Section 12

● Advance of Corporate Networks

1 Status of ICT in businesses

The total information-related spending by companies is growing on a real base. In particular, the amount spent on software is increasing drastically; the amount spent on software asset per company is now four times more than that on hardware asset.

The purpose and effects of companies' investment in information technology are mainly to make their business more efficient and speedy. It is clear that ICT is expected to contribute to more efficient in-house management and governance, such as knowledge management, supply-chain management, and product life-cycle management.
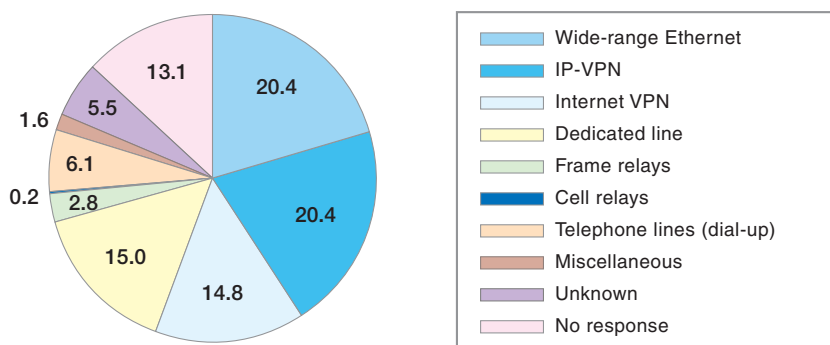
2 Status of information systems use in businesses

About 90% of companies (with at least 100 employees) had already used an in-house ICT network, and about 70% of companies had network architecture for the entire company. Particularly, wide-range Ethernet (20.4%) and IP-VPN (20.4%) had high usage rates **(Figure 1-12-1)**.

As for the installation of information system equipment (hardware), the smaller the company size is, the lower the percentages are of having mainframe comput-

ers, office computers, mini computers, workstations. Instead, they show higher percentages of having personal computers. Whereas large companies continue to use conventional systems centered on mainframe computers, it is thought that small companies often build new systems centered on personal computers because the upgrading of information systems is relatively easy. In the development of software-related to information systems, software packages are more widely used for tasks which are relatively common to all types of businesses, such as finance, accounting, payroll, and human resources. On the other hand, order-made software is more often used for tasks which are different according to the business, such as distribution.

Concerning the use of ubiquitous tools, as of FY2005, 2.8% of companies used RFID tags and an additional 14.7% of companies planned to use them in the future. 10.9% of companies introduced contactless smart cards and an additional 14.8% of companies planned to use them in the future. RFID tags are expected to be applied in inventory management, product inspection, traceability, and other areas of production, distribution management, and settlement. From the viewpoint of the security enhancement, the use of contactless smart cards for entry management and other security measures is expected to grow.

Figure 1-12-1　Services used as main lines in corporate information networks

Color	Label
	Wide-range Ethernet
	IP-VPN
	Internet VPN
	Dedicated line
	Frame relays
	Cell relays
	Telephone lines (dial-up)
	Miscellaneous
	Unknown
	No response

Pie chart values: 20.4, 20.4, 14.8, 15.0, 2.8, 0.2, 6.1, 1.6, 5.5, 13.1

(Source: "2005 Communications Usage Trend Survey (Business Edition)," MIC)

3 Framework to promote ICT in businesses

As companies introduce more ICT, it becomes crucial to establish a framework such as establishing a department that handles information-related issues and appointing a CIO, Chief Information Officer, who oversees the information system. Currently, just less than 20% of companies have CIOs **(Figure 1-12-2)**. However, even if a company may have a CIO, the person is often appointed concurrently with another position; typically the CIO is an executive director, managing director, or executive officer.

On the other hand, human resources who actually carry out information-related work are computer administrators and information-processing staff who build, design, and operate information systems. There were 6.4 computer administrators per company (about 1.3 per 100 workers) and about 23.6 information-processing staff members (programmers or systems engineers) per company (about 4.6 per 100 workers).

4 Business-to-business transactions on networks (E-commerce between businesses)

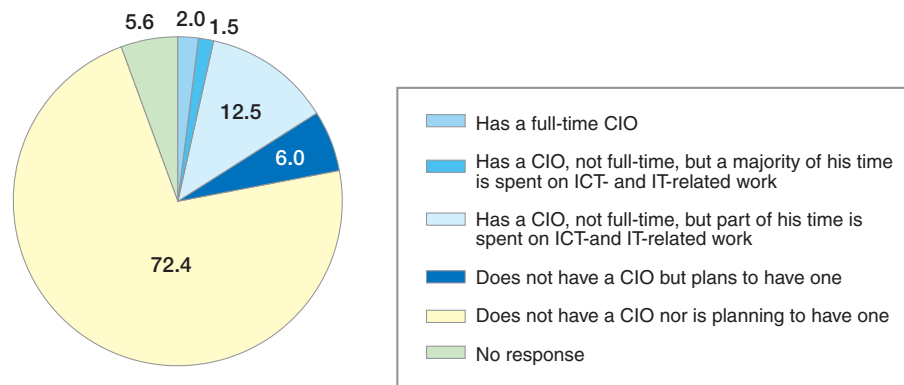The market size of business-to-business e-commerce was estimated at about 102.699 trillion yen in 2004, with a 14.7% share taken by e-commerce. The market size was approximately 12 times more than that in 1998 (8.62 trillion yen) **(Figure 1-12-3)**.

5 ICT progress in businesses and productivity

As ICT advances, people, organizations, and society must change to take advantage of it. As companies introduce more ICT, it is thought that effective results will be expected by being linked the information systems with the reform of organizational capitals, such as the organizational structure, work processes, corporate culture, and pay structure.
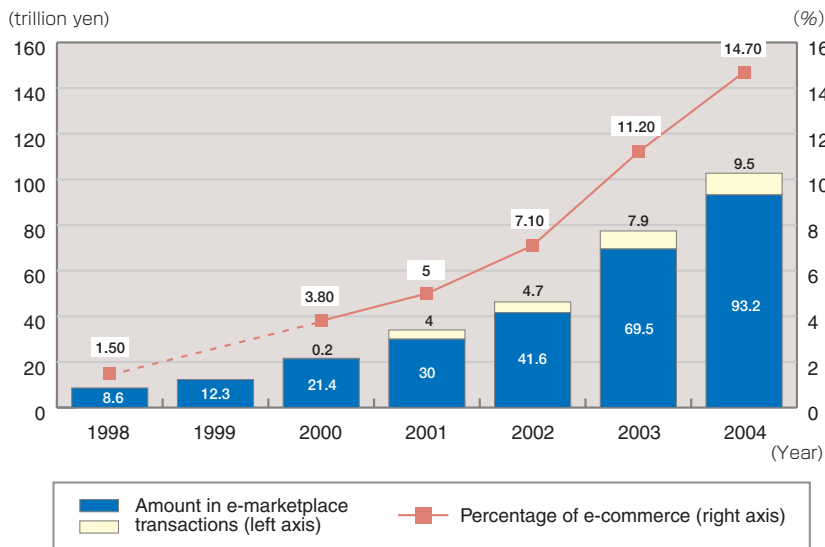
The following figures **(Figures 1-12-4, 1-12-5)** show the results of an analysis on the relationship between the use of ubiquitous networks (one area of ICT advancement in businesses) and corporate productivity, based on the results of questionnaires to companies. They show that the companies that use ubiquitous networks and have reformed the organizational and capital structures within the company are showing higher productivity than those companies that have taken only one of these two steps. This result suggests that ICT progress and ubiquitous technologies can yield even higher productivity if these are accompanied by the reform of organizational capitals such as corporate organization and pay structure.

Figure 1-12-2   Placement of a CIO

- Has a full-time CIO
- Has a CIO, not full-time, but a majority of his time is spent on ICT- and IT-related work
- Has a CIO, not full-time, but part of his time is spent on ICT-and IT-related work
- Does not have a CIO but plans to have one
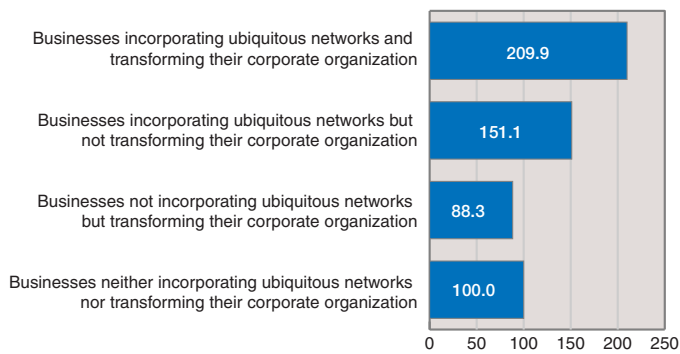- Does not have a CIO nor is planning to have one
- No response

(Source: "2005 Communications Usage Trend Survey (Business Edition)," MIC)

Figure 1-12-3　Changes in the market size (narrowly defined) of business-to-business e-commerce and the percentage (narrowly defined) of e-commerce

(trillion yen) (%)

	1998	1999	2000	2001	2002	2003	2004
Amount in e-marketplace transactions (blue)	8.6	12.3	21.4	30	41.6	69.5	93.2
(yellow top)			0.2	4	4.7	7.9	9.5
Percentage of e-commerce	1.50		3.80	5	7.10	11.20	14.70

(Year)

　■ Amount in e-marketplace transactions (left axis)　　■— Percentage of e-commerce (right axis)

(Source: "Reality and Market Size Research on E-Commerce, FY 2004," Ministry of Economy, Trade and Industry, Next-Generation E-Commerce Promotion Council, and NTT Data Management Research Center)

Figure 1-12-4　"Ubiquitous trend," "corporate re-structuring," and productivity

Businesses incorporating ubiquitous networks and transforming their corporate organization	209.9
Businesses incorporating ubiquitous networks but not transforming their corporate organization	151.1
Businesses not incorporating ubiquitous networks but transforming their corporate organization	88.3
Businesses neither incorporating ubiquitous networks nor transforming their corporate organization	100.0

(0　50　100　150　200　250)

Figure 1-12-5　"Ubiquitous Trend," "Pay Structure," and Productivity

TFP growth rate (index defining 100 to be the score for businesses neither incorporating ubiquitous networks nor setting an applicable pay structure)

Businesses incorporating ubiquitous networks and setting an applicable pay structure	224.0
Businesses incorporating ubiquitous networks but not setting an applicable pay structure	120.0
Businesses not incorporating ubiquitous networks but setting an applicable pay structure	40.4
Businesses neither incorporating ubiquitous networks nor setting an applicable pay structure	100.0

(0　50　100　150　200　250)