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Lectures in E-Commerce

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Preface

We are witnessing a phenomenal change, one may even call it a revolution, in business and society primarily due to information technology and the resulting rapid emergence of electronic commerce (e-commerce). Commercial activities such as information gathering, shopping, trading, brokering, collaboration, and distribution are changing in top gear adopting an entire set of new technologies. This affects every aspect of how business is conducted, changing internal processes as well as external relationships, modifying and restructuring entire economic sectors. The Internet tends to increase the power of consumers who are redefining their buying patterns as the Web has also extended the reach of co-operations – integrating all different types of stakeholders. In this context businesses are analyzing new strategies to leverage both, the power of the next generation of information technologies as of potential new business models.

E-commerce developments can be described as an interaction between order and disorder – on the level of technologies and systems, services and industrial structures. The supply side tends to differentiate their products and services, whereas the demand side tries to harmonize, thus, creating permanently additional space for new services and players. Old value chains are “deconstructed”, and new ones are created. New services tend to become commodities, where with increasing quality prices may decrease. At the same time the “classical” big players respond (with huge investments). This leads to a concentration process, which is, however, permanently challenged. Innovation happens much faster, time seems to be counted differently.

It does not come as a surprise that e-commerce – due to its “youth” and its turbulent development – is still missing a widely accepted definition. It has been described as “doing business electronically” or, more precisely, as sharing business information, maintaining business relationships, and conducting business transactions by means of open non-proprietary telecommunications networks, including also “dedicated infrastructure.” We – and the authors – keep more with the second definition, which covers all transaction phases, and also refers to some layered architectural model – doing business needs infrastructure and software.

Numerous books have been published in the past few years which consider different aspects of e-commerce. Unlike previous technological developments, e-commerce is a particularly interdisciplinary field, involving managerial, economical, technological, legal and policy issues and no individual book can cover all relevant aspects. Based on a series of invited lectures at the Vienna University of Economics and Business Administration, Department of Information Systems, during the summer term 2000, we have selected contributions of leading researchers in the field, which illustrate the broad range of topics that need to be considered. The authors are renowned experts specializing in the various facets of e-commerce. This way the interested reader should be able to get an overview about important practical and theoretical questions in this fast moving field.

In this book we examine five salient topics, organized as five chapters. The first chapter is *E-Commerce and the E-Economy*. Paul Timmers, he is head of sector for e-commerce in the European Commission's Information Society Directorate-General where he is involved in e-commerce policy and program development, addresses with his article "Measurement, Policy and Research Issues of a New Phenomenon" some of the characteristics of the emerging e-economy with a view to future research, such as new business models, dynamic business networking, and the balance of global versus local.

The second topic is *Impacts of E-Commerce on Industry Structures*. Financial services and tourism are two of the industries, where e-commerce fundamentally changes the underlying business processes and industry structures. "IT-enabled Sophistication Banking" by Hans Ulrich Buhl, Dennis Kundisch, Andreas Leinfelder, and Werner Steck from the University of Augsburg, Germany, assesses the status of the financial services industry and outlines potential opportunities for future development. Alina M. Chircu and Robert J. Kauffman from the University of Minnesota, USA, describe "A Framework for Performance and Value Assessment of E-Business Systems in Corporate Travel Distribution". The authors lay out the corporate travel e-commerce system solutions value life cycle. Finally, in "Defining Internet Readiness for the Tourism Industry: Concepts and Case Study" Ulrike Gretzel and Daniel R. Fesenmaier from the University of Urbana Champaign, USA, propose a measurement model of Internet Readiness that incorporates the concepts of stages in effective technology use and organizational capacity to change.

The third chapter deals with *New Ways of Pricing and Deal Making* and analyzes how new technologies impact the way prices are set for products and services and how markets can be designed. In a thorough analysis named "Aggregation and Disaggregation of Information Goods" Yannis Bakos (New York University) and Erik Brynjolfsson (MIT) describe new pricing strategies for digital information goods. For instance, bundling, site licensing, and subscription pricing can be analyzed as strategies that aggregate consumer utilities across different goods, different consumers, or different time periods, respectively. Rudolf Müller from the University of Maastricht, The Netherlands, is then focusing on auctions, a trading mechanism that has gained considerable importance during the past few years. In his

article “Auctions – The Big Winner among Trading Mechanisms for the Internet Economy” he introduces the basic literature on auction theory and outlines the research challenges in the field of multi-item auctions.

The next topic focuses on *Enabling Technologies*. Among the variety of techniques needed to implement e-commerce applications, we have picked two technological areas that are highly relevant, namely network security and electronic data interchange. The Internet is inherently an insecure network, although this is improving. Günter Müller from the University of Freiburg, Germany, describes basic concepts of security and trust and introduces the notion of multilateral security in his paper “Security in E-Commerce”. Afterwards, Peter Buxmann from the Technical University of Freiberg, Germany, demonstrates with the case study “XML@work: The Case of a Next-Generation EDI Solution” how XML-based EDI can open communication networks and shape the way businesses can interact.

Finally, we tackle the topic of *Education for the New Economy*. New information technologies are probably one of the biggest challenges for universities and education in general. On the one hand information technology changes the way people are taught. On the other hand the educational sector has to meet the fast changing requirements and the high demand for IT-skilled people. In their paper “E-Commerce/E-Business Education: Pedagogy or New Product Development?” Paula M.C. Swatman from the University of Koblenz-Landau, Germany, and Elsie S.K. Chan from the Deakin University, Australia, look at the motivations prompting universities to engage in the flurry of new programs in e-commerce. And they also classify existing (and planned) programs, based on an extensive research.

Two important characteristics that are underlying all of the above topics are globalization and speed – these factors have also profound impact on ourselves. Although we organized the lectures in the summer term 2000, during our time at the Vienna University of Economics and Business Administration, Austria, we both have moved meanwhile. Hannes Werthner is now in Italy, at the University of Trento and the irst Research Center; Martin Bichler is working at the IBM T. J. Watson Research Center in New York.

When starting the project, we knew about the workload of the authors. All the more we really want to thank our colleagues for their contributions and the time they dedicated to this project. The book would not have been possible without the support of the colleagues at our previous home institution, the Department of Information Systems at the Vienna University of Economics and Business Administration, especially Barbara Sporn. We would like to recognize the financial support of the Austrian Ministries of Transport, Innovation and Technology as well as of Education, Science and Culture, and the Austrian Computer Society. We hope that the selected papers provide an interesting survey of recent trends in e-commerce and that they may serve as valuable sources for both, scholars and practitioners.

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