The Emergence of E-Commerce in Japan –
The Possibilities and Conditions for Growth

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1. Introduction

Conditions for the growth of electronic commerce are starting to fall in place in Japan: the spread of personal computers, increasing Internet usage, and the resulting growth in the acceptance of electronic commerce.

This paper examines business-to-consumer e-commerce and the conditions for growth of e-commerce from three perspectives: the information environment, supply side (businesses), and demand side (consumers).

## 2. The Growing Prominence of E-Commerce

(1) E-Commerce Defined

Against the backdrop of rising personal computer use and Internet access, interest has grown in e-commerce on all fronts. Originally, e-commerce mainly referred to EDI (electronic data interchange) and other forms of electronic document exchange between companies doing business with dedicated terminals and software. However, as the Internet and intranets proliferated, the scope of transactions expanded from business-to-business (b-to-b) transactions to business-to-consumer transactions (b-to-c), and the term e-commerce evolved into a generalized expression for economic an commercial activity on the Internet. Recently, b-to-c e-commerce is also being referred to as Internet commerce, and there has been a growing emphasis on communication between suppliers and consumers.

(2) The Conducive Information Environment in Japan

One factor behind the emergence of e-commerce in Japan has been steady progress in the information environment. While connection and access costs in Japan remain higher than in New York, they are now comparable to those in London and Paris (Figure 1).[1]

**Figure 1 International Comparison of Internet Access Costs**

(¥1,000)
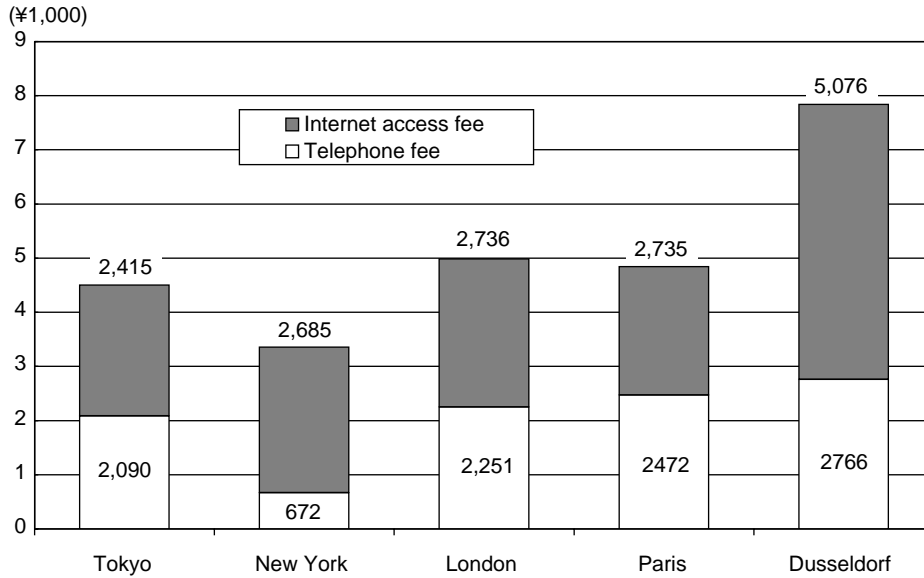
Notes: Based on 15 hours per month usage, and includes fee paid to Internet service provider and telephone
  charge for local dialup access. Internet service providers are NTT, AT&T, BT, France Telecom, and
  Deutsche Telecom.
Source: MPT, (June 1996) *FY 1997 Survey of International Price Differentials in Tele-communications Services.*

Within a few years, as market competition and technological progress continue to drive down costs, Internet access in Japan may become as inexpensive as in the U.S.

A second factor is the increasing penetration rate of information equipment in Japan. Over 30% of households have personal computers, and 11% use the Internet (Figure 2).

Figure 2 Penetration Rates of Information Technology in Japan and the U.S.

(¥1,000)
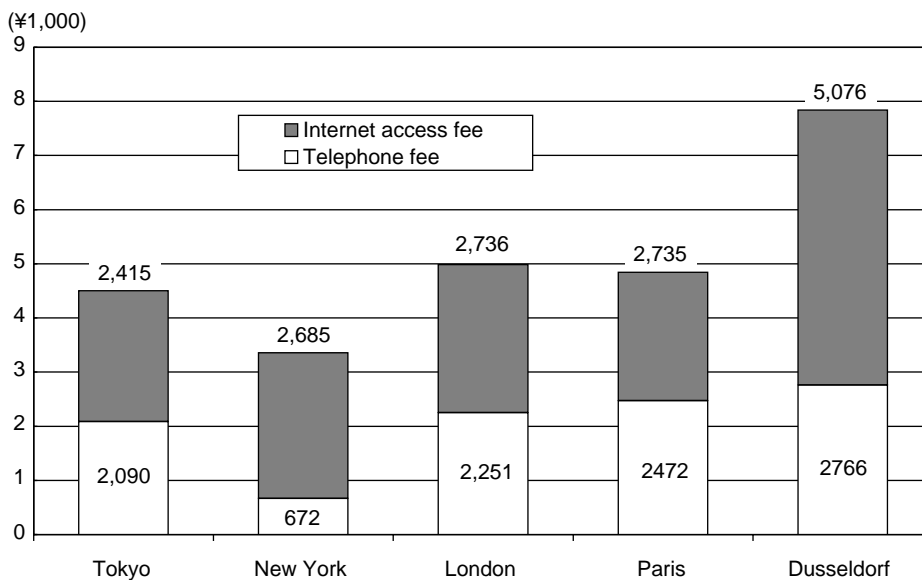
Source: Ministry of Posts and Telecommunications, *1999 Communications White Paper.*

If internet service providers were to offer lower fixed rates, it would further expand the spread of personal computers and internet usage. In addition, IT investment by local and national government offices is also robust, which will promote the tendency for the Internet to become a daily necessity among households.

On the other hand, the sluggish adoption of computers in schools is a source of concern. As Figure 2 shows, the greatest disparity between Japan and the U.S. occurs in Internet access at school.[2] Bringing school curriculums up to speed is a critical problem that will affect Japan's future information and knowledge industries. This makes it crucial to bolster the information infrastructure and increase hands-on computer education.

(3) Factors Generating Interest in E-Commerce

Interest in e-commerce has been greatly stimulated by impressive business results at companies such as Dell Computer and AOL, while their Japanese subsidiaries and joint ventures have also performed remarkably (Table 1).

Table 1 Leading E-Business Companies in the U.S.

Company	Date of est.	Business description	Features
Dell Computer (www.dell.com)	1984	Sells build-to-order PC sales online	With its famed "direct model," Dell uses IT extensively to build and deliver PC orders quickly after receiving orders. Strong sustained business performance. Bostering its e-support service for technical support over the web.
Amazon.com (www.amazon.com)	1995	Sells an expanding range of products including books, CDs, electronic products, toys	Constantly expanding its offerings by harnessing its cross-selling strength. Striving to be a massive retail portal site. Along with AOL and Yahoo, one of the top U.S. online companies.
Ebay (www.ebay.com)	1995	Net auction site	Tapped into the widespread demand for personal auctions. Has 5.6 million registered members and 1,600 auction categories. Evaluation system enables members to evaluate each other, which helps build sense of trust and community. Business is profitable.
AOL (www.aol.com)	1986	Comprehensive online service provider	From its base as internet service provider, pursues aggressive M&A strategy to acquire brandname companies such as Netscape. Has entered Europe and Japan markets. Membership exceeds 20 million. Merger with traditional media company Time Warner is being closely followed and expected to reshape Internet and media industry. Pursuing many strategic tieups including with GM and DirecTV.

Source: Company web sites, media reports.

By skillfully using the Internet and intranets, Dell Computer accepts custom orders for PCs over the Internet. A sophisticated network linking suppliers and assembly plants enable Dell to assemble and deliver products in about one week. This just-in-time "Dell model," which integrates the full sales and production cycle, is regarded as an exemplary business model for manufacturers.[3] For fiscal 1998, revenue grew an impressive 48% from the previous year to

¥2.19 trillion ($1 = ¥120), while net income grew 55% to ¥175.2 billion.

Moreover, the remarkable growth of U.S. companies like Dell has begun to convince people in Japan that the IT revolution is more than a temporary boom.[4] The business community has been introducing U.S. methods in an attempt to revive the economy.


3. Prospects and Issues for E-Commerce

In the U.S., the success of e-commerce companies is based on their expertise in the sophisticated use of intranets and the Internet, and management systems and organizational structures that use information technology to its fullest. Thus if Japanese companies simply try to apply conventional Japanese business styles to e-commerce, the expected results may not occur directly.

(1) B-to-C Market Projections and Issues for Japan

This January, the Electronic Commerce Promotion Council of Japan (ECOM) and Andersen Consulting released their second annual market projection for e-commerce in Japan. This year's projection, which includes the real estate market, declares that the e-commerce market will grow twenty-fold from ¥336 billion in 1999 to ¥6.662 trillion in 2004 (Figure 3). This represents a substantial upward growth revision from last year even if we exclude real estate.

Figure 3 Projection for Japan's B-to-C Market from 2000 to 2004 (¥ trillion)
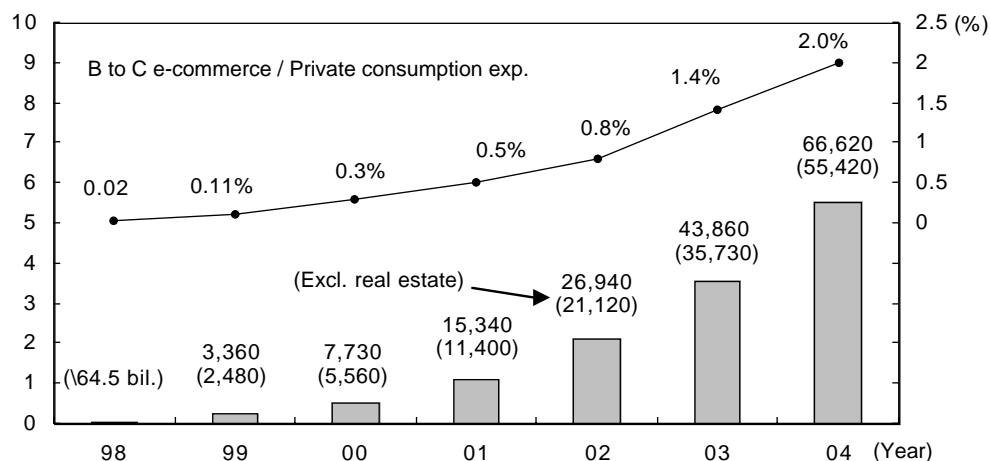
Note: The line graph shows the ratio of b-to-c e-commerce market to private consumption expenditure.
Source: ECOM and Andersen Consulting, *Market Projection for the Business-to-Consumer E-Commerce Market in Japan from 1999 to 2004*, January 19, 2000.

(2) Promising Market Segments

From 1998 to 1999, the overall market grew by 3.8 times from ¥64.5 billion to ¥248 billion (excluding real estate). By market segment, the markets for food, automotive, finance, and services grew by at least three times.

Compared to the low ratios of e-commerce transactions to household consumption expenditures in 1999, substantial increases are predicted led by the PC goods market at 26.7%, and followed by travel, automotive, books & CDs, and finance (Table 2). In addition, three market segments will exceed ¥1 trillion in size, led by automotive at ¥1.45 trillion, travel, and real estate. With services and PC goods markets also ringing in at ¥500 billion, the prospects in all segments look bright.

Table 2 Projections by Market Segment (¥ billion, %)

Rank	Product / service (1999 present)	Market size (¥ bil.)	E-com. ratio. (%)	Rank	Product / service (2004 forecast)	Market size (¥ bil.)	E-com. ratio. (%)
1	Real estate	88.0	0.2	1	Automotive	1,451	14.5
2	Automotive	86.0	0.9	2	Travel	1,212	7.7
3	PC related	51.0	3.6	3	Real estate	1,120	3
4	Travel	23.0	0.15	4	Services	528	0.4
5	Food	17.0	0.06	5	PC related	487	26.7
	Finance	17.0	0.2	6	Finance	404	5.5
7	Clothing/accessories	14.0	0.09	7	Food	317	1
8	Other goods	10.0	0.08	8	Clothing/accessories	286	1.7
	Hobby/misc./furniture	10.0	0.08	9	Hobby/misc./furniture	222	1.6
10	Services	8.5	0.01	10	Other goods	190	0.8
11	Books/CDs	7.0	0.3	11	Books/CDs	188	1.1
12	Entertainment	3.0	0.02	12	Books/CDs	147	5.3
13	Gifts	1.5	0.03	13	Gifts	110	1.8
	Total	336.0	1.0		Total	6,662	2.2

Note: EC (e-commerce) ratio is the ratio of e-commerce expenditure to household consumption expenditure for each market segment.   denotes growth exceeding 200% for 1999.
Source: ECOM and Andersen Consulting

(3) E-Commerce Starts Up in Japan

E-commerce web sites began appearing in Japan in 1995 and 1996. In the past two years, many new businesses have started up (Table 3).

Table 3 E-Commerce Companies in the Domestic B-to-C Market

Service or product	Business description	Typical companies	Remarks
PC	PC sales, PC build-to-order (BTO), sales of peripherals & accessories	Dell Computer (BTO), Japan Gateway (BTO), Compaq Computer (BTO), Toshiba, Laox, Sofmap, etc.	Divided into makers and distributors. Dell and Gateway are representative.
Books, CDs	Sales of books and music CDs	Kinokuniya Bookstore, Tohan, Mruzen, Shinseido, Tower Records, etc.	Home courrier delivery, or pickup at bookstore or convenience store.
Music distribution	Sales of music downloads (various standards)	Music.co.jp, Sony Music Entertainment	Key component of the content distribution business
Gifts & goods	Shopping malls, sales of clothing, acccessories, household goods, food, flowers	Rakuten (Rakuten Shijo), Sumitomo Visa Card (V-Mall), NTT Data (Machiko), Hibiya Kadan	Large number of participating companies, with many small & mid-sized businesses in malls.
Travel	Reservations & sales of package tours, air tickets, hotel rooms	JTB, Kinki Nippon Tourist, Tokyu Kanko, HIS, JAL, ANA, JAS, Hitachi Zosen Info. Systems	Includes travel agencies, airlines, and other entrants.
Entertainment	Ticket reservations & sales	Pia, Entertainment Plus, theaters, etc.	A promising growth area
Automotive	Sales of new & used cars, information services	Recruit, Ascii, Autobytel.com (JV of U.S. co. & Itochu), CarPoint (JV of Softbank, Microsoft, Yahoo)	Enticing market has prompted large unrelated companies to form JVs.
Finance	Financial product sales (stocks, investment trusts, insurance), net banking services	Daiwa Sec., Nomura Sec., Matsui Sec., E*Trade, Nikko Beans, IT Sec. (Fujitsu & Nikko Securities), Sony	I-mode cell phone service is prominent in home banking. Distribution companies are also entering.
Composite e-commerce services (convenience stores)	Composite services over multimedia terminals, financial services over ATMs	7dream.com (7-Eleven, NEC, NRI, Sony, etc.), unnamed JV (5 companies incl. Family Mart), Lawson	Industry is restructuring by rationalizing IT investment. Development of information kiosks is being watched.
Sevices	Net auction, information services (portal sites, search sites), advertising, publishing	Just System, Rakuten, OnSale, NEC, NiftyServe, Yahoo, NTT-X, Microsoft, Fujitsu, Matsushita Elec., Sony Communication Network, Recruit, Impress, Nikkei BP	Constantly emerging new business areas attract cross-entries from other industries, JVs and tieups between domestic & foreign companies.

Note: Only a fraction of online companies are shown. These companies are basically Internet service companies. BTO refers to build-to-order; portal sites are web sites that user first access; JV is joint venture (not all cases are shown).
Source: Web sites, media reports.

At first, the sites were mostly set up by large companies for PR and advertising purposes, and by small and mid-sized venture businesses of the kind that attracted attention in the U.S. Recently, however, sites have seriously focused on e-commerce, and many new and interesting sites have emerged that are operated by small and mid-sized venture businesses.

In addition, information service providers and reservation services have emerged that are well suited to e-commerce, as well as intermediation businesses. In some areas, intermediation businesses are expected to greatly impact the existing distribution industry over the medium to long term.

In the future, digital content distribution of books, music, and game software is expected to become a major business. In the financial field, various financial service providers have begun growing on the Internet, including businesses that bring together stock transactions, invest-

ment trust sales, and information providers.

However, many companies, including high-profile e-commerce companies in the U.S., are posting losses due to massive IT investment outlays and development expenses. In Japan as well, many popular companies have been unable to convert user accesses into sales and have had to withdraw. The volatile business environment has caused numerous business failures.

If an e-commerce site can attract enough accesses and appeal to certain market segments, it has restructuring alternatives such as tie-ups or being acquired. Otherwise, it is likely to be ruthlessly forced out of business.

(4) Improving Corporate Competence

Figure 4 shows the results of a survey concerning issues that are confronted in conducting Internet commerce. The issues are divided into the two categories of technical and business issues.

Figure 4 B-to-C Internet Commerce Issues
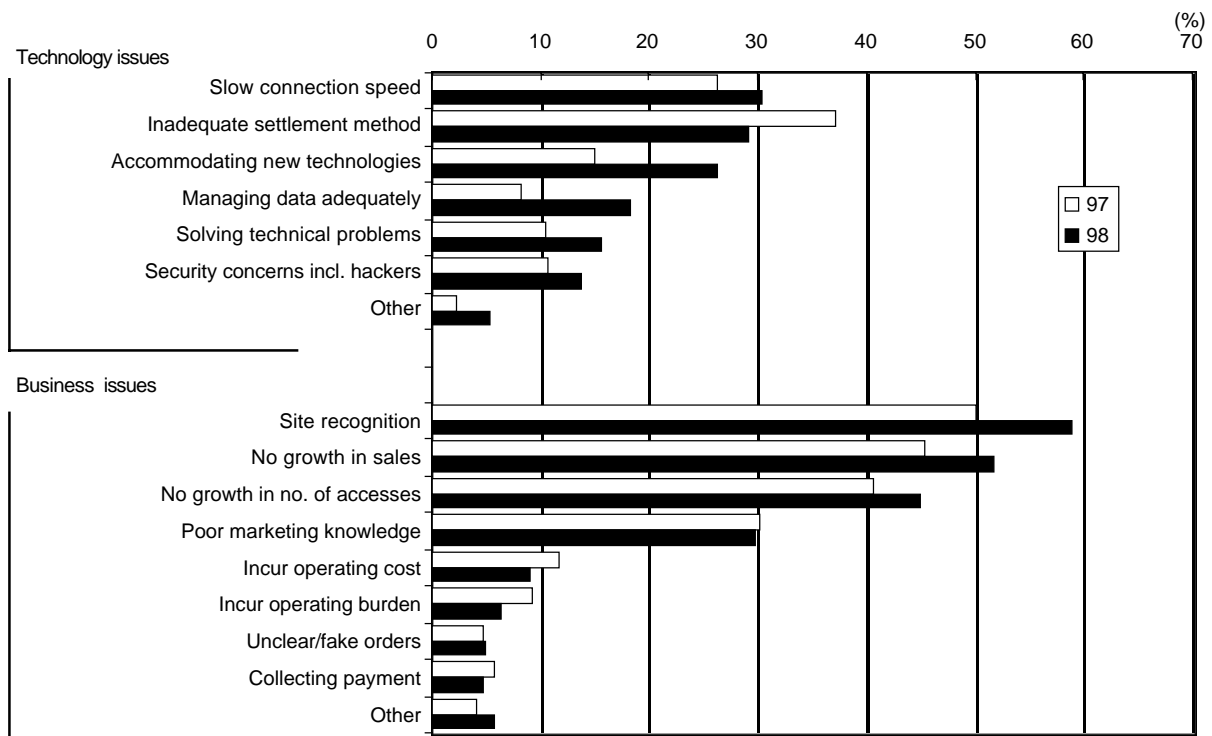
Source: Ministry of Posts and Telecommunications, *Fiscal 1999 White Paper on Communications, and Internet Commerce Survey.*

Comparing 1997 and 1998, improvement can be seen on the issue of convenient and reliable settlement methods in the technical category. This might be attributed to the practice of mailing or faxing credit card information to the company beforehand, and to an increase in collect on delivery orders. The full-scale implementation of settlement by electronic money appear to be delayed by unresolved legal and verification problems. Moreover, the issues of adopting new technology, data management, and customer service problems indicate that companies lag behind the changing information environment with respect to managing and using corporate information infrastructures.

Regarding business issues, aside from improvement in operating cost and operating burden, the other issues appear to have worsened. These results accurately reflect the remarkable improvements in cost-performance due to technological advances in hardware and software. Meanwhile, the deterioration in site recognition, sales, accesses, and marketing knowledge may indicate the type of "wall" that e-commerce companies in the U.S. struggled to overcome in 1997.

As the number of consumers using the Internet increases, e-commerce companies will need to acquire or enhance business capabilities ranging from technology solutions to marketing.

Thus far we have briefly looked at the current status, future prospects, and key issues of e-commerce. Below we examine how to expand e-commerce by improving the communication between companies and consumers.

4. Conditions for the Growth of E-Commerce

(1) Basic Issues for Growth

Aside from the ongoing development of the information environment, what are the conditions for the growth of e-commerce?

Based on several consumer surveys conducted by the government and private groups, the leakage of personal data and security are very important concerns to consumers. In addition, the mass media has reported extensively on Internet crimes.

For the healthy growth of e-commerce, the concerns of consumers regarding the Internet and e-commerce need to be addressed and improved at the national level.

Response measures consist of two levels: the national level for the Internet as a whole, and the

industry and company level. In addition, a third important level is that of the individual user. At the national level, legal measures will play a central role in protecting personal data and preventing crime. The industry and company level will involve the introduction of verification and encoding systems, as well as the enhancement of management systems for electronic data. Furthermore, it will also be necessary to explain the above measures so that users can understand them.

At the individual user level, users can exercise risk control by, for example, refraining from transmitting personal data and using virus protection.

Below we examine more closely what companies can do to expand e-commerce.

(2) Increasing Consumer Trust in Companies

The expansion of e-commerce requires that companies earn a stronger sense of security and trust from consumers. This refers not to physical aspects such as facilities and information systems, but to the essence of trust in the e-commerce company itself, and to a sense of security that satisfies the psychology of consumers. Since e-commerce contains almost no opportunity for personal contact, these are particularly important and sensitive matters.

When users access a company's web site and purchase goods or services, they expect the following: (1) smooth access to the needed information (on product and services, price, etc.), (2) certainty in the products or services offered, (3) safe and dependable settlement and other basic conditions, (4) fresh and high value-added (useful) information, and (5) smooth communication regarding confirmations, questions, and complaints.

While striving to meet these expectations, the company must also do the following: (1) acquire the ability to manage sophisticated information systems, (2) offer goods or services and a way to provide them to make the web site stickier and retain fickle users, (3) acquire the ability to collect user data and use that data productively, and (4) install a sophisticated risk management system to protect the company from criminal and illegal activities.

Through these activities, companies can build e-commerce businesses that deliver ordered goods and services quickly and dependably, send various types of confirmation email, learn the user's individual needs either directly or indirectly, and provide useful services. The company's activities will result in nurturing a sense of security and trust among consumers toward e-commerce, improve customer satisfaction, and increase the e-commerce company's brand value.

(3) Conditions for Success

The primary condition of success in e-commerce, as gleaned from numerous success stories in the U.S., was not simply the construction of an electronic system that freed up transactions with customers from time and distance restraints. Rather, based on use of the Internet, and using available communication methods including telephone and fax, the key is focus on customer satisfaction according to how customers characteristically use the Internet. This point is critical for the expansion of e-commerce in Japan as well.

However, it is impossible to describe the growth of e-commerce companies with one simple business model. The model differs for each company depending on its industry, specific company characteristics, and direction and vision for the business. Naturally, each company needs to build its own business model based on its unique knowledge and expertise.

Perhaps the condition for success in e-commerce could be stated as the acquisition of management competence that can continually provide information, goods, and services attract an endless stream of customer accesses, and effectively use information technology in all business areas.

5. Conclusion

With regard to network-wide issues such as verification systems, and legal issues such as the protection of personal data, initial steps have been taken to establish necessary systems and laws. An environment conducive to e-commerce is expected to be in place in the next year or two.

As for technical issues, while the year 2000 problem has been safely averted, increasingly complex network equipment and frequent software upgrades point to the uncertainty that characterizes technology transition periods, and some damage may result to e-commerce. Despite these issues, as the economy strives to achieve a recovery, e-commerce may expand autonomously beyond expectations.

On this point, companies on the supply side, consumers on the demand side, and society as a whole must enhance the level of risk control, and verify the safety while actively grappling with issues. E-commerce has just begun to arrive.

Notes

1. According to the *White Paper on Communications* (p. 39), 80.5% of men and 70.8% of women feel that Internet access and telephone fees are expensive.

2. The Ministry of Education's Internet plan for schools intends to connect all elementary, junior high and senior high schools by 2001. The 18.7% shown in the graph is from March 1998. The next issue is how to construct an applied education system.

3. The Dell model is an exemplary model that applies an advanced information system to the build-to-order model. It could also be called a b-to-b-to-c model because it combines both b-to-b and b-to-c.

4. More time is needed to tell if the IT revolution is more than a temporary boom. But it undoubtedly includes the effect of the strong U.S. economy and stock market. The distribution structure is also changing in specific areas such as automobile sales and book sales. Moreover, if diffusion rates for PCs and Internet connections increase, innovations are expected to occur across many industries. Projections from a macroeconomic perspective will be closely watched.