Chapter I

OABIS:
An Ontology-Based Approach to Business Rules Sourcing in Supply Chain Management Systems

Sudha Ram, University of Arizona, USA

Jun Liu, University of Arizona, USA

Abstract

In recent years, business-rule management has become an important component of enterprise information systems. Business rules are guidelines for how an enterprise should conduct its business and provide better service to customers. Business rules are being widely deployed in supply chains to support real-time decision-making. The research reported in this chapter is aimed at designing a dynamically adaptable data-sourcing service for deploying business rules effectively in supply-chain management. Such a data sourcing service is important since execution of business rules requires data to be retrieved from various data sources spread across the enterprise,

including the enterprise data warehouse. We propose an ontology-based approach to implement the data-sourcing service for business rules. Our approach captures semantics of business rules and provides an agent-enabled mechanism that dynamically maps business rules to individual database schemas in the supply chain.

Introduction

Business rules are an important asset of any enterprise: They represent decisions that are made to achieve business objectives and reflect the business policies of an enterprise (Rosca & Greenspan, 2002). Nowadays, the need to incorporate business rules into information systems is becoming imperative due to the rapid development of **e-business**. Many companies embrace e-business because it helps reduce inventories, lower cycle times, lower cost of sales and marketing, and create new sales opportunities (Motiwalla, Khan, & Xu, 2005). However, e-business has led to a radical shift in how business is conducted as it entails access to far more information, creates new channels for products, and provides multiple alternatives for outsourcing. All these raise serious challenges related to real-time decision-making and sharing and management of data for supply chains. To obtain a competitive edge and to take full advantage of the new opportunities offered by e-business, **supply chains** need to respond quickly to new business opportunities and make smart business decisions based on voluminous data shared among supply-chain partners. As a result, deploying business rules to support **supply-chain decision-making** has become a major issue that affects the competitiveness of an enterprise.

In the last decade, business-rule management has become an important component of information systems. Traditionally, business rules have been scattered and hard-coded in different applications. Today's new technologies for managing and executing business rules such as rule engines (Rosca & Greenspan, 2002) and business-rule repositories (Herbst, 1996, 1997; Von Halle, 2001) follow the principle of "externalizing business rules" (Date, 2000) and manage business rules in a separate module to support centralized supply-chain decision-making. Isolating business rules from individual applications enables business people to easily find and modify the pertinent rules when a policy change is needed, thereby providing the ability to make business decisions based on the real-time market situation. However, it also creates a need for integrating business-rules systems with other applications in the supply chain. Consequently, a business-rules service requires software components that interface with databases and other supply-chain applications to be effective. As an example, a software component that sources data for business rules is important.

Business rules are data-based (Ross, 1997). Validation of business rules using supply-chain simulation should be based on current information regarding inventory, order rates, product data, and so on. Execution of business rules also requires data

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/oabis-ontology-based-approach-business/5106

Related Content

A Home Agent Initiated Handover Solution for Fine-Grained Offloading in Future Mobile Internet Architectures: Survey and Experimental Evaluation
László Bokor, József Kovácsand Csaba Attila Szabó (2014). *International Journal of Agent Technologies and Systems (pp. 1-27).*
www.irma-international.org/article/a-home-agent-initiated-handover-solution-for-fine-grained-offloading-in-future-mobile-internet-architectures/109600

An Agent-Based Model of the Spread of Devil Facial Tumor Disease in an Isolated Population of Tasmanian Devils
Charles E. Knadler (2012). *International Journal of Agent Technologies and Systems (pp. 1-16).*
www.irma-international.org/article/agent-based-model-spread-devil/75446

Asynchronous Modeling and Simulation with Orthogonal Agents
Roman Tankelevich (2012). *International Journal of Agent Technologies and Systems (pp. 17-37).*
www.irma-international.org/article/asynchronous-modeling-simulation-orthogonal-agents/75447

Computers Can Feel Too: Intelligent Emotional Agents in E-Learning Systems
K. Chatzara, C. Karagiannidisand D. Stamatis (2011). *Multi-Agent Systems for Education and Interactive Entertainment: Design, Use and Experience (pp. 188-205).*
www.irma-international.org/chapter/computers-can-feel-too/50401

A Review of Recent Contribution in Agent-Based Health Care Modeling
Simerjit Gilland Raman Paranjape (2010). *Multi-Agent Systems for Healthcare Simulation and Modeling: Applications for System Improvement (pp. 26-43).*
www.irma-international.org/chapter/review-recent-contribution-agent-based/37009