

## Guest Editor's Introduction

Electronic commerce offers many exciting research problems to the database community and this special section is intended to be a step in identifying some of the opportunities.

Electronic commerce is a generic term that encompasses numerous information technologies and services used in improving business practices ranging from customer service to intra- and inter-corporation coordination. One of the most common instances of electronic commerce is the exchange of goods and services over the Internet, extranet or intranet, but there is a number of other instances: e-shop, e-procurement, e-mall, market places, banking, virtual communities and enterprises, value chain service providers, collaboration platforms and information brokerage.

Electronic commerce is characterized by a wide range of services and operations, including: establishment of initial contacts, suppliers search and negotiation, exchange of information, sales, pre- and post-sales support, electronic payment, distribution logistics, electronic contracts and digital signatures, establishment and coordination of virtual enterprises, shared business processes, etc. In all of its forms, electronic commerce makes use of information technologies from different areas such as databases, transaction processing, interoperability of heterogeneous information resources, intelligent agents, multimedia systems, distributed systems, WWW, security and workflow systems.

This special section contains papers describing experiences, prototypes, technologies and frameworks both in academia and in industry reflecting the current state of practice in electronic commerce as well as indicating the future research directions.

The paper by Bichler, Segev and Zhao, describes the current practices in component-based electronic commerce and analyzes the future research and development directions in this respect. The paper also identifies several research areas with database focus.

Sherif Danish notes that the supply chain integration is happening at a very fast pace and therefore dynamic database-driven electronic catalogs are essential. He then addresses the related issues and proposes solutions.

Meltzer and Glushko stress the importance of XML in electronic commerce and briefly describe the Veo Systems Inc.'s effort to create a Common Business Library (CBL) of XML components for use in electronic commerce applications. Standard commerce transaction documents are expressed in XML and CBL architecture makes it possible to compose documents from smaller document "building blocks". CBL is available for public use free of charge.

Dogac et. al. propose a workflow based electronic marketplace exploiting the currently emerging data exchange and metadata representation standards on the Web. In this market architecture, electronic commerce is realized through the adaptable workflow templates provided by the marketplace to its users.

Jennings et. al. describe a multiagent architecture for business process management where responsibility for enacting various components of the business process is delegated to a number of autonomous problem solving agents. Since agents are autonomous there are no control dependencies among them; therefore in order to reach a mutual agreement they negotiate through a multi-lateral and multi-issue decision mechanism that has been developed to assist an agent in evaluating offers and, when necessary, generating new offers.

The paper also describes an application of the developed technology to a system for managing a British Telecom (BT) process for providing a quotation for designing a network to provide particular services to a customer.

The paper by Reich and Ben-Shaul presents an auction based generic market architecture which allows decomposability into components that can be independently tailored or replaced to form specific, unforeseen market policies. The system also allows dynamic reconfiguration of the market.

The paper by Boll, Klas and Bataglin describes the architecture of a trading system for a DBMS-based electronic marketplace for business-to-business electronic commerce according to a n-suppliers:m-customers scenario realized within the scope of the RMP (Rural Market Place) project.

The paper by Buchner and Mulvenna proposes an environment that combines existing online analytical mining as well as Web usage mining which can be exploited for electronic commerce activities, such as personalization, adaptation, customization, profiling and recommendation.

The paper by Domingo-Ferrer and Herrera-Joancomarti proposes a trade agent system where agents are not to be trusted. The proposed scheme also supports off-line anonymous payments.

The paper by Christoffel et. al. describes a marketplace for document services consisting mainly of user agents, traders which register metadata concerning existing services and wrappers that hide the syntactical and semantic heterogeneity of individual services.

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