Exploring the Role of Boundary Spanning in Distributed Networks of Knowledge

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Abstract: Knowledge sharing and creation are considered key processes leading to innovation and organizational performance. Several organizational initiatives have focused on building communities of practice in order to create a platform where employees can share experiences and insights. The focus in this paper is on one type of network structure, termed *distributed networks of knowledge* (DNoK). The success of such practices is deeply linked to whether or not formalization of the networks can hamper their knowledge creation and creativity. The role of leadership has been extensively discussed in the setting of communities of practice. However, this paper intends to shed new light on the topic by exploring the boundary management perspective in order to enable knowledge sharing and creation within this specific context of DNoK. To this end, we have examined the role of leadership styles in different DNoKs in a multinational firm.

Keywords: leadership style, distributed networks of knowledge, communities of practice, knowledge creation, boundary spanning role, boundary management

1. Overview

Today, there is growing recognition among academics and practitioners that innovation capability and organizational performance can be stimulated by fostering knowledge sharing and creation in communities of practice (CoPs) (Brown & Duguid 2001; Lave & Wenger 1991). The CoP concept involves self-organizing groups that emerge naturally and consist of individuals conducting practice-related tasks. The members of CoPs usually share the same interests or problems. They aim to rely on synergies and expertise by interacting with each other. A CoP is seen as a good way to foster innovation capability by allowing members to share their knowledge.

There have been several organizational initiatives focused on building CoPs within an organization in order to create a platform where employees can share experiences and insights. Organizations have encouraged this type of interaction based on the use of information communication technology (ICT) as a means to cut the cost of face-to-face meetings and to reduce the time consumption of travelling.

CoPs have primarily emerged as a spontaneous phenomenon in most organizations; however, research studies indicate the need for implementation mechanisms in order to nurture and sustain such groups of people (Ahn et al. 2005; Koh & Kim 2004). To create a synergetic community, it is important to understand the different typologies of the group. Although CoPs might share some common features, there are other characteristics—such as the purpose of the group, the geographical location, and the organizational climate—that might create specificity in the group.

The present paper focuses on one type of network structure, termed a distributed network of knowledge (DNoK). This network structure constitutes an inter-community assembly consisting of multiple co-located communities where participants belong to both the co-located community and the distributed network. The knowledge-sharing process in these networks usually occurs between dispersed participants. Within an organization, DNoKs typically consist of weaker ties linking geographically dispersed individuals across an organization, where the individuals are working on similar tasks using a similar base of knowledge (Granovetter 1973). Establishment of a knowledge-sharing DNoK is usually based on the use of not only traditional communication tools such as phones, teleconferencing, and faxing, but also of videoconferencing, e-mail, chat systems, blogs, intranets, and other online collaboration tools.

The concept of "managing" organizational groups like CoPs and DNoKs seems to be somewhat paradoxical, given that the most important characteristics of such communities are that they are emerging, self-organizing groups that develop over time and are built on trust and personal relationships (e.g. Brown & Duguid 1991; Lave & Wenger 1991). Often, their existence and interactions are spontaneous and beyond the scope of the control mechanisms of the formal

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organizations; hence, they have to be distinguished from project teams, which are goal and deadline oriented (Wenger & Snyder 2000). However, several business managers and researchers have recently realized a need to embed "communities of practice" as a proactive knowledge management initiative by cultivating them as the core of the knowledge management strategy (Wenger et al. 2002). In this sense, the concept itself is undergoing a change; once considered a "pull," informal knowledge initiative on the part of the employees; it is now considered more of a "push," formalized knowledge initiative that stems from the management's strategy agenda. Therefore, it is important to understand the role of leadership in the building and the sustainability of CoPs, and more specifically a DNoK. In particular, a distributed setting is challenging, since different professional cultures and attitudes are present.

Considering that innovation usually occurs at the boundaries between disciplines or business units, there is a need to investigate further the potential of knowledge flow across professional boundaries, as well as the challenges of such a movement (Carlile 2004). The group structure, interaction, and relationships among people across boundaries of a distributed network need to be redefined by applying *boundary spanning* principles. Boundary spanning involves activities that occur at the internal or external boundaries of organizations. The main challenge in this regard has to do with the need to find adequate leaders who are able to bring people together across traditional boundaries and convince those who are separated in terms of location, division, or function to share knowledge and contribute to a lasting working relationship (Ansett 2005; Stanton & Stam 2003).

Our research study aims to illuminate how to DNoKs can be cultivated and facilitated, thereby enabling them to share and create knowledge. The objective of our work is to find appropriate responses to the following two research questions:

RQ1: How can organizations manage distributed networks of knowledge to ensure effective knowledge sharing and knowledge creation?

RQ2: How should the role of a facilitator within a distributed network of knowledge act to stimulate the participants to share and create knowledge across boundaries?

To answer these questions, we intend to explore the boundary management perspective in order to obtain a better understanding of network building and how to sustain such networks over time. More specifically, we aim to investigate the role and the style of the boundary spanner in cultivating DNoKs.

To this end, we investigated leadership styles in different distributed networks of knowledge at the Norway headquarters of a small multinational company. The firm operates in the marine insurance industry. We utilize the perspective of boundary spanning to explain our findings.

The paper is organized as follows. Section two focuses on the concept of DNoK and knowledge sharing across boundaries. Section three provides an overview of the boundary spanner's role, as well as its relevance for DNoKs. Section four presents the case study and its results. In section five, we discuss our findings and finally, in section six, we provide our conclusion and the implications of the research.

2. Sharing knowledge across boundaries and the concept of DNoK

Due to the current changing business environment, organizations are facing the challenges of global competitiveness. The quest for competitiveness and sustainability has led to the recognition of innovation as a vital ingredient for survival and profitability in the knowledge-based economy. Knowledge is seen by many as a key source of competitive advantage and innovation within organizations.

In order to cope with such challenges, organizations need to be able to manage highly distributed, diversified knowledge. Companies understanding the need to harness knowledge are aware that it is crucial to create a work environment that fosters knowledge sharing mechanisms and learning capabilities within and across organizations. It is also recognized that knowledge sharing and learning mechanisms are highly complex processes to promote in the organization (Allix 2003). With the realization of the value of knowledge and learning, organizations have begun looking at how to increase organizational knowledge to gain competitiveness (Husted & Michailova 2002; Michailova &

Gupta 2005). An important ingredient of a rounded knowledge management initiative is the application of the concept of the community of knowledge where people share expertise and insights.

A broad typology of communities has emerged, ranging from epistemic communities (Haas 1992) to communities of practice (Wenger & Snyder 2000) and strategic communities (Storck & Hill 2000).

Several research studies highlighted the benefits and drawbacks of building communities of practice in order to foster knowledge sharing within the context of a related discipline or within an organization. However, there is still a need to investigate the challenges in bringing people across boundaries, separated by locations and having different expertise in a multinational company.

For the purpose of this paper, we will use the term distributed network of knowledge (DNoK), which we define as *"a flexible group of professionals and experts operating in a geographically dispersed context, sharing common interests and experiences related to business topics, using a suitable context ('ba') for their knowledge activities, thereby building a common store of knowledge aiming to achieve learning and innovation."*

The definition is grounded in Wenger's (1998) work, and the concept of *"ba"* is adopted from Nonaka and Konno (1998), which symbolizes a shared space—physical and/or virtual—of emerging relationships and provides a platform for knowledge creation.

Within a multinational organization, knowledge is likely to be more dispersed according to the number of locations represented. Thus, a multinational context is challenging for knowledge sharing and creation within distributed networks of knowledge (Barrett et al. 2004). The participants of these networks are located in different geographical business offices, and they are dependent on ICT to sustain a relationship and for performing knowledge activities. The development of a sense of mutual accountability to the group may be hindered because its dispersed nature may prevent the communities' members from spontaneously and frequently interacting on a regular basis (Finholt et al. 2002). This may affect the group's ability to develop the necessary degree of trust, commitment, and respect (Orlikowski 2002). Thus, the facilitators of these networks have a challenging task in building strong community relationships and sustainable networks.

3. The role of the boundary spanner in distributed networks of knowledge

The term *boundary* often has negative connotations, as it conveys limitations and lack of access (Wenger 2000). However, a boundary interaction is usually an experience of being exposed to a foreign competence, which enhances learning. Therefore, a potential boundary represents both a source of and a barrier to innovation (Carlile 2002). Boundaries can enhance creativity when radical new insights arise from different perspectives. On the other hand, the dark side of boundaries is that they can cause breakdowns in group relations because of fragmentation, misunderstandings, and disconnection. For instance, managing relationships in social work practice can present many challenges to professional boundaries (Stanton & Stam 2003).

Boundary spanners have different roles, acting as "organizational translators" or intermediates (Brown & Duguid 1998). Furthermore, boundary spanners in units with complex tasks may act as "communication stars" (Tushman 1977); they are contacted frequently because they are perceived to have work-related experience. In addition, these "stars" seem to have significantly more communication skills than "non-stars," since they establish both internal networks inside the corporation and external contacts outside the organizational boundaries.

Individuals who occupy boundary spanning roles also facilitate the communication and sharing of expertise by linking groups who are separated in terms of location, division, or function (Levina & Vaast 2005; Pawlowski & Robey 2004). Thus, we see leaders or facilitators of DNoK acting in boundary-spanning roles in an attempt to connect participants across divisions and geographical locations in a multinational organization. Boundary-spanning roles constitute one means for innovative organizations to deal with the necessity of cross-boundary communication. These roles evolve in the organization's communication network to fulfill the essential function of linking the organization's internal network to external sources of information (Tushman 1977). Boundary spanners, however, may experience conflicts and stress because difficult negotiations at a boundary may lead to marginalization and burnout in the workplace. Furthermore, it can be difficult to find

individuals willing to perform these roles, as they are expected to be sensitive to social signs (Caldwell and O'Reilly 1982, cited in Levina & Vaast 2005).

A boundary practice represents activities for taking care of interactions across different boundaries within organizations. In distributed settings, this could be urgent for obtaining integration across geographically dispersed offices and departments. For instance, cross-disciplinary projects may be efficient boundary practices where participants from various communities contribute knowledge from different practices and offices. Facilitators of DNoKs would typically take part in boundary practice activities to connect participants from across different geographical locations and functions of a multinational company. Thus, to succeed, they would benefit from having competency related to the most challenging boundaries within a particular organizational and/or networking context.

4. Case illustration and results

In this section, we firstly give a description of the research site and the method applied in this study. Secondly, we present key findings related to the DNoKs identified and important boundary spanning roles that are crucial for the cultivation and sustainability of the networks.

4.1 Research context and methodological approach

Insure (pseudonym) is a small multinational firm operating in the marine insurance industry. After an organizational merger between departments from two other companies, today Insure has three different business divisions that provide claims handling and underwriting activities for ship owners (P&I division), the hull and machinery market (Marine division), and the oil and gas industry (Energy division). With offices in ten different locations in Europe, Asia, and America, Insure has approximately 350 employees comprising a number of knowledge disciplines, e.g., lawyers, financial and maritime experts, engineers, IT specialists, and knowledge managers. In addition, numerous correspondents worldwide assist Insure with their local expertise.

A central objective in Insure has been to ensure the integration of knowledge across the company's geographically dispersed locations. This has involved integration and optimal utilization of the overall organizational expertise across the company. Community- and team-building initiatives are highly prioritized.

In total, 35 open-ended interviews were conducted in five different locations of the company. In addition, field observations and document analysis were carried out. Several DNoKs were identified and categorized during this examination. Members of these networks had dissimilar professional backgrounds, belonged to different business units and functions, were situated in different geographical locations, and participated in temporary project teams. These networks interweaved and interacted with each other across various boundaries, independent of the formal organizational chart. Some of the networks had stable compositions of members over time; while others were more ad hoc and fluid in terms of their discussion themes, purpose, and composition of members. The management encouraged a culture of networking by connecting experts through both media-supported professional events and social face-to-face meetings. In situations where urgent topics needed attention from specialists, some managers occasionally "pushed" the establishment of ad hoc distributed networks.

The process of data collection and analysis proceeded in iterative circles following norms of interpretivism and hermeneutics (Klein & Myers 1999; Walsham 2006). When new and surprising themes emerged, these were further explored and analyzed. Hence, the interview guides became more narrowly focused over time and boundary practices and boundary spanning roles were examined more carefully. All the interviews were digitally recorded and fully transcribed. The empirical material was further systemized, reduced, and categorized (Miles & Huberman 1994). Finally, the themes were interpreted by utilizing existing theoretical concepts within the literature. For instance, we employed the concepts of communities of practice, cultivation, and boundary management in combination with our empirical findings to obtain a broader understanding of the impact of boundary spanning in DNoKs.

4.2 Categories of DNoPs

Several distributed networks of knowledge were identified during the investigation. Findings from the case study demonstrated different characteristics of the identified networks and made it possible to

divide the networks into three main categories: 1) problem-solving networks; 2) business improvement networks; and 3) innovation networks (Table 1).

Problem-solving networks are DNoPs that consist of expert groups providing resources in terms of help-desk functions, where participants of the network support their colleagues by providing special advice related to particular business problems. Participating in this kind of network ensures collaborative learning among the network's participants. The contract consultancy network in *Insure* is an example of a problem-solving network. Such networks contribute to the organization by building expertise through the experiences from different problem-solving processes. This particular network has contributed to strengthening the company's competence in marine law and ensuring positive learning outcomes in the organization. Other networks have been announced on the company's intranet, allowing employees across the organization to become aware of the expert networks and learn who to contact when complex business problems arise.

Prior research has also identified networks belonging to this type of category. Andriessen (Andriessen 2005) discusses archetypes of communities and mentions the "problem solving community" as a community consisting of a larger number of geographically dispersed employees of the same discipline who interact across inter-organizational boundaries. The network's members exchange questions and answers to solve practical problems. A similar purpose for knowledge sharing was found in the networks identified in this study.

The *business improvement networks* were DNoPs that developed altered or liquidated practices. The networks seek to develop best practices in their daily work activities. The claims handling network and the underwriting networks constitute examples of this category. In *Insure*, the networks have altered organizational practices by combining three different types of practice (P&I, Marine and Energy) through boundary-spanning mechanisms that have generated different evolution patterns in the networks. The underwriting networks altered organizational practices, where different joint underwriting activities integrated practices and reduced the negative effects of diversity over time.

Table 1: Categories of distributed networks of knowledge (DNoPs) in Insure

Network of practice	Category of network	Outcome
Contract consultancy network	Problem-solving networks	Learning
Underwriting networks Claims handling network	Business improvement networks	Incremental innovation
Product development networks	Innovation networks	Incremental / radical innovation

The claims handling network became a diverse network by rapidly combining different practices just after the organizational merger. These observations are in line with Blackler (1995), who argues that the creation of new knowledge and innovation occurs at the interstices between established groups. Joint activities have altered existing work practices, and the claims handlers and the underwriters have caused incremental changes in organizational practices. New knowledge was generated by recombining the knowledge bases across the respective practices of P&I, Marine and Energy claims and underwriting. The altering of organizational practices exemplifies knowledge-sharing and creation processes that utilize the potential of organizational knowledge to enhance learning.

The *innovation networks* were product development networks in the company. Participants developed new insurance products or refined existing services. Innovation communities are described as communities that intend to foster unexpected ideas and innovations by combining different perspectives across boundaries (Wenger et al. 2002). Networks within this category enact innovative processes that cause radical changes in organizational practices or the building of new capabilities through product development.

4.3 Important characteristics of DNoPs

Table 2 depicts different characteristics of DNoPs in terms of structural characteristics, distributed knowledge activities, the communication channels used by the networks, leadership and formalism, and key challenges. In the following, we highlight the most important of these. *Distributed knowledge activities*.

Table 2: Characteristics of distributed networks of knowledge (DNoKs) in *Insure*

Characteristics of DNOKs	Problem-solving networks	Business improvement networks	Business improvement networks	Innovation networks
Structural issues **Number of geographical locations, members, business divisions, business functions, professional backgrounds**	Two locations, 12 core members, lawyers from the P&I claims, claims defense, and underwriting business areas	Six locations, approximately 50 core members, 30 peripheral members; senior and junior underwriters from the P&I, Marine, and Energy business divisions, insurance education	Seven locations, 14 core members, 13 peripheral members; claims handlers from all three business divisions; lawyers and financial experts	Geographically distributed, 5 locations, 10 core members, 35 peripheral members. Mostly participants from the P&I, Marine, and Energy divisions became involved over time
Participants	Twelve core members	Fifty core members, 30 peripheral members	Fourteen core members, 13 peripheral members	Ten core members, 35 peripheral members
Number of geographical locations	Two locations	Six locations	Seven locations	Five locations
Business division(s)	P&I	P&I, Marine, Energy	P&I, Marine, Energy	P&I (Marine and Energy – involved over time).
Business function(s)	Claims, claim defense, underwriting	Underwriting	Claims	Claims, underwriting
Professional background	Mainly lawyers	Several; finance, lawyers, former seafarers, maritime experts, financial experts	Lawyers and financial experts	Several; finance, lawyers, former seafarers, maritime experts, financial experts
Distributed knowledge activities	Discussing complex contract questions from clients, requests from underwriters to legal expert group, problem solving, discussion, training and learning	Discussing underwriting guidelines, world market rumors and trends, fresh updates on market dynamics, updating new clients, discussions, assessing risk acceptance, news, administration information	Discussing plans for new business establishments, discussing complex and new claims, loss prevention, cover and underwriting issues, and exchange of legal experiences and expertise with the goal of creating improvements	Development of new marine insurance products, refinements and further development of existing products
Communication channels	E-mail discussions Intranet portal and tools	Videoconferences E-mail	Telephone conferences E-mail Intranet portal and tools	E-mail Intranet portal and tools
Key challenges	Time pressure, resources Coordination and responsibility	Technological infrastructure instabilities, coordination challenges, exclusion of offices	Coordination challenges Different time zones	Limited participation from experts situated in branch offices. Dominance of co-located head office members. Situational constraints and social-psychological distance
Formalism and leadership	Autonomous, informal. No fixed agendas or fixed meetings No appointed leader, different participants take turns in assuming responsibility	Mandated. Fixed agendas and meetings No appointed leader	Fixed agendas and meetings Head of P & I claims handling coordinates the network	Informal ad hoc meetings. Gradually more formalized, mandated Two lawyers coordinate all sub-networks

Members of DNoKs perform different types of knowledge activities and have different tasks. The contract consultancy network is an expert group engaged in solving problems related to complex contracts requiring legal competencies. The claims handling network and the underwriting network discuss daily work practices to improve business processes and organizational practices. Finally, the product development network is involved in innovative activities through the development of new products and refining existing insurance products.

Formalism and leadership in DNoK. The communities described here exhibit both similarities and differences in terms of leadership and coordination. In the contract consultancy group, the members were struggling because of a lack of coordination and time to participate. The consequence was less spontaneous interaction that negatively affected the activity of the network. The network dissolved during the study after approximately two years of existence. Ad hoc coordination, time pressure, and poor contributions to the email discussions by some of the participants are conceivable reasons why the network was not sustained. According to some of the informants, the outcome of this type of community could be more fruitful if the activities had been more structured and coordinated.

The product development network changed in size, reach, and formality from being a completely informal, unstructured community of practice with ad hoc face-to-face meetings to more formalized, structured, established networks with distributed meetings that were fixed to a greater extent. The product development network became highly acknowledged by management. Since the first community of practice created a new successful product, the management wanted to implement similar initiatives to ensure continuous innovation, and thus "constructed" new communities. Since two participants are members of all these communities, they could stimulate cross-community interaction and transfer knowledge between different communities of practice or sub-networks. Thus, they acted as boundary spanners and important "catalysts" ensuring continuous discussion, contribution, and interaction between participants.

Recently, however, the management added a new hierarchical level to the network. The top management needed to discuss quite unusual and controversial new ideas to ascertain a defensible investment of the P&I association's funds, which represent the ship owners' capital. One disadvantage of increasing formality is that much of the creative spirit will be lost under these structural, formalized circumstances. Participants will decline to bring up new ideas because of the more hierarchical and bureaucratic path to bringing them forward. In the former practice, a new idea, draft, or refinement could be developed and implemented very quickly, even without going through the committee.

5. Discussion

Previous research indicates that increased formalization can negatively affect the creativity of communities (Thompson 2005). In particular, the construction of communities of practice has resulted in contention, since this diverges from the original view of communities of practice as socially constructed systems (Lave 1988). In the management literature, scholars have concentrated on how to enable a climate for these groups by exploiting them more effectively (Swan et al. 2002; Ward 2000). By cultivating their activities, they assume that communities of practice may stimulate innovation and organizational performance. In the same vein, Brown and Duguid (1998) emphasize the critical role of communities of practice in innovative organizations, and that management should utilize these groups more intentionally through constructing and supporting them.

In *Insure*, the product development network was not "constructed," since the network emerged naturally in the organization and was self-organizing at the beginning. In a way, the informal network developed into a unit of research and development. The change of the network in itself represents a radical innovation in the organization that has occurred over time. The central characteristics of the network and its boundary practices have changed. The structure has also changed, involving more participants from different locations and divisions; the size and reach of the network has extended, and the participants' use of ICT has changed with time. According to Orlikowski and Robey (1991), an organizational process is influenced by the structurational premise that human action and institutional contexts interact and change over time. The product development network evolved by crossing internal boundaries of the organization (divisions, functions, locations), the larger organizational boundary through the role of boundary spanners (enacting in workshops at the branch offices), and

the external boundaries (contact with customers and insurance brokers). Hence, both internal and external institutional rules and culture influenced the network's practices.

As empirically grounded in other studies, leadership style and coordination of communities and networks are important in terms of achieving sustainable networks engaged in positive development (Magnusson 2004; Wenger et al. 2002). The coordinators of three of these networks planned and facilitated events by making links between members across boundaries of different organizational units. The findings indicate that particularly the coordinator of the claims handling network was able to develop trust and a strong network identity in this network by including new participants from the other divisions just after the organizational merger. The focus on identity and trust building are central research issues represented in both community and team literature as important conditions for effective knowledge sharing and collaboration (McDermott 1999). The community of practice literature recommends an active leadership in the initial phase of the establishment of a network. As the network becomes established, the leading of the network may be downplayed (Wenger et al. 2002). This does not seem to be the case in this study, since the coordinators played active roles over time. However, the coordinators had a supportive role rather than a controlling style (Highsmith 2000). The claims handling network establishing routines in terms of frequent weekly meetings, as well as formalized procedures for reporting and electronic recording. In addition, the coordinator "pushed" the participants to contribute in meetings. The coordinator was respected among the members. When the network needed specific competencies, the selection of new members followed the reciprocal principle existing inside a community of practice (Wenger 1998). Furthermore, the coordinator acknowledged contributions from participants. Recognizing such contributions was also regarded as vital in the product development network. Thus, to develop trust and confidence and to acknowledge each participant's contribution was essential. The coordinators characterized the meetings and interactions as informal, with autonomy being highly respected. Acknowledgement from management and the allocation of resources made it easier for the members to participate.

The boundary spanner's role is crucial in an organization, creating and cultivating an environment where people share their knowledge across boundaries. The boundary spanner also plays an important role in the organization, gathering important information about the external environment through the distributed community and turning it into strategic information.

Below, we summarize key capabilities of a boundary spanner which are important when it comes to fostering sustainable DNoK. The following capabilities are based on our findings, particularly the challenging issues identified in the networks under study (Table 2):

- Ensuring that the networks are acknowledged in the organization and by the group leader
- Identifying issues and opportunities by gathering relevant internal and external information (e.g. innovation ideas)
- Facilitating and respecting an autonomous environment for knowledge activities
- Motivating, generating trust, and building identity in the network
- Acknowledging all contributions
- Being a great communicator and listener; understanding verbal and non-verbal communication in a DNoK (e.g. implicit knowledge)
- Possessing a high degree of various soft skills such as negotiation, mediation, coaching, and open-mindedness
- Being optimistic, engaged, passionate, positive, and empathic
- Enabling a technological infrastructure and collaboration tools that include participants from across the organization

The effectiveness of the boundary spanner can be translated in the fostering of innovation capability within these distributed communities. It is quite challenging to measure the performance of a boundary spanner over a short time. However, it is still possible to grasp an understanding of the potential influence of the boundary spanner on the organization.

6. Conclusion and implications

Informal social relations are assumed to be more crucial than formalized working groups when it comes to achieving effective communication and knowledge sharing in organizations. This research

has examined different DNoKs in a multinational firm with the aim of illuminating how management should facilitate and cultivate these networks. We found that boundary management practices were important to make sustainable and growing networks.

Informal groups have proved to be important for effective communication and knowledge sharing in distributed settings (Hildreth et al. 2000). The *Insure* case study identified several DNoKs influencing organizational practices through their knowledge activities, which enhanced learning (problem-solving network), incremental innovation (business improvement networks), and innovation (product development network).

The findings show that coordinators participating in distributed networks of practice tackled the complex structure of the networks (e.g. geographical dispersion, different business functions) by acting as boundary spanners to cope with boundaries across marine insurance practices and locations. Thus, the results indicate that boundary management demands competency regarding how to acknowledge and stimulate boundary spanning. Consequently, distributed organizational settings such as multinationals should put more effort into the establishment of boundary management practice as an implemented knowledge management initiative. Furthermore, the coordinators' role and leadership style were very important when it came to obtaining sustainable networks. The leadership style as a boundary spanner included motiving geographically dispersed members to be active participants, ensuring an autonomous environment for knowledge creation, acknowledging contributions, building trust and identity, and bringing necessary resources into the networks to provide adequate time to participate and the required collaboration infrastructure.

This research was exploratory and conducted in only one organizational context; as such, it has a number of limitations, thus providing possibilities for future research. This study may serve as input for subsequent qualitative studies focusing on leadership and boundary management in DNoKs. Knowledge management research may generally focus more on the role of facilitators in DNoKs, e.g., the criteria for cultivating communities without disturbing creativity. Another interesting area for research will be to investigate inter-organizational knowledge networks to understand the co-creation of knowledge, for example, through social media.

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