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Increasing companies' absorptive capacity through participation in collaborative research centres

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Abstract

Norway has developed ambitious goals to become one of the leading environment friendly energy nations. The establishment of Centres for Environment-friendly Energy Research (CEER) scheme is one of the main measures for addressing these goals. The CEER scheme seeks to develop expertise and promote innovation through focus on long-term research in selected areas of environment-friendly energy, in close collaboration between prominent research communities and users like industry and public administrative bodies. The main objective of this paper is to explore and present the potential benefits companies may gain from participation in collaborative research centres like CEER, as well as possible barriers for participation. The framing in this paper is on the development of the absorptive capacity for the industry partners through active participation in the concrete research activities. Based on the empirical material for this paper, collected from one of the eight technological CEERs, we conclude that there are benefits to be gained from companies involving themselves in large-scale research centres. Their potential absorptive capacity is increased by exposure of knowledge and hopefully new positive experience with collaboration over time. However, both this effect, and a potential increase in realized absorptive capacity is very dependent on the active involvement of the company and choosing the right persons to represent the company towards the research centre. By contacting the researchers on a regular, keeping up to date, taking initiative and proposing research projects, combined with some patience, participating industry partners should be well positioned to reap the benefits from their funding.

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1. Introduction

Knowledge is one of the key factors for creating value and sustaining competitive advantage for firms [1-4]. The central idea in the knowledge-based theory of the firm is that the firm's primary role is the integration of knowledge from individual organizational members to organizational capabilities [5]. Since no manager can efficiently integrate the knowledge of his or her subordinates, the key task for the management is to coordinate the integration of the knowledge of several specialists into goods and services [3, 5].

Within studies of knowledge integration many refers to the construct of 'absorptive capacity' by Cohen and Levinthal [6]. They argue that outside sources of knowledge could be essential to the innovation process and to companies innovation capabilities, as well as the ability of a firm to recognize the value of new, external knowledge, assimilate and integrate the new knowledge, and apply it to commercial ends. Absorptive capacity is thus a function of the companies' level of prior related knowledge, including knowledge diversity increasing the probability to integrate new knowledge with what is already known. Zahra and George [7], based on a literature review of the concept of absorptive capacity, suggest to reconceptualise the concept by recognizing the difference between potential and realized absorptive capacity. Potential absorptive capacity includes a company's ability to acquire and assimilate knowledge, while realized absorptive capacity focus on knowledge transformation and exploitation, which in turn generates potential competitive advantages. Zahra and George [7] further proposes several propositions connected to potential and realized absorptive capacity:

- The greater a firm's exposure to diverse and complementary external sources of knowledge, the greater the opportunity is for the firm to develop its potential absorptive capacity.
- Experience will influence the development of a firm's potential absorptive capacity.
- Activation triggers will influence the relationship between the source of knowledge and experience and potential absorptive capacity.
- Use of social integration mechanisms reduces the gap between potential and realized absorptive capacity, thereby increasing the efficiency factor (r). Social integration mechanisms lower the barriers to information sharing while increasing the efficiency of assimilation and transformation capabilities.

When it comes to obtaining external knowledge, there is a range of different partners that firms can collaborate with, and each partner possess different types of knowledge [8]. Numerous policymakers have supported a more proactive and increased interaction between universities and industry as a consequence of the hardening international economic competition over the past decades [9]. Empirical research has followed this policy trend, and university–industry relationships have been extensively studied by academics in recent years. The policy focus on university-industry collaboration is justified largely by the argument that universities and industry links facilitate knowledge transfer between academia and industry, thus enhancing the national innovation performance [10].

In practice, governments engage in the development of new knowledge through supporting universities, research institutions, industries and companies through research programmes and other schemes. One example of these schemes is the Norwegian establishment of Centres for Environment-friendly Energy Research (CEER)[1], which is one of the main responses to Norway's ambitious goals to become one of the leading environmentally friendly energy nations. Innovation is a prominent component and one of the main goals with this scheme. The CEER scheme seeks to develop expertise and promote innovation through focus on long-term research in selected areas of environment-friendly energy, in close collaboration between prominent research communities and user partners like industry and public administrative bodies. It is expected that mainly the company partners will generate innovation and value creation, although another outcome of a centre's activities may be the start-up of research-based companies to commercialise ideas that fall outside the core areas of the company partners. However, it is still an open question how company partners perceive their role in a research centre and how this partnership can generate value.

The main objective of this paper is to explore if and how companies' absorptive capacity may increase through collaboration in research centres through an in-depth case study of Forrest, one of the eight technological

[1] See the description of the scheme at the Research Council of Norway (http://www.forskningsradet.no/en/Funding/FME/1215006638765)