

Section 2

Strengthening Competitiveness of Companies and Developing Industry

1. Trends in Macro-Economy and the Information and Communications Industry

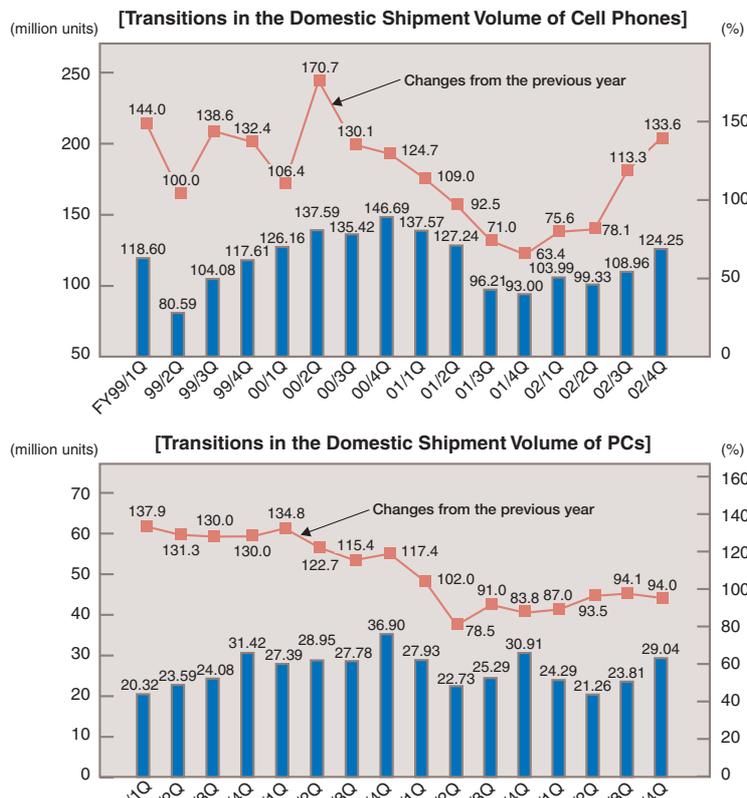
The Japanese information and communications industry expanded from 79 trillion yen to 123 trillion yen from 1995 to 2001, towing and supporting the Japanese economy that has been slumping since the collapse of the bubble economy.

However, similar to Europe and the United States, the businesses of information and communications companies deteriorated from 2000 to 2001 due to the round of demand for information and communications equipment and services, such as PCs and cell phones, being satisfied, the impact of the stagnation of the European and U.S. information and communications industries, and structural changes surrounding the industry. In particular, information and communications equipment manufacturers that were highly dependent on the United States received a great blow from the depression of the U.S. information

and communications industry. The businesses of major telecommunications carriers also declined due to the slowdown in the demand growth of cell phones that were towing the industry as well as the decreased demand for fixed-line telephones pertaining to the shift to IP telephones.

Part of the demand for information and communications equipment and services has begun to pick up in 2002 helped by the surge in the broadband demand and the increased demand for new equipment and services, such as camera-equipped cell phones. In the fourth quarter of fiscal 2002, the domestic shipment volume of cell phones made the first positive growth over the previous year in six quarters, and there are signs that the fall in the domestic shipment volume of PCs is also coming to an end (Figure 1-15). Since information and communications companies are actively engaging in structural reforms including corporate downsizing, the businesses of the Japanese information and communications industry are showing signs of recovery.

Figure 1-15: Transitions in the Shipment Volume of Information and Communications Equipment in Japan



Source: Japan Electronics and Information Technology Industries Association. (JEITA)

2. Trends in IT Investment and Companies' IT Utilization

As the Japanese economy has been slumping since the 1990s, companies have been limiting capital investment and conducting structural reforms. However, in order for companies to increase productivity and strengthen international competitiveness, accumulation of capital, which serves as the basis for production activities, is indispensable. Particularly, it is important to accumulate IT capital, which enables companies to conduct efficient production activities and provide high added-value services.

(1) Trends in IT investment

The value of IT investment in private companies was 25.0 trillion yen (a 10.9% increase over the previous year) in 2001, indicating that the level of IT investment value rose by about 1.7 times over five years. The proportion of IT investment value to total private capital investment has also continued to increase since 1997, reaching 29.4% (a 3.9 point increase over the previous year)—about 30% of the total private capital investment—in 2001 (Figure 1-16).

(2) Contribution of IT capital to the economic growth

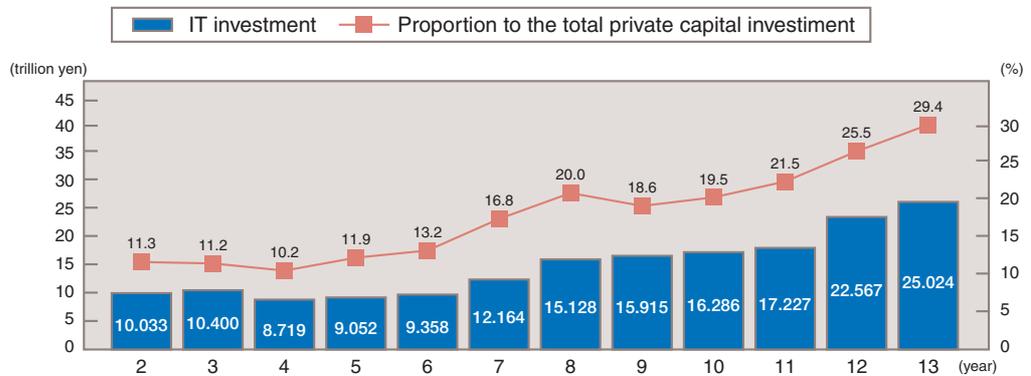
The extent of the contribution of three production factors—IT capital stock, general capital stock (excluding IT), labor—to the Japanese economic growth was analyzed by using production function. From 1985 to 1990, 2.92% of the 4.91% economic growth rate was achieved by IT capital, and from 1990 to 1995, IT capital contributed 0.51% of the 1.45% economic growth rate, showing that IT capital has played a significant role in the development of the economy.

From 1995 to 2001, IT capital contributed 1.73% for an overall economic growth rate of 1.21%, supporting the economic growth while labor and other factors were making negative contributions (Figure 1-17).

(3) IT introduction and the effect of IT investment in Japan and U.S. companies

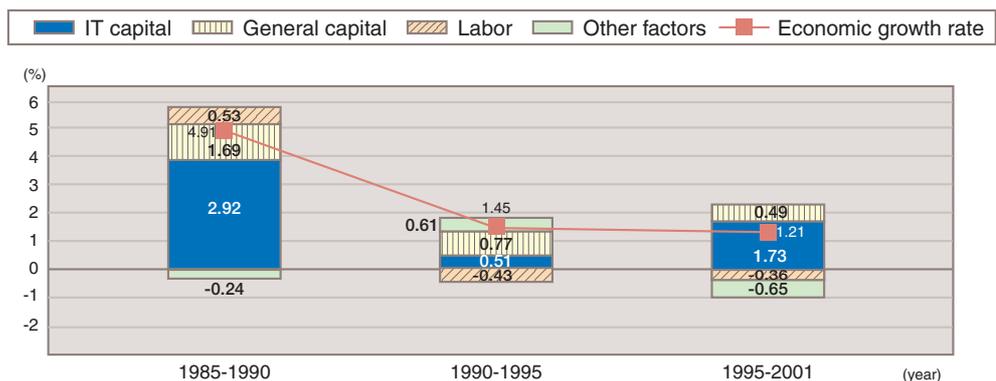
While the IT investment value in Japan was 25.0 trillion yen in 2001, that in the United States was about 2.7 times larger, at 549.9 billion dollars (approx. 66.6 trillion yen). In addition, while the proportion of IT investment value to the total private capital investment was 29.4% in Japan in 2001, that in the United States

Figure 1-16: Transitions in IT Investment in Japan



Source: "Survey on Economic Analysis of IT."

Figure 1-17: Transitions in Contribution Ratios of Various Production Factors to the Japanese Economic Growth



Source: "Survey on Economic Analysis of IT."

was 42.9% (Figure 1-18). Compared to the 2.5-times increase in Japanese IT investment from 1990 to 2001, that in the United States was 6.1 times, more than twice the increase rate in Japan (Figure 1-19). In this manner, the United States surpasses Japan both in the proportion of IT investment to total private capital investment and the increase rate in IT investment.

However, while the IT investment value in Japan for 2001 increased by 10.9% over the previous year, continuing to make positive growth, that in the United States turned to negative with minus 5.4%.

Although IT investment value is increasing both in Japan and the United States, IT investment is only meaningful when effects that are worth the investment are produced in companies. Therefore, the effects of IT investment in Japanese and U.S. companies were compared separately for the effects of reducing costs/increasing efficiency of operations and the effects of increasing sales/developing high added value.

With regard to the former, more Japanese companies answered that the IT investment was effective for “reduction in indirect costs” and “increase in efficiency of operations,” while more U.S. companies answered it was effective for “reduction in direct costs,” “decrease in parts inventory,” and “reduction in the unit cost of supplies.” This suggests that IT investment is generally having the same level of effects for Japanese and U.S. companies in the area of cost reduction and increasing efficiency of operations. However, regarding the latter type of effects including “increase in sales” and “winning new customers,” more U.S. companies answered that the IT investment was effective for all of the items compared to Japanese companies, and the gap is found to be quite large (Figure 1-20).

As a result, U.S. companies are considered to greatly exceed Japanese companies with respect to the effect of IT investment, particularly in increasing sales and developing high added value, which is likely to be the cause of

Figure 1-18: Amount of IT Investment in Japan and the United States

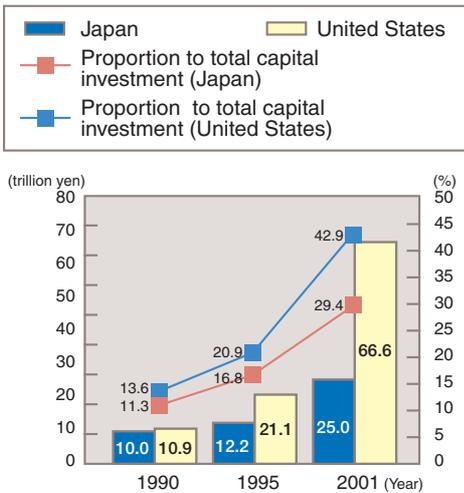
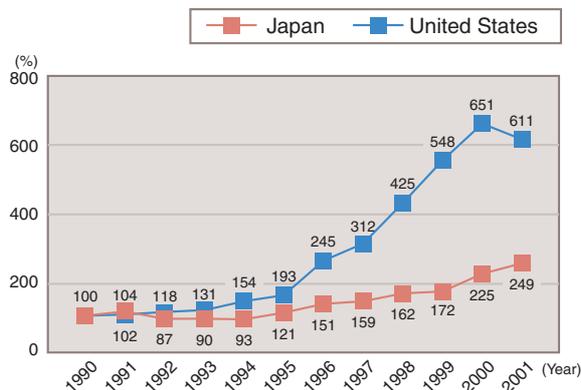
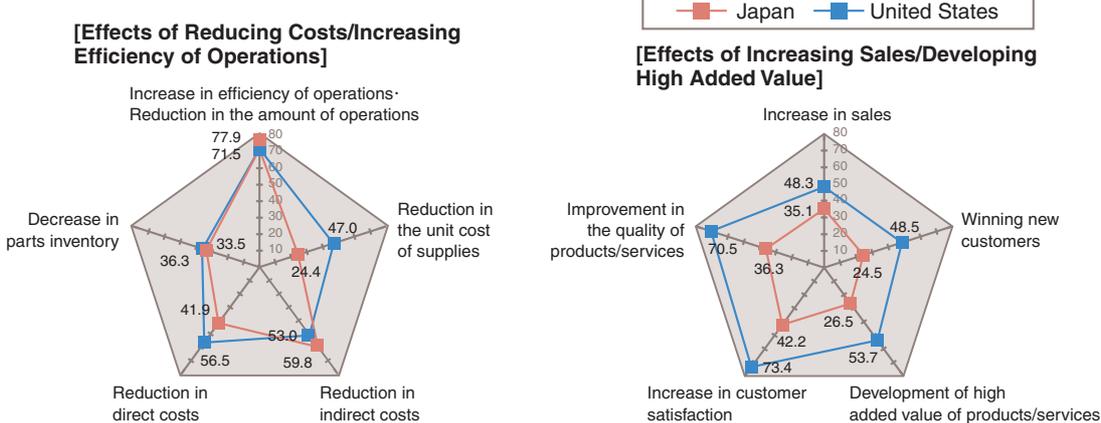


Figure 1-19: Transitions in IT Investment in Japan and the United States



Source (Figures 1-18&1-19): “Survey on Economic Analysis of IT.”

Figure 1-20: Proportions of Japanese and U.S. Companies That Found Their IT Investment Effective



Source: “Survey on Utilization of IT in Business Management.”

the strong competitiveness of U.S. companies.

(4) Causes for the difference in the effects of IT investment between Japanese and U.S. companies

IT investment in Japanese companies has limited effects compared to that in U.S. companies. Possible causes for this are the differences in three aspects: the awareness of objectives for the IT investment, the internal and external operational coordination of IT systems, and measures for enhancing the effectiveness.

When comparing the awareness of objectives for introducing IT systems between Japanese and U.S. companies, Japanese companies' main objective for IT investment is "reducing costs/improving efficiency of operations," while U.S. companies make that as well as "increasing sales/developing high added value" their objectives for IT investment. In other words, Japanese companies only view IT investment as a tool for improving efficiency of operations. On the other hand, U.S. companies consider IT investment not only as a means for

improving efficiency of operations, but also as the source of stronger competitiveness and corporate growth. This difference in the awareness of objectives is likely to be affecting the gap in the effects achieved by IT investment.

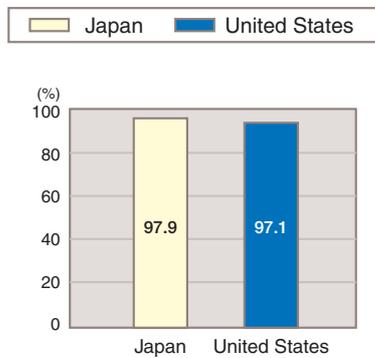
Moreover, in order to maximize the effect of investment, it is essential to look out over the respective fields of operations and introduce a cross-operational IT system rather than introducing an independent IT system for individual fields of operations. Also, considering that corporate activities are conducted in link with other companies in such processes as purchasing, production, distribution, and sales, it is important to introduce IT systems that allow coordination between companies. In short, whether or not a company has introduced an open IT system for overall optimization, allowing internal and external coordination, rather than closed IT systems for only optimizing one division or company is considered to be the key to achieving the effect of IT investment.

Installation rate of in-house networks (LANs, etc.) in Japanese companies is 97.9%, not so different from the

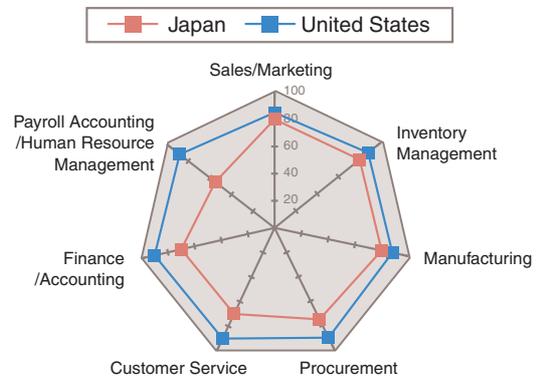
Figure 1-21: Status of Introduction of Information and Communications Networks in Japanese and U.S. Companies

<Status of Introduction of In-House Information and Communications Networks>

[Penetration Rate of In-House Communications Networks]

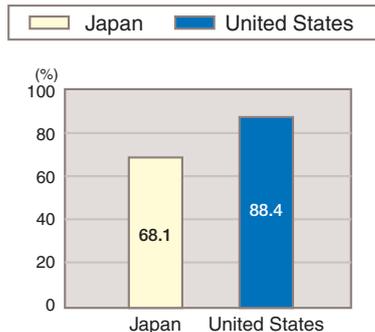


[Use of IT Systems for Operational Coordination within a Company]

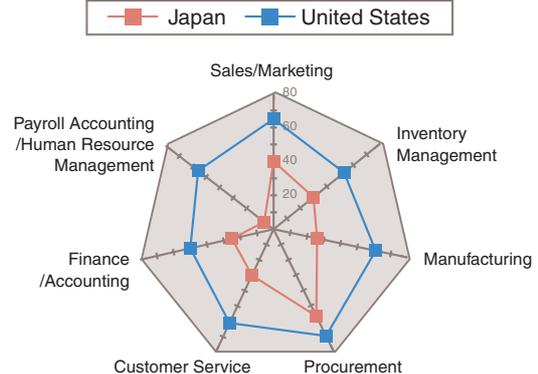


<Status of Introduction of Inter-Company Information and Communications Networks>

[Penetration Rate of Inter-Company Communications Networks]



[Use of IT Systems between Companies]



Sources: "Survey on Utilization of IT in Business Management"; "Communications Usage Trend Survey in 2002," MPHPT.

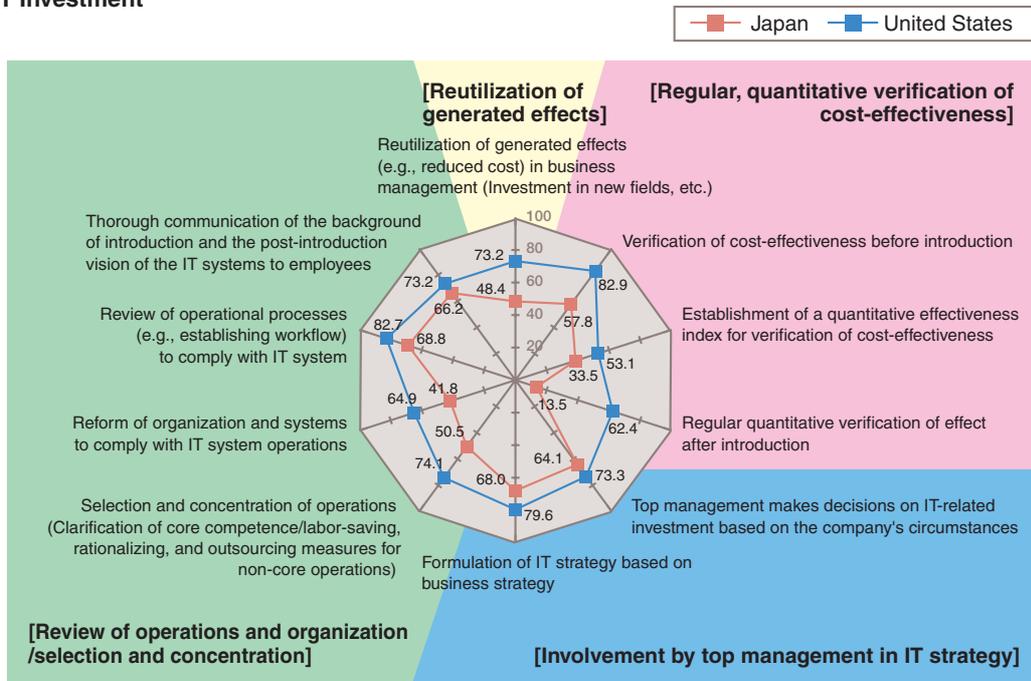
97.1% for U.S. companies, but the rate of coordination of IT systems between operations within a company is low compared to U.S. companies (Figure 1-21). At the same time, the installation rate of inter-corporate networks (WANs, etc.) among Japanese companies is 68.1%, which is lower than the 88.4% for U.S. companies. The Japan-U.S. gap with respect to coordination of IT systems between companies by type of operation is even larger than the rate of coordination within companies, with U.S. companies achieving double the coordination rate than Japanese companies in the areas of manufacturing, finance/accounting, payroll accounting/human resource management, and customer service. Such gap in the coordination of IT systems is also likely to be affecting the difference in the effect of IT investment between Japanese and U.S. companies.

Furthermore, in order for companies to bring out higher effects of IT investment, companies must not merely introduce IT systems, but take measures to enhance the effects of IT investment. An analysis of the correlation between measures for enhancing effects of IT investment and the actual effects of IT investment in companies shows that effects of IT investment are correlated with the following measures: [1] reutilization of the reduced cost/personnel in new fields of business; [2] reg-

ular quantitative verification of the cost-effectiveness of the investment before and after the introduction; [3] top management's strong involvement in the formulation of IT strategy, etc.; [4] review of operations, organization/systems, and selection/concentration measures. These measures also generally indicate high correlation with the effects of IT investment in U.S. companies and greatly contribute to enhancing the effects of IT investment.

The proportion of Japanese companies that have implemented these measures is lower than that of such U.S. companies. The implementation rate for Japanese companies is particularly low for the measure to conduct "regular quantitative verification of the cost-effectiveness of the investment." The rate is lower than one-fourth of U.S. companies with regard to "regular quantitative verification of the effect after the introduction." There are also gaps of 20% or more between Japanese and U.S. companies in the areas of "reutilization of generated effects (e.g., reduced cost)" and "reform of organization and systems to comply with IT system operations" (Figure 1-22).

Figure 1-22: Measures by Japanese and U.S. Companies Toward Optimizing the Effectiveness of IT Investment



* The figure shows the percentages of companies that answered either "fully implemented" or "somewhat implemented" for the respective measures.

Source: "Survey on Utilization of IT in Business Management."

3. Trends in Internet Business

More companies have come to use e-commerce for procurement and sales since transactions can be made more efficiently by receiving and placing orders electronically instead of using paper. At the same time, online shopping by individuals is increasing due to the easiness of buying products at home via the Internet and the increased usability pertaining to the diffusion of broadband.

With regard to the market size of the Japanese e-commerce market in 2002, the B2C (business to consumer) market in which individuals purchase home appliances and daily supplies via the Internet was 1.587 trillion yen (a 90.1% increase over the previous year), showing a dramatic increase (**Figure 1-23**). Meanwhile, the B2B (business to business) market in which companies purchase raw materials, PCs, and books from other companies via the Internet was 60.0 trillion yen (a 10.5% increase over the previous year) (**Figure 1-24**).

Figure 1-23: Transitions in the B2C E-Commerce Market

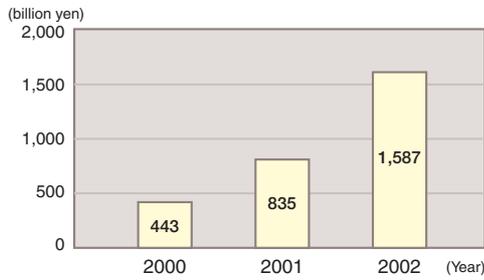
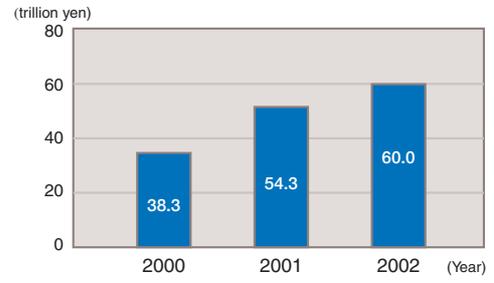


Figure 1-24: Transitions in the B2B E-Commerce Market



Source (Figures 1-23&1-24): "Survey on Economic Analysis of IT"