

INTRODUCTION TO E-BUSINESS

We are on the verge of a revolution that is just as profound as the change in the economy that came with the industrial revolution. Soon electronic networks will allow people to transcend the barriers of time and distance and take advantage of global markets and business opportunities not even imaginable today, opening up a new world of economic possibility and progress.

US Vice President Albert Gore, Jr, 1997

Introduction

The beginning of the second millennium will almost certainly be remembered by business historians as a time of unprecedented change in the business world. In the space of a few years entire industries have been radically transformed, hundreds of thousands of new businesses have been spawned and fortunes made and lost by entrepreneurs and investors, all as a result of digital technologies. New technologies, such as the Internet, digital television, mobile telephones and intelligent home appliances, have all reached critical mass at the same time and are poised to revolutionize businesses in a way not seen since the Industrial Revolution. Many people have already named this the E-Business (electronic business) Revolution, an idea that has caught the imagination of many businesses, governments and individuals around the world.

This chapter provides a brief background to the Electronic Business Revolution, outlining some of the political initiatives around the world that have led to the global interest in electronic commerce. (Some of the technological developments will be described in Chapter 2.) It also assesses the economic and business impact of e-business and introduces some of the themes that will be explored in more detail in later chapters, such as electronic marketing methods and impacts on particular industries.

Defining and classifying e-businesses

To begin, it is useful to describe what is meant by electronic business or electronic commerce. There are various definitions of an electronic business or “e-business”. Some define it as:

the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners.

whatis.com

Others include businesses using any electronic network to conduct buying and selling as well as other activities.

E-businesses can be classified into four main types according to the type of buyer and seller in the transaction (Figure 1.1):

- Business-to-consumer (B2C). These have been the most highly publicized of e-businesses and are online stores or shopping sites. Examples include online retailers, such as Amazon (www.amazon.com), and direct sales companies, such as Dell (www.dell.com).
- Business-to-business (B2B). Examples include Cisco (www.cisco.com) and Intel (www.intel.com), both of which offer online procurement and customer support.
- Consumer-to-consumer (C2C). This has been one of the fastest growing sectors and one where the Internet provides significant advantages over conventional channels. Examples include classified advertisement sites, such as Loot (www.loot.com), which allow individuals to post notices of items for sale, as well as auction sites, such as e-Bay (www.ebay.com), which allow individuals to put items up for auction.
- Consumer-to-business (C2B). This category includes individuals offering their services

| | | Buyer | |
|--------|----------|----------|----------|
| | | Business | Consumer |
| Seller | Business | B2B | B2C |
| | Consumer | C2B | C2C |

Figure 1.1 Classification of e-businesses by type of buyer and seller.

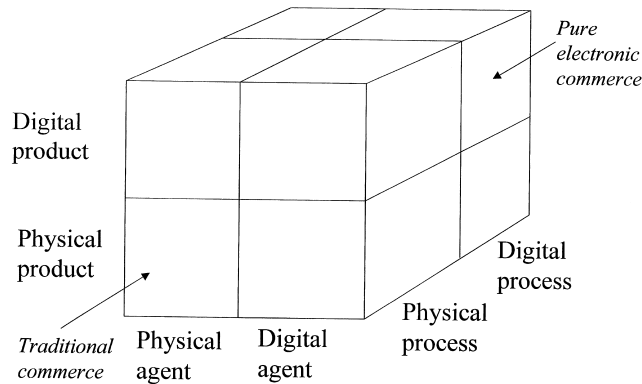


Figure 1.2 Classification of e-businesses by product, agent and process

(from Choi et al., 1997, reproduced with permission from Macmillan).

to businesses (e.g., accountants and lawyers) and sites that allow individuals to offer items for sale to businesses.

An alternative classification (Figure 1.2) is according to the type of product, process and delivery agent (Choi et al., 1997).

A product can be physical or digital, an agent can be physical or digital and the process can be physical or digital; this creates eight possible types of business, ranging from businesses that are purely physical (physical product, physical agent and physical process) to purely digital (digital product, digital agent and digital process). An example of the former is the traditional high street store while an example of the latter might be the music software site Real Jukebox, where the product, agent, delivery and payment are all digital. In this categorization, Amazon.com would not be a pure e-business since its products and part of its processes are still physical in nature.

There are many definitions of electronic commerce. Some people include all financial and commercial transactions that take place electronically, including electronic data interchange (EDI), electronic funds transfer (EFT) and all credit/debit card activity. Others limit electronic commerce to retail sales to consumers for which the transaction and payment take place on open networks, like the Internet. Others distinguish between electronic commerce (e-commerce) and electronic business (e-business), limiting the former to buying and selling activities, not including other business activities, such as servicing customers, collaborating with partners and communicating within the organization, which are encompassed by the latter.

Scope of book

At its most basic, electronic commerce involves the electronic exchange of information or “digital content” between two or more parties, which results in a monetary exchange (Figure 1.3).

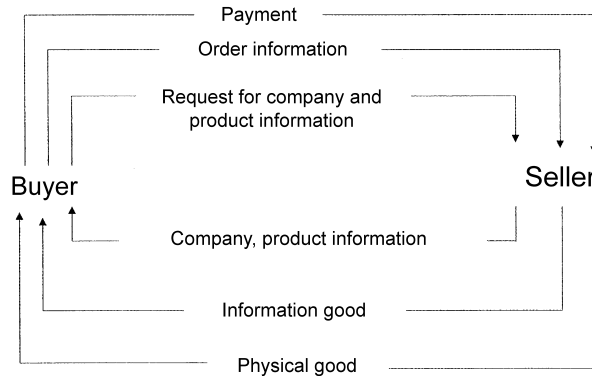


Figure 1.3 Components of electronic commerce.

The basic components required to operate such a system are for the seller:

- Content production.
- Digitization of content (conversion of content into digital format).
- Storage of digitized content.
- Link to electronic network.
- Link to electronic payment system.
- Link to physical manufacturing and delivery systems (where there is an exchange of physical goods).

For the buyer:

- Link to electronic network.
- Search and locate content on network.
- Retrieve information from network.
- Display information.
- Place order.
- Link to electronic payment system.

Although such a system seems relatively simple in principle, in order to allow “any information anywhere” several disparate technologies are required to work together. Examples of various technologies and devices to perform each of the above steps are:

- Content production – word processors, video cameras and editing software, music synthesizers.
- Digitization – digital cameras, scanners, dictation software, “ripper” software for music.
- Storage – a variety of storage is now available for digitized material, including hard disk drives, floppy diskettes, CD-ROMs and tapes.

- Network communications – dedicated lines, telephone, cable, mobile phone, electricity cables.
- Network connections – PC and modem, television and set-top box.
- Information search and retrieval mechanisms – search engines and directories.
- Display devices – PC, TV, mobile phone.

EDI and EFT

Although it discusses traditional e-commerce systems, such as EDI and EFT, this book focuses specifically on business that is conducted over networks that use non-proprietary protocols, such as the Internet. This includes internal networks (e.g., intranets) and networks that extend to a limited number of participants (e.g., extranets). It also includes communications and broadcasting networks, such as telephone, satellite and cable networks.

The focus on networks that use non-proprietary protocols, which are a relatively new phenomenon, is important for a number of reasons. First, earlier forms of e-commerce required expensive and complex custom software, dedicated communication links and, in many cases, strictly compatible equipment. Consequently, usage of early e-commerce systems, such as EDI and EFT, was mainly limited to large businesses and their first-tier suppliers. In contrast, one of the main drivers of growth of Internet systems is that they can exploit the existing information and communication infrastructure, allowing businesses of all sizes and even individuals to utilize a vast global network with minimal investment; this has led to a massive explosion in the adoption of electronic commerce. In 1999, traffic on the Internet was estimated to be doubling every hundred days. To put this in perspective, the Internet took 4 years to reach 50 million users compared with 16 years for PCs, 13 years for TV and 38 years for radio (Figure 1.4).

Some of the technological developments that have contributed to the present explosion in electronic commerce will be dealt with in more detail in Chapter 2. However, apart from the lower cost and ease of use of the technology, one of the

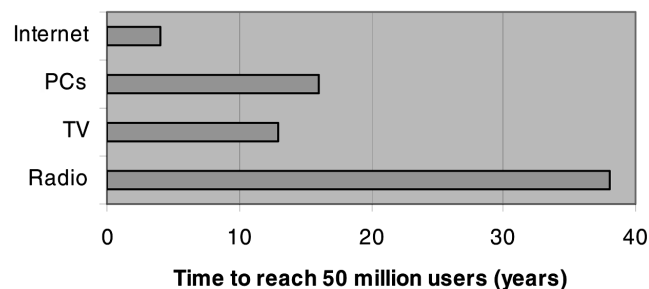


Figure 1.4 Comparison of adoption rates for Internet, PCs, TV and radio.

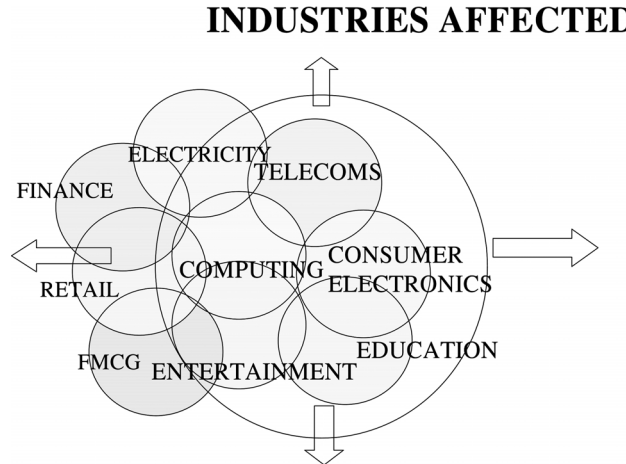


Figure 1.5 Colliding industries

(FMCG = fast moving consumer goods. Reproduced with permission from Paul Kampas).

significant characteristics of the new technology is that the open standards, accompanied by widespread deregulation of the industries, allow telephone systems, computer systems and cable TV systems to be easily interconnected. The phrase “digital convergence” has been widely used to describe the resulting convergence in technologies and industries. The industries most immediately affected were the communications, electronics, computing and information/entertainment sectors (Figure 1.5), although this is now spreading to other sectors, such as manufacturing and retail.

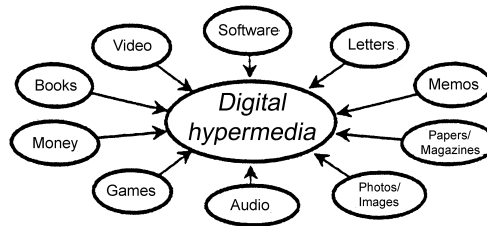
However, as Kampas (2000) shows (Figure 1.6), convergence is also occurring at the infrastructure, appliance and application levels across a range of industries, and the list is ever-increasing. Most, if not all, industries can now be included in the list of industries that are connected in the Internet.

This new information infrastructure provides several advantages for users and extends its usage and coverage well beyond the scope of previous e-commerce systems, such as EDI and EFT. Some of the reasons include the following:

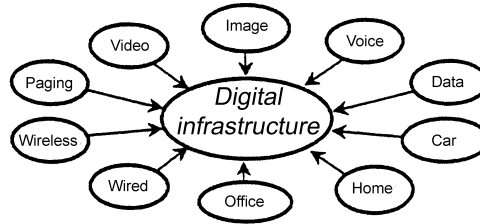
- The cost of accessing the Internet is very low compared with networks that adhere to proprietary systems; this has reduced users’ fears that the technology may quickly become obsolete and has encouraged many users to adopt it.
- The widespread adoption of these standards has in turn encouraged firms to invest in developing products that are compatible with these standards and to extend their use to a wide range of data, including voice, audio and video.
- The new technologies, which enable one-to-many and many-to-many communication, present a significant advantage over other e-commerce technologies, such as EDI, TV and telephone; this will have a significant impact on industries that currently rely on these technologies and will create many new business opportunities.

Timeless function:

V. Intelligence
IV. Application/Content



III. Infrastructure



II. Processing
I. Storage/Physical

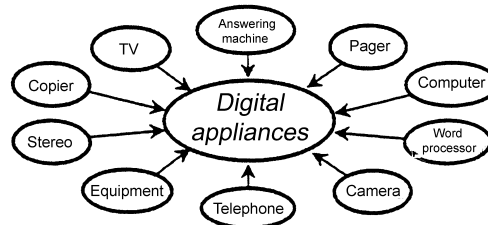


Figure 1.6 The three levels of convergence

(reproduced with permission from Paul Kampas).

Political initiatives

Apart from the technological drivers, another factor driving the phenomenal growth of electronic commerce is that, unlike previous attempts at electronic commerce, the current standards have national and international backing at government level. Although the technological possibility to create a global digital information network had been mooted for many years, the first practical plan to create such a network was first suggested in the draft of the High Performance Computing Act (HPCA) of 1991 by Al Gore, then a US senator. However, this was initially just a plan to link together supercomputing research centres in the USA in a high-speed "information superhighway" and support other work in high-performance computing. When the Democrats later won the Presidential election in the USA, the notion of building an information superhighway to stimulate the US economy became a key component of the Administration's economic reconstruction policy, and the information superhighway has become politically and economically significant.

At the start of 1993 the CEOs of 13 major US computer companies lobbied for legislation that would extend the government's existing high-performance computing and communications programme beyond the realm of government and university laboratories into offices and homes across the USA; this was followed in April 1993 by a proposal from Congressman Boucher to amend the 1991 HPCA to join all schools, libraries and local government offices to the Internet. Later in September 1993, US Vice President Al Gore and Secretary of Commerce Ron Brown announced the National Information Infrastructure (NII) initiative, a public-private partnership to construct "a seamless web of communications networks, computers, databases, and consumer electronics" (Information Infrastructure Task Force, 1993). This infrastructure would "make it easy and affordable to connect people with each other, with computers, and with a vast array of services and information resources" (from Information Infrastructure Executive Order, 1993). Other countries soon launched similar initiatives (e.g., members of the EU, Malaysia, Singapore, China, Japan and Korea).

European initiatives

It was always recognized that, to take full advantage of the technology, the NII had to form part of a global information infrastructure (GII) and similar initiatives have followed in other countries. For example, the UK Department of Trade and Industry launched an Information Society Initiative in 1996. This was followed in 1997 by the European Initiative in Electronic Commerce, which aimed to:

- Promote the technology and infrastructure needed to ensure the competitiveness of the European electronic commerce industry, and put in place structures that will provide efficient access systems for existing and potential users.
- Capitalize on the Single Market by ensuring a coherent regulatory framework for electronic commerce in Europe and in wider global markets.
- Foster a favourable business environment for electronic commerce by promoting adequate skills and by making consumers and industry aware of the opportunities offered by electronic commerce.
- Work toward global consensus from a common European position to ensure effective participation in current international co-operation and negotiation.

Malaysia

In Malaysia a significant programme to harness the new technology for economic growth was initiated in 1998; this proposed a three-phase plan to become a fully developed, mature and knowledge-rich society by the year 2020:

- Phase I – in this phase, which has already begun, Malaysia has created a Multimedia Super Corridor, a corridor 15 km wide and 50 km long, that starts from the Kuala Lumpur City Centre (KLCC) and extends south to the Kuala Lumpur International

Airport, housing high-technology companies, R&D centres, a university and two “intelligent cities”, Cyberjaya and Putrajaya.

- Phase II – in this phase, the Multimedia Super Corridor will be linked to other cybercities in Malaysia and the world. The government will also set global standards in flagship applications, champion cyberlaws within the global society and establish a number of intelligent globally linked cities.
- Phase III – the aim is that, by this final phase, Malaysia will be transformed into a knowledge-based society. It will have a cluster of intelligent cities linked to the global information superhighway, be the Asian base for a number of leading multimedia companies and become the platform for the International Cybercourt of Justice.

Singapore

In 1998 the Singapore government launched an Electronic Commerce Plan to stimulate the widespread adoption of electronic commerce in Singapore and to strengthen Singapore’s position as an international e-commerce hub; this includes infrastructure building, public awareness campaigns, PR to attract foreign and local businesses, and harmonization of cross-border laws for electronic commerce. The target was to have S\$4 billion worth of products and services transacted electronically through Singapore and 50% of businesses using some form of e-commerce by the year 2003.

China

In 1993, Hu Qili, Minister for the Electronics Industry, proposed the idea of the “Three Golden” projects, China’s version of the information superhighway. The Golden Bridge project aimed to build an infrastructure for the use of information technology in the national economy, also known as the China National Economic Information Network, incorporating both satellite and landline networks. Golden Gate (Golden Customs) was a foreign trade information network linking the Ministry of Foreign Trade and Economic Co-operation and the Customs Bureau. Golden Card was a credit card verification scheme designed to promote the use and dissemination of credit cards. A fourth “secret” Golden Sea project was aimed at building a security and administration network for leaders of the government, providing them with immediate access to reference data from other institutions, organizations and offices under the direct jurisdiction of the Communist Party Central Committee.

Japan

The Japanese Ministry of International Trade and Industry (MITI) has been active in electronic commerce since 1995, when a supplementary budget of JPY 32 billion was allocated for the promotion of electronic commerce. In addition, pilot projects to accelerate the practical use of electronic commerce were implemented in the supplementary budget for 1998 (over JPY 40 billion). However, the main initiatives have come from industry. For example, the Telecom Service Association (TELESA) has carried out

international interconnection tests between Japan and Singapore and between Japan and Korea.

Korea

In Korea the government established the first Master Plan for Informatization Promotion in 1996, a series of 10 key projects aimed at the realization of an advanced information society by 2010, including the building of high-speed information networks; this was followed in 1999 by Cyber Korea 21, a plan to transform the Korean economy into a knowledge-based one for the 21st century, and in 2002 by e-Korea Vision 2006, a 4-year plan to develop Korea as a global player in information technology.

International initiatives

Several initiatives have also been launched at the international level. In 1996 the USA, Canada and Australia jointly produced a discussion paper entitled “Implications of the Communications Revolution for Tax Policy and Administration”. In July 1997, US President Bill Clinton and Vice President Al Gore released their proposal for “A framework for global electronic commerce”. In 1998, OECD hosted a *Ministerial Conference on Electronic Commerce* to discuss international policy on electronic commerce, which was followed by a second conference in 2000.

Economic benefits

One of the factors behind the initiatives by many governments around the world has been the promise of significant gains in economic productivity from electronic commerce. The Internet economy in the USA is estimated to have grown by 62% from \$322 billion in 1998 to \$830 billion in 2000 (Internet Economy Indicators <http://www.internetindicators.com>); this includes companies directly generating all or some part of their revenues from Internet or Internet-related products and services. These can be divided into four layers:

- Layer 1 – the Internet Infrastructure Indicator. The gross revenues and attributed employees from companies that manufacture or provide products and services that make up the Internet network infrastructure (e.g., telecommunications and fibre backbones, “last mile” access, Internet dial-up access and end-user networking equipment). It also includes PC and server manufacturers, modem manufacturers and other manufacturers of the hardware necessary for the Internet to function.
- Layer 2 – the Internet Applications Indicator. The gross revenues and attributed employees from companies that provide products and services in this layer that build on the network infrastructure and make it technologically possible to perform business activities online; these include electronic commerce application providers (e.g., Netscape, IBM, Microsoft), Internet consulting services, multimedia applications, development software, search engine software, Web-enabled databases and online training services.

- Layer 3 – the Internet Intermediary Indicator. The gross revenues and attributed employees from companies that increase the efficiency of electronic markets as Internet middlemen by facilitating the meeting and interaction of buyers and sellers via the World Wide Web and Internet. This layer includes online brokerages, Internet ad brokers (e.g., Doubleclick, 24/7 Media), portals/content providers (e.g., Yahoo, Excite, Geocities), market makers in vertical industries (e.g., VerticalNet, PCOrder), content aggregators (e.g., CNET, ZDnet, Broadcast.com) and online travel agencies.
- Layer 4 – the Internet Commerce Indicator. The gross revenues and attributed employees from companies that generate product and service sales to consumers or businesses over the World Wide Web and Internet. This layer includes online retailing, pay-to-use content and other business-to-business and business-to-consumer transactions conducted on the World Wide Web and Internet.

At the same time as the Internet economy has grown, according to the US Department of Commerce, the US economy as a whole has shown a remarkable increase in productivity. Productivity growth doubled from an average of 1.4% between 1973 and 1995 to a 2.8% rate from 1995 to 1999 (Figure 1.7).

Evidence is increasing that this is not mere coincidence and represents real growth in economic productivity as a result of investment in computing and communications technologies. Advances in technology have produced sharp declines in the prices of computer processing, data storage and retrieval, and communications, which are in turn driving both the increase in Internet activity and the increases in business investment in IT hardware and software.

At the same time the IT industries have shown extraordinary growth, increasing their share of the economy from 6.3% in 1994 to a peak of 8.9% in 2000 (Figure 1.8). In contrast, between 1990 and 1994 the average annual growth was only 0.5%. Pre-packaged software and computer services had the highest growth rate, increasing their output at an average annual rate of 17% from 1995 to 2000. Over the same period, the computer

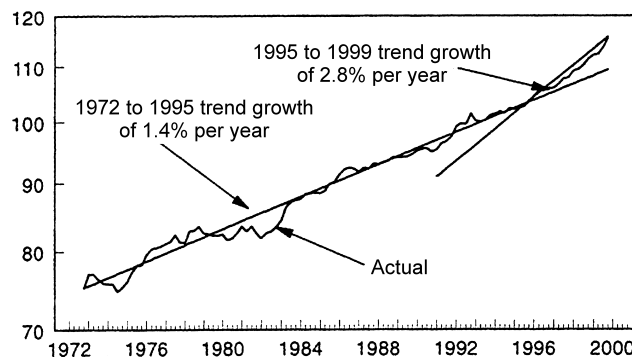


Figure 1.7 The trend rate of non-farm productivity growth accelerated after 1995 (Index 1992 = 100, log scale)

(from US Department of Commerce, 2000).

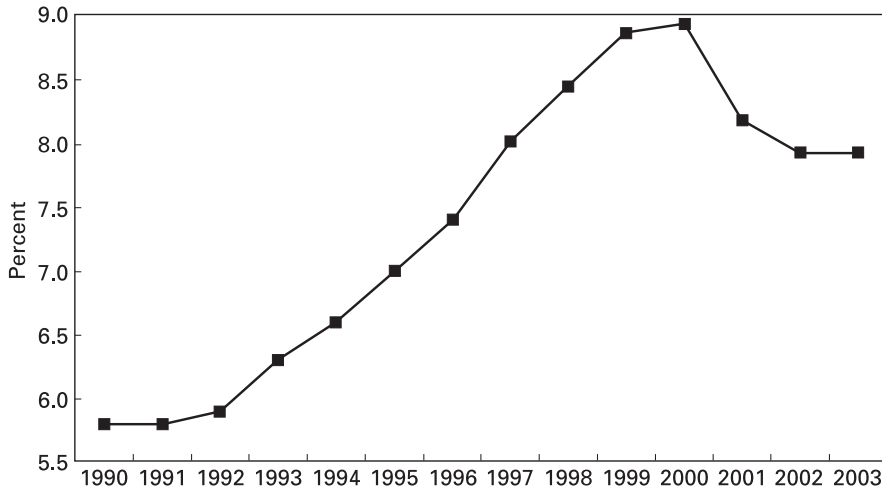


Figure 1.8 IT-producing industries share of economy.

Based on figures from Economic and Statistics Administration and Bureau of Economic Analysis.

hardware and communications equipment industries increased their output at a 9% annual rate, and output in the communications services sector rose at a 7% annual pace.

The contribution to real economic growth is even more striking. IT industries produce less than 10% of total US output. Nevertheless, between 1995 and 2003, they accounted for an average 30% of total real US economic growth (Figure 1.9) and nearly 100% during 2001 when the rest of the economy was stagnant.

One reason for the extraordinary pattern of productivity appears to have been a

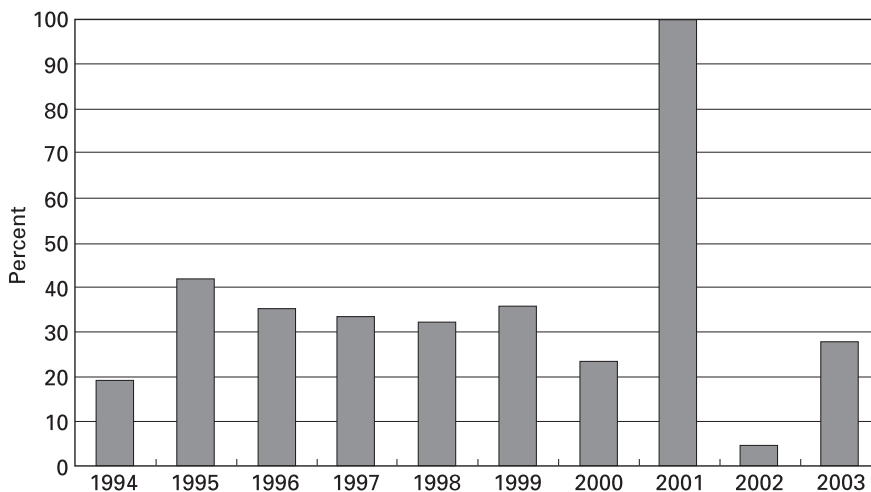


Figure 1.9 IT-producing industries: contribution to real economic growth.

Source: Digital Economy 2003, US Economics and Statistics Administration.

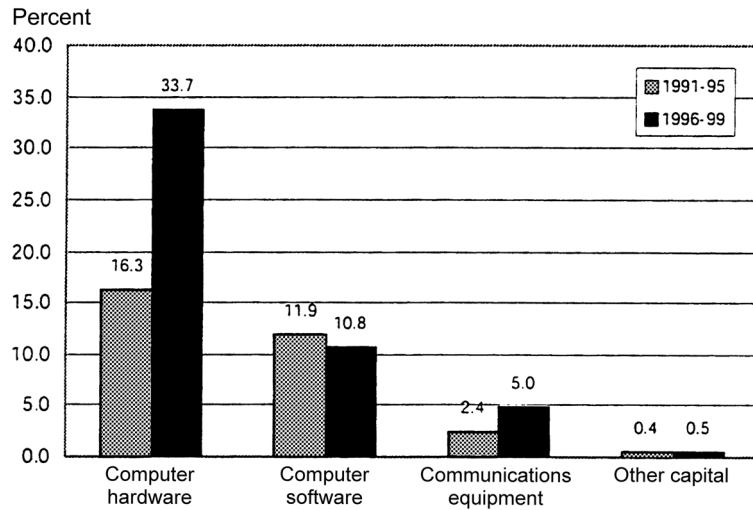


Figure 1.10 Average annual rates of capital deepening in US non-farm business sector

(from Oliner and Sichel, 2000, tables 1 and 2, pp. 24–25).

significant shift from use of labour to IT in the economy shown by a significant IT “capital deepening”, beginning in 1991 and accelerating sharply after 1995. The ratio of the capital stock of computer hardware to hours worked increased, on average, by 16.3% per year over the period 1991–1995 and 33.7% per year during 1996–1999 (Figure 1.10). In contrast, over the same period, the rate of capital deepening for all other forms of capital averaged only about 0.5% per year.

According to one study, the adoption of Internet business solutions has already yielded cumulative cost savings of \$155.2 billion to US organizations and an increase in revenues of \$444 billion. Once all current solutions have been fully implemented, firms expect to realize cost savings of \$528 billion and revenue increases of \$1,552 billion; this equates to cost savings of 4.3% of GDP over the period 2001 to 2010 or 0.43 percentage points of the future increase in annual US productivity from 2001 to 2011 (Net Impact Study, 2002).

The same study estimates Internet business solutions have already resulted in cost savings of EUR9.0 billion (USD8.3 billion) and revenue increases of EUR86.4 billion (USD79 billion) in the UK, France and Germany combined. Once fully implemented, cost savings of EUR88 billion and revenue increases of EUR230 billion are expected; this equates to cost savings of 1.1% GDP over the period 2001 to 2010 or a 0.11% increase in annual productivity.

The new economy

Some commentators (e.g., Tapscott, 1996) have suggested that a “new economy” is emerging in many developed countries, one that is dominated by knowledge industries

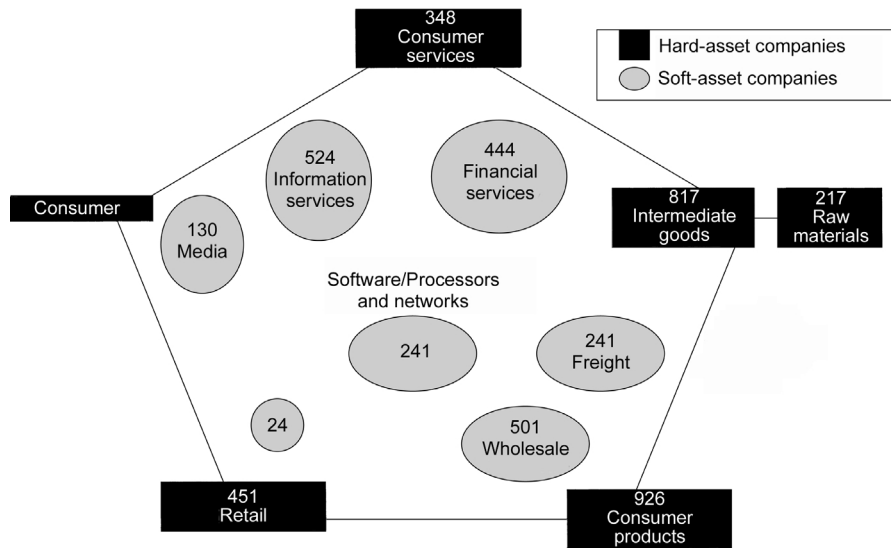


Figure 1.11 Share of the \$4.9 trillion US virtual value chain (in billions of dollars)

(from Aldrich, 1999, p. 89. Reproduced with permission from John Wiley & Sons).

and driven by information technologies. For example, “soft” or information-based companies contributed 43% of the total value of the US economy in 1997; these include financial services, media, advertising, freight, software and telecommunications (Figure 1.11). This compares with only 37% in 1987 and 22% in 1957 (Aldrich, 1999, p. 89).

Similar effects are occurring in other developed economies, especially the northern European countries (Finland, Sweden, Norway, the Netherlands and the United Kingdom) (Figure 1.12). In Finland the ICT sector’s share of value added nearly doubled from 7.8% in 1995 to over 15% in 2000 and the ICT sector accounts for almost 22% of total manufacturing value added (OECD, 2000).

The ICT sector is also a major source of employment growth in the developed economies (Figure 1.13). Employment in the ICT sector within the OECD grew on average by over 4% annually over the period 1995–2000, almost three times the rate of overall business sector employment. Most of this growth is derived from the ICT services sector except in Finland and Mexico where ICT manufacturing employment grew by over 9% annually, and Canada, the Czech Republic, the Nordic countries, Spain and the United Kingdom, where it grew between 3% and 5% annually.

Impact on businesses and competitive strategy

At this stage of development of electronic commerce, everything that constitutes a market – products, industrial structures, trade and competition rules, regulations and

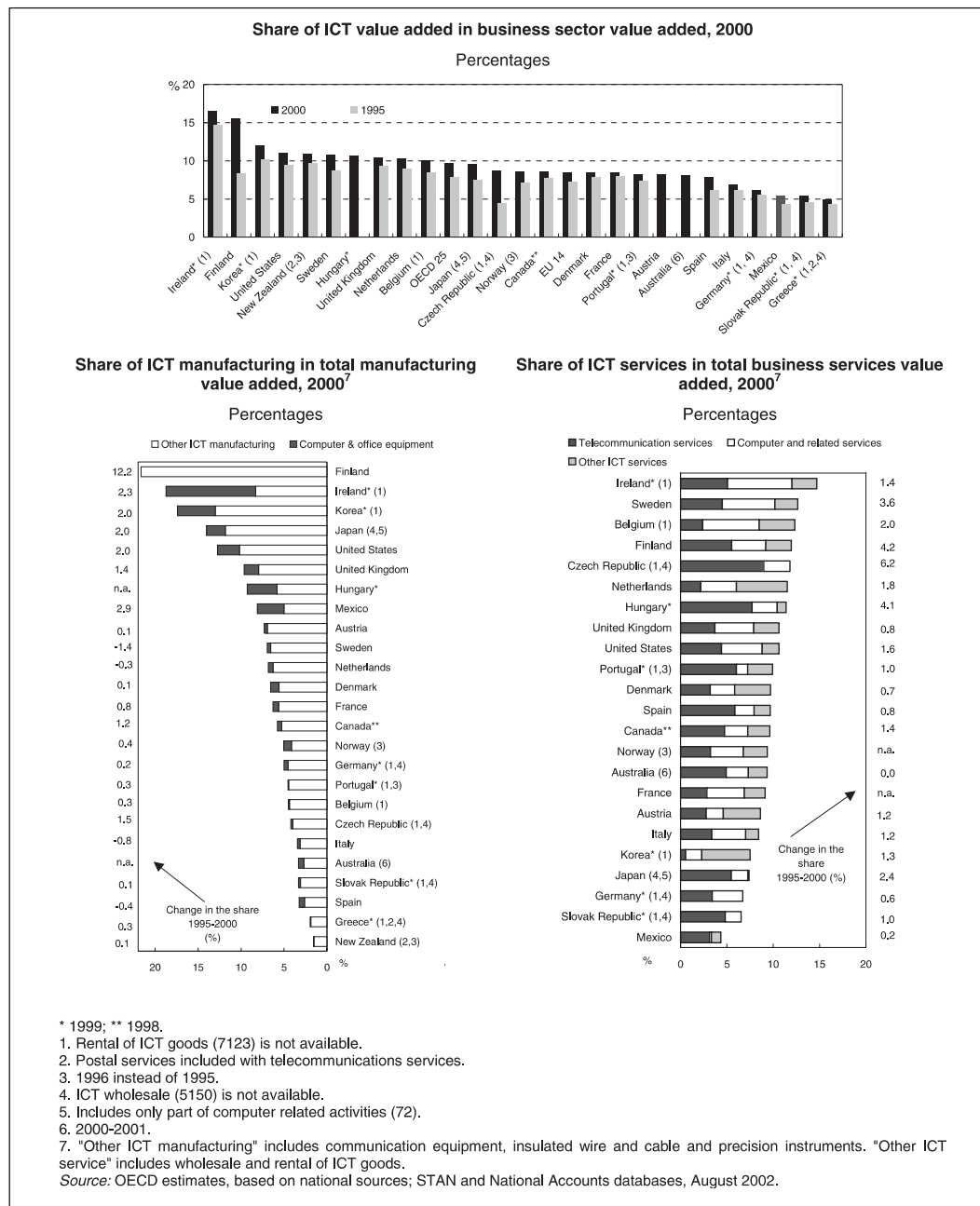
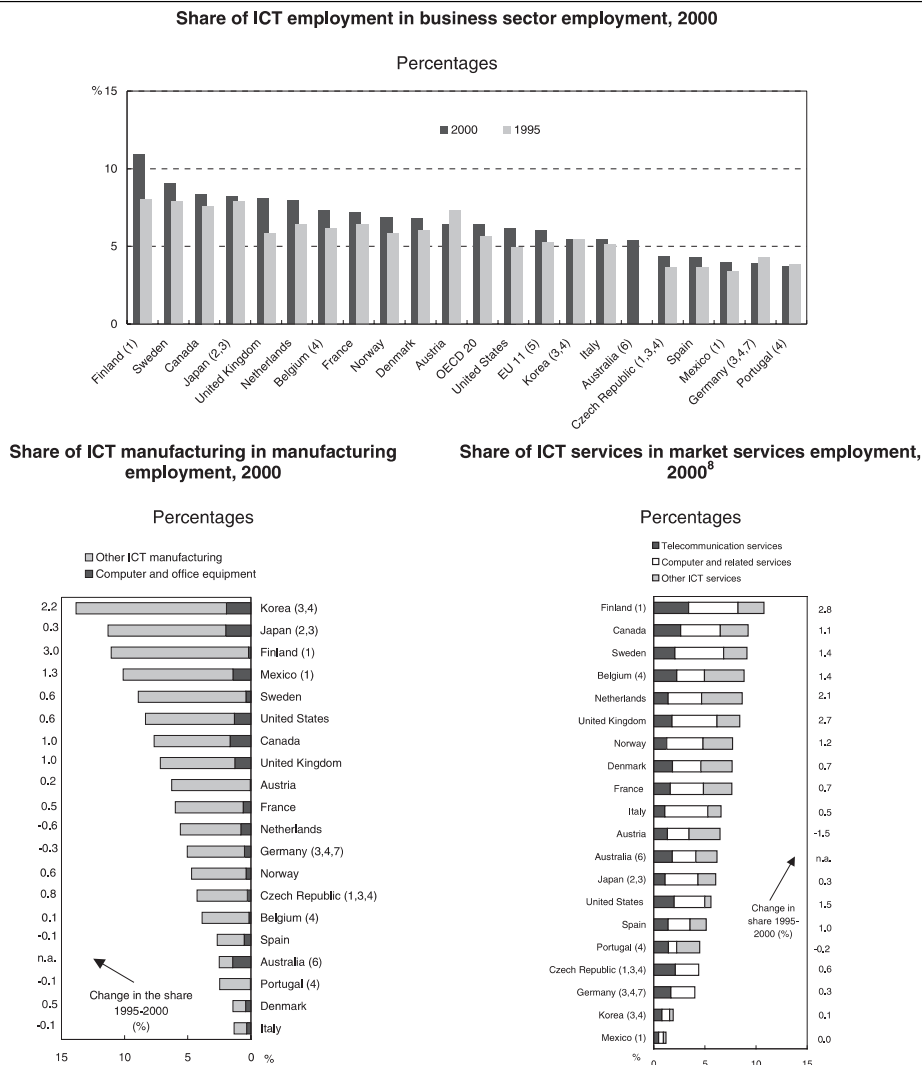


Figure 1.12 Size and growth of the ICT sector in OECD countries

7123 and 5150 are ISIC (International Standard Classification of Activities) numbers; STAN = the OECD Structural Analysis Database (source: 'Measuring the Information Economy 2002', OECD copyright, 2002).



1. Based on employee figures only.

2. ICT services include market research and public opinion polling.

3. ICT wholesale (5150) is not available.

4. Rental of ICT goods (7123) is not available.

5. Greece, Iceland, Ireland, Luxembourg missing.

6. 2000-2001.

7. Telecommunication services (642) are not available.

8. "Other ICT manufacturing" includes communication equipment, insulated wire and cable and precision instruments. "Other ICT service" includes wholesale and rental of ICT goods.

Source: OECD estimates, based on national sources; STAN and National Accounts databases, August 2002.

Figure 1.13 The contribution of the ICT sector to employment growth

7123 and 5150 are ISIC (International Standard Classification of Activities) numbers; STAN = the OECD Structural Analysis Database
(source: 'Measuring the Information Economy 2002', OECD copyright, 2002)

laws – is in the process of being redefined; this raises numerous new issues for businesses. For example, how will the new networks affect industries and the economy at large, how should firms compete in the new electronic marketplaces that are developing, how can firms utilize the networks for marketing products and services, how can firms integrate the network into existing business operations and how should they manage the new organization? This makes it important for business strategy, marketing, operations, finance and legal specialists as well as IT specialists to understand the networks and their business implications.

New marketing and distribution channels

The most straightforward and obvious impact on many businesses will be the addition of a new channel for marketing and distributing products. The Internet provides a ready-made distribution channel for information or digitized products and a shop window to display products that can be seen worldwide.

Efficiency gains

One of the advantages of using an electronic channel is the efficiency gain. Aldrich (1999) argues that one of the most significant business advantages of electronic networks is the ability to create a seamlessly integrated value chain linking primary sources of goods to consumers (Figure 1.14); this can generate tremendous efficiencies

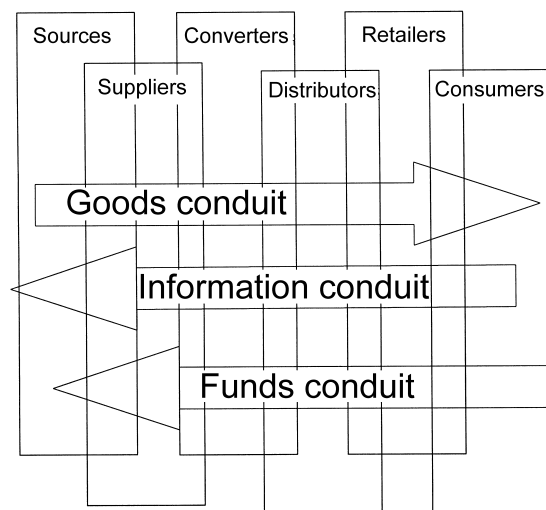


Figure 1.14 Seamlessly integrated value chain

(reproduced with permission from John Wiley & Sons).

through reduced transaction costs, faster throughput and better information to all members of the chain. As will be seen in Chapter 6 this can also lead to radical restructuring of industries and firms (e.g., by creating alternative channels and intermediaries, or substituting existing channels and bypassing existing intermediaries).

Death of distance

Another significant effect of using global networks is what Cairncross (1997) terms the “death of distance”, meaning that distance becomes less important. Because a webpage is accessible to anyone with access to the Internet, electronic commerce greatly extends the market reach of firms, vastly expanding opportunities and creating new demand. For example, some Amazon Indian tribes are using the Internet as a means to reach customers for their products around the world, something not previously possible (www.amazoncoop.org).

The global reach of e-commerce combined with a reduction in transaction costs also enables an aggregation of demand, creating a market that can sustain new niche products; in the past, the small market potential would have been economically unfeasible. Examples include HotHotHot (www.hothothot.com), a US company that specializes in the sale of chilli peppers and sauces to chilli enthusiasts, and Jack Scaife (www.jackscaife.co.uk), a family butcher in England that markets home-made, traditional Yorkshire sausages around the world.

Mini-case study: Jack Scaife

Smoked bacon is not the most obvious product that would be associated with the Internet (Figure 1.15). However, Chris Battle, a Yorkshire butcher says, “I’ve had to eat my words. When my daughters suggested we sell smoked bacon on the Internet I thought they were daft. But now we sell more than three tonnes per week to customers as far afield as Peru, Japan and South Africa.”

In 1994, the family-owned shop in Keighley, Yorkshire had annual sales of £90,000 for traditional-style British bacon, made by smoking it over fires fuelled with oak shavings. Initially, business grew through word of mouth and press coverage, generating growing mail order sales for the business. In 1997, urged on by his daughters Joanne and Angela, Battle spent £1,000 to set up a website. “Spending £1,000 setting up a website sounded like a total waste of money,” Battle says. At first, he seemed to be proved right as there was no response for several weeks. But then the business suddenly took off and turnover has risen to over £750,000. Initially, the sales came from British expatriates unable to obtain traditional British bacon abroad but, as word has spread, now an increasing amount is sold to the domestic market.



Figure 1.15 Jack Scaife (www.jackscaife.co.uk)
(reproduced with permission from Jack Scaife).

Internet-based electronic commerce is also creating new opportunities for trade by creating new delivery channels for digitized products and services. For example, many software firms now use the Internet to distribute software. Other services, from financial services to education to medical services to others yet to be devised, also have the potential to become more globally traded.

The Internet can remove many of the distribution and marketing barriers that can prevent firms from gaining access to foreign markets. For example, many small- and medium-sized firms (SMEs) are using the Internet as a business-to-business tool to open and/or maintain a presence in foreign markets. Electronic commerce lowers the information and transaction costs of operating in overseas markets and provides a cheap and efficient way to strengthen customer-supplier relations (e.g., through email, remote online databases and video links).

In traditional markets, firms seeking to compete globally will usually start by testing their products and building brand recognition and reputation in a small geographic market. The existence of geographical and time barriers allows the local development of multiple players. In addition, these barriers limit players' ability to exploit economies of scale. In contrast, as markets on the Internet have no geographical boundaries, a new

entrant cannot, in principle, take advantage of a geographical niche or use a neighbouring geographic market as a springboard. The only neighbouring markets that can serve as a springboard are product markets. For example, Internet retailer Amazon has added music, electronics and other retail activities to book publishing; this is why the current trend is for existing network players to extend their market and globalize their offer. The characteristics of information networks and the related technologies enable these firms to capture markets to an extent not before possible.

Death of time

Equally as important as distance in most business transactions is the factor of time – time to reach the shop, time to search for the required good, time to deliver it, etc.; and just as electronic networks have led to the “death of distance”, electronic networks can lead to a “death of time” in some businesses or at least a change in the time factors. One of the most obvious effects of using electronic networks is that it allows instantaneous responses and, in the case of digital products, instantaneous delivery online. Instead of waiting days for a letter or a package by mail, it is possible to place an order and receive the good or service immediately. In some cases this has led to improvements in existing services (e.g., online software delivery).

In other cases it has created entirely new markets. Online auctions, such as those used by airlines to sell unsold seats at the last minute, are one example of using e-commerce to aggregate demand, creating a new market that delivers value to the consumer (inexpensive flights) and revenue to the producer. Another example is lastminute.com, a UK Internet firm, which has built a business around the buying and selling of goods and services at the last minute, creating a new market for unsold airplane and theatre tickets.

Mini-case study: Lastminute.com

Lastminute.com (www.lastminute.com) (Figure 1.16) is probably the UK's best known pure Internet business. Whereas some businesses use the Web as an adjunct to what they already offer “offline”, Lastminute.com uses the power of the Internet to offer services that traditional offline companies simply cannot provide. The idea behind Lastminute.com is a simple one: to use the Internet to provide last-minute bargains for items such as theatre tickets, flights and hotel rooms to cash-rich, time-poor customers.

The company was launched in November 1998, although co-founder Brent Hoberman says, “I'd had the idea years before. I'd written things down about it over the years about how I could get this thing off the ground, but I thought I wasn't ready and the industry wasn't ready.” That all changed as the Internet took off and Hoberman formed a company together with co-founder Martha Lane Fox to develop the idea in April 1998. Prior to forming Lastminute.com, Hoberman had spent 5 years in strategy consulting before moving to LineOne, the UK Internet service provider (ISP) now owned by British Telecom, and subsequently helping to found an online auction business. Martha Lane Fox had also worked in strategic consultancy at



Figure 1.16 Lastminute.com

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Spectrum Strategy Consultants, where she and Hoberman met, and then at Carlton Digital Channels, where she was responsible for generating and analysing new channel and interactive concepts.

The company was formed with £600,000 of funding to cover start-up costs, and the site went live in November 1998. An additional £6.6 million worth of funding was secured in June 1999 from an investor group led by Global Retail Partners which included Intel Corporation, T-Venture, Amadeus Capital Partners and Harvey Goldsmith, as well as seed investors Arts Alliance, Innovacom and NewMedia Investors.

The company floated on the London Stock Exchange in 2000 amid much fanfare and controversy over a last-minute increase in offer price. It immediately entered the FTSE-100 list of top 100 companies by capitalization, while the founders were featured in an exhibition at the National Gallery in London. Since then, in line with other Internet businesses, share prices have not fared so well and have dropped to below the offer price. Despite this setback, the company is continuing to expand its operations. Following the success of the UK site, local sites have been set up in France, Germany, Sweden and Australia.

Apart from the speed of response, another benefit of electronic commerce is that services can be provided 24 hours a day, 7 days a week. Where no physical product, agent or process is required (e.g., as is the case with an information service), the system can be left to run automatically. Where a physical agent is required (e.g., to deliver a package), instructions can be left to be acted on the next day. Along with enabling global reach, this enables businesses to serve customers around the world anywhere, anytime.

Other technologies can save time not only through faster communication but also by undertaking many of the tasks currently performed by humans. Many businesses are built around saving time for customers (e.g., travel agencies, insurance brokers and estate agents). While it is possible for most people to conduct the activities themselves (e.g., to book flights, accommodation and tours for their own holidays), many people prefer to leave the arrangements in the hands of the agent, particularly if they have a busy schedule. Electronic commerce can radically alter the value of such businesses by reducing the time taken to conduct those same activities. As will be seen in later chapters, technology is now available which will allow easy search and comparison of offers from various online businesses, and technology is being developed which will even allow automatic ordering of services based on the customer requirements.

New products and markets

Apart from creating new marketing and distribution channels, the greatest future economic impact of electronic commerce is also likely to come from the creation of new products or the radical transformation of existing ones and the consequent creation of new markets; these are likely to be of three types.

Radically redefining existing products/services

Many old products are being radically transformed by the addition of intangible digital improvements that continue to erode the distinction between a good and a service. An example is email; this is seen as a substitute for physical mail, but it can be sent securely to many recipients across the globe, with verification, in a few hours. In addition to text, it can contain links to other documents and include audio and video clips and multiple attachments. With traditional mail, this would be either impossible or very difficult. This new functionality and interactivity is an aspect of electronic commerce that is likely to transform old products and thus generate new demand. The same is true of service businesses. The example of Amazon.com, the online bookstore, shows how information technology can transform the traditional book retail experience by providing a selection of millions of books, chats with authors and reviews by critics and customers.

Personalized products

Another benefit that use of IT systems provides is the ability to track customer buying patterns more closely. Businesses can use the information gained in this way to use product suggestions and personalized interfaces as marketing tools. Amazon.com, for example, uses filtering tools to profile customers and determine their purchasing patterns. On the basis of information gleaned from this database, Amazon suggests other books that might interest customers, based on the purchasing patterns of those who have bought similar books.

Marketing “free” products

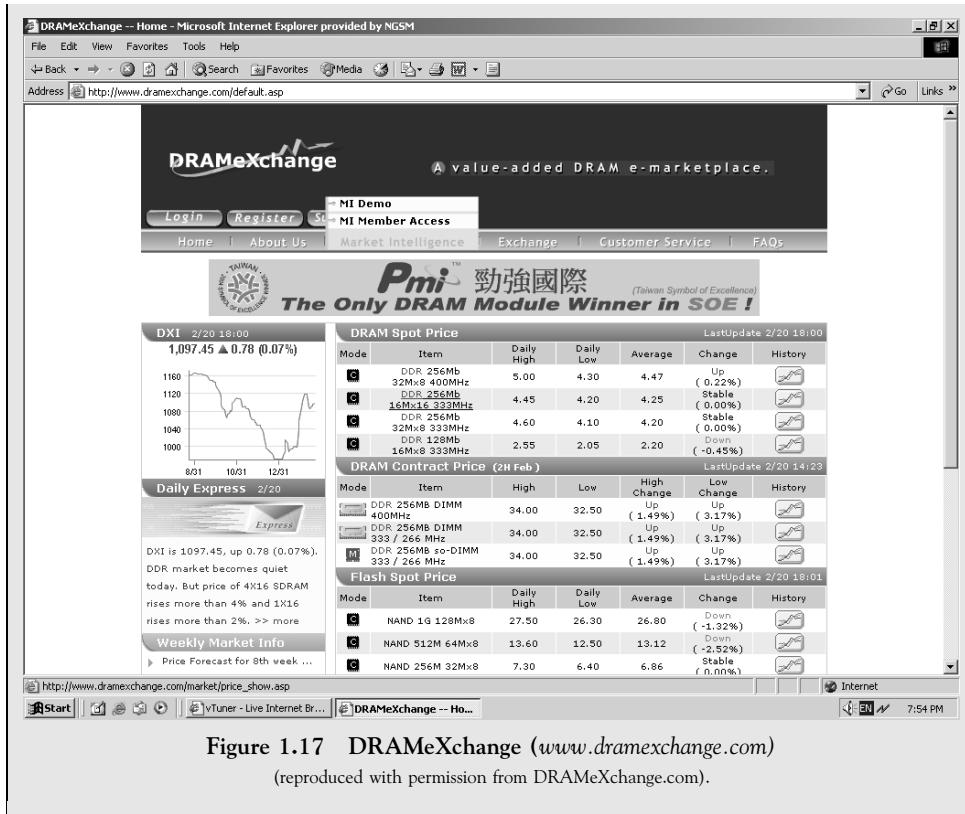
The lower transaction costs, interactivity and ability to market on a one-to-one basis make it possible to market items using e-commerce which previously could not economically be bought or sold and existed as non-market transactions. Two examples are advertising and private information.

In the past, the only monetary benefit a consumer could have gained from reading an advertisement would be a coupon or rebate for a price reduction when buying the product or possibly an in-kind benefit, such as frequent flyer miles. With pay-per-view advertising, electronic commerce now enables advertisers to pay consumers to read an advertisement. Similarly, in the past, private information about individuals collected by businesses for marketing purposes, such as name, address, and demographic and financial information, was often acquired from individuals without any direct compensation. With e-commerce, it is possible to establish a market for this information, and businesses can buy this “product” from owners just as they compensate workers for their labour.

Another example is the creation of spot markets for products for which the market was too diverse and scattered, but which electronic commerce makes feasible. Using the breadth and instantaneous communications offered by the Internet, DRAMeXchange provides a neutral e-worldwide marketplace for professional dynamic random access memory (DRAM) buyers and sellers.

Mini-case study: DRAMeXchange

Like many other electronic marketplaces, DRAMeXchange was founded on the insight that manufacturers with temporary surpluses or shortages were unable to find and trade with one another without revealing competitive information. Companies with surplus inventory can post anonymous sell orders on the DRAMeXchange website where they are matched with incoming buy orders. Once a deal is struck, DRAMeXchange’s logistics and payment system ensures that members can trade anonymously. In addition to the transaction service, DRAMeXchange provides daily and historical spot price, product specification, analyses, news collection to assist in decision making, a members’ forum for informal news and a bulletin to publish their news.



Substitution of existing products and channels

Some of the industries most significantly affected by electronic commerce include the following.

Letter delivery

Email is one of the most popular Internet applications and, while much of this mail consists of small, spontaneous messages that complement existing letter mail, some substitution is inevitable. The Universal Postal Union (UPU) estimates that the share of physical mail in the overall communication market (including mail, fax, phone, email) in Western Europe and North America will drop from about 28% in 1995 to less than 20% by 2005. At the same time the share of email is expected to double from 12% to 24%. The biggest impact is expected in business-to-business mail, where email is expected to capture an additional 12% of the market by 2005; in the business-to-consumer segment, email is expected to capture 4–5%.

Telephony, fax, videoconferencing and the Internet

The Internet provides a standard technology for a wide variety of communications that may lead to substitution of previous systems (e.g., fixed-line, circuit telephone service, fax transmission and broadcasting). However, the quality and reliability of some of these services may be less than current norms where broadband is not available. Therefore, some observers estimate that the immediate impact will be larger on communication services that are not time-dependent (fax, voicemail and pagers) and that only about 5% of the voice market will shift to the Internet in the near future, owing to sensitivity to losses in quality.

In addition, the use of telephony and fax services may change as electronic commerce technology develops. With the development of Internet telephony, most e-commerce sites in the near future will have a telephone link to a customer service representative who could maintain the role of the telephone in the sales process. While this will not have a demonstrable impact on the telephone system itself, it could affect the size and number of call centres as fewer operators are needed as processing transactions becomes more efficient.

Publishing

Many publishers have gone online, but the impact of e-commerce varies according to the product. The majority of online newspapers are free and provide unrestricted access to their websites. However, some impose access restrictions by requiring the reader to register. Others allow free access to part of the paper while requiring a subscription for other parts. Others even offer two separate online versions, one free and one subscription-based. A second category of online publications that has shown a very high rate of growth is that of scholarly journals. As of 2000 it was estimated that there were 20,840 journals available online. Like newspapers, many journal publishers offer both print and electronic versions. In some cases the electronic versions are full-text versions, in others only the abstract is available online. Some publishers bundle the electronic version with print subscription, while others charge separately for the print version and electronic access. The third largest category of publications is that of books. The most significant development in this market has been the development of electronic books or e-books; these are digital files that can be read by various devices, such as computers, personal digital assistants and special hand-held devices. Although a large number of e-books have been published it is difficult to estimate the sales volumes. A relatively new format “print on demand” (POD) allows a book to be stored as an electronic copy, but limits printing to the number of copies paid for. The benefits of these digital technologies for publishers include reducing the cost of printing, warehousing and distribution.

Entertainment

Electronic commerce over the Internet may lead to substitution of some entertainment services. During peak evening viewing periods, the number of people logged on to the

Internet has been increasing at the expense of television. In addition, new products, such as multimedia programmes, are likely to compete with traditional entertainment, such as TV, radio, videos and video game playing. Several TV and radio broadcasters are already offering broadcast services via the Internet. Despite its relatively poor quality, video transmission over the Internet can also be used for conference calls, security and surveillance.

Education

Although distance learning via the Internet is likely to complement rather than substitute most existing schools and universities, some substitution may occur in certain areas of education, such as vocational training and continuing education programmes, where the flexibility of distance learning via the Internet is an advantage. Although distance learning has existed for some time, the Internet makes it possible to combine text with audio/video and allows interaction in real time via email and discussion groups; this could lead to substitution where the advantages of tuition over the Internet outweigh those offered by local institutions. For example, some universities in the USA now provide tuition to foreign students over the Internet.

Health services

Health services could be affected by electronic commerce in two ways. One use of the Internet is to streamline the capturing, storing and processing of information, such as patients' records, physicians' notes, test results and insurance claims information. The second use of the Internet is for telemedicine; this can consist of at least three different services: teleradiology (transmission and diagnosis of X-rays, ultrasound images or magnetic resonance images), telepathology (real-time transmission and diagnosis of information to a pathology lab during an operation) and virtual reality (the use of computer simulation techniques to train and instruct). While it is unlikely that surgery will be performed at a distance or that computer diagnosis will replace human diagnosis, a number of trials have shown that a wide variety of simple procedures, monitoring and preventive medicine can be conducted by telemedicine.

Financial services

Financial services, including banking, stock trading, insurance and provision of financial information, have been significant users of IT in the past and have already been significantly affected by e-commerce. For example, online banking and share-trading services have proved to be some of the most popular services on the Internet. Although there may be some substitution of existing activities, this is likely to be offset by overall increases in the market for these services as prices decline and people make more frequent use of them.

Other professional services

Other professional services that may be affected include those that largely involve the exchange of ideas or advice (e.g., architects, engineers, accountants, lawyers and consultants), especially to acquire and serve clients. It is unlikely that the services will be totally lacking in direct personal contact of some kind, given the personal nature of many problems, so the effects will mainly be in the form of market expansion and greater interaction with clients.

Estimated impact of e-commerce on industries

Forecasting the impact of any new technology is always difficult, as will be seen in Chapter 10. There have been many examples in history where the impact was seriously underestimated (e.g., the telephone and the mainframe computer), as well as examples where the impact was seriously overestimated (e.g., telephone shopping and electric cars). The magnitude of the impact of electronic commerce will probably not be clear for some time, possibly 15–25 years, so any forecasts should be treated with caution. However, Figure 1.18 shows estimates of the size of the impacts of e-commerce on some industries in 2002. Sectors that are forecast to be most affected are those whose products have high price-to-bulk ratio (such as music CDs), commodities (such as routine business flights) and intangible, information products that can be delivered electronically (such as software). It can be seen that impacts range from 60% to 5% of sales. However, it is also important to bear in mind that figures of online revenues are only part of the picture. Even for low-impact industries, electronic commerce may still form an essential part of services. For example, while Internet courses may never totally replace face-to-face courses in the educational sector, they may come to form a small but important part of the overall curriculum.

Structure of book

The rest of this book is structured (Figure 1.19) as a “tour” around various topics and fields of knowledge which it is necessary to understand in the strategic management of an e-business, whether it is part of an existing company or an e-business start-up. Some stages of the tour can be skipped and some topics can be dealt with in a different order. However, in order to gain most from the book, it is recommended that a reader new to the area should follow the order of chapters in the book as each chapter builds on preceding ones.

Chapters 2 to 6 aim to build a foundation in the areas of technology, marketing and economics relevant to e-business. Chapter 2 provides an introduction to the technologies most commonly used in e-business in order to show how they have developed and how

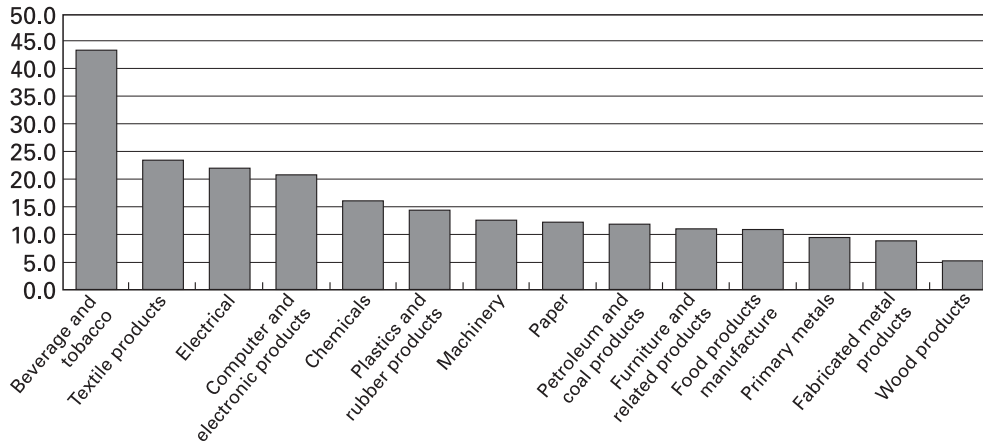


Figure 1.18(a) Impact of e-commerce on selected industries: manufacturing

(based on figures from US Census Bureau).

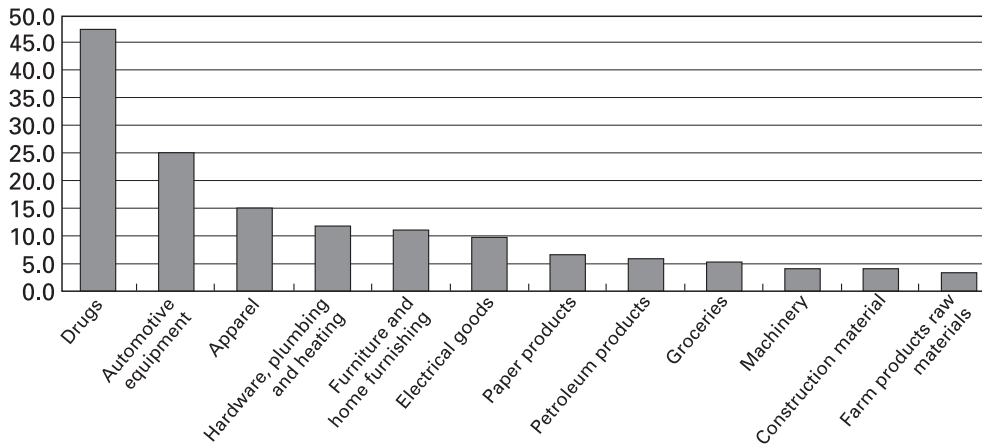


Figure 1.18(b) Impact of e-commerce on selected industries: wholesale

(based on figures from US Census Bureau).

they are currently used in businesses. Chapters 3 and 4 then build on this base to consider some of the marketing issues that result from using these technologies. Chapter 3 shows the distinctive characteristics of the markets, buyers and sellers, while Chapter 4 discusses some of the new marketing methods that have been made possible using the new technologies. Chapters 5 and 6 examine how the technologies are changing the economic bases of many businesses and leading to radical restructuring of many industries.

Chapters 7 and 8 then build on and integrate the knowledge in the previous chapters in

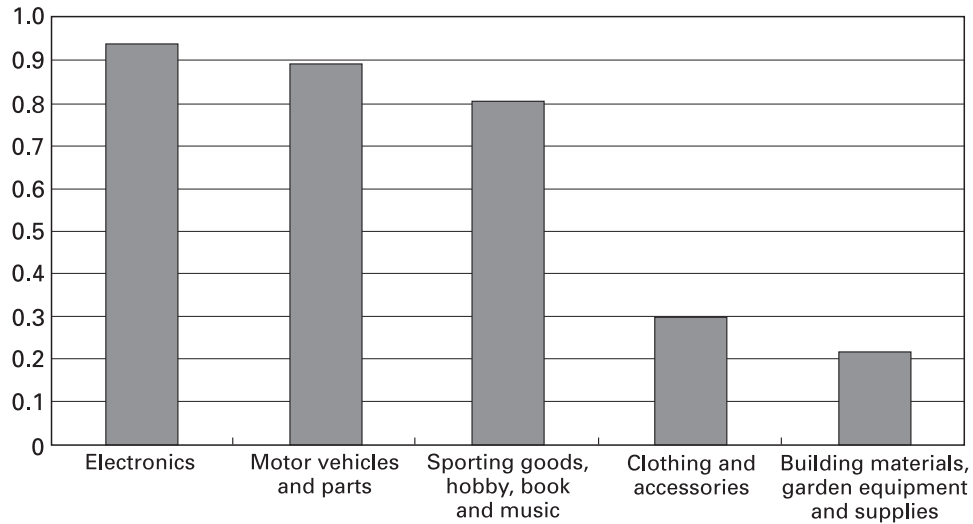


Figure 1.18(c) Impact of e-commerce on selected industries: retail

(based on figures from US Census Bureau).

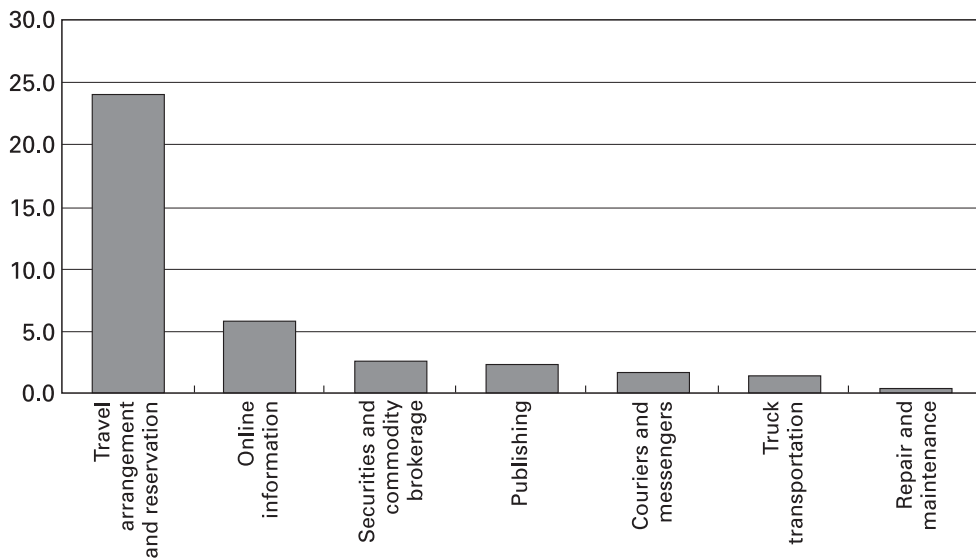


Figure 1.18(d) Impact of e-commerce on selected industries: services

(based on figures from US Census Bureau).

considering the strategic and organizational issues involved in managing an e-business. Chapter 7 examines various strategic frameworks that can be used to analyse e-businesses and develop e-business strategies, while Chapter 8 considers how these strategies can best be implemented and the implications for how the business is organized.

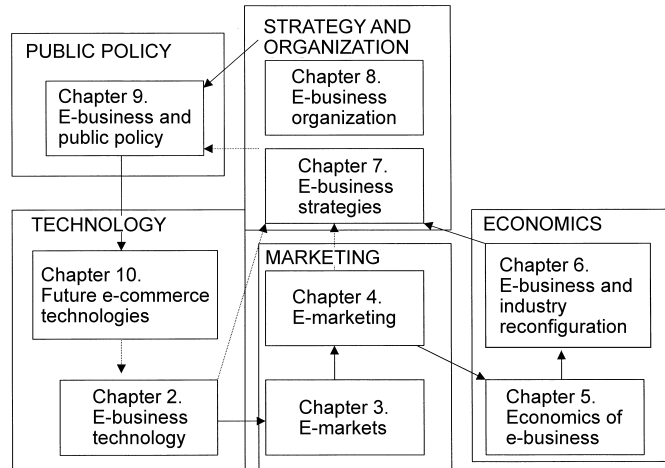


Figure 1.19 Structure of the book.

Chapters 9 and 10 look more broadly at issues that may affect e-business and look forward to the future. Chapter 9 examines some of the public policy issues raised by e-business, while Chapter 10 examines some of the newer technologies that may start a new cycle of change.

Summary

The Internet has brought about a revolution in business in the space of a few years. However, although it may seem that this is a recent phenomenon, the changes are the outcome of political and technological initiatives that have been in progress for a decade or more. Increasing investment in IT is bringing about a shift in many economies, reflected in industry revenues and employment; this will result in some loss of employment from substitution of existing products and services, but this will be more than compensated for by the increased employment resulting from new products and services. Figures from the US Department of Commerce suggest that this has been a major driver of economic growth in the USA, and cost savings of 4.3% GDP are forecast over the period 2001–2010. Many other countries are now instituting similar programmes in order to capitalize on the economic gains to be had from e-business.

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- US Dept of Commerce www.doc.gov
- US E-commerce Initiative www.ecommerce.gov

Self-assessment questions

- 1** Define e-commerce and e-business.
- 2** Give some examples of different types of e-businesses.
- 3** Explain what is meant by the NII and the GII.
- 4** Give examples of various political initiatives for e-business around the world.
- 5** Explain what is meant by the “new economy”.
- 6** Give examples of some benefits of e-business.
- 7** List some of the key industry sectors that will be affected by e-business.

Discussion questions

- 1** How is Internet-based e-commerce different from traditional EDI?
- 2** Do you agree with Al Gore's statement at the beginning of the chapter that "We are on the verge of a revolution that is just as profound as the change in the economy that came with the industrial revolution."
- 3** Do you agree that a new economy is emerging or is it simply that the old economy is being transformed?
- 4** What do you think are the most important implications of e-business?
- 5** How is e-business affecting your industry or one with which you are familiar?
- 6** What is the value of government initiatives in e-business?