Abstract: The competitiveness and efficiency of an enterprise is dependent on its ability to interact with other enterprises and organisations. In this context interoperability is defined as the ability of business processes as well as enterprise software and applications to interact. Interoperability remains a problem and there are numerous issues to be resolved in different situations. We propose method engineering as an approach to organise interoperability knowledge in a method chunk repository. In order to organise the knowledge repository we need an interoperability classification framework associated to it. In this paper we propose a generic architecture for a method chunk repository, elaborate on a classification framework and associate it to some existing bodies of knowledge. We also show how the proposed framework can be applied in a working example.
1 Introduction

Interoperability is defined as “the ability of Enterprise Software and Applications to interact” (Interop, 2005). We claim that it is impossible to provide one universal method for interoperability problems solution and we propose to define a knowledge base of reusable method chunks each of them addressing one or more specific interoperability problems. In order to support situation-specific method construction and application, a collaborative tool must be developed supporting method chunks construction and storage as well as their selection and reuse in different projects. The specialisation of such a knowledge management tool for the interoperability domain requires the creation of a mapping from the method chunks to the interoperability problems, i.e. an indexation mechanism associating each method to one or several well-defined interoperability problems. The definition and classification of interoperability problems is necessary for interoperability situation assessment and selection of the method chunks satisfying this situation.

In this paper we view information systems development as knowledge work (Iivari, 2000; Backlund, 2004) with the aim of exploring an interoperability classification framework for a Method Chunk Repository which can be used to solve industry relevant interoperability problems. We propose method engineering as a means for dealing with some aspects of interoperability. However, in order to make an interoperability method chunk repository useful we must supply a classification of interoperability problems which can be used to guide the repository user in composing methods. The proposed repository should deal with interoperability problems within information systems development; hence we will anchor the classification scheme in the information systems body of knowledge (Iivari et al., 2004).

The focus cannot be placed on the applications alone. In order to achieve meaningful interoperability organisations must be interoperable on, at least three levels: a business layer, a knowledge layer and an ICT systems layer (Chen and Doumeingts, 2003). This includes the business environment and business processes on the business layer, the organisational roles, skills and competencies of employees and knowledge assets on the knowledge layer, and applications, data and communication components on the ICT layer. Similarly, but from a more software-architecture oriented view, Schulz et al. (2003) conclude that interoperability is achieved on the following levels: inter-enterprise coordination, business process integration, semantic application integration, syntactical application integration, and physical integration. According to these authors interoperability should be analysed from an enterprise view (i.e. interoperability between two or more organisations), an architecture & platform view (i.e. between two or more applications/systems) and an ontological view (i.e. the semantics of interoperability).

As can be seen from the above descriptions, interoperability is a multifaceted concept. In order to be able to match a specific problem situation of a particular case to method chunks enabling the problem solution, we need a mechanism supporting method chunks indexation on the one hand and situation assessment on the