Electronic (or Digital) Commerce: Issues and Challenges

Introduction to the HICSS'96 MiniTrack on Electronic Commerce

Steven O. Kimbrough
University of Pennsylvania, 3620 Locust Walk, Philadelphia, PA 19104-6366 USA
kimbrough@wharton.upenn.edu

Ronald M. Lee
EURIDIS, Erasmus University, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands; R.Lee@fac.tfbk.eur.nl

Six papers appear in this mini-track on electronic (or digital) commerce, comprising two sessions of three papers each. These papers cover a range of issues and methodologies, from the descriptive and empirical to the formal and mathematical.

The first paper, "The Development of FEDI in Switzerland: A Life-Cycle Approach" by I.Cathomen and S.Klein is the most empirical of the set. This paper is about the adoption of EDIFACT in the banking sector of Switzerland. A "life-cycle" approach is used to examine the phases of technology adoption. It provides a thorough, empirical account of these trends, and offers tentative predictions about the further adoption of these standards. The next paper, "Costs and Benefits of EDI in the Modular Supply Chain" by M. Hoogeweegen, W. Teunissen, P. Vervest and R. Wagenaar, is more general in scope, focusing on modularity issues in supply chain design, emphasizing "flexibility", and in turn, "agility, and "versatility" as supported by electronic commerce technologies. The third paper, "Designing a Market for Quantitative Knowledge" by G.Geyer, C.Kuhn, B.Schmid, is more of an architecture paper, proposing electronic markets for quantitative knowledge. This is distinguished from a market for online databases in that intermediate analyses may be performed on quantitative data. Thus, intermediate vendors may emerge, competing on the quality of these analyses.

The second session, also of three papers, is more formal in orientation. The first of these is an issues paper by S. Kimbrough and R. Lee, "Formal Aspects of Electronic (or Digital) Commerce: Examples of Research Issues and Challenges", surveys the electronic commerce research in progress at their respective centers (one in the US, the other in Europe). These issues are further elaborated by the paper, "Toward a New Type of Language for Electronic Commerce" by M. Covington, which argues the value and technological feasibility of a formalized language for electronic commerce. The final paper, "On Artificial Agents for Negotiation in Electronic Commerce" by J.Oliver combines distributed AI (DAI), specifically genetic algorithms, with negotiation support systems (NSS), to develop a model of artificial agents capable of not only of negotiating, but of learning through experience. It is claimed that these artificial negotiating agents can be effectively applied in practical electronic commerce situations.