Community of Practice as a Source of Dynamic Capability in Academy-Industry Collaboration - A Case Study

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Potential of Community of Practice in Promoting Academia-Industry Collaboration: A Case Study

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Abstract: This article examines the potential of a community of practice (CoP) to generate the dynamic capability of organisations in an academy-industry collaboration. This case study was carried out within the Northern Research and Innovation Platform (NRIP), which is a university-led open CoP in northern Finland that was established to intensify academy-industry collaboration in the field of environment, energy and natural resources. Our article provides new empirical evidence regarding the potential of working in a CoP to create dynamic capability. We analysed the experiences of the members participating in the NRIP in promoting academy-industry collaboration. The participants’ expectations and gained benefits were categorised under four themes: (1) potential collaboration, (2) increasing overall and specific knowledge, (3) dialogue from a business point of view and (4) strong regional relevance. Our findings indicate that although the experiences of working in the NRIP were mainly positive, the forum was not designed to be company-oriented. Instead, the universities and the research organisations benefited the most. While universities and public organisations engage in discussions at an abstract level, companies value more concrete tasks and measureable results. We also noticed that companies, unlike universities, do not have the mechanisms with which to take advantage of the knowledge and utilise it to enhance their dynamic capability. It is also important to note that this data clearly shows that cooperation is considered a key resource factor and an opportunity, particularly in regions that are not obviously attractive growth centres. Cooperation is therefore considered important to the vitality of rural areas’ development. In its current form, the CoP merely benefits universities and other research institutes; therefore, we recommend that the focus should be on developing the CoP to be more company-oriented.

Keywords: community of practice, dynamic capability, open innovation, academia-industry collaboration

1. Introduction

Dynamic capability, defined by Teece et al (1997, p 516) as 'the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments’, explains why some companies are more successful than others in building a competitive advantage in dynamic markets (Nonaka and Takeuchi, 1995; Subramaniam and Youndt, 2005; Teece, 2007). In order to survive and prosper under conditions of change and support long-term business performance, companies create, extend and modify their tangible, intangible and human resources and the capabilities that they own, control or have access to on a preferential basis (Teece, 2007). The central element of the creation and renewal of dynamic capability is knowledge and the process of learning (Easterby-Smith and Prieto, 2007); thus, examination of the knowledge-sharing mechanisms and learning processes are critical to understand dynamic capability.

The dynamic capability approach emphasises the importance of relationships and interactions for knowledge transfer both within and across organisational boundaries (Teece et al, 1997; Eisenhardt and Martin, 2000). Companies are part of the environment that is characterised by distributed knowledge, and the innovation process itself is distributed across a number of actors (Acha and Cusumano, 2005). According to Chesbrough (2003), companies in this open innovation era are searching for interesting ideas far beyond their organisational boundaries, and they are leveraging their internal ideas outside their own business. Collaborating in order to gain access to knowledge is an attractive alternative for companies that are interested in improving their innovativeness, and the rising popularity of open innovation has resulted in the emergence of new actors in the innovation process (Gassman, 2006; Olillia and Elmqist, 2011). Companies do not only adapt to business ecosystems, they also shape them by innovating and collaborating with others, such as customers, competitors, suppliers, public and private research institutes and universities, and even seemingly unrelated businesses (Teece, 2007).

Universities are playing an important role in contributing to business ecosystems through their knowledge creation and support for innovations (Mansfield, 1991). The interaction between academia and industry
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facilitates the transfer of knowledge and even stimulates the creation of new knowledge; thus, it has a positive effect on industrial innovativeness (Kale and Singh, 2007). Cooke (2005) argues that achieving competitiveness through innovation demands greater scientific involvement in business. Thus, to achieve next-level competitive performance, companies are encouraged to intensify academia-industry collaboration. However, if academia's knowledge is to be deployed effectively for the benefit of industries, new methods and models are needed to transform research results, research-generated ideas and inventions into commercial profits (Bjerregaard, 2010; Boardman and Ponomariow, 2009; Kale and Singh, 2007).

Promoting academia-industry collaboration in rural, sparsely populated regions, where all actors of the innovation system should participate in the innovation process, is of the utmost importance (Kitagawa, 2009). Academia-industry collaboration allows knowledge transfer in both directions and significantly stimulates regional economy growth by increasing the rate of innovation (Audretsch and Keilbach, 2004; Jaffe et al, 1993; Kitagawa 2009; Muller, 2006; Ramos-Vielba et al, 2010). Innovation that drives regional development is not necessarily driven by technological breakthroughs; equally important are factors, such as ‘learning by doing’, through which tacit knowledge is accumulated within localised networks of companies, institutions and individuals (Gloersen et al, 2006).

Several studies have noticed that instead of formally established inter-organisational arrangements and rigid research collaboration structures, more informal relationships, human interaction and social networks are needed (e.g. Baldwin and von Hippel, 2011; Frankie and Shah, 2003; Perkmann and Walsh, 2007). Experts from different organisations can constitute self-organised communities that freely create and share knowledge and co-create innovations (Baldwin and von Hippel, 2011; Frankie and Shah, 2003; O'Mahony and Lakhani, 2011). Due to its open and collaborative approach in sharing knowledge, Wenger et al (2002) propose the concept of community of practice (CoP) as a social context for learning and innovation. In this context, people work voluntarily together to develop a shared identity in order to improve mutual understanding that supports the transfer of knowledge in the community (Lave and Wenger, 1991; Wenger, 1998).

This empirical qualitative case study was carried out within the Northern Research and Innovation Platform (NRIP), which is a university-led open CoP in northern Finland that was established to promote academy-industry collaboration in the field of environment, energy and natural resources. The article will contribute to the understanding of the potential of CoP in promoting academia-industry collaboration. We explored the motivations and experiences of NRIP members in order to contribute to the understanding how a CoP can function as a tool in promoting academia-industry collaboration by answering the following research questions:

- Q1: What motivated members to participate in NRIP?
- Q2: How have members experienced the NRIP?

2. Community of practice approach in academia-industry collaboration

Community of practice (CoP), originally defined by Lave and Wenger (1991), has become an interesting way to promoting knowledge, learning and innovation in inter and intro organisational environments (e.g. Amin and Roberts, 2008; Swan et al, 2002; West and Lakhani, 2008). Wenger (1998) defined a CoP as ‘the informal social context for learning and knowledge generation, where people from different organisations openly share their knowledge and expertise based on joint practices and a collective identity’. CoPs offer an effective platform for uniting individuals from different backgrounds and cultures to participate in a collaborative and friendly environment through informal discussions and open dialogues (Nonaka and Takeuchi, 1995; Schenkel and Teigland, 2008). In an academia-industry collaboration, formal structures, such as collaborative research project groups, are quite typical. Unlike these structures, CoP structures are more informal, spontaneous, voluntary and based on individuals’ willingness rather than organisations’ constraints (Brown and Duguid, 1991). The strength of the CoP approach is its focus on relationships and on the social and practice-based interaction at the heart of the learning process, and CoP members have mutual engagement, sense of joint enterprise and the shared repertoire of communal resource (Wenger, 1998).

Universities primarily create new knowledge and educate students, and companies focus on capturing valuable knowledge that can be leveraged for their dynamic capability and competitive advantage (Dasgupta and David, 1994). The open nature of universities contrasts with the more closed and protective approach of industry, and despite movement on both sides to more mixed culture, attitudinal alignment between companies and universities remains a problem (Perkmann and Walsh, 2007). Mitev and Venters (2009) argue that business
circumstances appeared to influence CoP members' commitment in that the timescales of companies differ from the longer academic timetables; companies become impatient with university hierarchies and priorities and academic output is sometimes seen as underdeveloped, going round in circles and even inferior. To achieve successful collaboration in CoPs, Perkman and Walsh (2007) recommend that companies in an academy-industry collaboration should look to capacity building rather than tangible outcomes.

Looking from the perspective of the industry, we conclude that there are a number of CoP attributes in an academia-industry collaboration that can provide the following significant benefits to the industry:

- New knowledge for innovations (Ramos-Vielba et al, 2010)
- Open forum for discussion (Nonaka and Takeuchi, 1995; Schenkel and Teigland, 2008)
- Efficient problem solving tool (Wenger and Snyder, 2000)
- Source of best practices and lessons learned (Nonaka and Takeuchi, 1995)
- Economic effects, such as knowledge creation, human capital creation, transfer of existing know-how, research- led technological innovation, capital investment and regional leadership (Drucker and Goldstein, 2007; Jaffe, 1989; Salter and Martin, 2001)

From the perspective of academia, we conclude that an academia-industry collaboration can provide at least the following benefits to the universities:

- Increasing R&D funding (Ramos-Vielba et al, 2010; Santoro and Chakrabati, 2001)
- Exposing students and staff members to practical problems (Santoro and Chakrabarti, 2001)
- Testing theory and gain access to applied technologies (Santoro and Chakrabati 2001)
- Higher scholarly productivity and higher quality rankings (Siegel et al, 2004; Van Looy et al, 2004)
- Impact on the regional milieu and support for knowledge infrastructure (Salter and Martin, 2001)

3. The context and methodological choices

This case study was carried out within the NRIP, the university-led CoP, which was established in 2009 to intensify academy-industry collaboration with the aim of accelerating innovations and generating new business in the field of environment, energy and natural resources in northern Finland. In this sparsely populated region, research is fragmented in terms of both topics and actors. There are 25 different research organisations and several industrial R&D units and departments. Typically, the research actors are small and dispersed throughout northern Finland. Fragmentation creates specific challenges for multidisciplinary and cross-industrial R&D projects and programme initiatives with an international aspect. The NRIP is based on the idea of knowledge sharing through mutual learning (learning by doing) by following the development framework of Wenger (2000). In total, 90 people from 41 different organisations, eight of which were companies, participated in the face-to-face workshop process.

We chose a qualitative case study as our research strategy (Creswell, 1994; Stake 1995; Yin, 2003) with an aim to understand the target phenomenon by analysing textual data. Creswell (1994, p 12) describes a case study approach by stating that it is typical to explore a single entity or phenomenon that is bounded by time and activity. The researcher also 'collects detailed information by using a variety of data collection procedures during a sustained period of time'. We collected the empirical data in two stages. First, we sent a questionnaire to the NRIP members with the following questions: What were the reasons why you participated in the forum? Describe the workshops in your own words? How has your organisation benefited from your participation? Describe the mechanisms in use in your organisation to capitalise on the new knowledge gained/learned. We received 13 responses. After a qualitative content analysis, we used the conclusions as a basis for subsequent data collection via personal interviews. Thus, the second stage of the data collection was to conduct personal interviews with seven NRIP members by using a focused interview method. Three of the interviewees were from research organisations and four were from companies. All interviewees belonged to the core group of NRIP (see Wenger, 2000). The core group was actively participating in discussions and guiding the community along its learning agenda. This group was the heart of the community (Wenger et al, 2002, p 56). Since the interviewees included representatives from academia, other public organisations and private companies, we used a
4. Findings

4.1 Motivations and expectations

To answer question Q1: What motivated members to participate in NRIP?, we identified different expectations, which we categorised under four themes: (1) potential collaboration that consisted of the sub-themes of participation and networking, (2) increasing overall and specific knowledge, (3) dialogue from a business point of view and (4) strong regional relevance.

4.1.1 Potential collaboration

The participants from both academia and industry had a positive attitude towards collaboration in the NRIP, including the workshops, thematic workgroups and virtual activities via the Internet portal. Participation was regarded as an antecedent of presence, potential benefits and networking. Through participation, members received access to the community's knowledge resources. Gertner et al (2011) state, that through participation, members have access to negotiate the meaning of a CoP. In addition, through participation, members develop a shared identity in the community (Wenger, 1998). Organising this kind of NRIP has a lot of potential value; some members even expressed that such open, informal forums are as a necessity. Schenkel and Teigland (2008) agree on the motivational value of this view. Industrial members highlighted that it is important to have a neutral discussion arena where it is possible to meet other business people and share ideas and knowledge freely and confidentially. Perkmann and Walsh (2007) recommend close relationships and collaborative R&D projects fostered by staff mobility between academia and industry to help build the trust required to overcome barriers in collaboration. Open discussion forums are currently not that common and companies are not used to cooperating based on an open innovation approach (see Chesbrough, 2003). Therefore, networking and developing networking skills were perceived as a primary motive both to organise the CoP workshops and to take part in them. Universities' current networks function very well, they have good networking skills and they are familiar with joining active, dynamic and collaborative networking events. Academic members had clear and concrete goals regarding how to benefit from NRIP. It was important that the university as a coordinator of NRIP had an existing network, which was supplemented with various new experts who were invited to the workshops. For industrial members, the presence itself was regarded as having value. They also appreciated NRIP as an important source of useful and interesting first-hand knowledge. Workshops were perceived therefore, in principle, as a form of cooperation. The members were not affected by the fact that the idea of the workshops was to generate useful new knowledge or skills; instead, each member seemed to move according to their own motives based on their own personal benefits.

4.1.2 Increasing overall and specific knowledge

The important motivation for participation in NRIP was a common interest in a mutual topic (see Wenger, 1998). If the joint interest was concrete or particularly topical, it was found to be interesting. Industrial members gained topic-specific new knowledge for innovation. Ramos-Vielba et al (2010) argue that knowledge for innovation is one of the primary motivations for collaboration. During the workshops, members became familiar with others, developed trust, and got a better overall picture of the other participants' skills and the potential to joint collaborative actions. Even if the core topic was not found particularly relevant, members stated that their overall knowledge increased; however, they considered that such knowledge was just 'nice to know'. In general, while only a few members felt that they had received precise or directly utilisable knowledge, they believed that hearing new perspectives about familiar topics was valuable.

4.1.3 Dialogue from a business point of view

The industrial members stated that it was important to bring the commercial point of view into the CoP discussions, as they perceived universities to be theoretical in nature. According to them, new commercial and business perspectives should be taken into account. Economic effects for industry were of utmost importance; this is also emphasised by Drucker and Goldstein (2007) and Salter and Martin (2001). According to industrial members, universities didn't always consider economic realities, such as implementation and evaluation of production costs or identifying who will pay the ultimate cost. Therefore, it was interpreted by all that while the angles vary, both party's views were complementary.
4.1.4 Strong regional relevance

A regional point of view was clearly evident in the data. It was collectively interpreted that cooperation is a key resource factor and an opportunity, particularly in areas that are not obviously attractive growth centres. Members value the impact on the regional milieu and support for knowledge infrastructure (see Salter and Martin, 2001). Even small companies can be regional leaderships (see Drucker and Goldstein, 2007).

4.2 Experiences and benefits

To answer question Q2: How members experienced the NRIP?, we explored different experiences and benefits gained in the NRIP.

4.2.1 Participants and the working methods in NRIP

Based on the interviews, we conclude that the CoP was heterogeneous in nature. The members of academia emphasised the arrangements and processes more than the content or utility of the workshops. They generally had a more positive view of workshops than industrial members. Assessment of the performance of the workshops as an important issue was raised during the discussion of the composition of the group, and some interviewees noted that participants should use the same language to understand each other. We argue that while the forum itself functioned well, the differences between the members partially explain why the full potential of the organised CoP was not reached. The industrial members, in particular, described how the rhetorical terms and bombastic speech often used by academics could alienate others from the content of the topic and thus reduce interest. Wenger (1998) also viewed developing a common language and joint practices as an important topic of CoP development.

According to our analysis, members can hold stereotypical images of the others. Industrial members viewed universities as too theoretical, abstract and lofty, while academic members viewed industrial members as being only focused on short-term gain and controlling the operation solely for money. We also conclude that the participants did not have the same kind background information about the objectives of the workshops, contents, activities and procedures. Furthermore, organisations were from different backgrounds, and the organisations varied in size, interests and situations. Willingness to participate in activities depended largely on the individuals' motivation to get involved.

4.2.2 Benefits

We analysed what kinds of benefits participants gained and how they used their new knowledge in their own organisations. We also analysed what kind of working methods and processes were available in participants' organisations to allow them take advantage of their new knowledge. Based on the data, it seems that the ability to utilise the results of the workshops was affected by the companies' size and resources and by the availability of mechanisms and practices by which they could process, refine and transfer the gained individual knowledge to organisation level knowledge. In addition, the focus of the operations appeared to be on running their current business rather than the development and deployment of new business initiatives. It also seems that the companies would take part in CoP events more often if they could see immediate benefits. The public sector, however, already has practices to take advantage of new knowledge because these types of activities are a natural part of the work and operating culture of this sector. The progress of actions in a hierarchical organisation also presupposes the existence of well-established processes. Various cooperative projects and research at universities are also operational performance metrics. The other public actors and their representatives also participate in events such as these because it is part of their job. They do not have the same kind of pressure to get 'value for their money' in events like these as those who take part on their own time or at their own expense. To build an understanding of how CoPs develop the dynamic capability of firms, we suggest thinking of a community as an engine for the development of dynamic capability.

5. Conclusion

This study contributes to the research on CoPs in an academy-industry collaboration. Our article provides new empirical evidence on the potential of working in a CoP to create dynamic capability. In NRIP, the motivations and expectations of the CoP members differ, which hinders the utilisation of gained knowledge effectively for the benefits of businesses. Findings indicate that while the attitudes and experiences of the CoP were mainly
positive, it seems that the university as a CoP organiser ran the event based on its own interests, and therefore the NRIP were more or less designed to be science-oriented than business-oriented.

Participation and presence in a CoP itself were seen as very useful, and no one doubted that their knowledge and skills increased in the CoP. Additionally, companies' participation made the company's point of view become more visible in collaborative activities. However, companies did not have the mechanisms or practices by which to take advantage of the new knowledge and utilise it to enhance their own dynamic capability. While universities and public organisations discussed matters at an abstract level, companies emphasised concrete tasks and measurable results. However, this data clearly shows that cooperation is considered an opportunity and a key resource factor, particularly in regions that are not obviously attractive growth centres. Cooperation is therefore considered important to the vitality of rural areas' development.

Thus, we argue that while open forums, such as NRIP, have a lot of potential, their full potential remains unexploited. We conclude that the shared objectives, relevant topics, suitable working methods and composition of the group are antecedents of collaboration that are key to refining knowledge created in each event. We suggest that these antecedents should be studied further. Finally, we conclude that companies should acknowledge the potentially strategic value of information gained from such forums and therefore build established and effective mechanisms to capitalise on the new knowledge.

References
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