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Networked foresight—The case of EIT ICT Labs

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ABSTRACT

The objective of this article is to explore the value of networked foresight: foresight conducted in innovation networks for the benefit of the network and its partners with active contributions from the partners. Strategic management, specifically the dynamic capabilities approach and vast literature on corporate and strategic foresight argue that deficiencies like one-dimensionality, narrow-sightedness and myopia of closed corporate processes are remedied by incorporating external sources. A broad knowledge base promises to especially benefit foresight in multiple ways. Thus, created an analytical framework that integrates the dynamic capabilities approach with existing results on potential value contributions of foresight, enriched with existing findings in networked foresight and organizational design in the light increasing importance of inter-organizational networks. We conducted a series of interviews and a survey among foresight practitioners in a network to explore the perceived value proposition of networked foresight for the network partners and the network itself. The analysis is based on data drawn from the EIT ICT Labs network of large industry corporations, small-and-medium sized companies, and academic and research institutes. Our study shows that network partners use the results primarily for sensing activities, i.e. data collection and to a lesser extend activity initiation. More sensitive and fundamental organizational aspects such as strategy and decision-making or path-dependency are less affected. Especially SMEs may benefit substantially from network approaches to foresight whereas MNEs are more confident in their existing corporate foresight processes and results. The value for the network itself is substantial and goes beyond value creation potential for companies as discussed in literature. The development of a shared vision—relatable to organizational learning and reconfiguration capabilities—was identified as particularly valuable for the network.

1. Introduction

Maintaining competitiveness and corporate success in the long-term is the fundamental challenge that firms face and it is at the core strategic management research [1]. Innovation has been identified as one factor that is vital for companies to become and remain at the competitive edge. For discovering and evaluating new technologies, concepts, trends and innovation opportunities companies frequently utilize corporate foresight instruments in the very early stages of the innovation process [2]; often integrated into future-oriented departments like strategic planning, corporate development or innovation management [3–5]. Foresight is commonly described as activities for scanning, sensing, interpreting, and utilizing internal and external signals for change: Further, the preparation for adequate organizational adaptations, the development of preparatory strategies to meet the challenges or even to influence the environment in a favorable way are part of foresight research. Corporate and strategic foresight limits the scope of research to firms [2,6].

Inter-organizational cooperation in the form of innovation networks—here defined as co-operations of three or more organizations focusing on joint innovation activities—has

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emerged as a constant source of innovation in an increasingly complex and intertwined business world [7]. Some authors, e.g. Miles et al. [7], limit their discussion to 'multi-firm networks', a limitation that is deemed unnecessarily restrictive for this article. The substantially different resources and capabilities of firms and academic and research institutes increase the variety of assets available in networks [8]. Complementary resources and capabilities of the partner organizations can be combined to create an integrated innovation basis—data, information, knowledge, capabilities, resources and other assets—for the benefit of the network and its partners [9].

Foresight instruments that require a broad data basis appear to have the potential to greatly benefit from a network approach, especially from those with a heterogeneous partner structure. Thus, the emergence of 'networked foresight' as a new form of futures research appears to be imminent [10–12]. For example, van der Duin et al. [10] explore the use of foresight in network settings based on three cases. They conclude that activities that could be characterized as networked foresight are already in use. However, this does neither happen necessarily consciously, nor is it managed adequately. Despite many similarities to corporate and strategic foresight fundamental questions seem to be unanswered for networked foresight, including, but not exclusively:

1. Why is a network approach promising for foresight?
2. Does networked foresight create considerable value?
3. If so, for whom: the network as organization itself or its partner affiliations?

In our analysis we understand networked foresight as being similar to corporate foresight but as conducted in inter-organizational innovation networks with active contributions from the network partners and for the benefit for the network partners and the network itself. For finding first answers to these questions this article draws from research on strategic management and adjacent disciplines for the analysis. We use the dynamic capabilities approach as introduced by Teece [1] and advanced thereafter by several authors (e.g. [13–18]) as basis for an analytical framework and cross-reference this with findings on value creation through corporate foresight (e.g. [19–22]), contributions of network approaches to innovation (e.g. [23]), and research on organizational design for large-scale multi-party collaboration (e.g. [24,25]). The in-depth case study utilized for the analysis in this paper is the 'Innovation Radar' implemented by the EIT ICT Labs. EIT ICT Labs is a publicly funded European initiative of more than 100 partner organizations from academia and industry [26]. Its unique set-up and the foresight processes are described, followed by an in-depth analysis of these processes based on qualitative data that was collected in interviews, a survey among foresight practitioners that are linked to the EIT ICT Labs Innovation Radar and access to a wide range of documents and meetings of the network.

2. Theoretical foundation

2.1. Dynamic capabilities

Strategy research in general and dynamic capabilities research in particular aims at understanding how firms can gain and sustain a competitive advantage over time [14]. This includes identifying, responding to and creating environmental change, and it includes multiple levels of analysis such as information acquisition, managerial decision-making, organizational routines, competitive interactions and environmental change [15]. Dynamic capabilities research stems from the rationale that other research streams in strategic management such as the competitive forces approach emphasizing market power (e.g., [27]), the strategic conflict approach (e.g. [28]), or efficiency-based approaches such as the resource-based view (RBV) of the firm (e.g. [29,30]) do not adequately explain how and why some firms retain a competitive advantage in rapidly changing circumstances [1,16]. The RBV provides reasonable explanations of the firm as a bundle of resources that may lead to sustainable competitive advantage in case a firm has resources that are valuable, rare, inimitable, nonsubstitutable and allow for value-creating and hard to duplicate strategies. However, in case of rapidly changing competitive environments this has to be extended. Dynamic capabilities address integration, building, and reconfiguring internal and external competencies to act adequately upon identified changes [16].

Multiple approaches to the development of dynamic capabilities frameworks and definitions of dynamic capabilities exist, where four can be identified as being most influential [15,31]. Teece, Pisano and Shuen [1] originally defined dynamic capabilities as 'the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Eisenhardt and Martin [16] state that 'dynamic capabilities alter a firm's resource base, which includes its physical, human and organizational assets' whereas Zollo and Winter [17] see dynamic capabilities acting on operational capabilities [15]. Helfat et al. [13] extended the approach further by defining dynamic capabilities as 'the capacity of an organization to purposefully create, extend, and modify its resource base'.

Although details in the approaches of the above-mentioned authors differ, the basic logic remains similar: dynamic capabilities involve processes that allow firms to obtain, integrate, and evaluate resources, leading to new combinations or reconfigurations of the firm's resource bases and eventually sustainable competitive advantage [13]. Core elements of the early framework for dynamic capabilities provided by Teece, Pisano and Shuen [1] in 1997 are organizational and managerial processes, positions and assets, and paths (dependencies) of enterprises. Later, Teece [14] specified the nature and microfoundations of dynamic capabilities further. Fig. 1 shows the simplified chain of logic—or 'foundations of dynamic capabilities and business performance' as Teece calls it—of the dynamic capabilities framework as defined by Teece [1,14]. As Helfat and Peteraf [15] explain, this is not in contradiction to the logic of the other defining articles named above, these rather specify dynamic capabilities further. For the creation of the analytical framework for networked foresight we proceed with the fundamental logic of dynamic capabilities as shown in Fig. 1.

The core dynamic capabilities are 'sensing', 'seizing' and 'recombination and reconfiguration'. What Teece [14] calls 'sensing' or 'opportunity identification' is referred to as dynamic capabilities that 'are related to the gain and release of resources' or 'for accessing outside knowledge' through alliancing by Eisenhardt and Martin [16]. Access to information is crucial to discover, develop and create new opportunities for the firm. It may lead to an 'effective combination of internally generated