

# Chapter 10

## Knowledge Supply for SME Networks: Application Cases and Selected Technical Approaches

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### ABSTRACT

*Current trends of globalisation and increased competition require new forms of organisation and work support. Especially in small and medium sized enterprises (SME), the competitiveness and future market position of an enterprise is closely related to the ability of cooperating with partners in SME networks or virtual supplier organisations. In complex work processes with a number of distributed partners, high requirements with respect to competence and a lot of rules and guidelines to be obeyed; detecting and sharing knowledge among different members of networked organizations is an important issue. Based on an empirical investigation regarding the demands of SME and illustrating this demand with industrial cases, this paper investigates two technical approaches supporting knowledge supply in networked organizations: enterprise modeling and self-organisation of flexible supply networks. These approaches are presented with related work and their limits and potentials.*

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## INTRODUCTION

Current trends of globalisation and increased competition require new forms of organisation and work support. Especially in small and medium sized enterprises (SME), the competitiveness and future market position of an enterprise is closely related to the ability of cooperating with partners in SME networks or supplier organisations. SME networks are communities or associations of enterprises based on common economical and value-creation objectives. They pro-actively form co-operations for joint development or project work. These co-operations typically are temporary, dynamical with respect to the members, geographically distributed, flexible and quick responsive to market demands.

SMEs usually have a number of internal knowledge sources which should be used more systematically and intensively in cooperation projects. Although most knowledge exists in the heads of employees, there usually is a substantial amount of *externalised knowledge*, i.e. stored electronically in documents, databases or information systems. Furthermore, we consider *corporate knowledge* represented in work processes, organisation structures or best practices as an important knowledge asset.

All these knowledge sources are especially important in complex work processes with a number of distributed partners, high competence requirements and a lot of rules and guidelines to be obeyed. In these situations it is important to discover the exactly “right” knowledge source, to find it “in time” and to get access to it fast. Furthermore, networks with changing partners often have communication problems due to different understanding of the same term. Knowledge supply has to be more than simply installing a search engine or providing a repository for all partners. A promising approach is to use knowledge representation approaches, like ontologies and semantic nets, in order to support knowledge capturing, management and supply in organisations.

The chapter addresses the area of knowledge supply for networks of small and medium-sized enterprises based on experiences from several industrial projects. The main intention is to present requirements and challenges in SME networks based on industrial cases, propose options for IT solutions supporting these demands, and discuss potentials and limits of these options from an SME focus. The chapter will start with a section on SME demand regarding IT solutions for information and knowledge management (section 2), present two application areas related to the demand (section 3) and selected technical approaches (section 4). Finally (in section 5 and 6) the chapter reflects on the potential future development of the selected technical approaches and discuss their limits. A summary of the content and contributions will conclude the chapter.

## BACKGROUND

Work in the area of knowledge supply for SME networks should be based on at least two different perspectives: the existing work on information and knowledge supply and findings about the demand of SME and SME-networks. Both subjects will be briefly described in this chapter.

### Information and Knowledge Supply

This section provides background information and description of the research activities in information logistics and knowledge supply in networked organizations. Joint basis for this research are the areas of enterprise modeling and knowledge modeling, in particular concepts and approaches to describe and characterize the meaning of information objects and to model information demand.

### Information Logistics

Information Logistics investigates approaches and solutions for an optimized information flow

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