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Knowledge Sharing in an Emerging Network of Practice: The Role of a Knowledge Portal

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This article addresses the emergence of networks of practice and the role of knowledge sharing via knowledge portals. Its focus is on factors that stimulate the successful emergence of networks of practice. Literature on knowledge management and communities of practice suggest the pre-existence of shared knowledge or a shared belief system as a condition *sine qua non* for the networks of practice to emerge. We challenge this assumption and argue and demonstrate that common knowledge and belief systems are rather a result of knowledge sharing rather than a pre-condition. The central question is how a knowledge portal facilitates the diffusion of knowledge among rather loosely coupled and often disconnected innovation projects. Research is carried out in the agricultural industry in The Netherlands. In this industry there is a need to change from a product-oriented to a problem-oriented innovation structure. The set up of a platform and knowledge portal around agro-logistics – crossing different product-oriented production clusters – was therefore a logical result. It gave the opportunity to analyze what the impact of a knowledge portal is in a situation where people and projects come from different organizations and do not know each other. Do they start to share knowledge and what are the conditions? With regard to the case study of the knowledge portal in the agricultural industry we conclude that a knowledge portal will have an impact on how projects are sharing knowledge and on the emergence of a network of practice. The results show that pre-conditions for the emergence of a network of practice are a sense of urgency and fragmented awareness. These results also indicate the important role of a knowledge broker. The developed knowledge portal seems to lead to overcoming structural holes and a closer cognitive distance among the projects. However, we did not find a direct effect of the knowledge portal on sharing tacit knowledge. In the initial phase of a network of practice the knowledge exchange seems to focus on general, non-project specific and explicit knowledge. There was also no direct effect of the knowledge portal on the reciprocity of knowledge exchange among the projects. However, knowledge was shared between the project level and the platform and public level. Conclusions and directions for future research are formulated.

Keywords: Agro-logistics, Innovation projects, Knowledge portal, Knowledge sharing, Network of practice, Social networks

Introduction

The diffusion of innovative knowledge is considered to be one of the main challenges in the emerging

knowledge society. As this innovative knowledge is distributed and fragmented, Internet-based information and communication technologies can help to leverage the knowledge diffusion. These technologies can easily connect distributed and loosely coupled 'pockets of innovation' and diffuse relevant information at high speed and at relatively low costs, see Tuomi (2002).

For this reason a platform of representatives of government, industry, and knowledge institutes in The Netherlands, the so-called *Platform Agro-logistics*, initiated the setting up of a knowledge portal in order to facilitate and speed up the diffusion of innovative knowledge in the agricultural industry. The set-up of this knowledge portal in the Dutch agricultural industry should be considered as an innovation itself. For many years this industry was characterized by a closed and hierarchical knowledge infrastructure in which the government dictated the research themes to the agricultural knowledge institutes. The research results were disseminated and communicated to the agricultural companies who were expected to apply this new knowledge in practice. But recent disasters such as the outbreak of animal diseases such as BSE showed the limits of this approach and new ways of innovations were explored.

In this paper we consider the diffusion of innovative knowledge as a form of collective action that requires social (collective) organization. It implies that the knowledge diffusion is viewed as an interactive process including the involvement of different collective actors.

The research question we address here is how a knowledge portal facilitates the diffusion of knowledge among rather loosely coupled and often disconnected innovation projects. Although the knowledge portal can easily connect these disconnected projects and thereby facilitate knowledge diffusion we will argue that a minimal social organization is needed to initiate this diffusion process. Literature on knowledge management and communities of practice suggest the pre-existence of shared knowledge or a shared believe system as a condition *sine qua non* for the networks of practice to emerge, see for example Cohen and Levinthal (1990), Nonaka (1994), and Grant (1996). We challenge this assumption and argue and demonstrate that common knowledge and common belief systems are rather the result of knowledge sharing instead of a pre-condition. The aim of this article is twofold. The first objective is to conceptually describe the emergence of a network of people and groups that do not share knowledge and beliefs at the initial situation. The second objective is to empirically show how this network emerges and evolves and what factors contribute to the successful emergence. It implies that we do not assume the existence of a particular form of a social network (e.g. community of practice) in advance, but will view this as the outcome of network evolution.

Research was carried out in the agricultural industry in The Netherlands in particular the set up of innovation projects around themes related to agro-logistics, see Ministries of LNV and V&W (2001). Agro-logistics deals with the logistics e.g. transportation, storage, and distribution of agricultural products. The answer to the above question was sought in a case study approach. The case study provides a basis upon which theoretical propositions are formulated and generalized (so called analytic generalization), see Yin (2003). The choice of the case setting made it possible to analyze how a network emerges and how people and groups – that did not know each other – started to share knowledge. The case study let us closely track the design and use of a knowledge portal that could facilitate knowledge sharing among different innovation projects.

This article is divided into three main sections. First, a literature review of knowledge sharing in networks and the role of knowledge portals is developed into a conceptual framework, complemented with six propositions. Second, the empirical setting in the agricultural industry with research method and data will be explained. Third, an empirical analysis of the case of the knowledge portal in the agricultural industry will be presented. Lessons learned, conclusions, and suggestions for further research are formulated.

Literature Review and Conceptual Framework

Knowledge Sharing

The diffusion of innovative knowledge has become one of the major research interests in management science and economics. A huge body of literature focuses on innovation as a ''thing'' about which information needs to be provided to potential adopters and users in order to implement this innovation successfully (Swan *et al*., 1999: 262). As knowledge has become to be seen as an innovation in itself new, critical questions arise how to define knowledge and how innovative knowledge can be diffused. Since the former question has been discussed extensively in the recent management literatures it suffices to discuss it briefly here. Since the publication of Nonaka's seminal paper ''A dynamic theory of organizational knowledge creation'' the complex distinction between explicit and tacit knowledge has been widely accepted (Nonaka, 1994). The issue is not if there exists such a distinction but how to understand the complex relationship between explicit and tacit knowledge. Roughly, two different views can be distinguished in this debate: the 'near tangible view' and the distributed view on knowledge (Tsoukas, 2003). In the former view it is assumed that explicit and tacit knowledge can be converted to each other (Nonaka, 1994; Nonaka and Takeuchi, 1995). This view suggests that knowledge, by means of articulation,