgin, 2011, p.1171), the node being an actor or a group of actors in a network. This theory stresses the importance of the ties that “enables groups of nodes to act as a single node, often with greater capabilities” (Borgatti and Halgin, 2011, 2010, p.1174). In this sense, the theory of social capital is in line with Granovetter’s theory of strength of weak ties, as the lack of ties with other parts of the network would isolate the node from the other parts of the network.

Gulati et al. (2011) propose their own model on “explaining how network resources contribute to organizational performance” (p. 207). They argue that this model dives deeper than a simple notion of ties and that it should be understood as a complex of three underlying mechanisms: reach, richness, and receptivity, where reach is the „extent to which an organization’s network connects it to diverse and distant partners, richness represents the potential value of the resources available to the organization through its ties to partners and receptivity denotes the extent to which the organization can access and channel network resources across interorganizational boundaries“ (Gulati et al., 2011, 207). The authors suggest that the combination of these mechanisms can illustrate the benefits that the organization can gain from a particular network.

These and some other ideas from the structural approach campus inevitably provided valuable insights into networks research. However, the members of this structural approach campus perceive the network as a static mechanism instead of an entity that is in an ever-going flux, interpreted and created by its members. Moreover, some scholars argue that “network analysts seem to have become increasingly reluctant to many basic substantive aspects of social connectivity and to theoretical issues that are germane to relationships and networks” (Azarian. R., 2010, p. 324). Thus, the structural perspective is criticized as limiting the social relations research and missing out on the

insights that a more content-based perspective could provide (Gulati et al., 2011; Smith-Doerr and Powell, 2005; Azarian, 2010).

In an attempt to avoid such criticism, we will adopt *the socio-constructivist stance* and provide insights into network theorizing, more precisely context sensitivity, embeddedness and implications on interorganizational network research.

Contextual sensitivity: the social embeddedness perspective

There are several authors that draw attention to the importance of *contextual sensitivity* in networks. Perhaps because attempts to draw research on social constructs as if they are operating in a vacuum would result in missing out on valuable information or coming up with false results. As Gulati et al. (2011) vividly argues “research focused solely on network structure or on the quality of ties has offered incomplete interpretations at best and misleading recommendations at worst” (p. 220). In order to present deeper insights into network research, we believe that the context of networks must be taken into account. We perceive “embeddedness” as the interrelation of the network and its external environment.

Scholars that have noticed the lack of research on *embeddedness* of networks have tried to stress the importance of the subject. For instance, Gulati et al. (2011) notes: “the social embeddedness perspective holds that the context of social relationships in which actors are embedded influences organizational behaviour and economic outcomes” (p. 209). Lacking the contextual sensitivity or neglecting the importance of embeddedness results in the impossibility to specify actor’s notions. Such attempt “lacks the real stuff of social connectivity and is bereft of the actual content of what connects the involved actors to one another” (Azarian, 2010, p. 332). However, the contextual sensitivity approach is only paving its way to network research.

Implications on interorganizational network research

As there were many attempts to investigate the dynamics of individual relations in interpersonal networks, there is a growing body of research with a similar approach on organizations in interorganizational networks (Gulati et al., 2011). Even though the idea is plausible, there are possible threats to be addressed, for instance, simply mixing up the terms ‘interpersonal’ and ‘interorganizational’ and their attributes. As Gulati et al. argues, “although social ties are often intertwined with business relationships, they are not interchangeable. Furthermore, “the content of interpersonal ties differs from that of interorganizational ties” (Gulati et al., 2011, p. 220). For instance, interpersonal networks may be based purely on affects and affections. In contrast,

organizations usually have material goals when engaging in networking activities or when it comes to their approach to social relations. Emirbayer and Goodwin (1994) have termed this utilitarian approach “structuralist instrumentalism” (p. 1428).

As some authors argue that “the structure of a network consists not so much of the visible actors themselves, but of the relationships and interdependencies between actors, and the interpretation of what was happening in a network or a complete view of a company’s position within it is likely to involve some wild imagination” (Ford and Mouzas, 2008, p. 66).

Thus, the researchers of interorganizational networks should not neglect is the importance of actor’s perceptions of the environment of the network.

Knowledge sharing in interorganizational networks

One of the key advantages of networks is the possibility to share knowledge (Alvesson, 2004; Rangachari 2009). Knowledge sharing is a key factor for enhancing organizational recourses, innovativeness, competitive advantage (Castells, 1996; Porter, 2000). It should not come as a surprise, then, that knowledge sharing has earned great interest from social science researchers (Alvesson, 2004; Inkpen and Tsang, 2005; Nonaka, 1994; Tsai and Ghoshal, 1998). For instance, authors study the value of knowledge sharing (Grant, 1996; Koulikov, 2011; Powell at al., 1996), the necessary conditions for sharing knowledge (Hardy et al., 2003; Yanfei, 2009). However, these studies cannot provide the whole picture of knowledge sharing in interorganizational networks. Thus, in this section we will present some of the existing theories about knowledge and knowledge sharing.

Some insights on the definition of knowledge

The way we perceive knowledge might determine how we construct understanding on knowledge sharing (Alvesson, 2004). Thus, before we start our discussion about knowledge sharing, we will shortly present a few ideas proposed by scholars about knowledge itself.

The concept of knowledge might be separated by two leading approaches. First, Western or traditional approaches emphasize the “hard” nature of knowledge, suggesting it can be captured and stored in databases or that it is based on explicit, systematic data (Gourlay, 2006). This means that knowledge gets some substance: organization can capture, exchange, enhance or reduce it. Following this approach, knowledge is quite commonly perceived as one of the main competitive advantages. Therefore, companies pursue to accelerate their performance not only by taking

successful position in a market, but also gaining more novel knowledge (Grant, 1996). One of the common ideas that organizational studies propose is the perception of knowledge as a company's resource (Beeby and Booth, 2000).

The other approach, proposed by Nonaka (1994), defines knowledge as “justified true belief” (p. 15), where the emphasis from the ‘hard’ nature of knowledge diverges to the ‘belief’ of individual as knowledge carrier. The main difference between these two approaches is that the first one tends to separate knowledge from the human being, while the second perceives humans as main knowledge carriers and developers (Alvesson, 2004).

However, trying to define knowledge is problematic. For instance, knowledge tends to be confused with information and competences, but some people mix ‘competence’ attributes with skills and talents, while the others might perceive it as an attribute of tacit knowledge (Alvesson, 2004). Moreover, Alvesson (2004) further argues that knowledge is a mix of experiences, values and insights (p. 43), which brings even more complexity to knowledge definition. Thus, we shall not seek to come up with a “true” definition of knowledge.

Concept of knowledge sharing

The next step that emerges in our discussion streams from confusion, namely: what really defines knowledge sharing and how is it related to other concepts, such as knowledge transfer, knowledge creation, and knowledge exchange.

Urso et al. (2009) define knowledge transfer as transmission of knowledge among the different actors. For instance, in the academic context knowledge transfer is explained as knowledge transmitted from university to wider society which is the main user of it, or more precisely “a process aimed at increasing cultural, educational and social benefits for society” (Urso et al., 2009, p. 353-354). Thus, knowledge transfer might be understood as one-way action, when knowledge is transmitted from point A to B. On the other hand, concept of knowledge exchange is coming from the social exchange theory, which states that an individual will be willing to share as much as she/he is expecting to get back (Wang and Noe, 2010). Thus, knowledge exchange is perceived as a complex notion where knowledge sharing and knowledge seeking are integrated (Wang and Noe, 2010).

Finally, knowledge creation enables to sustain innovation (Aalst, 2009, p. 262). Thus, in comparison with knowledge sharing, knowledge creation adds additional dimensions of knowledge

transformation: knowledge is shared to develop it. Nevertheless, to transform knowledge one first and foremost has to engage in its sharing activities.

While previous paragraphs proposed that knowledge sharing might be related with knowledge transfer, exchange and creation, we tend to avoid the additional discussion prevailing from different discourses and define knowledge sharing as unifying concept.

Knowledge sharing in interorganizational networks

Since one of our purposes of this thesis is to deepen existing understanding of knowledge sharing in interorganizational networks, we will shortly review what was already presented to be of great value among the work of other scholars. However, in this section we do not seek to review all existing literature on knowledge sharing in interorganizational networks, but rather present the studies we found most aligned with our empirical research.

Benefits and risks of knowledge sharing

Interorganizational networks are seen as catalysers which enable to share knowledge more efficiently through process of collaboration. Hardy et al. (2003) proposes that collaboration is “a cooperative, interorganizational relationship that is negotiated in an on-going communicative process, and which relies on neither market nor hierarchical mechanisms of control” (p. 323). In addition, he summarizes that collaboration might be useful for creation of new knowledge as well as sharing existing knowledge (Hardy et al., 2003). Or, in other words, “sources of innovation do not reside exclusively within firms; instead, they are commonly found in the interstices between firms, universities, research laboratories, suppliers and customers” (Powell et al., 1996, p. 121). Thus, another benefit of knowledge sharing is perceived as ways to be more innovative, which is a crucial factor for enhancing competitiveness and market position as well as fulfil the main aims of business (Augier et al., 1999; Porter, 2000).

However, the dark side of things should not be neglected. Koulikov (2011) states that companies tend to perceive knowledge sharing as time and cost consuming. Moreover, knowledge sharing might not produce fast tangible results which, in turn, might influence failure to acknowledging the importance of knowledge sharing (Koulikov, 2011).

The social capital theory

To be able to influence knowledge sharing practices in interorganizational networks, it is important to understand what the main stimuli and obstacles for knowledge sharing are. We will present the

social capital theory by Tsai and Ghoshal (1998) which proposes that knowledge sharing is influenced in three main dimensions: structural, cognitive and relational.

Structural dimension

For knowledge sharing to appear the social ties should be developed as channels which enable knowledge transfer from sender to receiver (Tsai and Ghoshal, 1998). These channels might be divided in two basic groups: systematic and interpersonal approaches to knowledge sharing (Alvesson, 2004; McKinley, 2002). Also, knowledge brokering might be perceived as way to create a tie between different members of the networks. (Meyer, 2010)

Adopting the systematic approach would mean to analyse knowledge sharing through the lens of virtual or information technologies (IT). From objectivist point of view “information technology systems can be used for transferring explicit knowledge between people with the full sense and meaning of it remaining fixed and unmodified in the process and with no aspect of it being ‘lost’ in the transfer” (Hislop, 2002). However, knowledge sharing through virtual systems requires knowledge to be explicit (Alvesson, 2004), which can be shortly explained as “transmittable, formal and systematic language” (Nonaka, 1994, p. 16). This approach is criticized for “hardening” perception to knowledge sharing, or, in other words, diminishing it to data or information (Alvesson, 2004). Thus, an attempt to force knowledge sharing through IT might mean failure of knowledge sharing initiatives (Currie and Kerrin, 2004; Koulikov, 2011).

Opposite to the systematic approach, the interpersonal approach to knowledge sharing suggests that knowledge is social by its nature and cannot be distinguished from individual (Alvesson and Karreman, 2001; Currie and Kerrin, 2004). For instance, McKinlay (2002) claims that knowledge might be hidden in working practices and routines and cannot be simply detached and codified. Moreover, Currie and Kerrin (2004) stress the importance of active communication which strongly contributes to new knowledge creation. Nonaka (1994) enhances the importance of tacit knowledge as related to “personal quality” (p. 16) and argues that new knowledge is produced when explicit and tacit knowledge are interconnected. Thus, simplifying knowledge might be perceived as limiting its’ value.

Knowledge brokering might also be mentioned as a way to create channels between different actors. “Knowledge brokers can be understood as persons or organizations that facilitate the creation, sharing, and use of knowledge” (Meyer, 2010, p. 119). Knowledge brokers are one of the consequences of knowledge institutionalization and rising interest to protect it (Meyer, 2010).

However, they are also perceived as a possibility to commercialize knowledge. For instance, ‘Idea’ company might be given as an example of knowledge brokering, which, by mixing the ideas from research, design and business spheres helps to create new and innovative products.

Cognitive dimension

Getting back to knowledge sharing dimensions proposed by Tsai and Ghoshal (1998), shared meaning and understanding are perceived as crucial to knowledge sharing in organizations and networks. There are different ways to create shared meanings and understandings, but some of the most popular ones are through organizational culture, identity construction, or control mechanisms (Albert et al. 2000, Alvesson, 2001; Alvesson, 2004). However, the complexity of networks might create new challenges for creation of a shared meaning. For instance, Wagner and Buko (2005) propose that knowledge sharing between profit-based and academic institutions are not significantly effective (Wagner and Buko, 2005) and argue that knowledge sharing fails because of “different languages” of the parties, since profit-based organizations are oriented in the short term success, while academic institutions – to long term researches (Wagner and Buko, 2005). The ideas stated suggest that assuring the shared meaning in interorganizational networks might be a much bigger challenge in comparison to “simple” organizational structures.

Relational dimension

Finally, relational dimension mainly relies on developing trust among different actors (Tsai and Ghoshal, 1998). To be more precise, Abrams et al. (2003) define trust as “the willingness of a party to be vulnerable” and explain that trust overall increases knowledge sharing, makes it less costly and assures that knowledge gained will be better practically applied (p. 65). In addition, Yanfei (2009) suggests that organizations should build mechanisms increasing trust. The scholar argues that trust has an important role in increasing “organizational socialization and individual’s creative behaviour” (Yanfei, 2009, p. 5). In interorganizational networks trust is gained through frequent interaction and long-term relations (Inkpen and Tsang, 2005; Zboralski, 2009). Scholars argue that frequency creates a common language and simplify the communication (Zboralski, 2009) while the time dimension makes interorganizational relations more open and might “decrease their (the members of the network) efforts to protect their knowledge and skills” (Inkpen and Tsang, 2005, p. 154).

However, all these three dimensions – structural, cognitive and relational – should not be applied separate, but deeply interconnected (Tsai and Ghoshal, 1998). For instance, active interaction in the

ties (structural dimension) might increase shared understanding of common problems or create a common language (cognitive dimension) which, in turn, will determine more efficient collaboration. Moreover, interaction and shared language together is a background for building trust among the partners, thus missing attention to one of these dimensions might have implications for actors' behaviour related to the other dimensions, for instance, their decision to share knowledge or not (Tsai and Ghoshal, 1998).

Studying knowledge sharing in interorganizational networks

As we already mentioned, knowledge sharing has received great attention from contemporary scholars; however, some of the aspects might be additionally addressed in future studies. For instance, the social capital theory proposed by Tsai and Ghoshal (1998) is applied in interorganizational networks' studies by Inkpen and Tsang (2005). However, scholars argue that structural, cognitive and relational dimensions cannot be applied blindly in networks investigation (Inkpen and Tsang, 2005). They propose that the type of network and contextual factors might modify understanding of social capital theory (Inkpen and Tsang, 2005). Scholars compare intraorganizational networks, strategic alliances and industrial districts. While a common goal is one of the basic conditions in cognitive dimension (Tsai and Ghoshal, 1998), scholars argue that only intraorganizational networks share common goals while the strategic alliances might have compatible goals and industrial district could not have common goals at all (Inkpen and Tsang, 2005, p. 152). Thus, generalized theoretical assumption cannot be blindly applied; network research should be embedded in context.

III. METHODS AND METHODOLOGY

In this section we will explain the philosophical and methodological background of this empirical research. Further, we will provide details regarding our research sites and methods. We will conclude by explaining how we managed to be reflexive throughout the process of our research.

Ontological and epistemological standpoints

Perhaps due to the prevailing rationalistic standpoints in empirical research, the role of the researcher has been long neglected. Researchers have been seen as a tool, rather than intermediate in the knowledge creation process (Sandberg and Targama, 2007). However, many contemporary scholars argue that it is important to identify the paradigm and methodological approach that stand behind any research, not only providing some guidance for the reader, but benefiting the researcher as well (Alvesson and Sköldberg, 2009; Sandberg and Targama, 2007). This is due to the fact that the philosophical paradigm and methodological assumptions contribute to explaining why a researcher has chosen these particular interpretations to empirical data. It influences the construction of arguments and helps to assure the overall quality of the study (Easterby-Smith et al., 2008).

Interpretations being applied in our empirical research stem from a social constructionism paradigm. We perceive nature of being dependent on the individuals that establishes it (Easterby-Smith et al., 2008). Or, to put it in other words, we believe that reality is created in the process of sense-making (Sandberg and Targama, 2007). This approach contributes to our research since we seek to enhance the existing understanding of interorganizational networks by highlighting the multiple realities that surround them.

From the epistemological point of view, we rely on the assumption that knowledge is socially constructed (Sandberg and Targama, 2007). We also believe that there is no such thing as “one objective truth”; instead, we take the stance that truth is interpreted in a subjective context and in a subjective manner (Sandberg and Targama, 2007). Thus, our aim to examine knowledge sharing in interorganizational networks should benefit from the social constructionism paradigm, because it should help us in gaining some better understanding on how individuals construct their reality and

make sense of it (Easterby-Smith et al., 2008). Moreover, since our research is implemented on different context-embedded sites, the constructionism paradigm might be relevant to approach their contextual and cultural differences (Easterby-Smith et al., 2008).

Thus, drawing from the epistemological and ontological assumptions of our research, we shall adopt the interpretive approach to investigate how individuals interpret social world and construct the meaning (Merriam, 2002). We have chosen one of the interpretive methods, the qualitative interview study method, as the main one for our empirical study. We believe that adaptation of the qualitative interview study method will allow us to understand and shed some light on these interpretations. In order to collect our data we have applied these three methods:

1. Semi-structured interviews
2. Observations
3. Focus group

As for our data analysis, in order to identify the main themes, we have applied methods proposed by Ryan and Bernard (2002), such as: searching for similarities and differences, theory-related material, and metaphors. These methods have proven to be of great value, especially when examining the differences and similarities of the interorganizational networks' contexts, as perceived by their members. Thus, we will further on present the four research sites and explain these research methods in depth.

The general idea behind the network

The European Institute of Innovation and Technology (the EIT) has designated its three first Knowledge and Innovation Communities (KICs) in December 2009. These are the Climate KIC (Climate Change), EIT ICT Labs (Information and Communication Technologies) and the KIC InnoEnergy (Sustainable Energy) (Appendix 1). The main purpose of these Knowledge and Innovation Communities is to address the societal challenges in the fields of Climate, ICT and Energy and increase the innovation capacity in Europe. KICs consist of managerial body (people administrating implementation of KIC activities) and partners: organizations from business, higher education and research and technology fields. These three pools of actors are called “the three pillars of the knowledge triangle”. Integration of these three pillars is a background for any activity in KICs. For instance, innovation projects implemented by research and business organizations include PhD students, thus including representatives from all pillars. Moreover, the KICs were

established for a longer period of time, in comparison to more traditional networks, with “a horizon of 7 to 15 years, but with short-, mid- and long terms objectives that follow the mission of the KIC” (Knowledge and Innovation communities, EIT Official website).

The KICs have established their co-location centres (CLCs) as the locations where the KIC partners can meet and collaborate via face-to-face interaction. These CLCs are seen as the parts of the network where “people from organizations with different roles in the innovation chain will foster knowledge transfer in the most effective way” (Knowledge and Innovation communities, EIT Official website). Each KIC has five to six CLCs. The Climate KIC is the only of the KICs that, in addition to the CLCs, has six Regional Implementation and Innovation Communities (the RICs).

We got familiar with EIT-KICs structure after a presentation in Lund’s University in the middle of December. Barbie, the representative of the structural EIT network (the EIT, the KICs, the CLCs and the RICs all together) gave a presentation about the possibility to write a Master Thesis Project with EIT and apply for scholarships. Thus, in the beginning of January we sent our application and at the end of the month we were awarded with the possibility to implement our Master Thesis research in any institution related to the EIT. We decided to investigate all four structural levels of network: EIT, KIC, CLC and RIC (Appendix 3). We were proposed to visit EIT Headquarters, Climate-KIC and its’ UK Branch in London, CLC PolandPlus representing KIC InnoEnergy and a RIC established in central Hungary. We started our research in the EIT Headquarters on 26th of March, and finished it on 20th of April in the RIC Central Hungary.

Thus further on, we will hereby elaborate on each part of this complex network, by showing what our research consisted of.

The EIT

We started our research in EIT Headquarters based in Budapest, Hungary. Because of its’ mixed and complex structure the purpose of our first visit was to investigate how all sections of this structure work together. We have spent two working days in the headquarters. During these, we have had the opportunity to conduct four semi-structured interviews with four EIT Officers representing different thematic areas: projects related to KICs, communication and knowledge management. All interviews took around one hour. Interviews were organized by our contact person, Barbie, and all of them met our requirement that interviewees have to be actively involved in relations with the KICs and that they would be able provide some insights about overall structure,

existing challenges, knowledge management and knowledge sharing within the EIT and the other structural units. Interviewees were asked questions about their work, daily tasks, intensity of collaboration with the KICs, and others. Also, broader questions such as ‘what is knowledge?’, ‘how do you see knowledge is shared in KICs?’ were inquired.

We found that the EIT pictures relations between EIT and KICs as a partnership in which both sides are working for the same goal and collaborate in a way to enhance innovation in Europe. However, managers and partners from different KICs perceived this structure more as a top-down hierarchy. Thus we chosen the metaphor of a Solar system which we think represents both: partnership between EIT and KICs and hierarchical position of EIT as ‘sun over the planets’.

The main message that we got from officers was that collaboration between the EIT and the KICs is mostly based on administrative ways of communication through reports and other official information, while closer and less formal collaboration would also be very valuable. The officers admitted that, mostly due to the amount of work at hand, they are unable to travel and see the progress of KICs and/or CLCs (and RIC, in the case of Climate Officer) for themselves, which might be an obstacle for closer and more efficient collaboration. Even though the interviews were highly useful for the overall view of the structural network, we have realized that the KICs and the CLCs are the places where the real networking activities take place. Thus, we have asked to adjust our travel schedule to spend as much time in the Climate KIC UK and the CLC Poland Plus, one of the CLCs of the KIC InnoEnergy. Our plan to visit the RIC Central Hungary did not change.

Climate KIC UK

The Climate KIC UK is one of the three KICs established after the call for applications that the EIT announced in 2009. This particular network consists of around 108 partners, representing the three innovation pillars, namely organizations from business, research and higher education fields. Climate-KIC legal form is a non-profit association. Climate-KIC consists of five Co-locations Centres (CLCs) established in London, Paris, Zurich, Berlin, Utrecht and six Region Centres (RICs) in UK, Spain, Hungary, Germany, Poland and Italy. On the 2-5th of August, 2012, we visited part of the leading KIC administration located in London and partners from CLC UK. We were fortunate enough to conduct *six* interviews with its management team, CEO included, *four* representatives of KICs partner organizations, four students, two of them also represented the newly established KIC Alumni organization. Overall – fourteen interviews. Both of us were involved in follow up

questioning and interviews were led in more conversational manner rather than strict question-answer session.

While each interview was a new story and in a way different, we attempted to maintain similar interview structure and ask basic questions which were prepared in advance. Conducted interviews complies with Kvale and Brinkmann (2009) proposed concept of “social production of knowledge” (p. 17) and might be summarized as “contextual, linguistic, narrative and pragmatic” (p. 18). Interviews conducted were based on an interpretive perspective, maintaining an open approach to what have been said and leaving space for interviewees participants to construct their answers in their own way which created an environment for more authentic insights to appear. For instance, these are some examples of questions which were asked to interviewees:

- *How would you describe knowledge? Provide a definition.*
- *How is knowledge shared within the KIC? What is necessary for it to be shared?*
- *Provide an example of a successful act of sharing knowledge within the KIC.*

In addition to the interviews, we had a possibility to observe a Kick-Off meeting in Climate-KIC. We have participated in the meeting on for two half days. In qualitative research, observations are used as a method to analyse behaviour (Easterby-Smith et al., 2008). Thus, the ability to observe actual knowledge sharing among diverse partners (entrepreneurs and academics) enriched our research with some authentic insights. Also we conducted a follow-up interview with the participants of the before mentioned Kick-Off meeting. Thus, during this interview we additionally asked questions like:

- *What are your thoughts about this meeting?*
- *What do you see was positive/negative about the meeting?*
- *Would you call this meeting as an example of knowledge sharing? Why?*

It has enriched the research with “real-life” related insights which created a possibility to compare our interpretations with the perceptions of other participants.

The most valuable insights from this site’s managerial staff, partners and students concerning our research topic will be provided in the Empirical research section.

CLC Poland Plus

CLC PolandPlus was the third stop during our research. CLC PolandPlus is the Polish branch of KIC InnoEnergy. KIC InnoEnergy is a public private company established after the EIT called for proposals. It consists of six Co-location Centres which are divided not only by geographical location (Sweden, Iberia (Barcelona and Lisbon), PolandPlus, Germany, Benelux and Alps Valley) but also by thematic fields. For instance, CLC PolandPlus is oriented towards clean coal technologies.

CLC Poland Plus is a profit-based company established by the biggest business companies, research institutes and universities in Polish Energy sector. During six working days of our visit, we had the possibility to conduct semi-structured interviews with two representatives of these partners from two different universities and six interviews with the managerial staff of the CLC Poland Plus. Overall – eight interviews. Even though the interviews usually lasted up to an hour, the interviews with the leading manager of the CLC lasted for more than five hours in total. These interviews could be partly called presentations because they also included in-depth explanations of KIC InnoEnergy and CLC PolandPlus, presentations on existing projects and other topics. For interviews with other partners and managers we applied the same scheme and structure which was described before in the “Climate KIC UK” section.

In addition to the interviews, we had a possibility to observe two meetings. First, a presentation for project partners from one of the innovation projects. The second one was a project implementation meeting. Observations of the meetings were a great possibility to spot the practical knowledge sharing process. We use these observations to illustrate interpretations related to knowledge sharing practices, thus we will describe them in detail in the chapter four. Moreover, after the first event we had a possibility to conduct a follow-up interview with managers who were leading this presentation and discuss it.

Finally, during our visit in Climate KIC UK we observed that students are more open and interactive when they had the possibility to discuss some ideas amongst them instead being asked certain questions in solitude. Thus, in CLC PolandPlus we decided to apply the focus group method instead of simple interviews and invite three students to discuss knowledge sharing in this particular network. As Kvale and Brinkmann (2009) claim the main purpose of focus groups method is to achieve more spontaneous and emotional answers than in one-to-one interview, especially when

phenomenon is new to participants. We were positively surprised how this method helped to facilitate an open discussion and provided deeper insights about the topic.

The most valuable insights from this site's managerial staff, partners and students concerning our research topic will be provided in the Empirical Research section. It is important to mention, that while interviews were conducted in CLC PolandPlus, the insights we later use in empirical research are made all over KIC InnoEnergy.

The RIC Central Hungary

The Regional innovation and implementation communities (RICs) are special structural units established by Climate-KIC as test grounds for innovations created in the KIC. RICs are special for their close cooperation with local governments. Thus, this way, Climate-KIC manages to integrate the fourth pillar to the KIC's system –the public sector. Our last stop in this research "Odyssey" was RIC located in one of the Universities close to Budapest, in Godollo, Hungary. The main purpose of the RIC is to *ground* the innovations and test them in the "real life". For instance, RIC central Hungary coordinates a possibility to test a bicycle system (created in one of the CLCs) in Budapest City. While RIC central Hungary is a small managerial unit that has only three official partners, it is an influential mediator between CLCs and local authorities.

We had a possibility to conduct three interviews in the RIC: one with the leading manager and two with the partner representatives. While this was not enough for in-depth analysis related to the knowledge sharing, these meeting also gave deeper understanding about RICs' role in Climate-KIC system and overall EIT-KIC structure.

Validity of findings

Trustworthiness, credibility, and authenticity are the hallmarks of good empirical research (Alvesson and Sköldbberg, 2009; Creswell, 2003). Since our research is built on interpretive approaches to qualitative study, the role of the researcher becomes very important. The researcher as a subjective intermediate between data and the results is quite vulnerable when it comes to assuring the credibility of the research. However, there are number of strategies and methods to assure accuracy of the qualitative study (Beck, 2009; Clisset, 2008; Creswell, 2003). Thus, in this section we will shortly discuss how we secured the validity of our findings during our research and provide them in our empirical data analysis.

We realize that qualitative research cannot avoid *biases* coming from both participants' and researchers' perspectives. Since majority of our interviews were organized by site's managers and were conducted in their premises we cannot neglect the possibility that interviewees were less critical due to the friendly relationships we established. However, we perceive that our interviewees were honest about the topics discussed and we were critical in examining those interviews which reminded "marketing presentations".

On the other hand, we had the possibility to apply *member-checking* as it is described by Creswell (2003). After the observations we had a number of follow-up interviews where we could compare our impressions with participant's insights. Moreover, we could check some factual information about the observations which were unclear to us, and also make sense of perceptions we got and interpretations we made.

While we spent some days in each site, we tend to use that time for gaining some ethnographic insights as much as possible (Creswell, 2003). For instance, we asked for office space in the sites, thus we could hold some informal conversations or observe day-to-day activities rather than just conducting interviews. This also helped gain more depth for the interpretations we make about the knowledge sharing in these networks.

Finally, we resolved 'distance and dependency' (Alvesson and Sköldbberg, 2009, p. 112) issues of sources because we had a possibility to meet the people in person. This way we could better interpret which interviews were more open and which were not. Moreover, we avoided intermediates between the researcher and participants, thus we can provide primary interpretations rather than "interpretations of interpretations".

Reflexive approach to the research

As Cassell (2005) claims, reflexivity should be a part of every research process. It helps to approach problems in a new way, and withdraw already existing stereotypical understandings (Alvesson and Sköldbberg, 2009). Being reflexive is being self-aware of what you are doing and why (Kuhn, 2006). Through a process of constant reflection or getting back to the primary ideas, the researcher can facilitate his/her interpretations with new approaches (Alvesson and Sköldbberg, 2009).

For instance, we had professional biases and we knew there is a risk that they could influence our interpretations as the both of us were working in a consultancy sector related to European

institutions and their support mechanisms. Thus, before we started the research we already had some opinion about the sites we will be visiting. However, we had the possibility to start our research in EIT in a similar European institution and create new experiences and understandings how this concrete system works. This way, we could withdraw our preunderstanding (Alvesson and Sköldbberg, 2009) and build up our interpretations on these new assumptions.

In addition, our former education (bachelor studies) was built on positivistic philosophical tradition. And even though we now rely on constructionist epistemology and ontology, these practices from past education still influences the way we think. For instance, it feels like it would be easier to construct a hypothesis before we start our research or try to prove theories proposed by other scholars. However, the fact that there are two of us and we have discussed our possible biases before and during the research process, allows us to manage their manifestation much better. Thus, being reflexive upon our own approach and following each other's approaches allowed us in turn to be much more reflexive as a team.

Finally, we tended to stay reflexive through all the data analysis process. We looked through our data number of times. Firstly keeping totally open mind even for the new topics to appear. After that, we reformulated our research questions to get a new, as we think, more creative approach to the problem than the one which we raised before the research has started. And only then, we started picking the themes and discussing them more in depth.

IV. EMPIRICAL ANALYSIS

Nobody lives in a vacuum. Our social lives are crazy places and, like it or not, we are affected by other social beings. Just like social actors are not isolated from their surroundings, interorganizational networks are not isolated from their market, industry, or culture (Azarian, 2010; Gulati et al., 2011). All these influences affect behaviour inside the network (Inkpen and Tsang, 2005). In the first part of our analysis we will discuss interviewees' perceptions of the context (external environment) and content (internal environment) of two interorganizational networks, the Climate-KIC and KIC InnoEnergy. By context we mean perceptions of sector, industry, culture of collaboration, where the elements of the content might be perceptions toward the role of network, main goals, values, and actor interdependencies (Heranz, 2010).

In the second part of our empirical analysis we will present how knowledge sharing is perceived by members of two interorganizational networks. To be more precise, we will study how people define knowledge, how they construct their approach to knowledge sharing, what their reasoning on stimuli and obstacles for knowledge sharing are.

We think it is important to study Climate-KIC and KIC InnoEnergy separately, because while they both were established under the same umbrella of EIT and in accordance to its formal requirements, there is great difference of how these networks have developed and how they are perceived by their members. We are applying an interpretive approach and thus rely on our interviewees' perceptions, which make the research more subjective and contextual (Sandberg, 2005; Inkpen and Tsang, 2005). As Inkpen and Tsang (2005) notes, contextualizing the empirical research makes the interpretations more accurate and makes the discussion on conceptual differences of networks possible.

Before we start...

Perhaps due to the fact that the partner organizations' representatives are all from their organizations' top management, an interesting effect in their discourses was spotted. All the people interviewed at least part of the time were talking from their organization's perspective, especially when it came to relations with the KIC and other organizations within or outside its network. This means that individuals sometimes did not give their personal approach, but were expressing the

norms, goals and ideas proposed by the organizations they represent. For instance, when talking about a recent Kick-Off meeting he was participating in (one of the KIC events), George takes his ‘SME hat’ to explain his perceptions:

“If I was looking with my SME hat on exclusively, I’d have to question whether it was really worthwhile to have two days of company time spent on those two days in a meeting. I would probably decide that it wasn’t”.

George, Partner, Climate-KIC

We can see both individual and social identities in George’s discourse as suggested by Alvesson (2004). The scholar would also stress the importance to acknowledge both of them. Moreover, Gulati et al. (2011) states that interpersonal relations differ from interorganizational ones and that the two discourses should not be mixed. Thus, drawing from these assumptions, we acknowledge the importance to present perceptions of individuals which stem from their organizational stand points and can provide deeper insights into the inter-organizational relations within a network. This helps us to shed some light on the interorganizational level of the network.

Perceptions of the external environment

We already mentioned that the contextual embeddedness of the networks has an impact on the way networks are organized. In other words, networks are trying to address the external challenges by adjusting their structure, goals or by other means that change the “insides” of the network. As these internal aspects of networks are often said to be ambiguous, opaque and dynamic on their own (Möller, 2010), trying to get a grip of them while neglecting the impact of the external environment would diminish the probability of success of such efforts.

Thus, we will further analyse how individuals working in two different, yet connected networks (the Climate-KIC UK and KIC InnoEnergy) perceive their external environment. We will use data from the interviews with the staff, partner and student representatives of the Climate-KIC UK and CLC PolandPlus.

Climate KIC UK

Even though none of our designated interview questions explicitly mentioned external conditions, our respondents have stressed the significance of the context in which the organization is embedded very early on.

There seemed to be a common discourse on the external environment between the members of KIC's management team and its partners. For instance:

“[...] there's climate change, where there's not a single sector at all. So a lot of what we're doing is defining the challenges and then defining the sector, creating the sector even”.

Maria, Manager, Climate-KIC

“It's potentially diffused, a lot of different angles on the things. I said, actually, some of this just stems from the issue it's trying to address which is climate change, you know, it is pretty big problem, with the whole different dimensions or possible ways to elephant traps or rabbit holes. It's a huge huge space, so that's a challenge.[...] Frankly, I think, the energy problem is probably a lot easier to frame”.

George, Partner, Climate-KIC

These quotes only illustrate the opinions of other respondents. Overall, the macro context was pictured both as a challenge and an opportunity, forcing the organization to be more creative. There were quite a few notions about the need to address the cultural differences as well. Tony, partner, expressed his opinion about one of the streams in the KIC, the entrepreneurship stream:

“So, firstly you've got to have some centralized coordination. But you will allow things to happen at the local level in the course with the local customs [...]. We're probably most similar to the Dutch. But there are very different approaches and you have to respect that. You can't say “No, you will all operate with the same approach!” It just won't work on the local level. At the same time, it is a real opportunity for us to learn from each other”.

Tony, Partner, Climate KIC

As we can see from this quote, there is not only the non-existent market that has impact on the way the network operates. The cultural differences in such complex, geographically diverse organization are also taken notion of and are perceived as both a challenge and a possibility, somewhat similar to the ideas expressed about the market.

KIC InnoEnergy

Members of CLC PolandPlus giving their perceptions about KIC InnoEnergy describe the context addressing four main issues: changes in the requirements of the funding system, specifics of the market, ‘playground’ of big players and existing traditions of collaboration.

For instance, Witold, manager of CLC PolandPlus, during one of his more open interviews reflected:

“Brussels’ guys says, “Guys, we don't know how to improve innovation in Europe. So, we are establishing the EIT and EIT will distribute money, and we believe that industry, the big partners in Europe should know how to increase innovation. That is the big change, a difference between FP7 and the EIT”.

Witold, Manager, CLC PolandPlus

Witold explains that the old system expressed through notion of FP7¹ is changed by new system, the ‘EIT system’. Within it, the approach to problem solving in European Union shifts from top-down approach where government dictates the tone, to bottom-up, where industry is asked to propose their suggestions. This change in the European environment is perceived as the main reason why the KIC was established. Other interviewees also acknowledged that this change has indeed influenced how things are perceived and done in KIC.

On the other hand, KIC InnoEnergy is embedded not only in an overall European context but also in a very specific energy sector. Henryk and Ludwik, partners at CLC PolandPlus, outline the characteristics of this industry:

“However, KIC InnoEnergy is operating in a very difficult environment. If KIC would operate in the ICT environment, for me the ICT is perfect for KIC activities. Because it is more soft, let's say. With KIC InnoEnergy, the power generation sector, we have a different situation [...]. You have really to invest. This is an old industry, huge industry, with huge resources. However, also with huge competition, with certain constraints”.

Henryk, Partner, CLC PolandPlus

Similarly, Ludwik, also a partner in the same network as Henryk says:

“Ok, in fact, we work in an area which is. I call this very heavy technology. Because energy has such impact, related to technology, remarkable impact”.

Ludwik, Partner, CLC PolandPlus

Henryk and Ludwik further present the sector as clumsy and inert creature, related to the ‘hard’ technology. Moreover, Henryk enhances problematic nature of energy sector by comparing it with more flexible and very fast developing information and communication sector.

¹ Seventh Framework Programme is a mechanism created by European Commission (EC) to support research and development. Programme is divided to specific programmes representing topics which are supported by the EC. (European Commission: CORDIS, http://cordis.europa.eu/fp7/understand_en.html).

Finally, Witold, in one of this interviews has set a tone that energy industry is something ‘ambitious’: a sector where high involvement and effort is required. Overall, in most of the interviews with different KIC members, the sector was perceived as a challenging issue to address.

Going further, all interviewees claimed that the energy sector is a “playground for the big players”, meaning the industry and universities. However, they do not tell this explicitly, but from stories about collaboration within the KIC one can feel what universities and industry are perceived as the most important. For instance, Ludwik, a partner of CLC PolandPlus speaks how collaboration changed within the KIC:

“The fact that we have industrial partners sitting around the same table is very important to the University. That is very important, because, in fact, in previous time we came to industrial partners and we would say, ”We have such proposal to improve your technology, to do something better!”. And the answer was, “Pufff... we shall see. And we shall phone you, ok?” And, you know, this a very kind reply which in fact means “OK, go out!”. And what is happening now is a question of different approach, in fact, now we are in the same team”.

Ludwik, Partner, CLC PolandPlus

This is only one example from the interview. However, during this one hour talk partner always stressed the importance between industry and university collaboration and did not even mention the role of other organizations, for instance, the SMEs, in this ‘game’. Moreover, manager Mikolaj, while presenting entrepreneurial initiatives in the KIC, stated:

“We are dealing with energy issues. Costly, high-tech, which means it's hard to find any opportunity”.

Mikolaj, Manager, CLC PolandPlus

This shows that, from a manager’s point of view, companies that wish to operate in the field have to be able to overcome issues related to high costs and technology, both of which leave little probability for the small players to survive.

Still, Ludwik also mentioned an existing lack of cooperation between the industry and universities. It is explained through mentality issues that are hidden in understanding of value and national tradition of networking. This proposes that partners have their own specific understanding of collaboration.

As Ludwik and Mikolaj explain:

“It is also very important that mentality is changing now on the both sides. So on our side I mean professors of the University that are starting not only that we have some idea and “they” should adapt, but we have to head to the other side. And it is the same from the industrial partner's side, because they recognized that collaboration with University professors could be fruitful for the company”.

Ludwik, Partner, CLC PolandPlus

“I think it's all in tradition, in cooperation among people. Probably you know, because I think in Latvia you are very similar to us. We love to stay alone, to be independent. It is tradition, we want to do that. It's very interesting to look from a flying plane. When you are flying over the Germany, you can see village, village, village. If you are flying over Poland, you can see house, house, house”.

Mikolaj, Manager, CLC PolandPlus

However, while the overall perceptions on context communicate change, difficult industry, and challenges in collaboration, some of the partners perceive all this as a possibility to become stronger and more influential.

“Brussels people are defining what we need for the 2020 and this is some kind of a top-down approach. With the KIC, we have a down-top approach. We are defining what we need, what we can achieve, with Universities and industry. Maybe it's fuzzy, maybe it's soft, but it's giving a lot of power to the industry and the Universities to define the future, to define themselves. And not only themselves, the Europe”.

Ludwik, Partner, CLC PolandPlus

Summarizing points

Before we take a closer look on the way the networks operate, we want to shortly sum up how participants perceive the external environment of both networks.

The members of the Climate KIC are aware of the magnitude and complexity of the issue the network is trying to address and the challenges it creates. However, they also seemed to share the opinion that these challenges not only have to be addressed, but could as well be treated as a possibility. The need to be creative and the possibility to learn from each other were mentioned.

As for KIC InnoEnergy, members of the network firstly tend to stress such context issues like the changing environment, industry characteristics and tradition of cooperation. While they all are perceived as really challenging, both partners and managers acknowledge that changing context might also be a great possibility for new ways of collaboration. We also do not deny the possibility

that if this research would be implemented in some other Co-location Centre of the KIC InnoEnergy, the interpretations might be different, thus we want to stress that the impressions to context is only from its Polish branch perspective.

We will continue our analysis narrowing the scope from networks' context to content level.

Inside the networks

While in the first section of our analysis we shortly discussed the perceptions on external conditions of the networks, we will further analyse how individuals from two different networks picture the content of their network. By content we mean the perceptions on the network in general, for instance, the focus of the network, the reasons for joining it, the main tensions within it and other issues that seemed to be important for its members. It could be of value to the understanding of what lies under their perceptions to knowledge sharing, but not necessary relates directly to the issue of knowledge sharing yet.

Climate KIC UK: community with entrepreneurial spirit

Trying to examine how the actors of the KIC (the management team, the partners and the students) perceive the organization clearly showed that there are two dominating discourses within the network, namely perceiving the network as 'community' or 'entrepreneurially' oriented. Talking about the value of the 'community', some partners and students showed us that they see the main strength of the network in its individual and organizational members, as adding to the "reach" and the "richness" (Gulati et al., 2011) the network could provide. However, there were some discourses that stressed the 'human face' of the network:

"I think that they tend to share knowledge because they can really see the value in the community that's being built up".

Katie, Manager, Climate-KIC

"But it's a people, it's a people organization, and that is why the community is so important. And I think it's the community that you buy into, if you like".

Maria, Manager, Climate-KIC

Interesting responses came out after asking whether the KIC is currently addressing the climate issue through business orientation (has the business focus) or has strict climate issue orientation, but achieves some goals through business means:

“I think there's no one answer, there's a bit of everything.[...]Where it [the KIC] wants to go it's not that clear. I think Climate is a fantastic opportunity. I think it's only if people from large universities and large consortia by getting together they can tackle issues like that. Which they just could not do on their own. Which is exactly what the KIC should be doing, finding the things that no-one else can do. Cause that's really exciting. Really hard, and really exciting”.

Thomas, Partner, Climate-KIC

In their talk, Katie and Maria showed that their perception of ‘community’ dives a bit deeper than the factors of its width or resources available. Their (and some other people’s) perception of the network as a ‘community’ had a lot to do with the interdependencies and relationships of the actors involved as the main attributes of it (Ford and Mouzas, 2008).

In comparison to the ‘community’ discourse, the ‘entrepreneurship’ discourse was mentioned among the actors for numerous times. George and Alexander were explaining what the mission of the KIC should be:

“Very strong emphasis on entrepreneurial spirit, which to me means business focus rather than academic focused outcome. Building businesses, creating products and services that work in a climate space for Europe”.

George, Partner, Climate-KIC

“Our mission is to build companies in entrepreneurial spirit.” And “So this is your mission, your goals, you need to be able to know, how many start-ups you have created, how many jobs you have created, how many tangible products you have generated., So, these are concrete objectives. And then you can go down and say how many projects you have been launching and completed, and then maybe go down to small tiny things”.

Alexander, Manager, Climate-KIC

The existence of the entrepreneurial orientation in some discourses should not come as a surprise, because the aim of all KICs is to “promote entrepreneurial spirit in Europe” (About us, EIT Official website). However, this “entrepreneurial spirit” with business-focused glance seems to be quite different from the previously described community with a loving heart that is open for everyone. Apart from other differences, the discourses seem to exhibit a different stance in the way where the focus of the network should lay: while the ‘entrepreneurial’ network should seek business-like successes that could be measured by the numbers of companies created or projects launched, the

‘community’ orientated network should secure its strength by securing the right conditions for its members and their relationships. It seems it is quite clear which discourse holders could sit more comfortably when discussing the intangible and immeasurable notions of knowledge and its sharing practices.

Apart from personal opinions, a possible reason for the fact that different perceptions of the organization’s main orientation were expressed might be the fact that the official mission/vision statement has not been issued yet:

“Everybody has a name with it, everybody in there as an idea what they working towards, but there is bigger vision to the whole thing and it's still coming together”.

Katie, Manager, Climate-KIC

“A really clear message of what Climate KIC does needs to go out. [...] Just because it's new, to be able to understand what's going on”.

Fanny, Manager, Climate-KIC

This creates confusion for all parties involved. The need for such statement was expressed several times, as a means for common understanding where the final focus of collaboration is. The existence of an official common goal would as well help for common sensemaking (Alvesson, 2004), communication of development agendas (Möller, 2010) or creating a unified culture and common rules of behavior within the network (Ford and Mouzas, 2008). Needless to say, having a clear focus of the whole network would help to agree on the necessity of certain knowledge sharing practices and perhaps could be of use in implementing them.

Some other things that could be valuable for understanding what could be motivating when it comes to knowledge sharing lies under member’s attitudes to the value of the KIC itself. That is, most of the partners shared what their motives or the motives of certain other fractions of partners for joining the KIC are. Jack, one of the managers of an SME, explains that his company needed additional funding:

“Well, primarily it's for funding. [...] But I think that this idea of network is also very interesting”.

Jack, Partner, Climate-KIC

Remembering the notion of the “structuralist instrumentalism” approach by Emirbayer and Goodwin (1994 p. 1428) these material goals of companies, especially the newly established SMEs,

when engaging in networking activities, should not come as a surprise. And Jack was not the only one to state that his organization sees KIC as provider of money.

However, there were other opinions, too. Thomas explains why industrial partners find the KIC valuable:

“So this access to knowledge and expertise in the area that is very long-term, strategic, is the primarily driver for them to engage. [...] And the money for industry is the least important. It's far more important for the academic partners, than it is for the industrial partners”.

Thomas, Partner, Climate-KIC

The knowledge and expertise that is sought of tells that partners value the potential value of the resources within the KIC, the “richness” of the network (Gulati et al., 2011). The value of the KIC as a provider of possibilities for connection to diverse partners (“reach”, Gulati et al., 2011) particular was also mentioned:

“The KIC is a gate way to lots of brilliant and bright people, organizations, knowledge base and business, and regional government”.

Samuel, Partner, Climate-KIC

An interesting idea is that some of the partner companies perceive the participation in KIC activities as an act of good will was expressed by George:

“[...] It doesn't bring new business and the stage. It looks like interesting development in something we would like to support, because we like supporting rather than we see it as delivering any immediate, tangible benefits. So, some of the time I would spend on KIC related activities, but it's not the time I could charge to a company. It's time which I would donate, from my own free time”.

George, Partner, Climate-KIC

In an attempt to wrap up what was said, the complexity of the climate issue that has to be addressed, “missing” mission/vision statements and the different opinions about the possible main orientation of the organization – all suggest that the current inner environment of the KIC and its possible focus in the future are perceived in different ways. This, in turn, signals that there would be little common ground if all of the actors would have to agree on some particular issue.

KIC InnoEnergy: doing the ‘hard’ business

To understand the nature of this network, we further analyse how it is defined, how the manager and the partners understand the main goals, the development stage and purpose of the network. For instance, our first interview with Witold, the manager in the CLC PolandPlus started with this short sentence:

“So it is important that you know that KIC InnoEnergy is a private company.”

Witold, Manager, CLC PolandPlus

It clearly sets up the mood that we are not in a simple knowledge and innovation *community*; we will be dealing with ‘hard’ and difficult business. This was supplemented by the goals of the organization. Witold started his talk with a presentation of officially approved and published definitions of goals. However, after a while, his follow-up comments proposed the commercial nature of this “social wealth”:

“Yes, for sure we need to increase innovation in Europe, by achieving three goals: we need to decrease energy costs, we need to increase the security of energy resources in operational way, and decrease the greenhouse effect. That's all. [...] So, if we want to achieve these goals, the only way is to make it through business. We now get public money, and in the same we need to invest money in very clever way, in a way that there would be a payback from real business”.

Witold, Manager, CLC PolandPlus

Another characteristic of the network which is quite explicit in managers’ and partners’ discourses is that KIC InnoEnergy is still young and developing:

“Because we are in the initial stage, so you cannot expect too much in the beginning. [...] Because we are learning by doing, we don't know exactly what we want to achieve, and how to achieve. Well, we know *what* we want to achieve, we don't know exactly *how* to achieve”.

Witold, Manager, CLC PolandPlus

Witold emphasizes the importance of ‘learning by doing’. This might be related to the same FP7-EIT change process mentioned in the “Context” section. Since conditions of the environment have changed, the network should be managed in accordance to the changes. Partners perceive this ‘learning by doing’ approach as creating uncertainty in KIC.

For instance, Henryk speaks about it as a ‘huge weakness’ and the way he says it is slightly rebelling:

“KIC, because it is not a mature structure, is developing some experience. [...] Unfortunately, it is creating new rules all the time. Constantly. New rules, new approaches, new templates, etc. This is huge, I would say, huge weakness. For all of us, partners”.

Henryk, Partner, CLC PolandPlus

Palmer et al. (2008) claim that change brings uncertainties and resistance, and this creates negative or more cautious approach from partners’ side. However, being new and developing might be a good excuse for balancing partners’ ambiguity with curiosity. Henryk remarks that everything is still on-going:

“This is quite challenging. And I am not sure that this approach will finally develop. I’m not sure. As far as I know, there is no technologies which cannot be solved with a lack of a KIC. So far. But they are still on-going developing”.

Henryk, Partner, CLC PolandPlus

Going further, asked about the strategy of the KIC Witold stresses the importance to assure that expectations of partners would be presented:

“We are trying to define a strategy of what is in interest of our partners (names the partners). Biggest companies in Europe”.

Witold, Manager, CLC PolandPlus

“So far we are always repeating that in any decision we need to be transparent, we need to follow the interest of the partners, but this interest is so different from the interest of the industrial partners, and education, research parts, that is sometimes is impossible to find!”

Witold, Manager, CLC PolandPlus

These short quotes present that individual organization’s objectives and interests play an important role in interorganizational networks. This might be a challenge to create shared understanding and common goals among big and powerful partners. However, even though consensus is perceived as a crucial factor for successful collaboration (Hardy et al., 2003; Rodriguez et al., 2007), Witold argues that it could negatively affect implementation of goals in the network:

“There is a risk that our focus that we should provide to Europe and to the society and to achieve our goals that are very ambitious, could simply disappear in the fog of many consensuses and compromises”.

Witold, Manager, CLC PolandPlus

Thus, from a more critical point of view consensus might not be a solution where power asymmetry and struggle of interests are identified.

Finally, Witold stressed multiple times that he perceives the KICs a “sell channel”:

“(…) because the idea, initial idea behind the KICs is to increase innovation in Europe. What does it mean to increase innovation in Europe? It means, in very simple terms: take the research results and put them on the market. So, OK. So this is a very famous old sentence: research is changing money to knowledge, innovation is changing knowledge to money”.

Witold, Manager, CLC PolandPlus

This line of thought is somewhat similar to Porter’s idea of the network as value creating supply chain (1985). Here partners just use knowledge as any other organizational resource. For instance, industry invests in research, researchers create innovation and KIC sells it. Witold also proposed the notion of the KIC as a ‘sell channel’ on other occasions. For instance, he was presenting his detailed work agenda and explained that creation of an on-line platform that presents KIC’s activities for the general public has started. He stated his arguments on the main purpose of such an initiative against ‘softer’ ones, proposed by his colleague:

“Look, partners, we have something like this, if you are interested. So, for me the selling, using the web, or other place to sell. And of course, it will be discussion, as we can see (name) wants to create alleged community of knowledge, for me its bullshit. For me it has to be the selling channel”.

Witold, Manager, CLC PolandPlus

Partners also had similar opinions about the KIC. For instance, Henryk clearly defined KIC InnoEnergy as a “selling channel” for partner’s projects and this way contributed to perceptions proposed by Witold:

“And this is new approach, a completely new approach. All the research projects which are financed from KIC resources they have the focus on research results. KIC is focusing on how to sell technologies, patents, licenses. (...) We are trying to sell to the KIC whatever which is to some extent developed”.

Henryk, Partner, CLC PolandPlus

Henryk uses the term ‘structure’ as a synonym for KIC InnoEnergy. This pictures KIC as lifeless organism.

“And one of the formal partners to KIC this means that my University (name of University) simply pays some money for the structure. So, we support the structure with these resources. Thus, we get some rights and one of the rights is that we simply participate in the innovation projects”.

Henryk, Partner, CLC PolandPlus

However, it is not perceived as a negative attribute while it remains flexible. As Henryk puts it:

“There are key elements to a partnership, formal, associate and project partnership. And within this structure it is quite easy to absorb new partners. Because a new partner, which is not to become a formal partner, simply joins the consortium of a project”.

Henryk, Partner, CLC PolandPlus

It seems that the negative effect of ‘structure’ and uncertainty is mainly managed through openness and transparency coming from the managers’ side. Henryk founds it “a shocking experience” to communicate with the KIC’s top management:

“I would say that for us it was a shocking experience that the CEO of KIC InnoEnergy showed how he operates normally [...]. It's not the old kind of operation: official letters, etc. If you call them on the phone, they respond immediately. If you write them, they respond immediately”.

Henryk, Partner, CLC PolandPlus

It is worth remembering here that openness and availability of managers are said to be key for successful implementation of change (Palmer et al., 2008) and that being open and approachable helps in fast and targeted problem solving (Prilleltensky, 2000). Since KIC InnoEnergy acts in a constantly changing environment, being open and approachable might supplement successful negotiation process.

Summarizing points

The prevailing discourses within the Climate KIC are the ‘community’ and the ‘entrepreneurial’ ones, both depicting the organization and its possible focus differently. The reason for different discourses and perceptions might be streaming from the fact that there is no official vision/mission statement issued yet.

KIC InnoEnergy is similarly perceived by both managers and partners. This illustrates that both sides have shared understanding which is one of the key factors for collaboration and knowledge sharing activities (Inkpen and Tsang, 2005). KIC InnoEnergy relies on the entrepreneurially-oriented managerial approach which is understood and adopted by partners. The orientation is transmitted through the goals of organization, clear roles of partners and the management.

The different perceptions of the networks make it even more interesting to shed some light on how their members perceive and describe knowledge sharing.. Thus, in the next section we will analyse if the perceptions of the context and content of the networks are related to actors' perceptions to knowledge sharing.

Perceiving knowledge sharing

Having in mind the perceptions of context and content presented in the previous sections, we will investigate which factors are perceived as crucial for knowledge sharing to appear. We will build our arguments on ideas proposed by the members of the networks. Data for this part of analysis was mainly gathered by asking some of the particular questions that the interviewees had to answer:

- *How would you describe knowledge? Provide a definition.*
- *How is knowledge shared within the KIC? What is necessary for it to be shared?*
- *Provide an example of a successful act of sharing knowledge within the KIC.*

We have also asked some other related questions which emerged as follow-up questions.

Climate KIC UK: definitions of knowledge

It was quite well put by Lucas, one of the managers of the KIC that “there are *many* different forms of knowledge sharing“. Indeed, this might ring true, especially when choosing or creating these different forms starts from different individual perceptions of knowledge. Especially following Alvesson's (2004) idea that it is hard to know when to stop including elements to conceptualize knowledge. We believe that our respondents did a great job and want to hereby present their ideas:

“For me personally information is one way flow, whereas knowledge is a two way flow. Knowledge will always be a discussion and thought process [...]. It is kind of working together to develop something in the first place and once it's developed, allowing it to be fluid piece of knowledge that always [inaudible]can come back, where they work with it, think about it, discuss it more that it could change”.

Katie, Manager, Climate-KIC

“Information is just something written on the paper, knowledge is something that sticks to people”.

Benjamin, Student, Climate-KIC

“Bloody hell! I can't! I don't discriminate in my mind between the two. Information *is* knowledge”.

Thomas, Partner, Climate-KIC

It seemed that some respondents came up with things that seem to be new for them:

“I guess knowledge is useful, it is something that allows you to take action. That gives implications for you as an organization. Maybe it's a communication thing as well. You know, information is turned into knowledge if it's communicated effectively. That's an interesting line of thought”.

Jack, Partner, Climate-KIC

A common thing was that the definition did not seem to emerge without an effort, thus signalling that the act of thinking about knowledge and knowledge sharing is quite new for some respondents, representatives of the partner organizations mostly. The KICs staff and the students seem to have put thought into the issue some time before they were interviewed.

Approaches to Knowledge: Open or Closed?

It takes two to tango. Knowledge sharing is an act of several actors as well. The goal of the Climate KIC UK is to address one of the biggest societal challenges through innovation creation, and the development of truly new ideas requires many loosely tied actors (Granovetter, 1983). However, the ways that the ‘creation of a fertile environment’ for their work in knowledge sharing and new knowledge creation should look like did not have a consensus. As before, there seemed to be a mix of ideas and approaches:

“So, to be simple, it's good that we share knowledge, but should not do only this, because then we will not accomplish our mission. We need also to put a number of partners together, who will more confidentially issue knowledge only among themselves to develop new things”.

Alexander, Manager, Climate-KIC

This idea is being backed up by the notions of Intellectual Property (IP) policy, perceived as one of the back bones needed to secure knowledge exchange between different partners. Thomas, one of the partners and creators of this policy, defined it as “(...) a mixture of an open and a closed approach” that could help for different parties to engage and share their knowledge. The need for

both approaches might come from the fact that there is a certain hesitation in terms of how much knowledge companies want to share.

Jack illustrates this line of thought after being asked what the stimuli for sharing knowledge could be:

“I don't think I get your question. Because from the commercial point of view what you want to do is to protect knowledge not share it. You want to gather knowledge, you want it to come in. But you are very careful about the knowledge that goes out”.

Jack, Partner, Climate-KIC

In this case, signing an IP agreement that “locks” some of the knowledge inside a particular working group and provide some security might be very tempting. However, the fact that most of the partners sign the IP regulation agreements and work in closed project groups as well as Alexander's and Jack's discourses suggest that the rarity of network's resources is partially constrained and that the richness of these resources is as well limited (Gulati et al., 2011). Adding to this, if the practice of working together would indeed be limited to relatively small workgroups (and limiting the possibility gain novel ideas from other weak ties outside of it after the IP agreements are signed), the question if the network would be still fit to create uniquely innovative products of a scale that would correspond to the issue of climate change would rise.

However, some parties seemed to be much more open than the rest, namely, the students, probably because the willingness to act in good faith still prevails. For instance, Clara, asked if she would be equally open in sharing her knowledge and coming up with new ideas with perfect strangers from different backgrounds (other researchers, business, students), says:

“I would! I definitely would. And it's probably because the Climate KIC has given me a positive experience”.

Clara, Student, Climate-KIC

Clara's phrase not only illustrated the overall openness that dominates among the interviewed students, but also reminds that the willingness to share knowledge is based on past experiences (Cowan, 2004). However, even though all of the students were quite positive about the idea of openly sharing their knowledge with the others, and were happy about their experiences with the KIC, they have as well mentioned some restrictions that come from the IP rules or other regulations. For instance, Timothy has mentioned that he is not allowed to share the ideas directly related to his PhD Thesis because he has signed an agreement with a company that gives him support.

Systematic approach

As the KIC is rapidly expanding and we have learned about the need for knowledge management systems from the Project Officers in the EIT Headquarters, we have asked what the opinions of the members of the KIC are on the matter of the systematic approach to knowledge sharing (Alvesson, 2004; McKinley, 2002). For instance, we asked a question whether knowledge could be transferred or captured with the help of IT systems.

In order of illustration, after asking whether capturing knowledge was possible, on one side there were the people that believed that the word “capturing” cannot stand alone, that capturing knowledge implies using it, while the others showed somewhat more „hard“ approach towards the matter:

“I think you can certainly capture the knowledge, you capture it in documents, presentations”.

Jack, Partner, Climate-KIC

Even though the systematic approach to knowledge sharing is sometimes perceived to be limiting the scope of it and detrimental (Koulikov, 2011; Currie and Kerrin, 2004), there were some true believers of it. For instance, Lucas sees the systems as helpful, even necessary, instead of perceiving them as detrimental:

“[IT] systems could group together issues, could group together people, they can make more sense of vast amount of information that's out there. [...]. And then you can communicate the right things to the right people at the right times. Otherwise, if you don't have any kind of systematic way, systemic approach, it's just random. Innovation is random”.

Lucas, Manager, Climate-KIC

This discourse is complemented by the reality, as the KIC is currently creating an “[online] network where everybody could throw out their ideas to the whole network for others to see and join perhaps” (Martha, manager). This system should provide more possibilities for the interorganizational network which spreads throughout Europe. For instance, Adelle believes that the system will be more than just holding documents. The discursive capacity of such system seems to be important from her point of view:

“It will be a place where Climate KIC across the different European countries can talk to each other, can have conversations”.

Adelle, Manager, Climate-KIC

Clara, asked whether the students would like an IT-based system where KIC would provide information on what is going on inside it, and would have discussion forums, etcetera, exclaimed:

“That's a great idea! I actually know people who would absolutely love that!”

Clara, Student, Climate-KIC

Even there was variety of other discourses on the matter whether the systemic approach on knowledge sharing should be implemented within the KIC, the respondents seem to understand the need of it as the network grows bigger. Moreover, most of the interviewees seem to understand that there are people behind the systems and thus stress the importance of face-to-face interactions. However, there seemed to be a common agreement between most respondents that once the face-to-face „part“ was done and the people got the chance to know each other, the room for a more systems-based interaction is there, stressing the need to have a balance in everything. As Lucas, the „believer in the systematic approach“, stresses:

“But I think it's a blend. You can't do online, you can't do face to face. You have to mix them up. Otherwise it's not efficient”.

Lucas, Manager, Climate-KIC

This phrase in a way concludes the ideas expressed by most interviewees. The scholars remind that there is the tacit and explicit knowledge, and only incorporating both levels allows the creation of new knowledge to occur (Nonaka, 1994). Thus, some of them would argue that it being transferred or managed with the help of IT systems is not possible due to the fact that it is not possible to transfer this tacit part of it via IT systems (Alvesson, 2004; Nonaka, 1994). All in all, the fact that most of the people understand both the value (and the need) of the systems approach and the significance of the people that are, however, the main holders and creators of knowledge it suggest positive implications for solving the dilemmas of a dispersed network.

The Obstacles of Knowledge Sharing within the Climate KIC

Many people would agree that, in order to do something to its fullest, the possible drawbacks should be eliminated. Our respondents have expressed a great deal of opinions on the obstacles that could or are restricting knowledge sharing in the KIC environment. Most of the opinions were put forward more than once.

It is worth reminding that the KIC has five CLCs and six RICs which make the network geographically disperse. Both respondents and the literature find it to be a boundary to knowledge

sharing (Swart, 2011). Also, some of the rules and regulations that are put forward by the EIT is seen as restrictions. For instance the “money flow issues” (that the money do not reach the partners when they already need them) and the current regulations that do not allow to plan their activities in a period longer than a year were very popular complaints amongst the partners. These issues were mentioned as a reason for the partners to being „grumpy“ and their relationship with the CLCs „a little bit difficult“ (Katie, Manager), which limits the possibility to build trust.

The KIC itself was said to be quite liberal, stimulating the bottom-up initiatives by its partners and assessing the projects that are brought in. This “liberal” approach is put in a contrast with the „structured and frameworked” mentality, meaning that many people are accustomed to rigid requirements of FP7 projects and do not wish to engage in other activities that might be more interesting, but “give less for more” (George, partner). This mentality was usually mentioned as one of the obstacles to engaging in knowledge sharing activities and being creative. However, in order to succeed, the KIC is should do better than that and change the prevailing lazy mindset:

“That shouldn't be what the KIC should be all about. And I actually think this transactional creativity is crucial. And I know a lot of the bids that come in, and are what we call more traditional, "framework-certain" type of bids”.

Samuel, Partner, Climate-KIC

The up-mentioned thought about the need for creativity are in line with the suggestions of other interviewees and the literature for stimulating new knowledge creation (Alvesson, 2004).

However, there are more issues to address, such as trust, cultural differences, the need for an effective dissemination of information and the lack of sensemaking within a workgroup. However, when the question was formulated to “What does stimulate trust, then?” some respondents admit that they had no answer to it. As for the sensemaking, the need to just continue working together and trying to eliminate the misunderstandings seemed to be a rational suggestion to make. One of the students addresses both, the cultural differences and the need for on-going sensemaking, or just having a clear goal, when he talks of a programme he took part in:

“Sometimes we had moments when we screamed on each other. In the end, I would say it was big problems because of different nationalities. [...] But everyone understood what we actually heading for, as soon as we communicated as a group”.

Benjamin, Student, Climate-KIC

Some of the drawbacks mentioned were connected with the fact that the KIC is still undergoing its 'start-up phase'. George, Partner noticed that "It seems to be a slow process to get it [the KIC] fully functioning". Benjamin further notes,

"It was challenging for them to set up everything in the incubator, so we didn't have our rooms, financing was a little bit challenge".

Benjamin, Student, Climate-KIC

According to the scholar literature, the fact that the KIC is a young network could be perceived as an obstacle to knowledge sharing on its own. Especially, taking into account that trust, said to be one of the key stones to knowledge sharing (Tsai and Ghoshal, 1998; Inkpen and Tsang, 2005), is not built overnight. Moreover, this time issue pops out again as actors within a network are more likely to lose some of their protectiveness when it comes to knowledge sharing over time (Inkpen and Tsang, 2005; Thomson et al., 2008). Remembering the importance of funding, the fact that the KIC is only part-funding the projects was mentioned as an circumstance that does not allow the organization to set its own rules fully when it comes to expectations upon its partners, for instance, that most of the new knowledge created should be made approachable to other members of the network.

The Stimuli and Opportunities of Knowledge Sharing within the Climate KIC

One of the necessary things for effective knowledge sharing that was mentioned by numerous interviewees was the need for moderation in the network, project and meeting levels. It was also suggested to be an implication for better collaboration and thus more productive exchange of novel ideas. For instance, Benjamin remembers:

"I tried to be more like a mediator. I tried to take this role very fast, because I realized if we want to have more efficient work flow in this group, I had to mediate that".

Benjamin, student

The need for moderating as 'knowledge brokering' was also mentioned when one of the partners explained how complex and big challenges should be addressed within the KIC:

"(...) bringing together the demand side, bringing together the supply side around the challenge. Because it's also an element of brokering there, you know, sometimes it's getting people to work together, because it's some kind of collecting ideas and that brokering in the middle".

Samuel, Partner, Climate-KIC

Even though Benjamin, Samuel and several other interviewees have stressed the role of brokering as a stimuli for better knowledge sharing, their perception is not entirely in correspondence to the perception of “knowledge brokers as a links bringing knowledge from research to commercialization” (Meyer, 2010). The stress in their overall discourses was more upon the importance of identifying ‘the right people’ and creating ‘the fertile environment’ that could help to engage members of network into knowledge sharing. Thus, they seem to be valuing the social-psychological aspect more instead of the mere commercial stimulation as means for more effective knowledge sharing (Swart et al., 2011). This line of thought reminds the ‘community’ discourse.

However, many good words were said about the way that the KIC personnel are operating, especially when it comes to giving some constructive feedback around various issues to be addressed. As Samuel notices:

“The officers are very approachable. Informal meetings, casual conversations. That's plenty of dialogue”.

Samuel, Partner, Climate-KIC

Samuel’s words can be complemented by other interviewee’s praise on the matter. This is in line with the fact that scholars emphasize open communication and availability of managers as the key factors for successful implementation of change (Palmer et al., 2008) and the KIC is in a constant one as it is still growing. Moreover, being open and approachable helps in fast and targeted problem solving (Prilleltensky, 2000). It is also said to enable faster recognition of challenges and avoidance of unnecessary conflicts (Prilleltensky, 2000, p. 154).

However, it seemed important to see whether the people interviewed could provide an from the KIC life that they find to be a valuable illustration of knowledge sharing. Thus, we will provide parts of our respondent’s discourses where they mention the events or practices they find to be good examples of knowledge sharing within the KIC. The respondent’s discourses provided us with a limited, but deeper understanding of how interaction among KIC members looks like from their own point of view.

Good Examples of Knowledge Sharing

Effective knowledge sharing within the KIC activities was illustrated with quite different, but interesting examples.

For instance, Katie, one of the managers, explained how her work contributes to sharing the knowledge between various CLCs, dispersed throughout Europe:

“I just go from place to place saying, “I was in France the other day, and they having this big problem, isn't it interesting?” And they are, “Oh, yeah, we have this problem as well, but we haven't told you about it!”. [...] And then the knowledge is back for the whole team”.

Katie, Manager, Climate-KIC

Katie's discourse reminds how dispersed the network is and shows that the face-to-face interaction is a valuable tool for sharing information and knowledge between the actors of the network (McKinlay, 2002).

Numerous people have mentioned the meeting in Berlin last year as a good example, where people from different partner organizations were brought together in one place and “sort of forced to work across national borders to come up with ideas” (Thomas, Partner).

The Climate Market Accelerator, one of the KICs current programs, was also mentioned as a success, and it also grew from this meeting in Berlin. Thus, it seems that the KIC is indeed paying attention to its partners' ideas and stimulates the events that are named good practices by them, as there will be more of such events in the future:

“And what we are running is what we call a series of ideas market. Where people come and they just pitch their ideas. And in fact the first one was last year in Berlin, and this year we are running the whole series”.

Maria, Manager, Climate-KIC

Yet another success, receiving a lot of good feedback from its participants is the intensive six week summer-school project for students, called the Journey. Katie gives insight on how its process looks like:

“And it really changes from being cautious to being very open and discursive. And yeah, a lot of knowledge sharing going on, when students are going through that process”.

Katie, Manager, Climate-IC

Another project that students participate in is a bit similar to ordinary business incubator activity and is called the Greenhouse. The ideas that emerged during the Journey or were created aside of it can be brought and “cultivated” here:

“The Journey and the Greenhouse are very different. The Journey is more squeezed up, very compact and it's a high pressure environment. And they're [the students] are all together all the time. And in the Greenhouse it is much more relaxed, open-ended. Two very different types of environment. And they both have their own purposes”.

Lucas, Manager, Climate-KIC

It was as well both interesting and productive to observe one of the KIC activities, a kick-off of a wide-scale project that should last for nine months. The project's main purpose was to bring different partners together in order to find the ways and tool to address the complexity of the issue of biorenewables. It was very valuable to have the opportunity to talk to one of its participants, Mr. George, after the meeting was over, and to test if our and his perceptions about the meeting were sharing some common ground.

Overall, there seemed to be mutual respect among the members of the meeting. We have witnessed extensive communication during the coffee breaks and lunch that were organized in between numerous power point presentations. As the first day was packed of these, most of the participants seemed to be only staying out of respect for the other partners and/or because they have not yet given their presentation. Mr. George vividly illustrates the feelings that seemed to be quite common in the meeting room on the end of the first day:

“Frankly, about four thirty to five, when you have seen around fifteen presentations on what institutes can and can't do, it kind of felt like shooting myself or knocking off a bit”.

George, Partner, Climate-KIC

During the second day of the meeting all the participants were divided into two groups, each led by a moderator. Broad questions were given, for instance: what the main problems that the future project(s) should address are, what should be the scope and the end results of the project, what main target audiences of the issue of biorenewables are, etc. After discussing same questions separately, the two groups discussed them together once more. Such open-ended questions where the participants had to first and foremost agree on how the project should look like seemed to be challenging for some of its members. However, Mr. George seemed to be happy about the end result of the meeting and called it “quite an open meeting”. Even though the first day did not exhibit much of knowledge sharing, the second one indeed exhibited quite an open (and broad) approach to large-scale issues.

Thus, there seem to be an understanding within the KIC that different approaches seem to be needed in different stages of knowledge sharing or creation processes and that there is no “true

answer” to doing things, only various options to be tested via the process of learning by doing. The KIC overall exhibits some “broad strokes” in the attempt to address the issue of the climate change with large-scale events, successful study programmes, projects with broad focus and its open approach.

KIC InnoEnergy: sharing but... not?

As in the case of Climate KIC UK, we have found many interesting aspects of perceptions on knowledge and knowledge sharing in KIC InnoEnergy. We have thus distinguished the themes that have emerged from the data collected and are hereby presenting our findings on knowledge definitions, perceptions of knowledge sharing (or hiding) and stimuli and obstacles for sharing it.

Defining the knowledge

While we had already some definition of knowledge proposed by members of Climate-KIC in previous section, we believe that it is also important shortly discuss, how knowledge is perceived in KIC InnoEnergy. Since contexts and contents of both networks distinguished, it is interesting to analyse how it influences perception to knowledge.

When we asked our interviewees what is knowledge for them, most of the time it was illustrated with sudden change in their face expressions and mumbling ‘it is a very difficult question’. It seemed like talking about their organizations, personal experiences, or day-to-day activities were just blossoms comparing with the strange thing called “knowledge”. Thus, some of the interviewees took a philosophical stand; others approached the question by adopting a more contextual perspective. For instance, Witold stressed that his definition of knowledge comes from the KIC’s point of view:

“Knowledge in KIC is an asset usually perceived as secret know-how, patent, or any IP, and we commercialize it. Full stop. This is knowledge for the KIC. Of course, definitions of knowledge in different dimensions are different, but for the KIC, it’s an asset, if we try to provide a shorter definition, knowledge is asset that we can commercialize”.

Witold, Manager, CLC PolandPlus

In comparison Ludwik was explaining knowledge more academically:

“So the highest, let’s say, philosophical level. OK? So, what is knowledge.. Knowledge is a kind of mixture of abilities and skills to solve something. Is it a good definition? [...] Lenin once said that a Communist is electricity plus power for people. Yeah? So it’s something like that”.

Ludwik, Partner, CLC PolandPlus

While these two definitions are quite different by nature, most of the interviewees were closer to the first one, proposed by Witold, and it seemed that it is commonly shared definition of knowledge in KIC InnoEnergy. This strict and concrete definition of knowledge automatically draws the line between ‘soft’ knowledge as the bad guy, and ‘hard’ knowledge as the good one. The main issue lies in understanding that ‘soft’ knowledge cannot bring tangible, financial results fast enough. While the ‘hard’, asset-like knowledge is something that is less ambiguous, less uncertain, possible to manage and more valuable. As Henryk puts it:

“Sharing knowledge is sharing licenses. (...) Unfortunately, it is like this. Unfortunately, because this is not an optimistic view, right?”

Henryk, Partner, CLC PolandPlus

Koulikov (2011) argues that knowledge sharing in the business oriented organizations is mostly perceived as costly and time consuming, or even failing due to the lack of tangible results. Since the context of the network, the energy sector, is perceived as ‘playground for big and powerful players’, it seems that defining knowledge as an ‘asset’ makes more sense and determines further collaboration better than the ‘softer’ knowledge explanations (Inkpen and Tsang, 2005).

Perceptions towards knowledge sharing process

Another important issue is to understand motives, why and what kind of knowledge different partners are willing to share. In the KIC InnoEnergy a clear line is drawn between motives of industrial partners and main motives of academics. For instance, Henryk, as representative of academics, claims:

“If it [the KIC] is able to , and the partners, to commercialize, to sell licenses, to sell patents, then this will drift, this will drift to these ideas”.

Henryk, Partner, CLC PolandPlus

Thus, for Henryk, or the University he represents, the value of knowledge lies in the fast revenues. In comparison, the industrial partners see the value of cooperating and knowledge sharing as gaining more competitive advantage in energy market and becoming more influential. For instance, Witold proposes that:

“But(name of industrial partner) is always speaking: we are not in KIC for money; you don't have enough money. So, we are here for something different. We believe that we can provide them [the partners] with know-how, the really good products, change their position in the market, and their status in competition. Make them leaders of the technology problems”.

Witold, Manager, CLC PolandPlus

This brings us back to the content of KIC InnoEnergy. In the previous section we have discussed that KIC is perceived as value creating supply chain (Porter, 1985). It seems that knowledge sharing also in a way fits within this model: industry proposes the problem (practical knowledge) and the research solves it (technological knowledge). Witold explains this process:

“But, I would say, they [industry] are asking questions, “We have such and such issues, we need to cut the costs in this and this”. And they are giving these questions for those universities, and they [the universities] are saying “Do this, and this, and this”.

Witold, Manager, CLC PolandPlus

Thus, being in different parts of value chain does not require extensive knowledge sharing between the partners: academics can fulfil expectations to get more money by exchanging ideas with industry. Industry, otherwise, can share its’ knowledge about the market possibilities and actual research fields. This way both sides take the clear role and acts upon it. This idea also relates with social exchange theory, which claims that individual will share as much as s/he is expecting to get back (Wang and Noe, 2010). Thus, as long as knowledge is equally shared within the partners, they will involve in knowledge sharing process and even with diverse motives will find the overlapping fields for collaboration. Ludwik supplements this idea:

“And from the industrial part this information is from daily perspective. In fact it's something like they know what they want now, what they want in the future, so they have some strategy, the goals to reach. And after that they say, OK, your [the university’s] general approach could be implemented in some way, but we must work together to implement it”.

Ludwik, Partner, CLC PolandPlus

This way industry sets a tone, what kind of knowledge and how should be shared. Moreover, knowledge sharing is not perceived as just popping out by itself; it is tightly linked with addressing the challenges and problems which need to be solved.

Sharing or hiding knowledge?

Another important issue, faced by organizations in the KIC InnoEnergy is how to share and protect knowledge at the same time. Since human capital and knowledge has become one of the most valuable resources in the business world, it is hard to find the proper balance between sharing and hiding the knowledge (Beeby and Booth, 2000). We found that in big interorganizational networks the concept of “knowledge islands” becomes very important. By “knowledge islands” we mean the

trustworthy groups of partners which, mostly under legal conditions, such as signing IP agreements, decide to share some of the knowledge in order to create new, (financially) valuable resources.

All interviews touched the topic about sharing and protecting knowledge.. For instance, Mikolaj and Ludwik claimed that knowledge should be protected before sharing:

“You know, networking and IP protection does not create any conflict, because if you have IP protected, there is no problem. But first we have to protect it. There are questions concerning the markets, concepts, there are, but, if you have IP protected, there is no problem to partly issue this knowledge. You can update this knowledge by going through data bases, there is no problem”.

Mikolaj, Manager, CLC PolandPlus

“So in this case, if you are included [in the consortium], we will share this knowledge with you. [...] In fact, the whole knowledge by these partners, which is related to the area of the KIC projects, is the property of the consortium. It is impossible just to say to somebody: “You are here, just take it!”

Ludwik, Partner, CLC PolandPlus

Both, partner and the manager, acknowledge that knowledge can be shared in the network, but first and foremost it has to be protected. Henryk was particularly strict on the matter:

“And sharing knowledge even within projects, KIC projects is difficult. (...)Please forget about sharing knowledge explicitly”.

Henryk, Partner, CLC PolandPlus

Students tried to find some kind of “golden middle” on the matter, talking to one another about the restrictions they have already faced:

“It's very good from one side. But from another, for instance, you, cannot share all knowledge with us, you have told this before, that you supervisor told you that you cannot discuss this issue, because it's not yet published somewhere, because of the IP terms”.

Pietrek, Student, CLC PolandPlus

Thus, knowledge sharing and protecting of it are perceived as consistent ways of working. Within this KIC, the common approach to knowledge is that it should be shared in small groups, the “consortia”, which should manage to divide the deserved results among themselves. However, the key point is made that knowledge which will be shared and created has to be protected.

For instance, we had a possibility to participate in one of projects' implementation sessions in Krakow. Representatives from both industry and academia from different European institutions participated in the meeting, to discuss what has been accomplished and what the future tasks are. We were invited by the manager of CLC PolandPlus to participate in this work session. However, before he gave the Welcome speech, the, manager officially introduced us to the participants as 'silent members' and asked the participants of this meeting to give a permission for us to stay and observe the meeting. While the permission was given without notable doubts, we were warned that, in case any confidential discussion would start, we would be asked to leave the room. This small scene reminded us a play in one of the London theatres, however, such "introduction" was enough to set our mood and to stay in the meeting as much invisible as possible. It also quite well illustrates that assuring that knowledge will be protected is the key in this particular KIC.

On the other hand, Henryk critiques such approach to knowledge sharing by claiming that towards commercialization knowledge will never be shared explicitly. Thus, sharing knowledge in "knowledge islands" (the small groups of partners) might be a possibility to solve certain lower-scale problems, but it might be difficult to reach a level of novel knowledge which could in turn 'rock the world'.

Thus, in this open/closed knowledge tension managers in KIC InnoEnergy acquire the role of knowledge 'brokers'. Knowledge brokers are perceived as links bringing knowledge from research to commercialization (Meyer, 2010). While managers never called themselves as "knowledge brokers", the way they described their work might be interpreted as "knowledge brokering":

"I have no knowledge about a wind turbine. But it is thematic topic of the CC Iberia, Spain, so I call (name of the manager), "I want this this and this". No problem. Experts, people that will find the certificates, have to get the certificates in France, in Spain, no problem. So this is how we can fast accelerate the process of getting necessary knowledge and procedures,- by using our network".

Witold, Manager, CLC PolandPlus

Mikolaj explains how he can help entrepreneurs in KIC:

"First, through joining people from different countries in joint projects. Second, through transferring of knowledge about opportunities. And added value of networking".

Mikolaj, Manager, CLC PolandPlus

Knowing every project and partner's capabilities might be important to assure knowledge sharing in such network.

Moreover, getting together the right people is said to be of great importance for knowledge sharing in KIC InnoEnergy.

“Because we shape this in a dynamic way. We try to find the proper partners, proper persons who will be engaged”.

Ludwik, Partner, CLC PolandPlus

“I don't have time for something in a group with people who are not experts in my topic and are not interested in my topic. I have people in my faculty with whom I might work, so I do not expect the KIC to create such mixed groups, with a mix of topics, it is just a waste of time”.

Tolek, Student, CLC Poland Plus

However, both knowledge brokering and maintaining the relations also have to be somehow secured. This leads to a small discussion about importance of trust and other stimuli/obstacles for knowledge sharing in interorganizational network.

Stimuli and obstacles for knowledge sharing

In the literature review we already defined ‘trust’ as “the willingness of a party to be vulnerable” (Abrams, 2003, p. 65). In such competitive environment as energy business, being vulnerable might not be perceived as the primary aim. However, it is impossible to maintain business relations without trusting your co-workers, suppliers, even clients. Inkpen and Tsang (2005) thus claim that in the interorganizational networks it is hard to achieve trust without involving in long-term relations. However, how to achieve trust in a young, developing network which is operating in such a competitive environment? One of the possible solutions might be to build network on already existing personal relations:

“I made a choice to contact some partners and not to contact the others. Because I knew from my experience that they will never invest to such a structure. [...] And they had also some previous agreements in research projects. So KIC had to rely on us”.

Henryk, Partner, CLC PolandPlus

On the other hand, our study shows that manager’s role in assuring the security and building trust in networks is crucial. For instance, we observed the initial stage meeting with potential partners. CLC PolandPlus managers presented the legal framework related to intellectual property (IP) protection in a project. In the beginning participants seemed really suspicious, had a lot of detailed questions, it looked like managers were being examined. However, after the coffee break, leading manager stood up, and very persuasively explained that he, as manager, knows what to do, he understands

the risk, and he will take the actions if something will go wrong. This assurance was just enough to finish the meeting really smoothly. This example shows how specific rhetoric might create the feelings of trust and security. Thus, in young networks the rhetoric plays crucial part for building ground for collaboration and knowledge sharing (Alvesson, 2004).

However, rhetoric might be too weak weapon against uncertainty and changing conditions, such as the fact that the partners do not know what the budget or regulations within the network will be for the next year. For instance, Witold, after the meeting we have just described, shortly reflected:

“We are losing a lot of effort, a lot of ideas, because we are not building the trust, the real cooperation, we are simply trying to convince people, sometimes force people towards new incentives. We are losing a lot of moments of really good ideas, because of this very strange construction changing, year by year. People simply don't trust”.

Witold, Manager, CLC PolandPlus

Rhetoric itself might be a solution for the short-term successes, but long-term trust is built on stability and clarity (Inkpen and Tsang, 2005; Zboralski, 2009). Especially from the individual point of view, the lack of motivation, changing conditions and ambiguity might evoke resistance to collaboration and knowledge sharing. Witold explains how the opinion about the KIC has changed over time:

“In the begging everybody was against. Today, we have on our side most of [surnames of the bosses], everybody who thinks this is a good idea. And, let's say, stoppers, blockers are in the middle management. Some of them are old and don't want to change. They feel comfortable in the existing procedures, in the existing work. Some of them have other businesses to do, so they convince many additional, because they are playing their own game. Some of them feel that they are not motivated by the company to be innovative, so ”Why KIC, if I don't get any incentive from the company to be innovative?”

Witold, Manager, CLC PolandPlus

In this quote, Witold explains why it is difficult to prove the middle management of big companies to join and cooperate in the KIC's projects. This shows that issues related to ideology mainly require some good rhetoric. However, managers from operational level of the company have questions which require very specific answers. Thus, being open and transparent manager might be perceived as one of the core conditions to enhance knowledge sharing.

The last point can as well be illustrated with description of usual manager's day in the KIC. It took half an hour for Witold to explain what he has been doing during one ordinary work day. This included conversations with almost half of the partner institutions, and tasks such as giving

instructions where to find specific documents, how prepare some legal documents, or how to assure additional scholarship for a Polish student in Sweden. Such support of partners on operational level might be huge additional load of work; however, being open and accessible might build trust and motivation to collaborate and share knowledge.

Summarizing points

It seems that knowledge sharing practices within Climate KIC UK are connected to the perceptions of how broad the external challenges to be addressed are. For instance, by suggesting open-ended, broad project themes and leaving the decisions for the members. Many knowledge sharing practices were given as successful examples. However, the interviewees seemed to understand that there is “no one true answer” when it comes to knowledge sharing practices, and exhibited quite positive stance to the network in general and relatively open approach (at least a mixture of both open and closed) to knowledge sharing in particular.

On the other hand, knowledge in KIC InnoEnergy is perceived as an asset, ‘hardening’ its’ nature and emphasizing that valuable knowledge brings fast and tangible results. This way knowledge sharing is also perceived as some kind of standardized process where each partner has a clearly defined role and place. While summarizing the necessary conditions for knowledge sharing to appear, protection of knowledge to be shared, trust and role of managers have to be mentioned. We found that elements like rhetoric and openness of managers might be handful in building both, long-term and short-term trust in networks.

Nevertheless, we have noticed that perceptions to knowledge and knowledge sharing might be related to perceptions to context and content presented in previous sections. Thus, in the last chapter we will discuss these and some of the other findings we made.

V. CONCLUSION

We started this study with the aim of learning how individuals in interorganizational networks perceive knowledge sharing. We have argued that although networks have been studied extensively, the embedded nature of networks is often ignored. As Inkpen and Tsang (2005) propose, most studies of networks lack contextual elements that make the research results more robust.

On the other hand, knowledge sharing has been perceived as one of the key advantages of networks (Alvesson, 2004; Rangachari 2009). While scholars put great attention to networks and networking, there is still lack of research on knowledge sharing in *interorganizational* networks. Our empirical analysis has shed some light on both the interdependency of the perceptions of context and knowledge sharing within interorganizational networks. Even though our initial research question was to investigate *how members of Climate KIC UK and CLC PolandPlus perceive knowledge and knowledge sharing within their network*, the second question emerged after the research data was collected. Namely, *how do members of two different networks perceive the context and content of their network?*

Indeed, the discourses of our respondents pictured Climate KIC UK and KIC InnoEnergy as very different planets, their differences (the content) mostly evolving from their environments (the context). This, in turn, allowed us to make a presumption that there is interdependency between the two factors.

In this section we would like to highlight our major findings and suggest implications for future research. We will put forth our main argument, which is salient in both networks, and will continue with presenting the most interesting findings from both networks separately.

Main finding

First, our study teaches us that the perceptions of context and content of network's members provide deeper insights into all the other issues of networking. For instance, as KIC InnoEnergy members described the network's environment as tight and highly competitive, they pictured knowledge and knowledge sharing through the lens of fast and tangible results. Any 'softer' approaches have not made any sense and were said to be 'bullshit'.

The issue needed to address by Climate KIC UK was said to be wide and complex and the members of the network seemed to be armed with a more open approach to knowledge sharing and creativity.

Without a defined mission of the network, the member's perceptions towards it were somewhere in between the notions of a helpful community and the entrepreneurially-driven entity that should focus on business successes. Member's perceptions of knowledge were also something in between willingly "donating" their time for knowledge sharing activities for 'something good to emerge' versus seeing it as a valuable asset to be protected.

Given our focus on increasing the benefits of knowledge sharing in networks, here is how we suggest scholars move forward: before researching any phenomena in network, especially related to individual perceptions towards activities in the networks, special attention should be given to context and content analysis. Moreover, we recommend taking an interpretive stand (as opposed to a rationalistic research) to analyse these elements, because it enriches research with more subjective understandings and specific insights.

Our research results might also be valuable for network managers. As our research has shown, managers have the power to influence sense-making processes through rhetoric, openness, and high involvement in partners' network related activities. Thus, a deeper understanding of how members of networks perceive it might help to stimulate certain networks activities.

Network related findings

In order to group up and present most interesting findings we will use the social capital theory of Tsai and Ghoshal (1998). Since structural (channels between actors), cognitive (shared meaning), and relational (trust) dimensions are crucial for knowledge sharing, we tend to address these issues in connection to each network under research.

KIC InnoEnergy

Structural dimension: importance of knowledge brokering

The study of KIC InnoEnergy showed that knowledge brokering is a crucial task for managers of interorganizational networks. It influences knowledge sharing, and helps to maintain partnerships within the network.

Cognitive dimension: consensus might not be a solution

Scholars suggest that consensus is crucial for collaboration (Hardy, 2003; Rodriguez et al., 2007). However, managers of KIC InnoEnergy proposed slightly different approach. The idea is that the sector where 'rules of game' are created during a power struggle, finding a consensus might affect

the final outcomes, and their value will not be sufficient anymore. Future network researchers should take it into account. This finding might be an interesting topic for further research. Its investigation might require adaptation of a critical approach.

Relational dimension: openness helps to build long term trust in developing networks

Our research showed that short-term trust might be assured just by applying the right rhetoric. However, Inkpen and Tsang (2005) state that networks mainly rely on long-term relations. Thus, by asking how to fill the gap of long-term trust in developing network, we found that being open and transparent, influences mutual trust and helps to stimulate knowledge sharing.

Climate KIC UK

Structural dimension: multiplicity and dialogue

Loosely defined interorganizational networks have to pay great attention to maintaining dialogue among managers and partners. As Climate KIC UK example proposed, the partners we interviewed valued informal and open mutual relations with the management team which helped to build bottom-up approach and higher involvement of partners.

Cognitive dimension: lack of common focus

Not having a clear vision does not stop a network from collaborating. Even though efficient knowledge sharing is sometimes related to the shared vision (Tsai and Ghoshal, 1998), the members of the Climate KIC are involved in multiple discourses regarding the possible focus of the network and knowledge sharing activities within it. On one hand, this might be perceived as a lack of common ground while on the other it might be treated as a pavement to being more creative.

Relational dimension: faith for building trust

We found that in the interorganizational networks, the primary trust of their members might be built on individual's 'faith' for the network itself. Members of the network proposed that now, during the network's 'start-up' phase they are engaging in Climate KIC UK activities mainly from their belief that it will achieve some "nice results in the future". However, managers of this and other similar networks have to take into account that this 'faith' is only a short-time advantage and partners might lose it in the longer run.

Implications for future research

Our findings suggest some possible directions for future research.

First of all, context embedded studies should be taken into account more seriously, especially investigating such complex structures as interorganizational networks. Each network operates in different sectors, consists of different partners, has distinct collaboration tradition, all of which go through the interpretations by network's members. Analysing the context from interpretive standpoint will enrich the studies with more robust and subjective findings. It is worth mentioning that more empirical research in the field is needed.

Moreover, some scholars suggest that the characteristics of interorganizational networks should not be used as generalized theoretical framework. Thus, future network oriented studies should evaluate the type of network investigated (namely, whether it falls into the category of interorganizational networks) and pay appropriate attention to past findings (Inkpen and Tsang, 2005).

Finally, one of our findings showed that consensus might not be a solution in interorganizational networks, thus this finding might be an interesting topic for further research.

Limitations of study

The main limitations of this study were related to the time and scope issues. EIT-KICs organizational structure is complex and multileveled. Moreover, it involves a great number of partners. Even though we have conducted almost thirty interviews, we had the possibility to meet only with a small part of the network, thus a wider study might enrich understanding of an interorganizational network like this one.

On the other hand, we were very constrained by the time given to provide the results of research analysis. Having the possibility to spend more time in the sites, observe more knowledge sharing activities and longer work with the findings would enable to propose a possibly deeper picture.

Finally, we had the possibility to visit representatives only from two KICs, thus the ability to conduct research in the third one, EIT ICT Labs, would have enabled a wider analysis.

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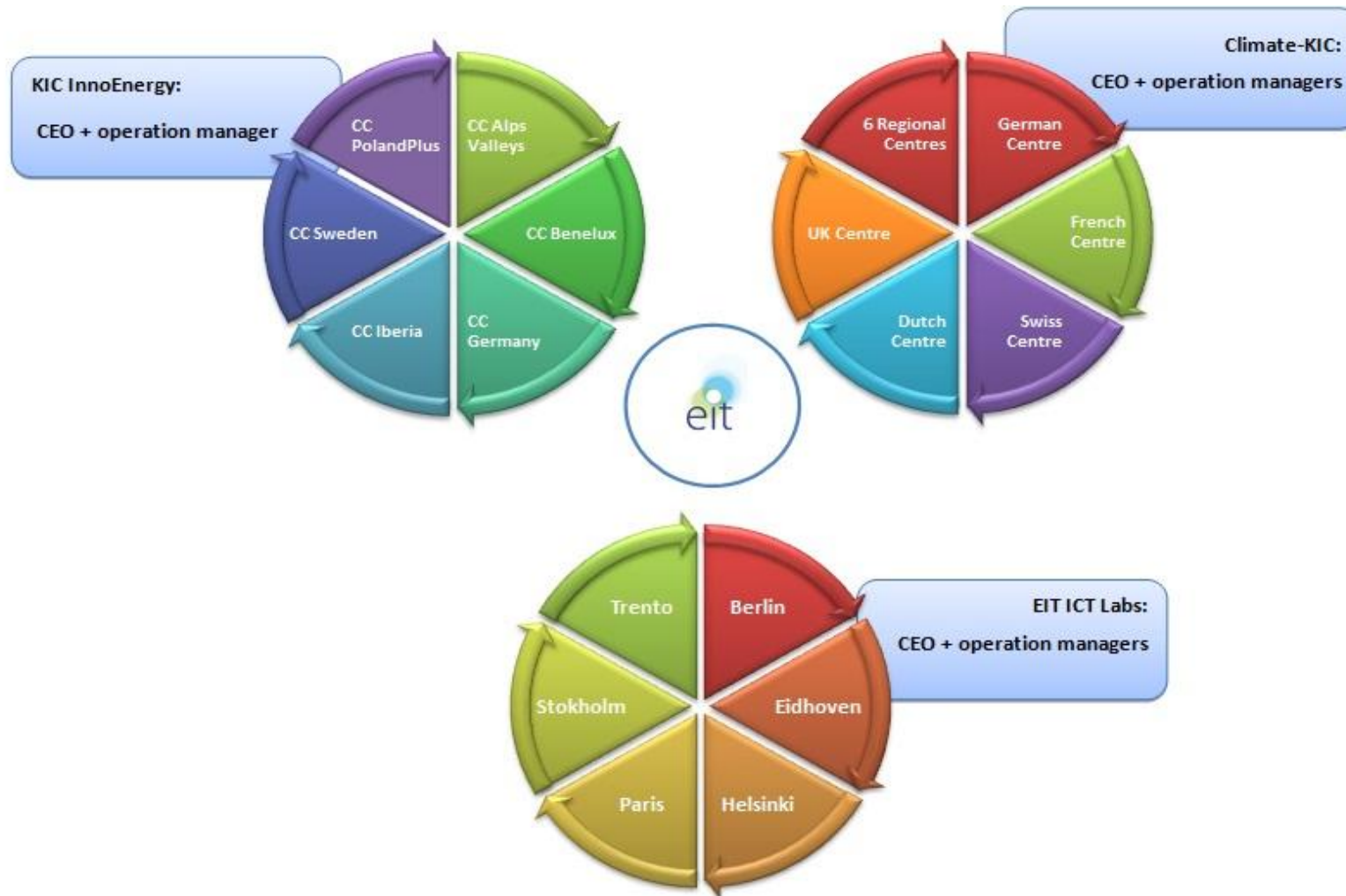
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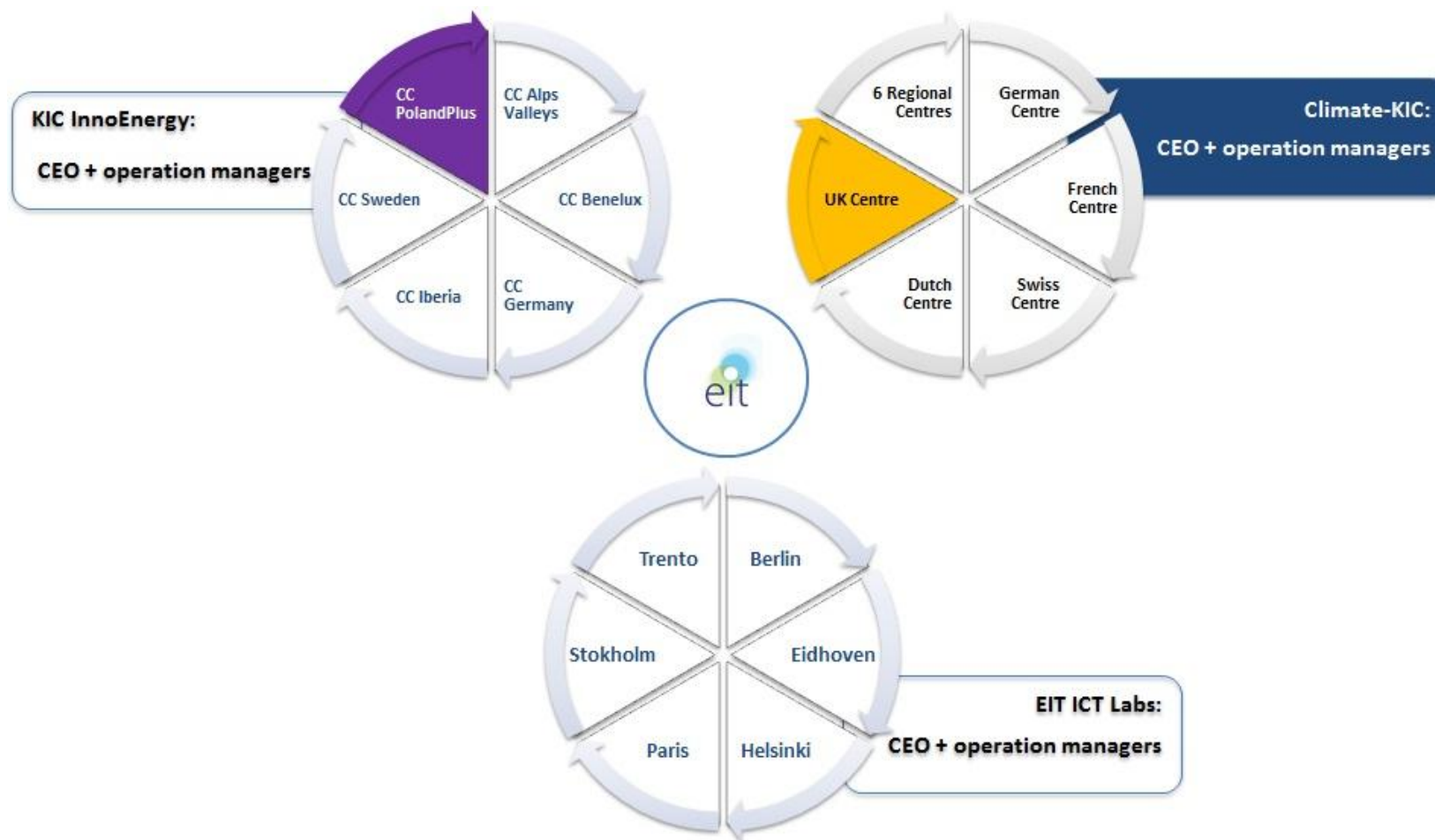
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APPENDIX 1: Overall EIT-KIC Structure



APPENDIX 2: *Climate KIC UK and CLC PolandPlus*



APPENDIX 3: *EIT Headquarters, Climate KIC UK, CLC PolandPlus and RIC central Hungary*

