Chapter 15
Towards Method Component Contextualization

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ABSTRACT
Method Engineering (ME) is a discipline which aims to bring effective solutions to the construction, improvement and modification of the methods used to develop Information Systems (IS). Situational Method Engineering (SME) promotes the idea of retrieving, adapting and tailoring components, rather than complete methodologies, to the specific context. Existing SME approaches use the notion of context for characterizing situations of IS development projects and for guiding the method components selection from a repository. However, in the reviewed literature, there is no proposed approach to specify the specific context of method components. This paper provides a detailed vision of context and a process for contextualizing methods in the IS domain. This proposal is illustrated with three case studies: scenario conceptualization, project portfolio management, and decision-making.

INTRODUCTION
An IS development methodology (ISDM) is a set of ideas, approaches, techniques and tools which system analysts use to help them transforming organizational needs into an appropriate Information System. The application areas of these methodologies are various. Because of this diversity, it is now apparent that a universal method that could be applied to deal with any IS development project does not exist. Method engineering (ME) represents the effort to improve the usefulness of ISDM by creating an adaptation framework whereby methods are created to match specific organizational situations. ME aims to find solutions to the construction, improvement and
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modification of the methods used to develop information systems. One of the ME fundamentals for optimizing, reusing, and ensuring flexibility and adaptability of these methods is their decomposition into modular parts (Harmsen, Brinkkemper, & Han Oei, 1994; Rolland, 2005). This purpose is the object of Situational Method Engineering (SME) which promotes the idea of retrieving, adapting and tailoring components, rather than complete methodologies, to the specific context.

Existing SME approaches consider the notion of context in order to guide the selection of a method component from a repository according to a given situation. They also deal with different kinds of context factors characterizing situations of IS development projects and offer various methodologies for using context. For instance, the method component context is studied in different approaches and is represented as: reuse frame (Mirbel, 2008); interface (Ralyté & Rolland, 2001b); method service context (Guzélian & Cauvet, 2007); contingency factors (Van Slooten & Hodes, 1996; Harmsen, 1997); development situation (Karlsson & Agerfalk, 2004). These approaches foresee different context elements which are the characteristics of method components.

However, the reviewed literature shows that, firstly, there is no approach considering all of the possible characteristics and, secondly, these approaches do not suggest a methodology allowing to define a set of concrete context characteristics for a given method.

In our view, the context is a set of characteristics which describes situations of a method application. The context is defined for an IS development method and its components. Each method component is then described by concrete values of these characteristics. In this paper, we focus on the contextualization of method components. Our goal is to propose (1) a generic model of context based on the state-of-the-art and (2) an IS development methods contextualization process. We introduce the frame of contextualization, we present the context model, the context typology and the process to construct the context characteristics set for a given method. We illustrate our proposal with three case studies: scenario conceptualization, project portfolio management and decision-making.

All processes in this work are formalized with the MAP model which is commonly used in the ME field (Rolland, Prakash, & Benjamen, 1999). In our proposal, this formalism is used to represent the contextualization process in an intentional way. In the case studies, it is used to represent the organization of the method components (the links between them).

The paper is organized as follows. The notion of method component is described in the second section. Third section surveys a state-of-the-art on the notion of context. The fourth section proposes a context model and a process for the contextualization of method components. We illustrate our proposal with examples in the fifth section. Related works are given in the sixth section. A conclusion and future works are given in the last section.

CONTEXT AND ITS APPLICATION IN METHOD ENGINEERING

Cross Domains Application of Context-Awareness

Bouquet, Ghidini, Giunchiglia, and Blanzieri (2003) state that the study of context was started in the 70s. Since then, many different domains in relation with information systems use the notion of context and give various interpretations of it. For instance, Dey, Abowd, and Salber (2001) defines the notion of context by the information that could be used for characterizing the situation of an entity (person, object or computer), and, more generally, by any element that can influence the IS behavior. Rey and Coutaz (2002) foresee the context from four points of view: