
Preface

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Over the years, research on IT-enabled change has followed changes in technology and the market. In the 1980s researchers looked at the phenomenon of personal computing in work, education, and recreation. In the 1990s, the growth of the Internet raised a much broader set of questions, with different institutional and policy implications. The use of the World Wide Web for advertising, promotion, and, finally, consumer transactions drove household use to mass medium levels, while the emergence of the Web technology as infrastructure for business reframed the problem of linking computers and productivity.

Quickly internationalized but colored by American entrepreneurship, the Web triggered vigorous discourse around principles and policies for “global electronic commerce.” Measuring this phenomenon while understanding the social and economic implications became a priority for policymakers as well as businesses. The focus on electronic commerce was overshadowed by a more general research-based case that there was discernible “digital economy.” This digital economy embraced the IT sector and extended into every other sector. It served as the principal driver for a “new economy” characterized by sustained productivity gains that defied the traditional boom and bust of the business cycle.

But there was a bust, and it took the wind out of this ever-expanding phenomenon. Yet with the bust comes the possibility of a new set of insights about the essential and ephemeral aspects of all that has gone before.

The exuberance that characterized information technology in the late 1990s is in short supply today. Spam, viruses, worms, and denial of service attacks dominate the news, echoing anxiety about terrorism in the tangible world. Change, such as it is, is led not by start-ups but by

the leaders of the old economy. New applications and opportunities are few. Absorption and consolidation are the order of the day. Investment in underlying infrastructure has collapsed. Litigation rises as blame is sought for failure. Moore's law seems to matter less and less, except to game players hungry for realism.

Yet deep processes unleashed by information technology continue to transform human activity. Markets, value chains, firms, transactions, business models, institutions, innovation, collaboration, standardization, trust, community—all have been and are being reshaped by information technology. These changes ripple across the economic fabric within and across sectors. Instead of the category-killer dot-coms in business-to-consumer electronic commerce, the manifestations of change are widely dispersed and often subtle. They twist and turn deep within the firm, in the relationship between firms, or in social interactions.

Transforming Enterprise looks at change from five perspectives that correspond to the sections of the book:

1. What is the impact on the economy as a whole? In particular, how does IT affect productivity? Familiar questions, but we keep learning more about the answers.
2. What are the implications of IT for the creation and use of knowledge, especially new knowledge that leads to real innovation in products and services? Knowledge is driving the economy in many ways, while information technology and the Internet are changing the environment in which knowledge is developed and managed. Yet both knowledge and the changing environment for knowledge are very difficult to define and measure.
3. What are the implications for how enterprise is organized? We see firms working together with new facility and in new ways, thanks to the Internet. Not just one on one, but through interlocking and overlapping networking. Knowledge is shared and marshaled with varying degrees of immediacy and formality within and across boundaries.
4. To get a practical perspective on how these developments and other phenomena play out, we take a close look at how business practice and industry structure have been within particular sectors of the economy. This line of investigation is now well established and benefits from years of results and insight.
5. Finally, we look beyond the sphere of business to the implications for home, community, and society. Here, too, there is now a substantial body of research but also continual change as the capabilities of the home user continue to expand.

There is long history behind the *Transforming Enterprise* project. In 1997, the National Science Foundation and the National Academy of Sciences developed a broad research agenda on the economic and social implications of information technology.¹ OECD did important work bringing the economic and social impact of electronic commerce to the attention of the policy community in 1997–1998.² The U.S. Department of Commerce published its defining work on the “digital economy” in 1998.³ In May 1999, a number of agencies collaborated on “Understanding the Digital Economy,” a conference that served as a useful model for mixing industry, government, and academic perspectives and making the best current research available to a large audience.⁴

The sudden rise of electronic commerce and a distinct digital economy demanded attention from a larger policy community concerned with trade, economic growth, and the influence of the Internet on a wide spectrum of communications and information policy issues. The speed with which these phenomena were developing and perhaps transforming the whole of the economy seemed to defy, and in fact discouraged, any well-reasoned public response. After the bust, it became easier to gain a balanced view of the process of transformation, as well as a better understanding of how it recalibrates policy frameworks.

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There is still much to learn, but we have a foundation here for empirically grounded public debate about the future of human enterprise. By strengthening the connections between research and policy, we expect useful research, sound policy, and a better future.

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Notes

1. *Fostering Research on the Economic and Social Impacts of Information Technology, Report of a Workshop*. Washington, D.C.: National Academy Press, 1998. <http://www.nap.edu/readingroom/books/esi/>. See also National Science Foundation, Division of Science Resources Studies, *Social and Economic Implications of Information Technologies: A Bibliographic Database Pilot Project*, http://srsweb.nsf.gov/it_site/index.htm.
2. OECD, *The Economic and Social Impact of Electronic Commerce: Preliminary Findings and Agenda*, 1998, <http://www.oecd.org/dataoecd/3/12/1944883.pdf>.
3. This includes the series of internally produced reports beginning with Lynn Margherio et al., *The Emerging Digital Economy*, Departments of Commerce, Economics and Statistics Administration, 1998, <http://www.esa.doc.gov/TheEmergingDigitalEconomy.cfm>.
4. Archive at <http://www.technology.gov/digeconomy/>; Erik Brynjolfsson and Brian Kahin, *Understanding the Digital Economy*, MIT Press, 2000.