IDEA GROUP PUBLISHING

701 E. Chocolate Avenue, Suite 200, Hershey PA 17033-1240, USA **ITB9729**
Tel: 717/533-8845; Fax 717/533-8661; URL-http://www.idea-group.com

Chapter III

Intelligent Enterprise Integration: eMarketplace Model

Hamada H. Ghenniwa
University of Western Ontario, Canada

Michael N. Huhns
University of South Carolina, USA

ABSTRACT

This chapter describes an architecture for the eMarketplace *that integrates the interests of autonomous enterprises in a single open-market environment. The environment encompasses several systems and business issues, such as the many-to-many relationships between customers and suppliers, systems, and business-related services. The architecture for this integrated environment is business-centric and knowledge-oriented. In this architecture, the* eMarketplace *exists as a collection of economically motivated software agents. The architecture enables and supports common economic services, such as brokering, pricing, and negotiation, as well as cross-enterprise integration and cooperation in an electronic supply-chain. We demonstrate the* eMarketplace *with two prototype systems.*

INTRODUCTION

It is said that there are only two types of enterprises: those that change and those that disappear. Businesses today must be fast and flexible, responsive to customers, and cost-effective in their operations. They must collaborate more frequently with partners to build virtual organizations and supply-chains that reduce time-to-market and costs. More challenges loom as companies, organizations, and other business entities try to reorient their internal capabilities to exploit electronic business (*eBusiness*) techniques. These are difficult and expensive things to do in a fast-paced world where change drives business. *eBusiness* is the use of the Internet along with other electronic means and technologies to conduct within-business, business-to-consumer, business-to-business, and business-to-government interactions.

Traditional models of *eBusiness*, such as those based on EDI (Electronic Data Interchange), ERP (Enterprise Resource Planning), and enterprise-centric views, are useful for businesses with well-defined trading relationships, but unsuitable for the rapidly growing and changing global marketplace. In these models, point-to-point interfaces are created to support transactions involving replenishment orders for direct production goods of a previously negotiated contract. For example, the sell-side model requires that either a single distributor is responsible for aggregating all the suppliers, or the customer is responsible for comparison-shopping between suppliers. This makes it inefficient and expensive for both customers and suppliers. Another example is the buy-side model, which does not enable dynamic trading and requires the buying organizations to set up and maintain catalogs of their suppliers, and hence is costly and technically demanding.

An electronic marketplace (*eMarketplace*) model appears to be the most promising forum for reshaping *eBusiness* relationships, and will soon affect all businesses in one way or another. In this work, we view *eMarketplace* as a cooperative distributed system that integrates participating business entities, including consumers, suppliers, and other intermediaries. This architecture enables and facilitates common economic services and commerce transactions between the buyers and sellers, such as brokering, pricing, and negotiation, as well as cross-enterprise integration and cooperation in an electronic supply-chain. In this architecture, the *eMarketplace* exists as a collection of economically motivated software agents. We envision that *eMarketplaces* will become viable businesses, and the revenue for these marketplaces could come from several, possibly combined, avenues, including registration fees, advertising fees, commission fees on transactions, and revenue from bid/ask spreads in high volume markets.

The *eMarketplace* will enable one-stop shopping for products by consumers, who depend on a variety of other products and services that can spread across several marketplaces. Likewise, suppliers can reach, discover, and