Collaborative Multi-agents for Workflow Management*

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Abstract

Workflow management helps organizations to organize their work on different activities in such a way that the predictable underlying processes are carried out effectively and efficiently in a distributed environment. In this paper, we describe a business workflow management system with intelligent multi-agent support in a collaborative organization environment. With the help from multi-agent collaboration, our workflow management system can organize the organization's work processes and provide resource control, data mediation, semantic mapping, knowledge visualization processing. Such systems are able to manage the organizational workflow more effectively and more efficiently.

Keywords: Intelligent agents, Workflow management systems, Collaboration, Knowledge sharing

1. Introduction

Workflow management helps organizations to organize their work on different activities in such a way that the predictable underlying processes are carried out effectively and efficiently in a distributed environment. A computer based workflow management system (WFMS) organizes the design, execution and monitors general long-lasting business that typically involves multiple activities and multiple collaborating staff in distributed environment. By making the business processes explicit, a WFMS promises to increase the competitive edge of an organization. In this aspect, the coordination of the various activities and the several resources plays a central role [5]. In fact, the business process itself may be seen as a metaphor of different shared resources. The one of the greatest problems in such workflow management is flexibility. How to automate a business process respectively that is constantly changing without costing too much time? How the knowledge and recourse shared efficiently in the workflow processing?

Information and knowledge sharing and collaboration across departments, functions and different information systems within the organization are the key problem to be solved in order to increase organizations' productivity and efficiencies. The backbone of such collaborative organizations is the processing system that holds the enterprise together [15]. In our vision, a Collaborative Organization Environment (COE) with intelligent multi-agent support is the backbone to handle such tasks. Our COE is a collaboration infrastructure that allows the multi-agents to communicate each other to share their knowledge and resources, regardless of their different geographic locations, and to help the organization for the decision making, and for the development of better products, faster and cheaper than ever before.

In this paper, we describe a business workflow management system with intelligent multi-agent support in a particular Collaborative Organization Environment. Thus, our system consists of a number of agents, which operate autonomously and cooperatively with each other to perform the tasks in the WFMS and to distribute knowledge, recourses and strategies across the individual departments.

Formally, the term agent is used to denote a software-based computer system that enjoys the

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