



## **Chapter I**

# **Electronic Commerce at the Dawn of the Third Millennium**

Mahesh S. Raisinghani  
University of Dallas

“The future ain’t what it used to be.” —Yogi Berra

## **EXECUTIVE SUMMARY**

*At the brink of the new millennium, in global economy and commerce, there has been a dramatic increase in the role of information technology in markets, both in traditional markets and especially in the emergence of the electronic market-places. In recent years, the Internet has grown exponentially and is clearly transforming global markets. This chapter analyzes the fundamentals of electronic commerce and discusses the opportunities and challenges that e-commerce presents for global enterprises with relevant examples from the industry where appropriate. Opportunities of e-commerce are improvements in marketing activities such as one-to-one marketing and communication, better management of product/service support and product/value chain, and cost cuttings due to several electronic payment methods. On the other hand, global enterprises face the challenges of e-commerce, such as adjusting to competition in electronic markets, re-engineering/e-engineering distribution channels, addressing security and privacy issues, and applying strategic management to corporate alliance systems. Finally, the future of electronic commerce is discussed.*

## **INTRODUCTION**

On the brink of the new millennium, a number of converging trends are taking the global economy beyond the embryonic stages of the Information Age. Even though electronic commerce (e-commerce) is in its relative infancy, in recent years the Internet has

grown exponentially and is clearly transforming global markets (Barua, Ravindran, and Whinston, 1997; Rao, Salam, and DosSantos, 1998). The most important trend is the increasing digitization of business, which is driven by the consumer demand side in which consumers use the Internet for their purchases, and the marketing and supply side in which electronic commerce has emerged as the mission-critical application.

The 21<sup>st</sup> century projections suggest order-of-magnitude increases in both business-to-business and business-to-consumer e-commerce. The U.S. e-commerce industry ranks as the world's 18<sup>th</sup> largest economy, behind Switzerland and ahead of Argentina, according to the study conducted by the University of Texas' Center for Research in Electronic Commerce (Murphy and Feldman, 1999). In the same study, researchers also found that the four sectors of the U.S. Internet economy—infrastructure, applications/Web development, intermediaries (including portals, on-line brokerages, travel agents, and advertising), and commerce—generated an estimated \$301.4 billion in revenue in 1998. The qualitative and quantitative research methods used to make the projections of e-commerce activity and the valuation of the information technology (IT) industry are predicted to become more rigorous, precise, and useful over the next four to five years by the U.S. Census Bureau, the U.S. Bureau of Economic Analysis and several IT research organizations such as the Gartner Group and Forester Research. The impact of extraneous variables on e-commerce such as mobile, wireless global e-commerce using satellite communication; interactive television as an alternative to Web sites and/or taxation of on-line transactions need to be considered. In addition, new metrics need to be derived for measuring the volume of e-commerce and the tangible and intangible costs and benefits of e-commerce. Specific estimates from private sources are included in this chapter to be illustrative of developing trends. The wide range of e-commerce revenue projections by various researchers from \$800 million to over \$1 trillion a year by 2002 is due to sampling errors and/or lack of a standard research methodology. In addition, disparities among private estimates result from differences in definitions, methods, data, model and sampling error, and product coverage. Variations also reflect the research needs of customers. While data used for estimates and forecasts are based on a combination of surveys and interviews, the survey questions and answers are not made public, sample sizes vary considerably across surveys, and little information is available on the respondents (<http://www.ecommerce.gov/ede/chapter1.html>).

Even though the elements measured (e.g., consumer transactions on the Web, business-to-business transactions such as corporate procurement from catalogs or Web-based electronic data exchange (EDI) in the virtual supply chain, Web transactions that result in sales through other distribution channels, etc.) and the methods to measure these elements differ, there is no doubt that the e-commerce economy is on a significant rise. Researchers also grossly underestimated the size of the electronic commerce marketplace. In 1995, for instance, Forrester Research projected that the Internet would have a worldwide user population of 34.9 million people by 1998. The real number ended up being in excess of 100 million users. In 1995, Jupiter Communications projected \$3.1 billion in annual business-to-consumer revenue for e-commerce by 1998. Forrester predicted \$2.3 billion. The real number turned out to be more than \$13 billion.

The U.S. Department of Commerce predicts the volume of business-to-business e-commerce will increase from \$8 billion in 1997 to \$300 billion in 2002, and Jupiter Communications predicts the growth on the consumer side (including travel and tangible goods sold, but not financial services) to be from the current \$7 billion to \$41 billion by 2002

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