The Impact of Network Capabilities on Organizational Learning: A Study of Distributed Networks of Practice

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Abstract

This paper focuses on a type of social-networking structure called a distributed network of practice (DNoP). This network is defined as a dynamic relationship of geographically dispersed participants who share and create knowledge related to daily work practices and business problems. These kinds of networks have several characteristics in common with communities of practice (CoPs). This research seeks to identify which capabilities embedded in DNoPs are the most important organizational-learning enablers. The paper develops the concept of network capability as a means for understanding boundary spanning and organizational-learning mechanisms supported by information and communication technology (ICT).

Keywords: Network capability, distributed network of practice, knowledge sharing, organizational learning, boundary spanning

I. INTRODUCTION

According to a knowledge-based view, the most critical resources in organizations are knowledge and the people who create knowledge [1, 2]. Moreover, an organization’s ability to integrate various sources of expertise across geographical and organizational boundaries is vital to obtaining and sustaining competitive advantages.

One field of research focuses on organizational capabilities, viewing an organization as a network of networks [3]. Informal social-networking structures in particular seem to have a significant role in organizational learning and innovation [4, 5].

In this paper, we recognize learning as a social process that takes place in situ and through participation in communities of practice (CoPs) and in networks of practice [4]. In order to acquire and utilize knowledge in an effective way, organizations need to understand how the learning capabilities of networks can help leverage organizational-learning processes. Informal networks may create communication lines that are independent of the organization’s hierarchy structure through knowledge-sharing and knowledge-creation activities.

In this study, we focus on one type of social-networking structure called a distributed network of practice (DNoP), a dynamic relationship between geographically dispersed participants who share and create knowledge related to daily work practices and business problems [6]. The interaction within or across such a network is facilitated by information and communication technology (ICT). DNoPs share some of the same characteristics of CoPs, including being emergent and self-organizing. As well, participants belonging
to such groups, create communication linkages inside and between organizations, representing a kind of “invisible” net that is non-existent on any organizational chart.

In this research, we seek to investigate how capabilities embedded in DNoPs may accelerate and stimulate learning processes in organizations. By means of an illustrative case study, we report on three different categories of DNoPs that operate in the marine insurance industry. The purpose is to understand how networks’ knowledge-sharing and knowledge-creation activities enable the transfer of knowledge across an organization and thereby enhance learning processes. By utilizing electronic means, such as email, intranets, document management systems, and wikis, these networks develop new ICT capabilities that support learning within the organization. The networks under study also formulate best practices for upcoming business problems in order to benefit the organization. This paper develops the concept of network capability as a means to understand organizational-learning mechanisms supported by ICT.

The second part of the paper outlines literature that is relevant to networks of practice. The third part presents the case study and the key findings. Finally, the fourth part makes some concluding remarks and implications of this research.

II. CHARACTERISTICS OF DISTRIBUTED NETWORKS OF PRACTICE

In this section we define situated learning and other concepts related to CoPs and DNoPs, and we elaborate upon their characteristics in terms of structural dimensions and practice properties.

A. The Concepts of CoP and DNoP

Lave and Wenger [7] propose a model of learning that takes in to account informal and situated social interactions between newcomers and experienced employees. Thus, learning occurs through a form of apprenticeship. Situated learning in CoPs represents a practice-based approach to organizational learning in which social structures and meaning are continually negotiated through participation and where learning, meaning, and identity are all aspects of the same participative act. Learning is in itself an evolving form of membership.

A DNoP comprises subsets of different co-located CoPs [4]. In this inter-community structure, participants belong to a co-located community, as well as to the distributed network. Accordingly, DNoPs represent an extension of the concept of a CoP. A CoP consists of individuals involved in a shared practice. The members have tight connections with each other, and they typically work together at the same business unit. Thus, they meet face-to-face, and continually negotiate, communicate, and coordinate directly with each other [4]. In comparison, a DNoP consists of a larger, geographically dispersed group of participants engaged in shared practice [8].

B. Structural Characteristics of DNoPs

The inter-community structure of a DNoP may cause challenging boundaries. Knowledge sharing in DNoPs occurs between dispersed participants, crossing boundaries between different practices and geographical locations. Moreover, structural and cultural diversity among dispersed participants is likely to be higher than within a co-located community of practice. Indeed, sustainability in DNoPs is challenging because participants need to share and create knowledge despite existing boundaries [9]. Firstly, the geographical distance is a boundary that is likely to deter participants from interacting frequently and spontaneously [10]. Therefore, it may be difficult for participants in such networks to develop trust, confidence, support, and respect, which are necessary to enhance learning [11]. Secondly, participants may belong to different divisions, and each business site or location may have its own culture of business traditions and work practices. Thirdly, DNoPs are likely to consist of members with different professional and educational backgrounds,
which increase the diversity of knowledge disciplines and practices. Altogether, these boundaries may hamper the development of a common body of knowledge. Thus, the dark side of boundaries is that they can cause a breakdown of group relations.

However, Carlile [12], point to the contradictory properties of boundaries saying that a potential boundary represents both a source of and a barrier to learning and innovation. Thus, there are also some advantages of boundaries. For instance, an interaction across boundaries usually exposes a network member to a foreign competence, which also enhances learning. Moreover, boundaries can enhance creativity when new insights arise from varying perspectives. Due to the physical distribution of individuals in DNoPs, members are linked together through weak ties [13]. Thus, DNoPs are likely to have lesser amount of redundant knowledge because their members are exposed to and influenced by different organizational and geographical contexts. In addition, they have a more extensive network of both internal and external contacts that may contribute new knowledge. To utilize the positive potential of boundaries and tackle the abovementioned challenges of those, DNoPs are dependent upon active boundary processes because of their inter-community structures. Boundary objects and boundary spanners provide critical functions and roles for translation between communities and for the integration of practices and knowledge [15]. Thus, boundary objects and boundary spanners are critical to enhance learning and innovation in DNoPs.

C. Practice Properties of DNoPs

Wenger [14] emphasizes three important practice properties in a CoP: 1) mutual engagement, 2) a joint enterprise, 3) and a shared repertoire. Membership in a community is dependent on mutual engagement organized around daily work practice. Due to geographical distribution, members of a DNoP belonging to dissimilar sites of a company, are expected to have a different set of cultural values, which are influenced by the institutional context in which each of them work [15].

A joint enterprise in a community results from a process of collective negotiation that reflects the full complexity of mutual engagement. The participants’ daily practice, including a mixture of submission and assertion, is a complex, collectively negotiated response to what they understand to be their situation. Because a joint enterprise does not require homogeneity, it does not imply agreement in any simple sense. Within a DNoP, disagreement caused by diversity can lead to a positive outcome, so avoiding diversity is probably not a solution when conflicts or problems occur.

Over time, a CoP or a DNoP develops a shared repertoire of resources—artifacts—for negotiating meaning. These can be quite heterogeneous and include routines, words, tools, stories, symbols, concepts, and ways of doing work activities that the network has either produced or adopted during interaction and that have become a part of the group’s practice. During the communication process within DNoPs, the members may create knowledge artifacts, which are explicit and codified products of their knowledge activities and learning processes [16]. Additionally, a shared repertoire within a DNoP consists of various tools, such as ICT artifacts, that participants use to communicate and share knowledge.

In summary, DNoPs are informal social-networking structures that are more complex than CoPs. A DNoP’s ability to handle problems in its daily work practice when faced with structural challenges has an influence on its sustainability and its development of mutual engagement, a joint enterprise, and a shared repertoire. In addition, establishing and developing strong practice properties is dependent upon contributions from each member and how, together, they shape an environment of identity and trust that ensures knowledge sharing and learning.
III. CASE ILLUSTRATION

*Insure* (pseudonym) is a small multinational firm operating in the marine insurance industry. The firm dates back to 1907, when a mutual protection and indemnity (P&I) association division was formed to provide liability insurance for regional sailing ships. After an organizational merger with departments from two other companies, today *Insure* has three different business divisions. They provide claims-handling and underwriting services for ship owners (P&I division), the hull and machinery market (Marine division), and the oil and gas industry (Energy division). *Insure* has approximately 350 employees working in ten different locations throughout Europe, Asia, North- and South America.

Data collection consisted of open-ended interviews, field observations, and document analysis in five of this multinational’s locations. The process of data collection and analysis proceeded iteratively in accordance with the interpretive-research tradition [17]. Themes emerged gradually, were categorized, and then were examined more deeply if relevant.

A central objective of *Insure* has been to ensure the integration of knowledge across its geographically distributed locations. This involves the integration and optimal utilization of organizational knowledge and competencies across distributed locations. Thus, building networks and teams is an initiative that has been a high priority. Inside each business division, certain underwriting teams are responsible for customers in a specific geographical area. In addition, a product-development network was established for developing new products and improving the coverage of existing insurance products. Other networks deal with complex contracts, reinsurance structures, proactive risk assessments (regarding the risks of terror, war, natural disasters, and dangerous diseases) loss-prevention issues, and complex claims.

Several DNoPs were identified during the investigation. These networks were self-organizing, emergent, and self-selecting and not defined by the organization’s hierarchy [18]. Members of these networks originated from varying divisions, functional areas, geographical locations, professional specialties, and project teams. The networks were classified into three categories: 1) problem-solving networks (e.g., professional networks of lawyers), 2) business-improvement networks (e.g., professional networks of insurance-claims handlers and insurance underwriters), and 3) innovation networks (e.g., production-development networks). All networks consisted of members who were geographically separate from one another.

IV. NETWORK CAPABILITIES

In this section, the different categories of DNoPs and their capabilities are presented.

*Problem-solving networks* are DNoPs consisting of expert groups that provide resources in terms of help-desk functions, such that participants of the network support their colleagues by giving special advice related to particular business problems. Participating in this kind of network ensures collaborative learning among the network’s participants. This particular network contributed to strengthening the competence in marine law and ensured a learning outcome in the organization. Other problem-solving networks were announced on the intranet, and employees across the organization became aware of expert networks and of whom to contact when complex business problems arose.

Former research studies from the literature have reported on communities or networks belonging to this kind of category. For example Andriessen [19] discusses archetypes of communities and distinguishes the problem-solving community as a community consisting of a large 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. The networks identified in this study were found to have a similar purpose regarding knowledge sharing. The contract-consultancy network at *Insure* is an example of a problem-solving community.
network. These networks contribute to the learning organization by building new competencies. By participating in different problem-solving processes, they gradually obtain experiences beneficial for the organization.

Business-improvement networks are DNoPs that develop, alter or liquidate practices. These networks seek to develop best practices in their daily work activities. Claims-handling networks and underwriting networks are examples of this category. At Insure, these networks altered the organizational practices. For example, by working in cross-functional teams and by participating in joint events, members from different underwriting networks were able to collaborate and develop common underwriting practices.

The claims-handling network became a diverse network by rapidly combining different practices immediately after the organization’s merger. These observations are in line with Blackler [20], who argues that innovation and the creation of new knowledge occur at the intersection between established groups. In Insure, joint activities have altered existing work practices, and claims handlers and underwriters have caused incremental changes in organizational practices. New knowledge was generated by recombining knowledge bases across practices of P&I, Marine, and Energy business divisions. Altering organizational practices demonstrates the potential of using knowledge sharing and creation processes to enhance learning.

Innovation networks were product-development networks in the company. Innovation communities are described in the literature as communities that intend to foster unexpected ideas and innovations by combining different perspectives across boundaries [21]. Networks within this category are involved in innovative processes that cause radical changes in organizational practices or that build new capabilities through product development. At Insure, participants in these networks developed new insurance products or refined existing services.

These networks often have members from different departments, units, or locations within the organization. At Insure, local innovation from one co-located community of practice initiated the emergence of the product-development network. The diversity of the network at Insure increased when some of the branch offices and other business divisions became involved. Diversity has proved to be advantageous for enabling innovation within teams and working groups [22]. By the final stage of this longitudinal study, however, innovation in the product-development network became more incremental, despite increased diversity. A greater degree of formalization in this network may have suppressed some of the creativity; thus, innovation that was more radical did decrease over time.

V. CONCLUDING REMARKS AND IMPLICATIONS

In this paper we have discussed important characteristics and contextual factors for developing network capabilities in DNoPs. The structural context of DNOPs is complex; however, it is also an enabler for innovation and knowledge creation. Thus, the boundary-intensive context provides both opportunities as well as barriers for stimulating organizational learning. We have revealed important conditions that must be in place in these networks to facilitate effective knowledge sharing across boundaries. Moreover, findings demonstrate that knowledge activities in the networks under study provided learning and innovative effects for the organization.

One important network capability is how to tackle the challenges of boundaries. The study demonstrates that participants of the networks were involved in boundary practices. These practices became part of the networks’ capabilities. For instance, the networks developed and used them to leverage structural diversity. This, in turn, helped facilitate effective knowledge sharing and learning.
The leaders of the networks took part in boundary spanning activities by connecting participants across locations and divisions. These boundary-spanners were also central for motivating and initiating new discussions about important business topics. One aim was to develop common insurance practices across functions and locations. Boundary management was an important competency for being a good facilitator within a DNoP. In addition, the boundary spanning leaders needed good ICT skills to utilize the available technological infrastructure in Insure.

The networks under study had members throughout the organization, which ensured widespread participation and knowledge sharing. Thus, the networks’ activities were important for the organization as a whole. Moreover, we learned that the networks influenced organizational practices and thereby transferred knowledge from network level to organizational level.

We therefore state that the capabilities of these networks are part of the organizational capabilities. Thus, network capabilities are important for the learning organization.

This study has implications for other organizations that want to enhance organizational learning through networking. Our research study provides some lessons learned regarding the usefulness of network capabilities in a boundary-intensive context. We propose boundary management by implementing boundary practices as the most important capability in this sense.

REFERENCES


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