Chapter XV
Handling Usability Aspects for the Construction of Business Process Driven Web Applications

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ABSTRACT

Users consider usability aspects as a key factor when using Web applications. For this reason, in this work we take a special care in this very important issue. In particular, we are centred on usability aspects regarding business process driven Web applications. Therefore, in this work we gather a set of guidelines provided by experts in Web usability and present the solution designed in a particular Web engineering method that follows a model driven development approach. The provided solution bases on the introduction of these guidelines following two different approaches. The former implies handling usability guidelines at the modeling level. The latter implies using them for the definition of the transformation rules that generate the corresponding usable Web applications.

INTRODUCTION

There is a lot of research done in the Web engineering area mainly focused on the automation process of Web application building. Most of this research provides mechanisms to handle some of the aspects that contribute to improve the usability of the generated Web applications. However, there are some works (Ahlstrom & Longo, 2001) that highlight the drawbacks found in existing Web engineering methods. This limitations support the need to endow methods that handle usability aspects along the development process.

Nowadays, the proliferation of Web applications makes usability a key factor to make the difference between them. The usability expertise community has produced both guidelines and standards that face the different usability prob-
lems introduced by Web applications. However, in order to ensure that these guidelines are used and applied properly, it is necessary to integrate them during the software development process and provide them with tool support (Abran et al., 2003, p. 325).

In particular, we are concerned about usability regarding Web applications that support the execution of business processes (BP). In fact, the impact that usability has on productivity makes worth it to take a look carefully on that.

Nowadays, the Web has been adopted as the common platform for application development. As a result we can find in Internet different kind of applications, which range from personal Web sites to e-commerce applications or even corporate intranets.

Web applications have become so complex (mainly due to their size) that users usually do not know what role their work plays in the overall scheme of the applications. As a result, this complexity has a negative effect upon productivity because users get lost on the application trying to find the right place to complete the tasks they are responsible of.

The maturity reached in technology for Web development allows us to find Web sites that provide users not only with information but also with a set of services, behind which we can find business goals that have been previously defined by business processes.

The objectives of this work are (1) to analyze the usability guidelines that ensure the generation of usable Web interfaces and (2) to present how these guidelines can be integrated into a Web engineering method. This integration is performed into a method that follows a model driven approach what implies that these guidelines are going to be introduced either at the modeling level or at the transformation rules that generate the code.

The remainder sections are organized as follows. Section 2 identifies the characteristics of the kind of processes that we are dealing with. In addition, it includes an example for each kind of process. Section 3 provides an overview over the state of the art developed in the Web engineering area regarding usability aspects. Section 4 presents the mechanisms defined in the OOWS approach to overcome the usability problems that arise when performing BPs. Section 5 presents the solution designed in the OOWS approach to satisfy usability guidelines defined by usability experts. Section 6 provides the implementation strategy. Finally, section 7 concludes the work presented in this paper.

**CHARACTERIZING BUSINESS PROCESSES**

The term business process (BP) was defined by the Workflow Management Coalition (WFMC) (Workflow Management Coalition, 1999) as “a set of one or more linked procedures or activities which collectively realise a business objective or policy goal, normally within the context of an organisational structure defining functional roles and relationships.”

Its usage covers indistinctly abstract, private and collaboration processes. For this reason, depending on the objective for which a process has been defined, we can refer to one of these three usages mentioned previously.

In particular, in this work we contextualize BPs as a mixture between private and collaboration processes (see Figure. 11). In the one hand we define the internal process (private) of the system being built. On the other hand, we also define by means of exchanged messages the interaction (collaboration) that occurs between our system and external organizations.

Regarding the context in which BP are executed we distinguish two kinds of processes, which refer to short-lived and long-lived processes. In order to improve the usability of Web applications that provide support to the execution of different BPs, we have to define properly the mechanisms that the user has to interact with the system (which is by
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