

## Preface

# Digital Trade of Intangible Goods: Technologies, Applications, and Business Models

### Guest Editors

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Digitally traded intangible goods are goods consisting of data, information, and knowledge content, traded digitally on the Internet or through other on-line means. Examples of such goods include not only software, financial services, entertainment, moving images, audio products, multimedia products, single and multi-player games, but also education, training, help-desks, and consultancy. Digital, on-line trade of such goods represents a way of trading for which the full commercial cycle, from offer, negotiation, order, delivery, to payment can be conducted via the same network such as the Internet. In addition to the issues inherent in trading physical goods on the Net, trading intangible digital goods on the Net may include additional concerns such as version control, authentication of the product, and control over intellectual property rights (IPR). Within the broad range of topics related to Digital Trade of Intangible Goods this Special Issue has collected five papers representing rather different research topics within the field.

In the first paper titled 'Pricing Strategies and Technologies for On-line Delivered Content', Martin Bichler (Vienna University of Economics and Business Administration) and Claudia Loebbecke (Copenhagen Business School) describe market structures and pricing strategies for On-Line Delivered Content (ODC). So far businesses have been restricted to versioning and group pricing, when differentiating their offerings. New information technologies enable businesses to charge personalized prices on the Internet. A crucial precondition for this is detailed knowledge about a customer's preferences. The conceptual discussion is enriched by a brief coverage of the latest trends in electronic catalog technology and new ways how on-line merchants can learn about their customers on the Internet.

Jonathan W. Palmer (University of Maryland) and Lars Bo Eriksen (University of Aalborg) apply some of the conceptual insights from the first paper in a detailed way to their empirical investigation of 50 Web sites. Their contribution 'Digital News: Content, Delivery, and Value Propositions for an Intangible Product,' focuses on the news product, such as newspapers, newsmagazines, and broadcast news, on the Internet. The paper suggests a new business model for digital news products that includes content-based revenue generation through personalization, archiving and versioning, cost savings through low-cost reproduction, subscription and pay-per-use revenue approaches and three approaches to advertising, including retail, classified, and more highly targeted market intermediation.

The particular issue of providing a technological solution to dealing with copyright infringements is covered by Jean-Henry Morin and Dimitri Konstantas (both University of Geneva). Their paper, 'Commercialization of Electronic Information,' presents a major requirement for the commercialization of intangible goods

and describes 'Hep', an agent-based framework developed for the commercialization of arbitrary electronic documents over open networks. With 'Hep' the authors offer an approach for discussion that follows the secure content encapsulation model and regards documents as programs (agents) that need to be executed in order to reveal their contents. This way the document provider can include arbitrary checks and controls against possible copyright infringement attempts.

The fourth paper complements the more technological approach by a coverage of semiotic and legal aspects on online trading. James Backhouse (London School of Economics) and Edward K. Cheng (Harvard Law School) title their paper 'Signaling Intentions and Obliging Behaviour Online: An application of semiotic and legal modeling in E-commerce'. They make the point that before performance in on-line trading the obligations have to be created. Providing a rarely seen approach in the electronic commerce literature, the authors review speech act theory from philosophers such as Austin and Searle to explain how words and actions can create legal obligations. They then examine English contract law and its requirements to find an abstract basis upon which contract creation can be modeled. Using semiotics and law, the paper thereafter creates a model of the contract creation process and applies it to electronic commerce in intangible goods.

Finally, Brian Subirana (IESE International Graduate School of Management) analyzes how transactions related to the digital trade of intangible goods and services is being performed on the Internet. His contribution 'Zero Entry Barriers on a Computationally Complex World: Transaction Streams and the Complexity of the Digital Trade of Intangible Goods' contends that electronic markets on the Internet result in the increase of intermediators. He introduces transaction streams to model how transactions related to the digital trade of intangible goods are conducted. These transaction streams are then applied to explain the types of new intermediators that are appearing on the Internet and the reasons for entry barriers being close to zero. Subirana illustrates a proof that in transaction stream based electronic markets, searching for the best price of intangible goods is NP-complete.

We believe that it is the coverage of this variety of issues that should provide the reader with a solid overview of research topics currently pursued regarding the electronic trade of intangible goods. Furthermore, we hope to encourage the reader to further investigate some of the issues raised. This overview can only be a small start. The overall body of literature on the topic is still rather small and in some cases necessarily immature as empirical results just begin to enhance the research streams and practical implementations.