Capturing Process Knowledge for Multi-Channel Information Systems: A Case Study

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ABSTRACT

In this paper, a case study is used to evaluate the business process characterizing modeling (BPCM) language. The BPCM-framework is meant to guide both business stakeholders and model developers during model-based development. The focus of the approach is the use of BPCM as a starting point for capturing process knowledge when planning and developing information system support. Based on information within the BPCM models, goal models and process models can be developed and used for further development of the BPCM model. The approach in this paper is evaluated using a case study related to the arrangement of a conference series. Through the case study, the authors have confirmed the potential usability and usefulness of BPCM for early stage knowledge capture, getting input for further improvement of the approach.

Keywords: Business Process Characterizing Modeling (BPCM), Enterprise Modeling, Model-Based Development, Process Modeling, Requirements Engineering

INTRODUCTION

Information system development often starts with the development of process models. However, some studies (e.g., Gordijn & Akkermans, 2001) indicate that process models are not a good starting point for identifying stakeholder needs. Many business people want to start a project with the development of a more business oriented model addressing essential business aspects, rather than look at a relative complicated business process model showing detailed control-flow.

As illustrated in Fowler (2003), one of the main ways of utilizing models is to describe some essential information of a business in an informal way in order to facilitate communication among stakeholders. As information systems have moved from office-based systems to mobile and multi-channel systems, the potentially essential information to take into account has been extended to support the work process in a number of new contexts.

It is believed that identifying the key business process characteristics of the problem

DOI: 10.4018/jismd.2012010104
domain in the early phase of an IT project is as important as building and implementing the IT system. In empirical studies of the software design process (Curtis, Krasner, & Iscoe, 1988), some researchers discovered that poor understanding of the business domain is a primary cause of the software design project failure. In the course of business process system development, model developers focus on operational and procedural aspects of process systems, while various business stakeholders are more likely to express different concerns with regard to process models in terms of business oriented concepts. Therefore, in order to design a good business process support system, it is crucial for model developers to have a better and deeper understanding of the problem domain.

In Gao and Krogstie (2009), by taking inspiration from these ideas, we proposed a business process characterizing model (BPCM), which can be seen as a business-oriented model for the use in the early stages of a project, both for traditional development, but also for the development of multi-channel solutions working across a set of contexts. Business stakeholders might not be familiar with traditional modeling, but should be able to produce a BPCM that can capture the core knowledge about the major business processes. Furthermore, BPCM can help to bridge the gaps between business stakeholders and technical model developers ensuring better business process models.

The objective of this paper is to evaluate the usability of the BPCM modeling language in a case study with respect to the modeling of processes related to practical conference arrangements.

The remainder of this paper is organized as follows. The next section provides further motivation presenting state of the art. Then we briefly describe BPCM, before describing the case study where BPCM was used together with BPMN process models and i* goal models. The results from the case study are summarized in a way being structured along the lines of SEQUAL language quality dimensions (Lillehagen & Krogstie, 2008). The final section concludes the paper.

MOTIVATION AND STATE OF THE ART

Context is a key issue in the interaction between users and mobile devices, describing the surrounding facts that add meanings and can be used for additional personalization of a system. Location can be regarded as one important part of the context. Schmidt, Beigl, and Gellersen (1999) provide a working model for context. At the top level of this model, they propose two contexts related to human factors in the widest sense and physical environment respectively. Human factors related context is structured into three categories: information on the user (i.e., knowledge of habits), the user’s social environment (i.e., co-location of others, social interaction), and the user’s tasks. Likewise, context related to physical environment is structured into three categories: location (i.e., absolute position, relative position), infrastructure (i.e., surrounding resources for computation), and physical conditions (i.e., noise, light). Furthermore, how context relates to requirements specification and analysis and design of mobile information system was discussed in Krogstie (2001) and Krogstie et al. (2003).

The authors in Krogstie et al. (2003) categorize context as follows:

- The spatio-temporal context describes aspects related to time and space. It contains attributes like time, location, direction, speed and track. The manner of movement is often important relative to this. Kristoffersen and Ljungberg (1999) distinguish between travelling, visiting and wandering. Travelling is movement between different locations in a vehicle. Visiting is a prolonged period spent in one location before moving back to the original location or on to another one. Wandering is moving about — usually on foot — in the local area.
- The environmental context captures the entities that surround the user, for example, physical objects, devices, services, temperature, light, humidity and noise.
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