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Electronic Commerce: An Introduction

Glenn J. McLoughlin
Specialist in Technology and Telecommunications
Resources, Science, and Industry Division

Summary

Electronic commercial transactions over the Internet, or "e-commerce," have grown so fast over the last five years that many experts continue to underestimate its growth and development. Whether retail business-to-customer or business-to-business transactions, e-commerce is now a significant part of commercial transactions. In turn, policymakers both in the United States and abroad are likely to face increasingly complex issues of security, privacy, taxation, infrastructure development and other issues in 2001 and beyond. This report will be updated periodically.

The Internet and E-Commerce[1]

The convergence of computer and telecommunications technologies has revolutionized how we get, store, retrieve, and share information. Many contend that this convergence has created the Information Economy, driven by the Internet, and fueled a surge in U.S. productivity and economic growth. Commercial transactions on the Internet, whether retail business-to-customer or business-to-business, are commonly called electronic commerce, or "e-commerce."

Since the mid-1990's, commercial transactions on the Internet have grown substantially. By 1996, Internet traffic, including e-commerce, was doubling every 100 days. By mid-1997, the U.S. Department of Commerce reported that just over 4 million people were using e-commerce; by the end of 1997, that figure had grown to over 10 million users. The rate of e-commerce growth continues so rapidly that projections often are outdated as fast as they are published. One 1998 industry estimate projected that U.S. retail transactions would reach $7 billion by 2000 — a figure now widely accepted as having been reached in *the year the report came out.* Still, reliable industry sources report huge jumps in e-commerce transactions, particularly during fourth quarter holiday shopping. It is also important to note that in 2000, even with an economic slowdown and

[1] For statistics and other data on e-commerce, sources include: [http://www.idc.com], [http://www.abcnews.go.com], [http://www.forrester.com], [http://earmarketer.com], and [http://www.cs.cmu.edu]. It is important to note that some measurements of e-commerce, particularly that data reported in the media, have not been verified.

with many new "dot-com" businesses no longer in existence, e-commerce continued to grow. The Jupiter Media Group released a report in January 2001 that states that in 2000, e-commerce grew to $10 billion, compared to $7 billion in 1999, and that during the 2000 holiday season about 36 million consumers purchased on-line and spent an average of $304, both increases over 1999 numbers.

One of the fastest growing sectors of e-commerce is business-to-business transactions. The Forrester Group, a private sector consulting firm, estimates that by 2003, that sector of the U.S. economy will reach $1.5 trillion, up from nearly $200 billion in 2000. Business-to-business transactions between small and medium sized businesses and their suppliers is rapidly growing, as many of these firms begin to use Internet connections for supply chain management, after-sales support, and payments.

Internationally, there are issues regarding Internet use and e-commerce growth. While the western industrialized nations dominate Internet development and use, by the year 2003 more than half of the material posted on the Internet will be in a language other than English. This has large ramifications for e-commerce and ease of transactions, security, and privacy issues. Policymakers, industry leaders, academicians, and others are concerned that this development will not correlate with equal access to the Internet for many in developing nations — therefore creating a global "digital divide." The United States and Canada represent the largest percentage of Internet users, at 56.6%. Europe follows with 23.4%. At the end of 1999, of approximately 180 million Internet users worldwide, only 3.1% are in Latin America, 0.5% are in the Middle East, and 0.6% are in Africa. The Asian Pacific region has 15.8% of all Internet users; but its rate of growth of Internet use is nearly twice as fast as the United States and Canada.

U.S. Perspectives

The E-Commerce Industry. Even with some concern about accuracy and timeliness of e-commerce statistics, reliable industry sources report huge jumps in e-commerce transactions, particularly during fourth quarter holiday shopping. But long-term, industry growth has not been limited to just holiday shopping. According to a study undertaken by the University of Texas, the Internet portion of the U.S. economy grew at a compounded rate of 174% from 1995-1998 (the U.S. gross domestic product grew at 2.8% during the same period), and e-commerce accounted for one-third of that growth. Increasingly, many firms use "vortals"—vertically integrated portals or gateways that advertise or provide information on a specific industry or special interest. As a portion of e-commerce business, vortals provide targeted advertising for e-commerce transactions, and may grow from 35% of all e-commerce advertising to 57% by 2004. However, not all firms providing these services are profitable; in fact, most have yet to turn a profit.

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The Clinton Administration. The Clinton Administration advocated a wide range of policy prescriptions to encourage e-commerce growth. These included calling on the World Trade Organization (WTO) to declare the Internet to be a tax-free environment for delivering both goods and services; recommending that no new tax policies be imposed on Internet commerce; stating that nations develop a "uniform commercial code" for electronic commerce; requesting that intellectual property protection— patents, trademarks, and copyrights—be consistent and enforceable; that nations adhere to international agreements to protect the security and privacy of Internet commercial transactions; that governments and businesses cooperate to more fully develop and expand the Internet infrastructure; and that businesses self-regulate e-commerce content.

The Clinton Administration's "The Emerging Digital Economy" (April 1998), "The Emerging Digital Economy II" (June 1999), "Digital Economy 2000" (June 2000), and "Leadership for the New Millennium, Delivering on Digital Progress and Prosperity" (January 2001) provided overarching views on domestic and global e-commerce. These reports provide data on the explosive growth of e-commerce, its role in global trade and national Gross Domestic Product (GDP), and contributions that computer and telecommunications technology convergence is making to productivity gains in the United States and worldwide. The Administration also argued that the effects that information technologies have had on raising national productivity, lowering inflation, creating high wage jobs, and contributing up to one-third of all domestic growth in the 1990s.

Issues for the Bush Administration and the 107th Congress

Since the mid-1990s, Congress also has taken an active interest in the e-commerce issue. Among many issues, Congress may revisit policies that establish federal encryption procedures, extending or letting expire the 3-year tax moratorium on domestic e-commerce taxation, and assisting small and medium-sized firms employ e-commerce technologies. In addition, congressional policymakers are looking at the European Union (EU) and WTO policies and regulations in e-commerce.

Protection and Security Issues. There are a variety of protection and security issues that affect e-commerce growth and development. *Encryption* is the encoding of electronic messages to transfer important information and data, in which "keys" are needed to unlock or decode the message. Encryption is an important element of e-commerce security, with the issue of who holds the keys at the core of the debate. Until 1998, the Clinton Administration promoted the use of strong (greater than 56 bits) encryption domestically and abroad only if encrypted product had "key recovery" features in which a "key recovery agent" holds a "spare key" to decrypt the information. Under this policy, the Clinton Administration tried to use export control policy to influence companies to develop key recovery encryption products. There was no control over domestic use of encrypted products, but the Clinton Administration hoped that companies would not want to develop two sets of encrypted products, one for the United States and another for the rest of the world. However, businesses and consumer groups opposed this approach. For many U.S. businesses, the Clinton Administration export policy had the potential to impede their efforts to become part of the growing e-commerce global phenomena by forcing them to create two versions of the same product. Consumer groups opposed government policies determining who would have access to spare keys.

In September 1999, the Clinton Administration announced plans to further relax its encryption export policy by allowing export of unlimited key length encryption products, with some exceptions. The Administration also reduced reporting requirements for those firms that export encrypted products. The rules for implementing this policy were issued in September 2000 by the Bureau of Export Administration in the Department of Commerce. While this new policy appears to have addressed both industry and consumer concerns, many policymakers in the 107th Congress will likely maintain a key interest in this issue, both in the way it affects e-commerce and how the government may use its encryption policy as a form of government surveillance. (See CRS Issue Brief IB96039, *Encryption Technology: Congressional Issues*, for more information.)

In a related area, the 106th Congress considered and passed legislation establishing standards for transmission and verification of electronic transmissions. *Electronic signatures* are a means of verifying the identity of a user of a computer system to control access to, or to authorize, a transaction. When President Clinton signed into law the Electronic Signatures in Global and National Commerce Act (P.L. 106-229), the process of developing a national electronic signature standards was begun. Among its many provisions, this law enables electronic signatures to carry legal weight in place of written signatures, removes many of the inconsistencies among state policies that some fear may retard the growth of e-commerce, establishes federal government requirements for use of electronic signatures when filing information electronically, and provides principles for U.S. negotiators to follow for setting global electronic signatures policies. (See CRS Report RS20344, *Electronic Signatures: Technology Development and Legislative Issues*, for more information.)

E-Commerce Taxation. Congress passed the Internet Tax Freedom Act on October 21, 1998, as Titles XI and XII of the Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1999 (P.L. 105-277, 112 Stat 2681). Among its provisions, the Act imposes a 3-year moratorium on the ability of state and local governments to levy certain taxes on the Internet; it prohibits taxes on Internet access, unless such a tax was generally imposed and actually enforced prior to October 1, 1998; it creates an Advisory Commission on Electronic Commerce (ACEC), which may make recommendations to Congress on e-commerce taxation in the United States and abroad; and it opposes regulatory, tariff, and tax barriers to international e-commerce and asks the President to pursue international agreements to ban them. (See CRS Report RL30667, *Internet Tax Legislation: Distinguishing Issues,* for more information.)

The ACEC made its policy recommendations, after much debate and some divisiveness, to Congress on April 3, 2000. The ACEC called for, among its recommendations, extending the domestic Internet tax moratorium for five more years, through 2006; prohibiting the taxation of digitized goods over the Internet, regardless of national source; and a continued moratorium on any international tariffs on electronic transmissions over the Internet. On February 8, 2001, the Internet Tax Nondiscrimination Act was introduced (S. 288, Wyden). Among its provisions are to extend the Internet Tax Freedom Act to 2006 and to encourage states to simplify their sales and use taxes. This bill is currently before the Senate Finance Committee.

Connecting Small Businesses. One of the concerns of many policymakers is that small and medium-sized businesses are not included in e-commerce growth. Many small and medium-sized firms contend that because of cost, lack of technical expertise, and ability to maintain web sites, they cannot compete with larger companies that have an Internet presence. In the 107th Congress, the Electronic Commerce Enhancement Act of 2001 (H.R. 524, Barcia), introduced February 8, 2001, is intended to help redress this imbalance, according to its supporters. This legislation directs the National Institute of Standards (NIST) to establish an advisory panel to examine the challenges facing small and medium-sized businesses in integrating e-commerce technologies. The legislation also requires NIST's Manufacturing Extension Partnership to establish a competitive grant program to help businesses use electronic commerce technology. It passed the House of Representatives, 409-6, on February 14, 2001, and now awaits Senate action.

The EU and WTO. While much of the debate on the government's role in e-commerce has focused on domestic issues in the United States, two important players—the EU and the WTO—will likely have an important impact on global e-commerce policy development.

The EU is very active in e-commerce issues. In some areas there is agreement with U.S. policies, and in some areas there are still tensions. While the EU as an entity represents a sizable portion of global Internet commerce, across national boundaries, Internet use and e-commerce potential varies widely. Supporters state that e-commerce policy should not be set by EU bureaucrats in Brussels. Therefore, the EU has approached e-commerce with what one observer has called a "light regulatory touch." Among contentious issues, the EU has supported the temporary moratorium on global e-commerce taxes, and supports making the moratorium permanent.

The EU has taken a different approach than U.S. policy by treating electronic transmissions (including those that deliver electronic goods such as software) as services. This position would allow EU countries more flexibility in imposing trade restrictions, and would allow treating electronic transmissions—including e-commerce — as services, making them subject to EU value-added duties. The EU also has taken a different approach to data protection and privacy, key components for strengthening e-commerce security and maintaining consumer confidence. The EU Data Privacy Directive, which went into effect in October 1998, prevents EU organizations from transferring personal data to countries where the legal protections for personal data are not deemed "adequate" by the EU–including the United States. To prevent interruption of data transfers, the U.S. Department of Commerce negotiated the "safe harbor" framework with the EU. U.S. organizations participating in "safe harbor" policy are automatically considered as having met EU privacy rules. The "safe harbor" framework, however, raises a number of policy issues, including: extraterritoriality, statutory preemption, non-tariff barriers, business costs, and consumer protection. (For more information on the European data directive, see CRS Report RL30784, *Internet Privacy: An Analysis of Technology and Policy Issues.*)

The WTO has presented another set of challenges to U.S. policymakers. The first two WTO ministerial meetings addressed issues that have an impact on e-commerce. The first WTO Ministerial conference was held in Singapore on December 9-13, 1996. Among the issues considered by the WTO participants was an agreement to reduce trade barriers for information technology goods and services. This issue was considered vital to the development of telecommunications infrastructure–including the Internet–among developing nations. A majority of participants signed an agreement to reduce these barriers. At the second WTO Ministerial conference, held in Geneva on May 18 and 20, 1998, an agreement was reached by the participating trade ministers to direct the WTO General Council to develop a work program on electronic commerce and to report on the progress of the work program, with recommendations, at the next conference. The ministers also agreed that countries continue the practice of not imposing tariffs on electronic transmissions. Since then, e-commerce taxation and Internet access issues have been proposed for future discussion at WTO ministerial meetings. (See CRS Report RS20319, *Telecommunications Services Trade and the WTO Agreement* and CRS Report RS20387, *The World Trade Organization (WTO) Seattle Ministerial Conference).*

Issues

The 107th Congress may address a series of complex questions on e-commerce. They include: how viable is the continuation of the Internet tax moratorium, and can a consensus be reached on an e-commerce tax policy? What are the appropriate roles of government and industry in U.S. policies on encryption, digital signatures, and data storage and protection for e-commerce? What is the best mechanism for achieving standard and consistent e-commerce policies between the United States and other nations? Will the United States, by virtue of its large proportion of Internet use and e-commerce development, try to dominate global e-commerce policy? Internet use erases national boundaries, and the growth of e-commerce on the Internet and the complexity of these issues may mean that domestic and global e-commerce policies become increasingly intertwined.