Chapter 1.1

History of E-Commerce

Yan Tian
University of Missouri – St. Louis, USA

Concetta Stewart
Temple University, USA

INTRODUCTION

E-commerce or electronic commerce, also known as e-business, refers to the transaction of goods and services through electronic communications. Although the general public has become familiar with e-commerce only in the last decade or so, e-commerce has actually been around for over 30 years. There are two basic types of e-commerce: business-to-business (B2B) and business-to-consumer (B2C). In B2B, companies conduct business with their suppliers, distributors, and other partners through electronic networks. In B2C, companies sell products and services to consumers. Although B2C is the better known to the general public, B2B is the form that actually dominates e-commerce in terms of revenue.¹

The concept of e-commerce is related to notions of Internet economy and digital economy. All these concepts relate to the use of new information and communication technologies for economic activities, but with different focuses. Internet economy refers to the economic activities that generate revenue from the Internet or Internet-related products or services (Costa, 2001). Therefore, pre-Internet e-commerce, as will be detailed in the following section, cannot be called Internet economy. On the other hand, some activities, such as building Internet connections for commercial purposes, are a part of Internet economy, but they are not necessarily e-commerce. Digital economy is based on digital technologies such as computer, software, and digital networks. In most cases, digital economy is the same as e-commerce. However, not all activities in the digital economy are e-commerce activities. For example, purchasing computer gear from a storefront retailer is not an activity of e-commerce, although it certainly is a key component of the digital economy. Hence, e-commerce, Internet economy, and digital economy are closely related but have different concepts.

E-commerce has been perhaps one of the most prevalent terms in this digital era. Although e-commerce was once looked upon simply as an expressway to wealth, it has actually transformed the way people conduct business. An historical analysis of e-commerce will provide insights into
History of E-Commerce

the evolution of the application of information and
communication technologies in the commercial
arena. Furthermore, an analysis of the evolution
of e-commerce in the past as well as its present
state will enable us to project future trends in
e-commerce.

THE INFANCY OF E-COMMERCE: BEFORE 1995

E-commerce was made possible by the development
of electronic data interchange (EDI), the ex-
change of business documents from one computer
to another in a standard format. EDI originated in
the mid-1960s, when companies in transportation
and some retail industries were attempting to cre-
ate “paperless” offices. In the mid-1970s, EDI was
formalized by the Accredited Standards Commit-
tee of industry representatives, and more varied
companies began to adopt EDI through the 1970s
and 1980s. As the first generation of e-commerce,
EDI allowed companies to exchange information,
place orders, and conduct electronic funds transfer
through computers (Sawanibi, 2001). However,
the diffusion of EDI was slow. By the late 1990s,
less than one percent of companies in Europe and
in the United States had adopted EDI (Timmers,
1999). The huge expense for getting connected
to an EDI network and some technical problems
limited the diffusion of EDI.

The second generation of e-commerce is
characterized by the transaction of goods and
services through the Internet, which started as
a research tool, but has generally evolved into a
commercial tool. The inception of the Internet can
be traced back to the 1960s, when the Advanced
Research Projects Agency Computer Network
(ARPANET), the precursor to the Internet, was
established for research in high technology areas.
The nodes of ARPANET increased from 4 in
1969 to 15 in 1971. The term Internet actually did
not come into use until 1982, when the number
of hosts on the ARPANET rose to 213. Then, in
1983, the Internet Protocol (IP) became the only
approved way to transmit data on the Net, enabling
all computers to exchange information equally.
In 1986, the National Science Foundation (NSF),
a government agency, launched the NSFNET,
with the purpose of providing high-speed com-
munication links between major supercomputer
centers across the United States. The backbone
of the NSFNET then became the cornerstone of
the TCP/IP-based Internet (Anthes, 1994).

By the end of the 1980s, the Internet had still
maintained its noncommercial nature, and all of
its networks were based on the free use of the
NSFNET backbone, directly or indirectly. The
primary users were still scientists and engineers
working for the government or for universities. As
a matter of fact, academics or researchers were the
only ones capable of using the Internet, because a
sophisticated understanding of computer science
and a high level of computer skills were necessary
for Internet use at that time (Eccleson, 1999).

It was the development of a graphical user
interface (GUI) and the navigability of the World
Wide Web (WWW) that changed the nature of
Internet use. In the early 1990s, the creation of the
hypertext markup language (HTML), with speci-
fications for uniform resource locators (URLs)
enabled the Web to evolve into the environment
that we know today. The Internet was therefore
taken “out of the realm of technical mystique and
into common usage” as it became usable for ordi-
nary people without sophisticated understanding
of computer science and techniques (Eccleson,
1999, p. 70). Hence, with the increasing number
of Internet users, the Internet became attractive
to the business world.

Perhaps the most significant milestone, how-
ever, came in 1991, when NSFNET decided to
lift commercial restrictions on the use of the
network, and thereby opened up opportunities
for e-commerce. Advanced Network & Services
(ANS), established by IBM, MCI Communications
Corp., and Merit Network, Inc., provided Internet
connection to commercial users without govern-
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