

Chapter 8.4

State of the Art Solutions in Enterprise Interoperability

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ABSTRACT

More than 99% of European enterprises are SMEs. While collaboration with other enterprises provides potential for improving business performance, enterprise interoperability research has yet to produce results which can be used by SMEs without the need for high start-up costs (e.g. learning, infrastructure

and installation costs). Therefore the Commius project (funded by the European Union) aims towards the development of such a “zero costs of entry” interoperability solution for SMEs, allowing them to reuse existing and familiar applications for electronic communication. This chapter provides an overview of the research field “Enterprise Interoperability.” Based on a four layer interoperability framework, this chapter will examine which technical, process-based and semantic solutions for enterprise interoperability are available at the mo-

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ment and which strategic motives drive or prevail SMEs to engage in E-business activities.

INTRODUCTION

The widespread use of modern Information and Communication Technologies (ICT) nowadays results in highly competitive markets. Companies of all sizes have to cope with a changing business environment, where former entry barriers are not existing any more and product and price competition increases steadily. Therefore more and more companies try to meet the challenge by concentrating on their core competencies and cooperating with other companies to complete the value chain (Wirtz & Vogt, 2003). However, before and while working together, cooperating companies have to coordinate their activities. This coordination generates costs which are to be minimised to maximise the cooperation benefit. Especially for **SMEs** (**S**mall- and **M**edium-sized **E**nterprises) with their usually very restricted financial resources it is necessary to minimise these coordination costs.

Moreover, the technology-induced global competition makes time a critical success factor forcing enterprises to quickly react on new business opportunities. Therefore a concentrated effort to be always prepared to initiate or join new businesses will become a mandatory management task, going beyond the classical core competence orientation. This ability is a constitutional element of the term Interoperability, which is e.g. defined by the Institute of Electrical and Electronics Engineers as “the ability of two or more systems or components to exchange information and to use the information that has been exchanged” (IEEE, 1990).

There are several comparable definition approaches of this technical kind – however, Enterprise Interoperability is more than interoperability between technical systems. Therefore, this article begins with a definition of the term “Enterprise

Interoperability”, which goes beyond the technical perspective. To clarify the different perspectives, a framework will be introduced which describes the four most important aspects of Enterprise Interoperability. Based on this framework an analysis will be executed, presenting and evaluating current approaches to support interoperability between enterprises with special focus on SMEs. This analysis will be supported by facts and figures from an European survey. The article closes with a summary of the results.

DEFINITION OF ENTERPRISE INTEROPERABILITY

Following the understanding of the IEEE definition given in the introduction, interoperability is defined as a property of a technical system and is being strictly regarded as a technological phenomenon. Even though this appears to be only a partial perspective, there are several definitions that mainly describe interoperability as an aspect of technical systems (Lewerenz, 1999). From a technical point of view, the main prerequisite to enable interoperability is the possibility to exchange data based on a common gateway enabling interactions (Roser, 2008). This leads to the conclusion that in this pure technical coherence, interoperability just constitutes a system feature.

The reference object of enterprise interoperability however is not such a technical system but rather a complex organisational system: the cooperating enterprise itself. An enterprise however can not be seen as a pure system-based object; strategic, social and market related issues have to be considered as well. Thus it becomes necessary to transfer the understanding of a mainly technical interoperability into a new business-oriented domain, which also emphasizes economic aspects of interoperability. Nevertheless, in the context of enterprise interoperability the technical understanding can be considered as the foundation on which interoperability occurs. Hence a shared

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