

The Internet and American Business

edited by William Aspray and Paul E. Ceruzzi

**The MIT Press
Cambridge, Massachusetts
London, England**

© 2008 Massachusetts Institute of Technology

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

For information about special quantity discounts, please e-mail special_sales@mitpress.mit.edu

This book was set in Stone Serif and Stone Sans on 3B2 by Asco Typesetters, Hong Kong.
Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

The Internet and American business / edited by William Aspray, Paul E. Ceruzzi.

p. cm. — (History of computing)

Includes bibliographical references and index.

ISBN 978-0-262-01240-9 (hardcover : alk. paper)

1. Internet—United States—Economic aspects. 2. Electronic commerce—United States.

3. Internet industry—United States. 4. Internet—United States—Social aspects. 5. Information technology—United States—Economic aspects. I. Aspray, William. II. Ceruzzi, Paul E.

HE7583.U6I57 2008

384.3'30973—dc22

2007005460

10 9 8 7 6 5 4 3 2 1

1 Introduction

William Aspray and Paul E. Ceruzzi

[People] say about the Web: One third retail, one third porn, and one third lies, all of our baser nature in one quick stop.

Stephen L. Carter, *The Emperor of Ocean Park*

When we think of the Internet, we generally think of Amazon, Google, Hotmail, Napster, MySpace, and a host of other sites for buying products, searching for information, downloading entertainment, chatting with friends, or posting photographs. If we examine the historical literature about the Internet, however, it is hardly an exaggeration to say that none of these topics is covered. This book aims to fix this problem.

It is not as though historians and academically minded journalists have not paid attention to the Internet. Yet their focus has mainly been on the origins of the Internet in the 1960s and 1970s through the efforts of the U.S. Department of Defense's Advanced Research Projects Agency (ARPA) to build a network to connect defense researchers and later military sites to one another. When not focused on ARPA, this historical literature has addressed the use of these networks in the 1980s mainly by the scientific community to communicate with one another, share data, and gain remote access to powerful computing facilities.

Although the literature is much broader, let us here consider only the three best-known books on Internet history.¹ Arthur Norberg and Judy O'Neill's *Transforming Computer Technology* (Baltimore, MD: Johns Hopkins University Press, 1996) provides a careful historical analysis of the early years of ARPA's Information Processing Technology Office, and in a detailed case study, describes and analyzes ARPA's role in the development of networking technology and the ARPANET. Janet Abbate's *Inventing the Internet* (Cambridge, MA: MIT Press, 1999) traces the history of the technical developments, and the social shaping of people and institutions on these technical developments, from ARPA's development of basic technology to the creation of the World Wide Web. Katie Hafner's *Where Wizards Stay Up Late* (New York: Simon and Schuster, 1998) takes a readable but more journalistic approach to the same topics as covered in

the Norberg/O'Neill and Abbate books—focusing more on personalities and anecdotes to present a strong narrative drive.

There is also a mass-market business and journalistic literature, which covers the companies and individuals making news in the Internet world.² These are valuable additions to our understanding of the development of the Internet as a commercial venture. Altogether too often, however, these tend to be either heroic accounts of how an individual or company has changed the world, or an antiheroic one purporting to show the colossal blunders made by these individuals or companies. Most of them have a narrow focus, and many do not build on the background and ways of understanding offered by the academic literature on the history of technology, science and technology studies, business history, economic history, and gender and cultural history.

This book looks at the historical development of the Internet as a commercial entity and the impact it has had on American business. This history begins in 1992, only fifteen years ago, when the U.S. Congress first permitted the Internet to be used by people besides academic, government, or military users. This book is informed by the academic literature mentioned above, while remaining as accessible to the general reader as the numerous popular histories that are in print. While we use this academic literature to inform our account, this book will not concentrate on the current academic debates about the theories and methods of postmodern history. Our focus is on understanding how in the past fifteen years the Internet added a commercial dimension to what was already a social and scientific phenomenon, and the way that added dimension affected commerce in the United States. We believe that this book is suitable for a general audience or classroom use, and hope that it will inspire historians to write more academic monographs that explore more deeply many of the topics we merely survey.

We begin with a chapter that reviews the early history of the Internet, with a different emphasis from the three books mentioned above. The focus is not so much on the development of the military network ARPANET or the scientific network NSFNET. Instead, chapter 2 traces seven lines of development that were critical if the Internet was to become commercialized.

The second section of the book (chapters 3 to 6) examines the basic technologies of the Internet: Internet service provision, e-mail, Web browsers, search engines, portals, and computer utilities and software services. The focus is not so much on the development of the technologies themselves, or how they work, as on the business models that make it possible for companies to supply these technologies to millions of users.

The third section of the book (chapters 7 and 8) explores the development of commerce on the Internet. It includes a description of the thousands of new companies—both the successes and failures—formed to sell directly to consumers over the Internet.

This coverage includes a more general discussion of the dot-com boom and crash. This section also discusses how traditional brick-and-mortar companies have responded to the Internet to sell to consumers. For these companies, the Internet presented a great opportunity, but it has also created the challenges of major new investments, changes in business strategy, and new competition.

The fourth section (chapters 9 to 11) considers one set of problems introduced by the commercialization of the Internet—namely, the tumultuous change and harm it caused to certain traditional industries. One chapter analyzes changes to the media industries: news, magazine, television, and radio. Another chapter presents examples of changes to several nonmedia industries: travel agencies, realtors, mortgage brokers, and personal computer manufacturers. The final chapter in this section uses the medical and academic professions to study the elective use of the Internet. This section reveals how many users do not fall into the simple categories of total adopters or Luddites in their use of the Internet, as some of the popular literature suggests. Instead, different professions tend to adopt the use of certain technologies associated with the Internet and not others, depending on how these technologies fit into their established work habits and bases of authority.

The fifth section (chapters 12 and 13) considers two very different examples of Internet applications—one traditional, and the other entirely novel. The traditional one examines the use of the Internet to replace, supplement, and alter traditional means for information transactions within a company as well as between a company and its suppliers and sales network. The second application involves using the Internet to create communities. This application is not entirely novel, as the chapter shows the deep roots of the social uses of the Internet in American society, but it does reveal how this new technology changed the character of the communities thus created.

The sixth section (chapters 14 and 15) considers another kind of problem introduced by the commercial Internet: providing a highly effective way of promoting and disseminating behaviors that are illegal, or at least widely regarded as socially undesirable. One chapter looks at the copyright violations associated with sharing music on the Internet, and the other one discusses Internet pornography.

The final section reminds the reader of the noncommercial forces that remain powerful as the Internet evolved, continuing the notion of the Internet as a community-building medium. The final chapter revisits the common themes discussed across multiple chapters and briefly speculates on possible future paths of evolution.

The writing of this book presented great challenges. The amount of material to be covered was enormous. We fought continuously throughout the writing to keep the chapter length under control. Each chapter could easily have been the subject of its own book, and we will not be surprised if such books appear in the coming years. Most of the contributors to this book are historians, and they are used to having chronological distance from their topic. That distance gives historians a perspective that

enables them to identify which developments have lasting importance and determine which contextual factors really matter. Almost all of our chapters come up to the present, though, and it is a temptation we have had to resist to keep changing our texts as new developments unfold. We have not had the opportunity for the dust to settle to get a better impression of the landscape. Another challenge has been that the authors of this book have not had the “bricks of history” available—the focused journal papers, monographs, and specialized studies conducted by other scholars—as they attempt to write a general overview. Out of necessity, the authors have relied heavily on news reports and magazine feature articles, which most academic scholarship tends to avoid.

It is always difficult to provide the coherence in an edited volume that one finds in a single-author work. We have taken a number of steps to address that challenge. Many of the contributors have known one another for many years, and there has been a high level of dialogue between the authors as they have worked on their chapters: sorting out boundaries between chapters, discussing which themes are in common, agreeing on who will provide certain background information, and deciding what approach to take. Each chapter has typically been critiqued by three or four of the other contributors. The two editors have nudged the contributors toward a common set of themes (which are discussed in the final chapter). More than half of the contributors met together for three days of intensive conversation about their initial drafts. This meeting was held in Munich, where German, other European, and other American historians of technology, technologists, and sociologists were invited to participate. Although it may seem odd that a book that focuses primarily on U.S. developments would be discussed at a conference in Munich, in fact the participants found that the German perspective was a great help as the authors and editors examined the assumptions implicit in their drafts.

There was important value added, however, by preparing this book as an edited volume. The topics covered are wide-ranging, and it is unlikely that any single author would be as well prepared to undertake this project as our collective group. The authors of the chapter on the media industries, for example, are professors of journalism and mass communication. The chapter on Internet commerce is written by a business school professor who has made an extensive analysis of failed dot-com companies. The author of the chapter on brick-and-mortar companies has taught this subject in the Stanford business school since the time of the dot-com bubble. And so on for the expertise of our other various chapter authors, who included historians of technology, science and technology scholars, and business consultants.

As the editors of this book, we feel fortunate to have assembled such a capable group. Every one of the authors is well-known in their academic discipline. Six of the contributors have been recipients of the prestigious Tomash Fellowship for study in the history of computing. Five of the contributors hold distinguished professorships in their

universities. The younger scholars are among the most promising in their profession. Biographies of the individual authors can be found at the back of the book.

We hope our readers will enjoy and be informed by these accounts, and will let us know where we have gone astray.

Notes

1. In recent years a large body of historical literature has appeared, at all levels of technical, political, and social detail. Among those consulted by the authors, one of the better sources is "A Brief History of the Internet," published electronically by the Internet Society, at <http://www.isoc.org/internet/history/brief.shtml>.
2. A search on the term "History of the Internet" on Amazon.com reveals a list of several thousand titles. To these would be added the numerous online histories, including the one cited above.