

A Knowledge Flow Management System for Community Software Development

J. Leon Zhao^{1,2}, Shaokun Fan¹ and Daning Hu²

1. Department of MIS, Eller College of Management, University of Arizona, Tucson, AZ 85721

2. Department of Information Systems, City University of Hong Kong, Kowloon, Hong Kong
jlzhao@cityu.edu.hk, fsk@ email.arizona.edu, daninghu@cityu.edu.hk

Community software development (e.g., www.kuali.org) is a new paradigm of software development, which focuses on supporting collaboration and knowledge sharing among geographically distributed teams during software development. In such teams, special knowledge needs to be shared for executing tasks among team members. However, unmanaged knowledge flows are often inefficient for supporting group works due to the lack of 1) efficient mechanisms to coordinate knowledge sources, and 2) knowledge sharing mechanisms and platforms. Solutions for highly efficient and effective knowledge logistics (e.g., who needs which knowledge resources, when, how, and why) require new technological concepts, which go beyond current software systems such as groupware, workflow, and knowledge management systems. In this prototype system, we showcase a knowledge flow management system that integrates workflow and knowledge management via an Event Management System (EMS).

Knowledge flow refers to knowledge transfer processes from one individual to another in an organization. A knowledge flow management system has three parts: knowledge content, sender, and receiver.

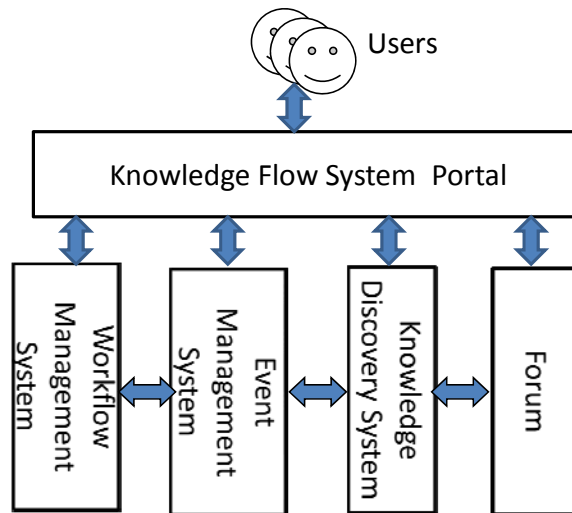


Figure 1. Architecture of Knowledge Flow Management System

The architecture of knowledge flow system is shown in Figure 1. The workflow component controls the overall software development process and the forum component is used as a communication platform. One major challenge in the design of knowledge flow management system is how to trigger knowledge flow. An event management system is developed to manage knowledge flows among participants. The knowledge discovery system is used to retrieve knowledge (e.g., documents, discussion threads and registered experts) from the forum based on the knowledge requirements in the software development process. For example, a project manager needs some knowledge about SOA when making a project scheduling decision. The workflow system will send a knowledge request to the EMS. Then, the EMS will trigger a knowledge flow as an event based on given parameters. The knowledge discovery system will be invoked to find useful SOA-related discussion threads in the forum and relevant experts who register in the forum. Then the project manager could use the discovered knowledge and interact with the experts via the forum. The knowledge flow event is terminated when the knowledge requirement is satisfied.