

## Chapter 2.6

# Developing User Interfaces for Community–Oriented Workflow Information Systems

**Josefina Guerrero García**

*Université catholique de Louvain, Louvain School of Management (LSM), Belgium*

**Jean Vanderdonckt**

*Université catholique de Louvain, Louvain School of Management (LSM), Belgium*

**Juan Manuel González Calleros**

*Université catholique de Louvain, Louvain School of Management (LSM), Belgium*

### **ABSTRACT**

Technology to support groups is rapidly growing in use. In recent years, the Web has become a privileged platform for implementing community-oriented workflows, giving rise to a new generation of workflow information systems. Specifically, the Web provides ubiquitous access to information, supports explicit distribution of business process across workers, workplaces, and computing platforms. These processes could be all supported by platform-independent user interfaces. This chapter presents a model-driven engineering method that provides designers with methodological guidance on how to systematically derive user interfaces of workflow information systems from

a series of models. For this purpose, the workflow is recursively decomposed into processes which are in turn decomposed into tasks. Each task gives rise to a task model whose structure, ordering, and connection with the domain model allows the automated generation of corresponding user interfaces in a transformational approach. The various models involved in the method can be edited in a workflow editor based on Petri nets and simulated interactively.

### **INTRODUCTION**

There are a variety of definitions on virtual communities with all of them having in common the

participation of people working and sharing information or knowledge in a shared space toward the accomplishment of a goal. Virtual communities are formed around different disciplines such as sociology, anthropology, medicine, computer science, management science, distance learning, bring together people sharing a common interest, concern or desire. Some times such virtual settings may impose a shared community-wide workflow, but this need not be always the case. In this chapter we will be concerned with virtual communities in which members share a common practice (i.e., learning, business process) which is to be interactively manifested to dispersed community members using different tools and computational devices. In such cases, one important aspect to consider is the design of the user interfaces (UIs) of the system that will be used by the community to foster collaboration. Ideally, such a design should be freed from the specificities of platforms, access terminals and local workflow bindings. To this effect, it is important to generate user interface software for community-oriented workflows in a manner which platform independent, customizable and extensible.

In this chapter we introduce the FlowiXML methodology for developing the various UIs of a community-oriented workflow information system (WIS). Traditionally, workflow information systems are designed to be used by different types of users to accomplish a variety of tasks and in different situations; usually include communications and coordination between people and actions of several persons on shared objects and in shared workplaces including the Internet. For several years now, people have been using online virtual spaces to communicate and carry out work-oriented tasks. Prior to the World Wide Web, BBS, or electronic bulletin boards and email loops connected folks across time and space. With the advent of the Web several issues such as ubiquitous access to information, distribution of processes, and platform-independence emerged as first-class design issues.

Workflow information systems are a specified way of working to accomplish a task in a collaborative setting, just as it is the case of a community of practice. Consequently, creating a community workflow involves a level of design above the institutionalized workflows supported by individual members of the community of practice. Our method can be exploited to facilitate user interfaces to shared community-wide workflows within the context of a cross-organizational virtual alliance, thus establishing a shared practice which is interactively manifested through dedicated interaction components.

FlowiXML method generates UIs following a model-driven engineering (MDE) approach that is user-centric, based on the requirements and processes of the community. The methodology seeks to: 1) integrate human and machines based activities, in particular those involving interaction with IT applications and tools, 2) identify how tasks are structured, who perform them, what their relative order is, how they are offered or assigned, and how tasks are being tracked.

In the remaining of the chapter, we provide a background research in understanding the variety of approaches to build workflow information systems, and then we describe a workflow framework and the FlowiXML methodology for building UIs that can be used as well for developing community-oriented workflow information systems. Following this, a case study and a tool supporting the method are presented. The chapter is wrapped up by summarizing our work, deriving conclusions and addressing future trends and challenges.

## **BACKGROUND**

In recent years, there has been a vast interest in how groups of people work together, and in how collaboration and cooperation might be supported. Virtual communities are formed and exploited by a variety of social and professional groups

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