

Evolving IT Utilization by Enterprises towards 2010

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As we move toward 2010, the objectives of IT (information technology) utilization by companies will shift to the creation of new businesses and services and the strengthening of corporate management. The targets to which IT is applied will also be expanded to include areas where it is difficult to produce effects. Companies must enhance the information utilization technology itself that gives birth to new value.

Companies are required to propose life values that entail a sense of safety, comfort, convenience and emotional impact and that can be supported by consumers fully equipped with information capabilities through the progress of the network society. Companies should be experts of direct communication with customers by making use of IT, and must integrate advertisement, sales promotion and customer service activities that have thus far been separate.

A company's own competitive edge can be developed and enhanced through the mutual utilization of intellectual assets of diverse personnel who have the ability to generate ideas, expertise, experience and knowledge and motivation. In addition to establishing an organizational environment that fosters centripetal force, an environment for communication, simulation and implementation must be provided by means of IT, thereby increasing the knowledge turnover rate.

It is vital for companies that intend to flexibly reorganize their business portfolios in response to changes to optimize the overall information system structure. This will enable quickly integrating management and business processes at the time of a merger, securing internal control and maintaining information security, and implementing risk assessments required for management decisions as necessary.

In evolving IT utilization, management executives themselves must have a profound understanding of IT. CIOs (chief information officers) should play the role of bridging business and IT. IT planning personnel who are fully equipped with information utilization capabilities and inside and/or outside IT supply personnel who have engineering capabilities must closely cooperate with each other.

I Changes in Objectives of IT Utilization by Enterprises

1 Projecting the Evolution of IT Utilization

IT (information technology) is now used in every aspect of corporate activities and is becoming essential for conducting business. At the same time, new IT investments can no longer easily generate significant effects that justify such investments because the development of information systems has generally been completed for each field of business activity. Moreover, any adverse effect that an interruption or failure of an information system would have on society and business has also become significant.

In November 2003, 2004 and 2005, Nomura Research Institute (NRI) consecutively conducted the “Surveys on the Actual Status of IT Operations by User Companies” targeting Japanese companies. In 2005, we received responses from 550 companies in all industries, most of which are listed companies. The 2005 survey included questions about planned IT utilization in 2010 in addition to current usage. This paper projects how IT utilization by companies will evolve in the future based on these survey findings as reference.

2 Changes in IT Investments by Companies

According to the results of the surveys on the actual status of IT operations conducted for three years in a row, IT investments by Japanese companies have been increasing year by year, as shown in Figure 1. The rate of responding companies that selected answers of “an increase in IT investment over the preceding year” grew

over the three consecutive years, i.e., fiscal 2003, fiscal 2004 and fiscal 2005. The projection for fiscal 2006 reaches nearly half of all responding companies, or 46 percent. The past tendency indicates that IT investments increase or decrease in association with the moves of overall capital investments. With the recovery of companies’ overall capital investments, companies have also been taking a more active approach to increasing IT investments.

Then, what are the purposes of IT investments? The survey findings indicate a significant change in the objectives of IT utilization by companies towards 2010 (Figure 2).

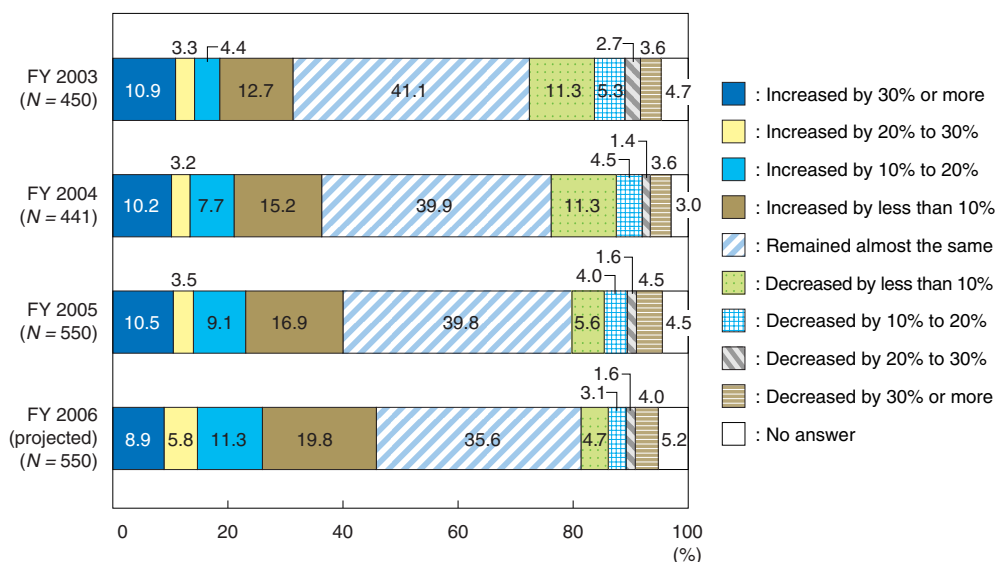
In the past, IT provided a means of improving the efficiency of business operations. In the service industry, IT investments were made as part of capital investments to efficiently conduct service operations. In the manufacturing and other industries, IT has been utilized to reduce both personnel and non-personnel expenses as part of streamlining indirect and administrative business activities. These trends have remained the same up until today. As of 2005, the focus of companies has continued to be on the standardization of business processes and the improvement of the efficiency of business operations as objectives of IT utilization.

However, as we move towards 2010, the purposes of IT utilization by companies are projected to shift from the increased efficiency of business operations to the creation of new businesses and services and the strengthening of management activities.

3 Three Major Pillars of IT Utilization

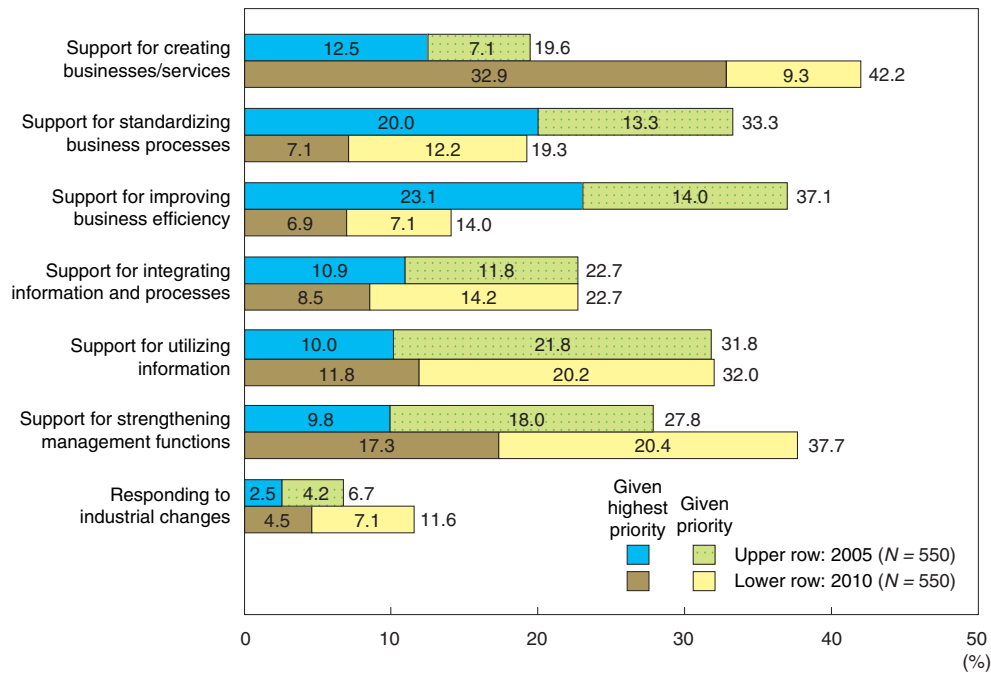
In many companies, the objectives of IT-based business innovation include augmentation, improved efficiency and strengthened management. Augmentation refers to

Figure 1. Year-on-Year Changes in IT Investments by Japanese Companies



Source: “Surveys on Actual Status of IT Operations by User Companies” by Nomura Research Institute in November 2003, 2004 and 2005.

Figure 2. Changes in IT Utilization Objectives



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

increases in sales to expand the numerator in calculating profit ratio. Improved efficiency refers to reducing costs and minimizing assets to reduce the denominator. Adjusting these two factors increases the profit ratio and improves management strength to enhance corporate value. IT is used for these purposes.

Among these objectives, most companies have generally achieved improved efficiency by the utilization of IT. While IT has become essential for business activities, its use does not easily lead to differentiation from other companies or to further improvements in efficiency. If an information system is developed for processes to supply products and/or provide services, improvements will certainly be made in terms of quality, productivity and speed. However, once such goals are achieved, the improved status becomes commonplace. There would be no new surprises for customers and no differentiation from other companies.

In addition, if information is utilized effectively for sales and marketing activities for the purpose of augmentation and if management processes are standardized and systematized to strengthen management functions, the efficiency of personal activity and the accuracy of information management will undoubtedly increase. However, the improvement of sales and marketing capabilities and management competence essentially depends on individuals. It is difficult to directly link systematization with goals such as the expansion of sales and the enhancement of corporate value.

Surveys on the accomplishment of the purposes of IT utilization revealed that while many responding companies have achieved their anticipated goals in terms of improved business efficiency and standardized business

processes, the number of companies that believe that the purposes were not accomplished in terms of augmentation through support for information utilization and the strengthening of management competence is increasing (Figure 3). It is much more difficult to produce the effect in terms of the creation of new businesses and services. At the current stage, many companies have not yet started IT utilization in such creative fields.

These findings appear to suggest that companies are trying to expand IT utilization in fields where it is not easy to produce the desired effects as we move towards 2010.

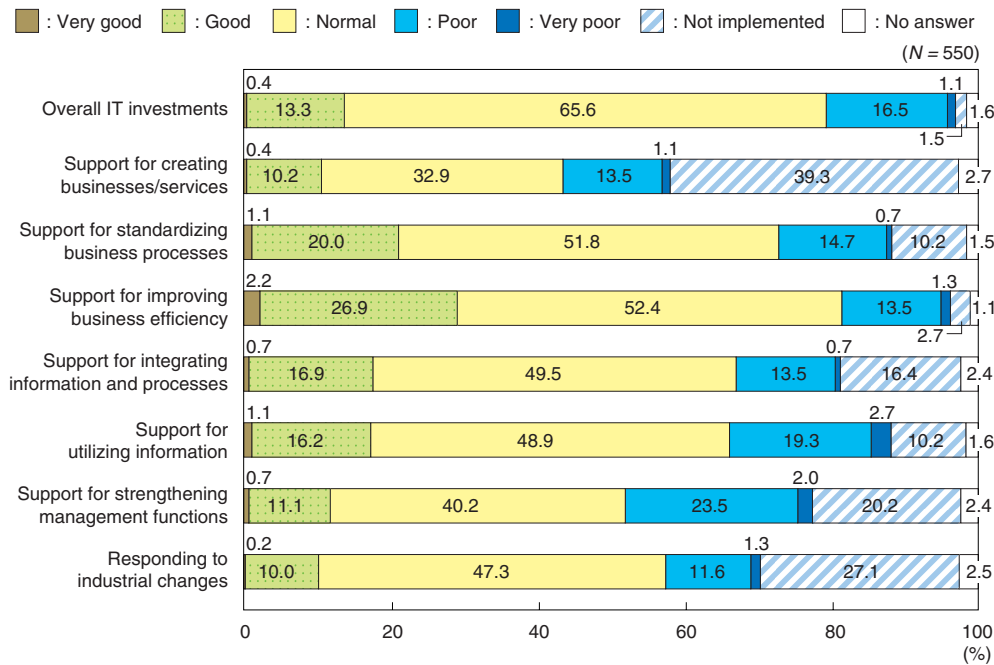
4 Information Utilization Technology Producing Value

Information utilization technology itself will serve as the key aspect of future IT utilization. The word "information" in Japanese is expressed by two Chinese characters that originally mean "rewarding an affection." Companies must enhance their information utilization technology to create new values that can reward affections shown by all stakeholders such as customers, employees, shareholders, trading parties and society.

Activities in pursuit of augmentation conducted in the past appeared to be confined to the utilization of information within a company. What is needed in the future is to utilize IT in such a way that value is directly proposed to customers through direct information exchange with customers who are being fully equipped with information capabilities.

With respect to improving efficiency, past efforts seemed to have been limited to reforms that focused on

Figure 3. Achievement of IT Utilization Objectives



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

“subtractions” such as how to reduce costs and assets. In the future, enterprises should pay attention to reforms that focus on “additions” and “multiplications” to expand the sources of strength that produce corporate value.

Furthermore, in terms of strengthening management functions, members of management tended to be satisfied by simply developing a management dashboard, or an information system for management personnel, through visualization of the actual status of business operations. The goals pursued by the enhancement of management appear to have been ambiguous. Future management efforts should target responding to change, and focus on using IT to achieve this goal.

As explained above, the concept of IT-based business innovations consisting of augmentation, improved efficiency and strengthened management should be further evolved. Efforts should be made to promote IT utilization in order to create value from the customers’ perspective. In terms of in-house systems, good use of IT should be made that demonstrates the distinctive strengths of a company. In pursuit of management enabling business agility, IT utilization technology must evolve to a level that improves corporate value.

II IT Utilization Creating Customer Value

1 Accelerating Shift of Power to Consumers with Progress in Network Society

With a declining population, consumer markets such as food, clothing, housing and services related to everyday

life have matured in terms of total volume and have ceased to grow. In addition, Japanese consumers have become accustomed to the rapid supply of high quality products and services at reasonable costs, and have become among the world’s most sophisticated.

A shift of power to consumers has been accelerating. As of now, Japan has the world’s most advanced broadband (high-speed, large-capacity network) environment. Under the national “e-Japan Strategy,” a network environment enabling high-speed and always-on connections is provided at the world’s lowest costs. As of the end of fiscal 2004, the household penetration rate of broadband services has increased substantially to about 40 percent.

In addition, with the progress in network society, the information gap between those who have information (such as manufacturers and distribution companies) and those who do not (general consumers) has been narrowing rapidly. Consumer opinions that evaluate the price, quality and appropriateness of products and services at websites such as price-comparison sites and personal opinion information sites started to have a major impact on purchasing behaviors. As a result, the price-setting rights that were transferred from manufacturers to distribution companies through the distribution revolution in the 1970s are now out of distribution companies’ hands and are shifting to consumers who have the ultimate buying power.

2 Service Companies Losing Value of Their Existence

The service industry that can only provide intermediary functions and cannot provide value to consumers is

losing the value of its existence. Because consumers can compare products, request quotations, make reservations and place orders on the Internet, companies in the service industry such as travel agencies, insurance agencies and securities firms may lose their customers unless they can provide information and services that can justify their commissions.

Through the distribution revolution, department stores and general merchandise stores that could not provide a wide selection of products appealing to consumers at reasonable prices were deprived of customers by mass home electronics retailers, drugstores and roadside specialty stores. However, the stores that gained those customers are no longer safe and stable. While an excessive number of outlets repeatedly engage in a battle of bargain sales, consumers turn to the Internet to find the lowest prices, further encouraging the trend towards price reduction.

Due to the accelerated oligopoly by major mass retailers and major convenience stores at the distribution stage, the negotiating power of the manufacturers with distribution companies has been weakened, and their profitability has declined as they are forced to reduce prices. Their product planning ability has also declined because they have been unable to directly interact with customers.

Under such circumstances, manufacturers themselves have been trying to develop channels to deal with customers directly by establishing means of direct customer access to enable the provision of products and services that have better customer appeal. These moves include direct management of restaurants by a food manufacturer, introduction of a specialty retailer of private-label apparel (SPA) by an apparel maker and direct marketing towards regular customers by a manufacturer of a well-known brand.

Other efforts to communicate directly with customers include the review of an existing customer-service center and its use not only to receive complaints but also to use it as an information source for improving products/services and developing new products.

3 Customer Ability to Utilize Information Being Strengthened Further

However, consumers continue to outdo these manufacturers. According to *The Survey on Actual Condition and Market Size of Electronic Commerce 2004* by the Ministry of Economy, Trade and Industry, the market size of business-to-consumer electronic commerce (EC) for fiscal 2004 was 2.8 trillion yen. According to NRI, the market is expected to amount to 5.6 trillion yen in 2010. Transactions between individuals through auction sites registered 810 billion yen in fiscal 2004, which corresponds to 32 percent of the EC market. These transactions are projected to amount to 2.8 trillion yen in 2010. This trend indicates that consumers are acquiring major

control in setting prices and forming markets (see *Korekara joho tsushin shijo de nani ga okurunoka—IT shijo nabigeeta 2006* [What will happen in the future of the information and communications market—IT Market Navigator 2006], Information and Communications Consulting Departments I and II, Nomura Research Institute, Toyo Keizai Inc., 2005).

Grass-roots journalism has also been spreading, creating a situation that could be described as “an era where everyone is a writer.” In the past several years, the emergence of blogs (diaries on the Web displayed on a chronological basis) has been something quite remarkable. Information and opinions transmitted daily by several million writers have been an active force in forming new public opinion. This trend has grown to the stage where companies can no longer ignore these opinions. Rather, companies today must use ideas to generate favorable public opinion.

4 Limitations of Mass Marketing and Mass Production

Under the circumstances where consumers are becoming equipped with the ability to utilize and broadcast information, they will no longer show much interest in mass marketing and/or mass production implemented by suppliers of products and services for the sake of efficiency and convenience.

While means of selecting and obtaining the information necessary to meet individual needs has become widely available and the influence of word-of-mouth media originated by consumers has been increasing, less information reaches consumers through the mass media. Brand images are still valuable assets for manufacturers of consumer goods, but spending a large amount for TV and newspaper advertising to establish such a brand as in the past will only have a limited effect (see “Kokoku medhia gekido no kinmirai [Shakeup of Advertising Media in the Near Future],” *Knowledge Creation and Integration*, January 2006).

The increased attention toward the protection of personal information does not permit companies to indiscriminately send out advertisements by either postal or electronic mail without the consent of the individual recipient. Even if such mail arrives, the recipients will simply throw it away without reading the content.

In terms of product planning, the technique of mass production is no longer effective. The case of Fast Retailing Co., Ltd. is one of only a few examples that achieved success. Fast Retailing surprised consumers with its low prices and good quality for everyday, low-priced casual clothing for men and women of all ages. The company achieved success through directly connecting mass production in China and mass sales at directly operated roadside stores. However, people are no longer surprised at the prices because it has become common for other companies to manufacture products in China.

The company is now facing difficulties in maintaining impetus under the circumstance where the availability of such everyday products is widespread, and is attempting to determine its next move.

The marketing technique that classifies customers into broad segments is also no longer effective. For example, baby boomers who were born in 1947 to 1949 plus those who were born in the following two years (who can also be categorized as baby boomers in a broad sense) form a large population totaling about 10 million. After 2007, these baby boomers will near retirement age one after another, giving rise to a second-life market. These baby boomers are free, vigorous people with marked personalities, views, perceptions and desires, and have individual self-actualization scenarios for their second life. It is impossible to collectively classify them simply as baby boomers.

This generation will be the first group of seniors who have a good command of the Internet. The survey conducted by NRI in September 2005 for this generation asking the respondents where they will buy goods in the future revealed the following. In terms of the rate of using existing retail stores, the use of general merchandise stores declines from the current 55 percent by 21 percentage points to 34 percent. Similarly, the rate of major home electronics retailers decreases by 26 percentage points, and that of supermarkets decreases by 13 percentage points. In contrast, the rate of purchases via the Internet increases from the current 26 percent by 23 percentage points to 49 percent. (See “2010 *nen no nihon—Koyo syakai kara kigyō syakai he* [Japan in 2010—From Employment-based Society to Entrepreneurial Society],” Sawaaki Yamada, Fumihiko Kamio, Yoshiaki Saito, Taiichi Inoue, Nomura Research Institute, Toyo Keizai Inc., 2005.)

Baby boomers may visit brick and mortar stores to confirm product quality and features. However, they will actually buy the product at a store offering the lowest price by comparing the prices offered on the Internet, which is common behavior for the generation of baby boomers.

5 Experts of Direct Communication with Customers

Under such an environment, companies are required to present proposals that promote safety, comfort, convenience and emotional impact and add value to everyday life. These proposals must be supported by consumers equipped with skills to gather information. Companies must become experts of direct communication with customers on an all-inclusive basis.

In addition to finding popular products through repeated verifications of a product lineup in limited store space, the utilization of business-to-consumer and consumer-to-consumer markets on websites that are free from the constraints of inventory and space will

enable the matching of even an extremely small, special demand and supply. These efforts will contribute to finding clues indicating the next popular product.

So far, companies have strived to obtain customer opinions based on fragmentary information such as findings through consumer questionnaires and monitoring surveys and inquiries and complaints received by customer service centers. The utilization of opinions and word-of-mouth information originated by consumers on websites will enable the collection and analyses of more extensive potential customer views and opinions. If a company can be a skillful participant among such a community, information could be distributed more effectively and customer reaction could be determined. Through such an accumulation of interactive communication with individuals, new values for everyday life can be discovered and proposed.

While running advertisements through the mass media to ensure extensive recognition of brands and products, companies should utilize word-of-mouth information, etc. at the same time to observe customer reaction, rather than simply sending advertising unilaterally. This will contribute to the promotion of carefully thought-out sales activities according to individual customers' situations.

Moreover, if the ubiquitous network were to be utilized, such as multi-function mobile phones that people carry all the time, sensors installed on streets and in stores and electronic tags affixed to products, it will become possible to monitor the moves of people and things and to provide convenient information and services that are suitable for each occasion.

As such, comprehensive utilization of direct communication with customers will integrate advertisement, sales promotion and customer service. Furthermore, advertisement and sales promotion can be implemented effectively while monitoring customer reaction.

6 Integration of Customer Communication by IT

The annual advertisement expenses spent in Japan by all companies exceed 4 trillion yen. Sales-promotion expenses used by manufactures for distribution channels also add up to a huge amount. In the past, however, effects of such investments have not been fully verified. In the future, part of advertising expenses will be allocated to direct information exchange with customers by means of IT. Sales promotion expenses will also be spent in a way that directly appeals to customers, rather than for distribution channels.

Companies must integrate the means of customer communication, information and organizational functions that have been separate in the past. Information exchanged with customers must be distributed effectively among departments dealing with customers, and these departments should act in concert to maximize the

value provided to the customers. These departments would include a direct marketing department, a market research department, an advertisement planning department, a sales promotion department, a customer service center, an after-sales service department, a CSR (corporate social responsibility) department, etc. IT will perform the hub function to distribute customer information for these purposes.

The situation in the past might have been that while publicity and planning department personnel were considered as if they were celebrities, personnel in charge of responding to complaints at a customer service center were regarded as performing unwelcome work and IT simply worked in the background to support these activities. However, the situation in the future will be totally different.

III Enhancing a Company's Competitive Edge by IT Utilization

1 Sources of Strength are Invisible Assets

While utilizing diverse means of customer communication, how can a company continuously increase its corporate value by providing customers with value that only that company can provide?

In the manufacture of consumer goods, Japanese companies have been overwhelmed by other Asian companies such as those in China, Korea and Taiwan in terms of cost competitiveness. In Japan's domestic market, a hollowing-out of upstream manufacture has been accelerating. For example, 90 percent of apparel items purchased in Japan are imported from China. Turning to the international market, in the electrical machinery industry, progress is being made in the horizontal division of labor through the standardization of product specifications and a shift of product assembly processes to low-cost Asian companies such as those in Korea and Taiwan. Consequently, Japan's major electrical machinery manufacturers have suffered from a decline in profitability.

Now, many companies cannot differentiate themselves from others only by the products themselves and their manufacturing technology, and are forced to engage in price competition. Under these circumstances, companies supporting the recovery of profitability include high-performance material manufacturers and specialty parts manufacturers, which have managed to retain their original production expertise. These companies now supply materials and components to Chinese companies, which have become the factories of the world. Companies that provide services and stably produce value based on reliable relationships with their customers are also supporting the recovery. Among supply chains, the

component industry at the upstream and the service industry at the downstream are prosperous, but companies in the finished product manufacturing industry in the middle are registering low profits. This phenomenon is called the "smile curve."

Automobile manufacturers are achieving success in the global market by domestically producing core components and by integrating all processes from upstream to downstream by comprehensive matching technology.

As such, the sources of strength peculiar to any specific company that is achieving success consist of "invisible" or intangible assets. These assets include core product technology and core production technology that are black-boxed, service provision processes based on customer perspectives and vertical integration of components, finished products and after-sale services.

2 Horizontal Integration based on Customers

How, then, can these intangible assets be built?

In insurance companies, vertically divided organizations for each function such as the product headquarters and the channel headquarters have long repeated competition with other companies in their respective fields such as the development of new products and agency channels. As a result, individual work procedures for each product and each channel, and cases of exceptional processing and special processing have accumulated. These work procedures and practices have caused large, complicated burdens on agencies and sales offices and, above anything else, given rise to products and services that customers find difficult to understand.

In order to remedy such a situation resulting from function-based, vertically divided organizations that run into the logic of suppliers and repeated measures to optimize exclusive operations, a major insurance company is conducting reforms to horizontally integrate its organizations with customers serving as the focus. These efforts represent an attempt not only to change products drastically but also work procedures, information systems and employees.

What are the products and services that are useful and easy for customers to understand? What are the simple business processes that are required to provide such products and services and that impose fewer burdens on agencies and sales offices? How can all actions and mindsets of employees and agencies be directed toward customers? These efforts are company-wide activities to review these questions on an across-the-board basis. This insurance company will also rebuild information systems as a business infrastructure to implement new processes that provide services from the customer perspective.

Random new products will soon be imitated by other companies. The source of competitiveness of insurance companies exists in their operations. Therefore, the

strategy of this company is to enhance its operations to create value for customers, rather than becoming entangled in premium rate competition.

3 Autonomous Collaborative Operations among Employees Having Abilities in Different Fields

One financial service company has worked out all solutions related to financial strategies based on the individual needs of its customer companies. By providing these services ahead of other financial institutions, this company established a business model that other companies cannot imitate, and continues to achieve high growth and high profits.

Sales representatives of this company associate closely with the management executives of a customer company, and are sensitive enough to learn the company's financial needs that have not yet been articulated. Personnel whose specialty is to develop financial products based on such needs join with the sales representatives to create solutions in accordance with the individual situations of the customer company. The auditing section objectively examines the risks of the developed product and management makes the decision on implementation. After these procedures, the developed product is proposed to the customer.

If the proposal is accepted by the customer, and other sales representatives feel that this product is likely to be sold to other customers, a sales representative will propose this product to customers that are considered to have similar needs. Thus, sales activities will be conducted quickly for this product. Through these activities, derivative products emerge in accordance with the needs of new customers. Such product/service creation cycles triggered by the needs of customer companies and/or sales representatives are occurring all over this company.

In major financial institutions, the division of labor among departments is clearly defined in which sales departments sell products designed by product headquarters. These sales often result in the loss of business opportunities because hints of new business discovered by sales representatives are individually picked up by product headquarters and also because it takes time to submit a proposal due to the organizational barriers that hamper smooth liaison between sales activities and product planning. In contrast, foreign capital financial institutions are achieving speedy presentations of proposals to customers by relying on the individual skills of top-notch sales representatives having advanced financial expertise.

In comparison with these previous cases, said financial service company's sales representative who is familiar with customer needs cooperates freely on a personal basis with a product designer who has financial skills by eliminating organizational barriers. Employees create a

product on their own responsibility and promptly provide such a product to the customer after quickly going through the procedures required to secure a management decision. This is where the strength of this company exists.

4 Increasing Organizational Knowledge Turnover Rate by Means of IT

In successful companies, the sources of their original strength are the mutual utilization of intellectual assets of diverse human resources with ideas, expertise, experience, knowledge and enthusiasm.

The insurance company mentioned in Item 2 applies the following knowledge utilization cycle as company-wide, across-the-board activities. The financial company introduced in Item 3 implements this cycle as voluntary activities between individual employees.

- Circulate intangible wisdom in a visible manner.
- Actively exchange knowledge among diverse employees to propose value to a customer.
- Upon receiving a customer's response, quickly implement a cycle of hypothesis, practical application, verification and development.
- Quickly circulate the obtained results all over the company and generate further value.

In the past, IT has contributed to raising the turnover rate of physical assets through information links among organizational functions such as procurement, production, physical distribution and sales. In the future, IT will be utilized to raise the turnover rate of knowledge to give birth to new value. IT will enable the creation of the following environment for communication, simulation and implementation.

- As an organization, visualize and share knowledge.
- Diverse employees conduct highly free communication with each other by transcending organizational barriers.
- Verify hypotheses.
- Quickly implement acquired knowledge in service processes.

5 Need to Foster Centripetal Force of Organization in Addition to IT

Of course, in order to enable highly dense collaborative activities among autonomous professional employees who consider a company as one venue for self-fulfillment, it is essential to create an environment to foster centripetal force within an organization in addition to IT.

The first step is to enable employees to share the same sense of value through action guidelines, common language to share goals and explicit messages by management.

Then, mechanisms should be provided to promote collaborative work among employees including common techniques such as “*kaizen* (improvement)” campaigns and standardized evaluation criteria. Furthermore, it is also important to establish an organizational climate in which employees can share their feelings such as making use of all possible measures for visualization and realizing that even lone wolf employees can help each other.

The company’s unique strengths can be demonstrated through knowledge integration among employees having different abilities by transcending organizational barriers and positions. In the past, research and development and product development might have been considered white-collar workers’ knowledge-based labor, and sales and production might have been considered blue-collar workers’ physical labor. IT might have supported all of these activities. In the future, however, the situation will be different.

IV IT Utilization Increasing Business Agility

1 Objectives of M&A Shifting from Defense to Offense

A company must stabilize its core business (revenue sources), foster new businesses that might sprout future growth, withdraw from businesses that tear down corporate value, and must continue to optimize its business portfolio. A company must be equipped with the ability to rapidly respond to such business reorganization. IT can contribute to the establishment of an environment that enables a company to act quickly based on management decisions rather than to the achievement of management decisions themselves.

In Japan as well, M&A (merger and acquisition) of companies has become a daily occurrence. After the number of M&A cases exceeded 1,000 in 1999, the number has hovered around 2,000 cases annually since 2000. In comparison with the number of M&A cases in the United States, there is a possibility that the number could more than double in the future. In many Japanese companies, defensive M&A cases that aim to abolish or integrate existing businesses have come to a halt for now. In the future, cases of taking the offense in M&A to further enhance existing company strength for the following purposes will increase:

- Secure company scale that enables evolution in the global market.
- Establish the ability to develop one or more brands that are fully competitive in the global market and the concomitant research and development capability.
- Develop comprehensive service capabilities based on consumer needs.

- Promote vertical integration to develop technologies domestically that add to a company’s strength.
- Establish a joint venture with a company having a sharp sense for enhancing the ability to design new products.

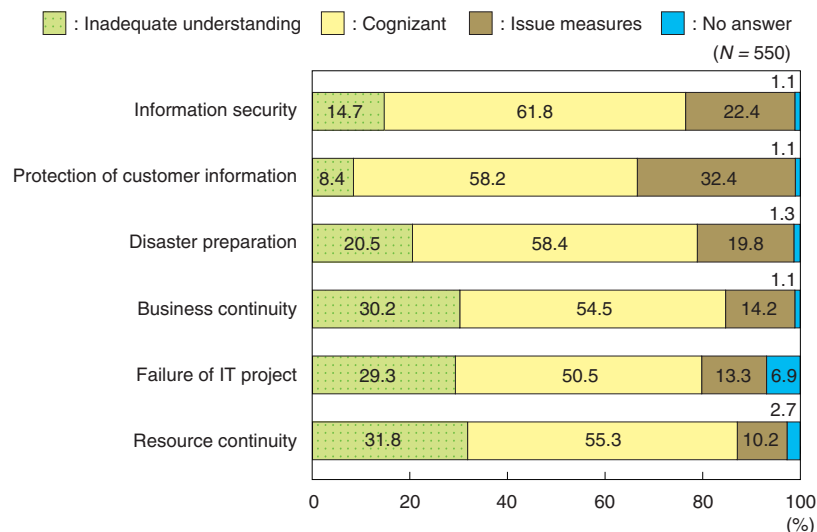
In the case of defensive M&A, achieving a company scale that does not collapse and that cannot be destroyed through a merger could be considered fulfilling the initial purpose. It would then be possible to subsequently take the time necessary to promote the integration and practical unification of both companies. First, the functions of headquarters management as well as assets that can be shared are integrated, generating the effect of improved efficiency in specific fields. As the next step, core business operations are integrated on a phased basis, achieving the effect of a drastic improvement in efficiency. In the case of mergers among mega-banks, extremely long periods were required to generate the substantial effects of the mergers.

In the case of taking the offense in M&A for enhancing existing strength, a merger becomes meaningless if synergetic effects cannot be generated promptly in terms of cost efficiency and revenue expansion through rapid implementation of management integration, business process integration and employee mindset integration. Major prerequisites for this purpose include the rapid integration of information systems to unify management systems such as personnel and accounting systems, as well as the rapid integration of information systems to consolidate business processes such as supply chains and service provision. (See “Tokushu: 2010 nen no keiei shisutemu (Feature: Management Systems in 2010),” *Knowledge Creation and Integration*, December 2005.)

2 IT Could be a Major Bottleneck for Rapid Integration

The case of a merger of banks revealed the difficulties of integrating information systems and the significant influence any deficiency in an information system could have on core business. The situation is the same with other financial organizations such as securities firms and insurance companies. Even in airline companies, which have a high public nature, the integration of information systems for a merger of companies was implemented as a major project under the leadership of the new president.

Beside these cases, information systems could also be a major bottleneck in promptly implementing mergers and alliances in other industries such as the distribution industry, including mass retailers and convenience stores, consumer goods manufacturers having large-scale sales management systems and service companies for which information systems serve as infrastructural facilities.

Figure 4. Extent of IT Risk Recognition by Management Executives

Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

At the same time, any failure of establishing internal control must be avoided, such as failing to disclose appropriate information due to delays in unification and/or standardization of work procedures or becoming vulnerable to operational risks (risks of suffering losses due to system failures, errors in clerical processing or misconduct). Furthermore, the vulnerability of information security cannot be tolerated, such as threats to the protection of intellectual properties and confidential information and failure to appropriately manage customer information due to incomplete information management in an integrated company.

In fact, management executives have a growing interest in IT-related risks (Figure 4). Around 60 percent of management executives in responding companies are cognizant of information security and the protection of customer information. The rate of responding companies in which management executives themselves issue measures with respect to the protection of customer information exceeds 30 percent. Disaster preparedness measures and business continuity are also matters of primary concern for management executives because the impact that an interruption of an information system would have on society and business usually receives a great deal of publicity from the mass media.

Accordingly, any attempt to hasten the offense in mergers of companies without fully ensuring security will largely impair the integration itself.

3 Shift to Aggressive Risk Management Making Use of IT

In addition to defensive risk management for the purposes of securing internal control and protecting against threats to information security, aggressive risk management for the purpose of properly allocating management resources in addressing extensive uncertainties inherent

in business will become a major theme of management in responding to changes.

For companies such as general trading companies that actively invest in new businesses, establishing appropriate criteria has become necessary in making decisions for the acquisition, ownership and selling/disposal of new businesses and assets. In such decisions, the application of the concept of "expected return to risky assets" has become common. Under this concept, expected return and risks (uncertainties or deviation) are assessed with respect to the businesses and assets owned by a company. Then, a priority is assigned in allocating resources to the businesses and assets that show a high rate of expected return against possible risks. This is called business portfolio operations in which total risks are confined to the range that can be covered by net worth.

In addition to general trading companies, this type of risk assessment is also effective for companies that consider highly mobile M&A as a means of improving corporate value. This concept can also be shared by financial institutions that evaluate, undertake and intermediate business risks of a company, and redistribute such risks to other investors.

In order to evaluate profits to be generated by businesses and assets in the future and the concomitant risks, responsiveness to any changes in businesses and assets must be measured by developing a model of the revenue structure and establishing future change scenarios in terms of external and internal factors. The collection and analyses of these underlying internal and external data will become major functions of a corporate management system. Sometimes this type of analysis is conducted to determine the value in purchasing a business. However, it is necessary for management that pursues business agility to continue such assessments with respect to businesses owned by a company, rather than conducting such an analysis only at the time of purchase.

4 Developing an Information System Structure for Securing Responsiveness to Changes

For companies that intend to flexibly reorganize business portfolios in response to change, the overall information system structure serves as a major key to rapidly integrate management functions and business processes at the time of a merger to ensure internal control and information security and to acquire risk assessment information necessary to make the required management decisions (Figure 5).

Many companies developed information systems each time efficiency of individual business processes was required. Such systems thus consist of a collection of individually optimized business systems. In the 2005 survey, the rate of responding companies still using these individually optimized systems exceeded 20 percent.

Because it is inefficient to operate, manage and maintain separate information systems, efforts have been made to at least standardize IT infrastructure such as the hardware and networks upon which individual business systems are built. Currently, nearly half of responding companies have reached this stage.

Standardization of IT infrastructure will contribute to rapid integration in some aspects at the time of a merger of companies because common hardware facilities can be used and common network security measures can be adopted. However, the requirements for the goal of rapid integration could be achieved only after the standardization of business processes and information management and establishing the centralized management of necessary information were completed. At present, 23 percent of responding companies have fulfilled these requirements. Approximately 60 percent of responding companies intend to build a system with an integrated process/data structure toward 2010.

However, in companies subject to frequent purchases and/or sales of businesses, it is difficult to develop an integrated process/data system covering all businesses. While trying to integrate the system of a purchased business into a company's own system, a situation might occur in which the company decides on giving up and selling such a business. Moreover, any attempt to introduce a full-scale business system for a newly developed business at the stage where its future growth is not clear might result in a failure to collect system investments.

Accordingly, it is desirable for such companies with extremely high business agility to establish a module-type system structure that enables high flexibility. Specifically, this structure provides a common framework for all businesses only with respect to the functions relating to company-wide business risk assessment and those ensuring minimum internal control and information security. For other functions, the use of functional modules that can be shared by multiple businesses is ideal, or functional modules designed for individual businesses can be developed as necessary.

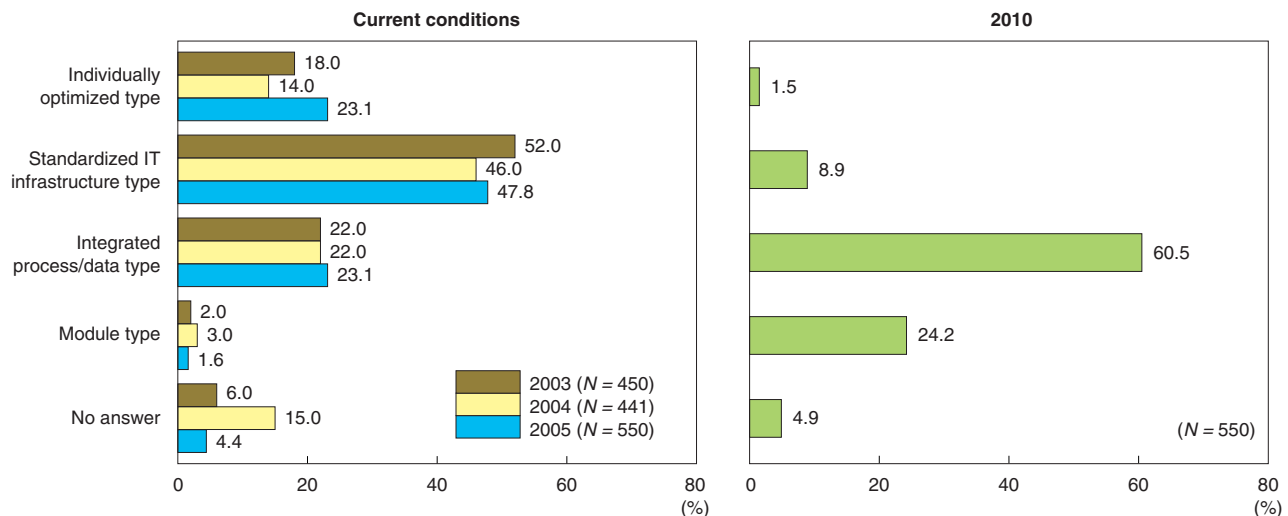
As such, the fulfillment of an overall information system structure that can achieve the purposes of a company requires a systematic approach.

V Matters to be Resolved for New IT Utilization

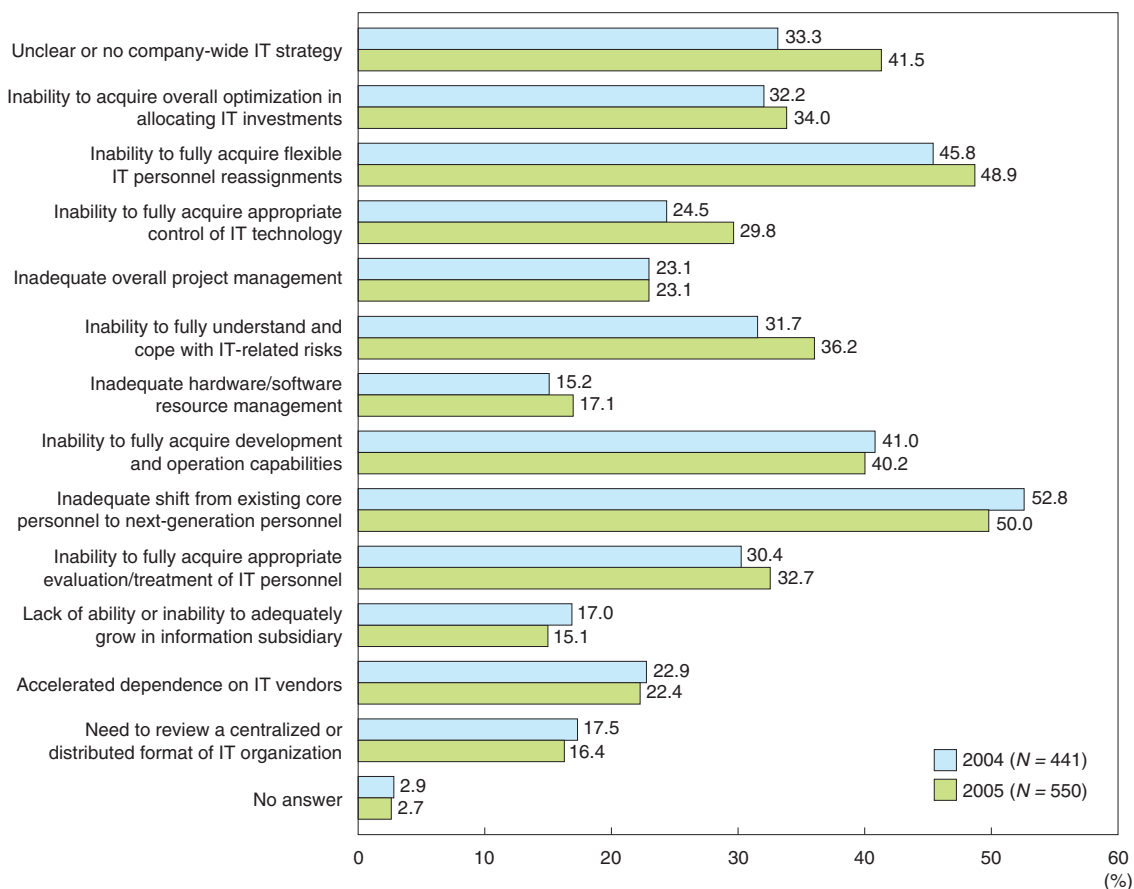
1 Issues of IT Utilization Faced by Companies

While enhancement of IT and information utilization is required as we move toward 2010, survey findings indicate that a major issue facing many responding companies as of 2005 appears to be the immaturity of the

Figure 5. Company's Overall Information System Structure



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2003, 2004 and 2005.

Figure 6. Issues of IT Operations Faced by Companies (Multiple Answers)

Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2004 and 2005.

technology available to make full use of IT as management tools. Specific problems include unclear IT utilization strategy from a company-wide perspective (42%), inability to secure overall optimization in allocating IT investments (34%) and inadequate measures for addressing IT-related risks (36%) (Figure 6).

However, beyond these issues, the largest problem companies currently face is the shortage of personnel supporting IT.

In the past, although the purposes of IT utilization were confined to the improvement of business operations, since the initial stage of IT introduction, expert system engineers served as core personnel for managing a company's overall information system by concurrently considering both the design of the information system and appropriate business processes. Subsequently, however, areas where IT is utilized have been expanded and subdivided, and a large volume of system assets has been accumulated. This situation has required that IT departments focus on additions, modifications and maintenance of existing systems. Under these circumstances, the number of employees who can see the overall picture of business processes and information systems and who can consider their relationships from scratch has been reduced.

In addition, because the core system engineers who inherited the basic design concept and have supported a

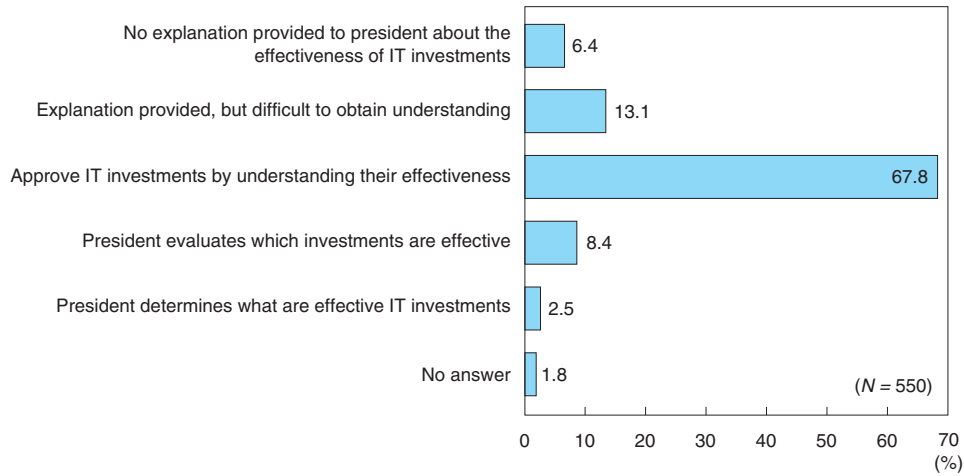
company's information systems will reach retirement age, the year 2007 problem is also serious in the IT field. It is extremely difficult to achieve a smooth transfer of skills between generations.

Looking at the survey results, we find more than 50 percent of responding companies selected transfer of skills from existing core personnel to next-generation personnel as the principal problem, followed by flexible IT personnel reassignments (49%), acquiring development and operation capabilities (40%) and appropriate evaluation/treatment of IT personnel (33%). As such, the matter of personnel is considered extremely important.

2 IT Becoming an Important Investment Field for Management

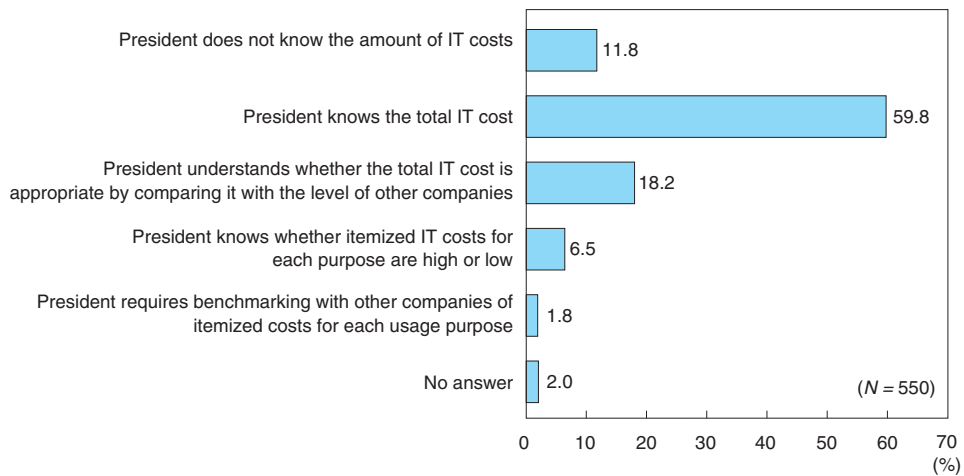
In the past, IT investments have been considered as substitutes for overhead and administrative costs. Because of this, management executives might have considered IT simply as a part of clerical work. However, in the future, the need will arise to consider IT investments from diverse perspectives. Areas involved would include investments in infrastructural facilities for services, partial substitutes for advertisement and sales promotion expenses, part of investments in research and development and product development, and insurance to cope

Figure 7. IT Recognition by Management Executives (Effectiveness of IT Investments)



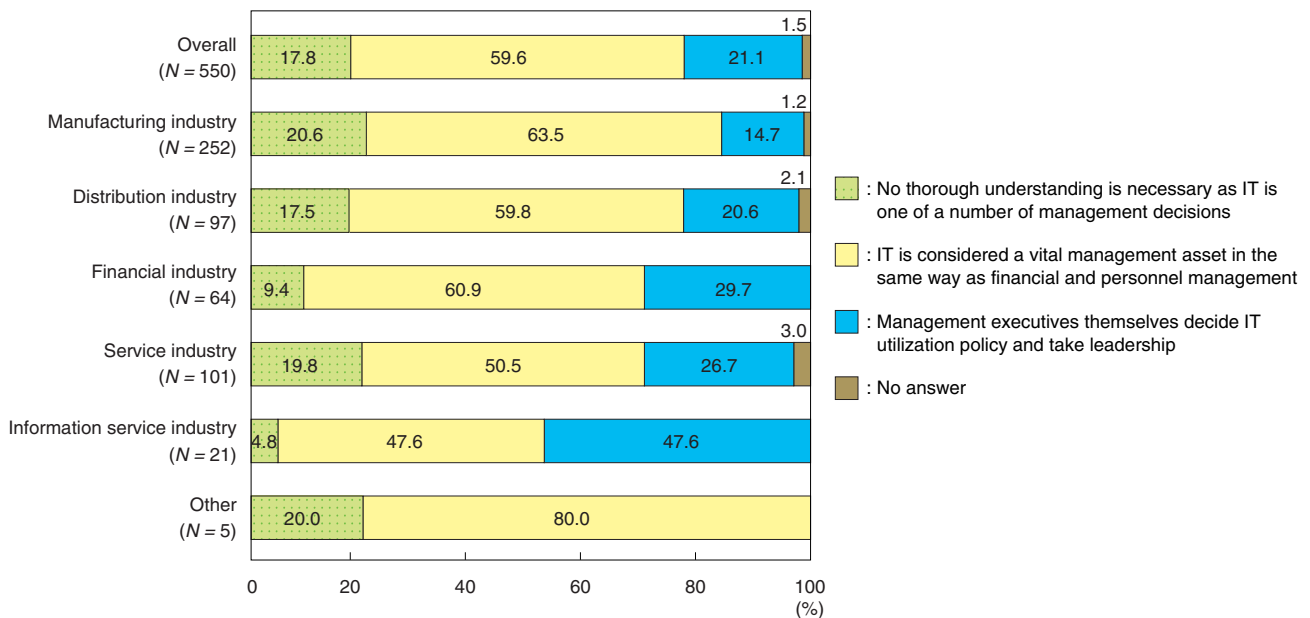
Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Figure 8. IT Recognition by Management (Efficiency of IT Costs)



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Figure 9. Expected Understanding of IT by Management in 2010



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

with risks. For management executives, IT is an important investment field in terms of both monetary amounts and quality, and constitutes a major management asset.

However, at present, survey findings reveal that management executives' understanding of IT is not very high. While management executives of about 70 percent of responding companies have been briefed on IT investment plans, their understanding of the effectiveness of IT investments is simply passive. The rate of responding companies where management executives themselves are involved in IT investment plans, evaluate appropriateness and give instructions is limited (Figure 7).

With respect to the effectiveness of IT costs, while management executives of approximately 60 percent of responding companies know the total cost, they neither check the costs for each item nor compare costs by usage purpose with those of other companies (Figure 8).

Furthermore, the rate of responding companies that have established an IT steering committee in which management executives participate is still small, at slightly more than 20 percent.

Toward 2010, most responding companies expect that the situation of low involvement of management executives in IT will be improved, and that the number of management executives who will become more involved in IT as vital management assets in the same way as for financial and personnel management will increase (Figure 9). In the financial and service industries where IT serves as infrastructural facilities for business, nearly 30 percent of responding companies consider that man-

agement executives themselves should decide IT utilization policy and take leadership in that area.

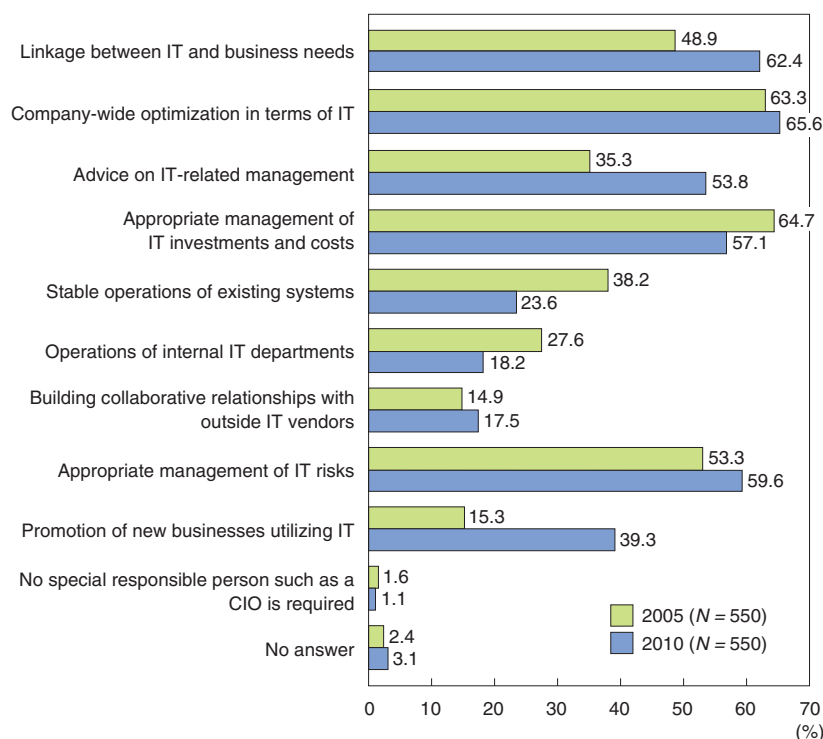
3 CIO to Play Role of Bridging Business and IT

Toward 2010, the roles assumed by a company's CIO (chief information officer) will become more important. The rate of responding companies that currently assign a director fulfilling CIO functions amounts to 50 percent. As of 2010, 65 percent of responding companies consider a CIO at the director level as being necessary. In addition to expertise to properly manage IT-related resources and organizations, a CIO is expected to play the role of bridging business and IT as well as management and IT (Figure 10).

In the 2005 survey results, such expectations appear to be reflected in answers about the past careers of CIOs. The rate of responding companies where CIOs have worked in information system departments from the start of their careers is surprisingly small, at 20 percent. In many responding companies, persons well versed in business processes and operations have assumed CIO positions, such as those from the corporate planning department (27%), the financial/accounting department (13%) and front-line operations (16%) (Figure 11).

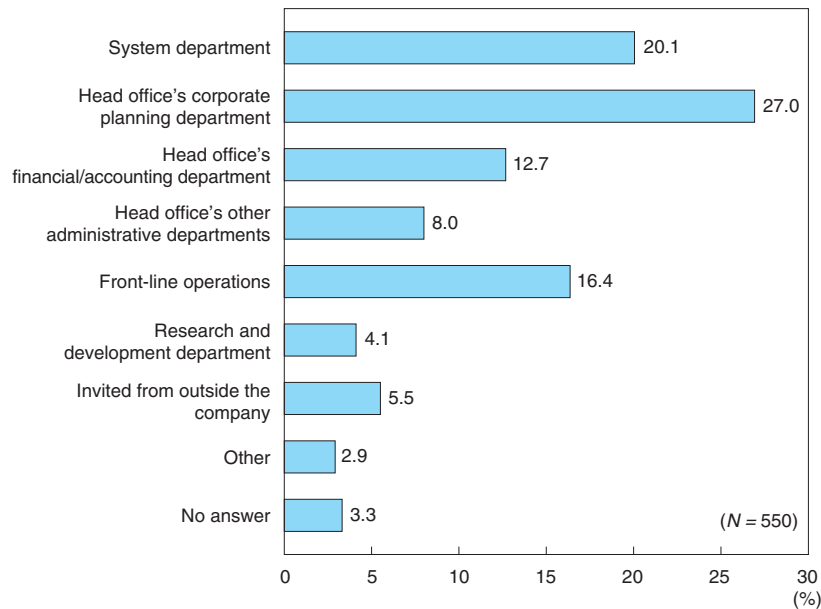
As shown in Figure 10, a CIO will increasingly be expected to play a role of bridging business and IT as 2010 approaches ("linkage of IT and business needs" selected by 62%, "promotion of new businesses utilizing IT" selected by 39%). Depending on the strength of a

Figure 10. Roles Expected of a CIO (Chief Information Officer) (Multiple Answers)



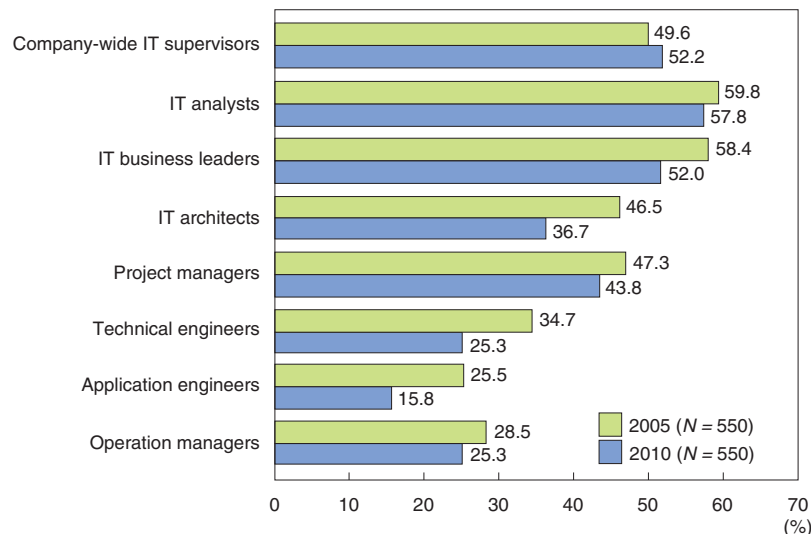
Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Figure 11. Past Career of CIO



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Figure 12. IT Personnel Whose Number Must Be Increased within a Company (Multiple Answers)



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

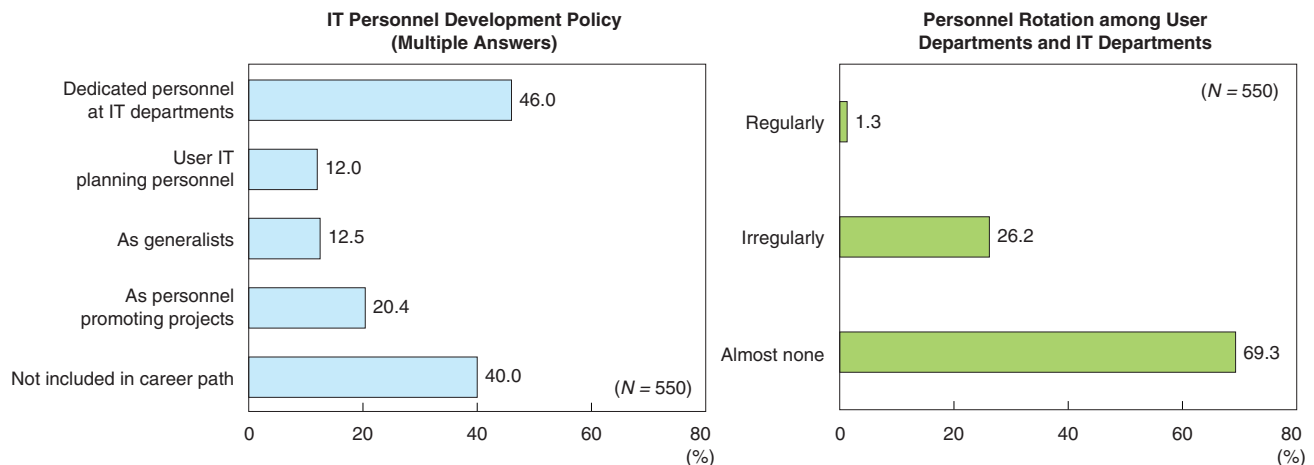
company, the roles expected of a CIO will change. For example, in a company giving priority to operations, the functions a CIO is expected to fulfill will be similar to those performed by a COO (chief operating officer). The required functions of a CIO in a company placing highest priority on its customers will be similar to those performed by a CMO (chief marketing officer). Such functions in a company focusing on the differentiation of product and technological capabilities will be similar to those performed by a CKO (chief knowledge officer). In a company stressing risk management, the functions will be similar to those performed by a CRO (chief risk officer).

In any case, a CIO is expected to supervise IT utilization from the management perspective. Of course, the roles

of a CIO as an IT expert such as proper management of IT investments and costs (57%) and proper management of IT risks (60%) will be important in the same way as they are now or will be even more important.

4 Securing IT Planning Personnel within a Company

With the evolution of information utilization by a company, an IT department will be required to provide more enhanced functions such as hub functions for customer communication, intellectual asset distribution functions, control tower functions for supply chains and functions to collect risk monitoring information. As described in the previous section, even only for the

Figure 13. Company-Wide IT Personnel Development Measures

Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

purpose of succeeding to the basic design concepts for business and information systems that have supported a company to date, acquiring personnel for this purpose currently constitutes the largest issue for a company. In addition, in order to enhance IT utilization further, the policy must be established anew with respect to IT personnel who will either be acquired within a company or obtained from outside sources.

Two types of IT planning personnel must be acquired within a company, i.e., personnel who can supervise company-wide IT utilization and IT assets and personnel who can plan and promote the creation of value by utilizing IT. Many companies consider it necessary to increase the number of IT planning personnel over the future.

As shown in Figure 12, the number of the following types of personnel must be increased as IT planning personnel within a company toward 2010.

- Company-wide IT supervisors who promote overall IT optimization (CIO's staff members: 52%) and IT architects (designers of overall system structure: 37%)
- IT analysts who plan and promote the creation of value by utilizing IT (personnel on the IT supply side: 58%) and IT business leaders (personnel on the IT use side: 52%)

The latter type refers to IT experts who understand business processes or personnel who are well versed in business processes and who know how IT can be used. These inter-business personnel will function to connect IT and each of multiple business fields including marketing, product development management, business planning and business process innovation.

Such IT planning personnel should be cultivated by rotating inter-business personnel among an overall IT utilization management department, IT supply departments and IT use departments to enhance the ability of employees to utilize information within each depart-

ment. These activities will thereby give rise to personnel who can serve as leaders in planning and promoting information utilization.

Currently, however, as shown in Figure 13, the development of IT personnel is confined to the IT supply departments in many of the responding companies (46% for "within IT supply departments" and 40% for "not included in career path"). Furthermore, personnel rotation among IT supply and use departments are not occurring very often (69% for "almost none"). Toward 2010, the development of IT personnel through the unification of IT use and supply departments will be essential.

Turning back to Figure 12, while it is necessary to acquire IT planning personnel within a company toward 2010, many responding companies consider that professional technical personnel on the IT supply side, such as technical engineers (engineers in charge of system technology: 25%), application engineers (engineers in charge of business system design and development: 16%) and operation managers (persons responsible for system operations: 25%), need not necessarily be employees within a company. Rather, they can be experts dispatched from outside vendors, as is suggested by the low rate registered in terms of the need for developing such personnel within a company. This tendency is expected to further grow in the future.

5 Increase in Enhanced Formats of IT Outsourcing

Currently, there remain many cases in which IT outsourcing is utilized in a format that substitutes for work by company employees, such as outsourcing partial procedures of system development and operations or using dispatched personnel for certain work. Toward 2010, the number of such cases will decrease. Rather, cases that apply formats outsourcing comprehensive processes including management to outside vendors will increase,

such as a contract for an entire development project (34%) and a comprehensive contract for annual IT operations (27%) (Figure 14). Additionally, more companies will start joint operations with an outside vendor (19%).

As one format of IT outsourcing, the use of ERP (enterprise resource planning) will also increase. In fields where a company's own business processes and information utilization are not required and standard business processes can be adopted, the number of companies that promote the use of standard products such as

ERP, rather than developing their own information systems, is growing.

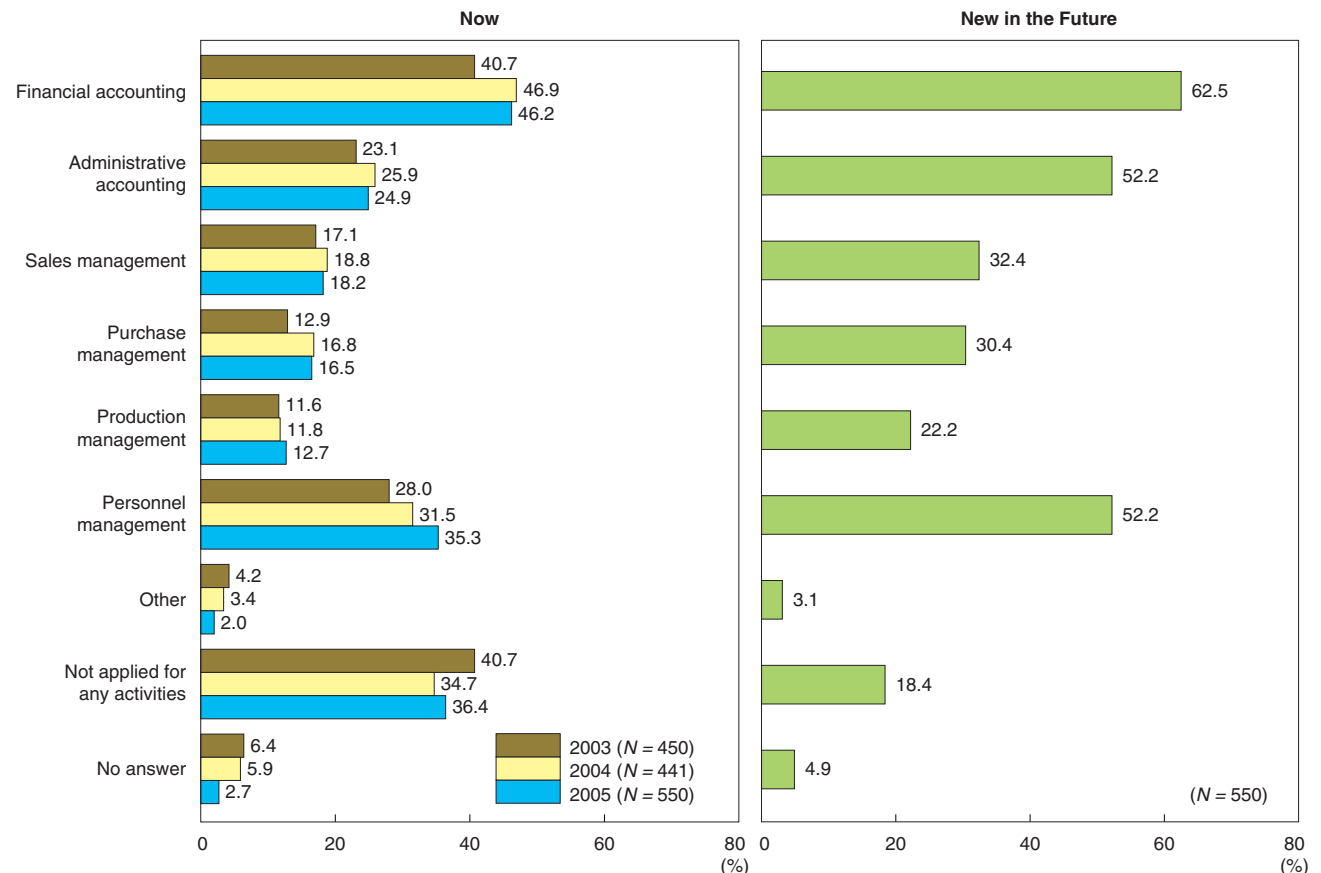
At present, nearly half of the responding companies use ERP for financial accounting and more than one-third of responding companies use it for personnel management. In 2010, the number of such companies will further increase, and a majority of companies will use ERP for management activities common to most companies. The use of ERP will be commonplace even for core business activities such as sales management and production management (Figure 15).

Figure 14. IT Outsourcing Contract Formats (Multiple Answers)



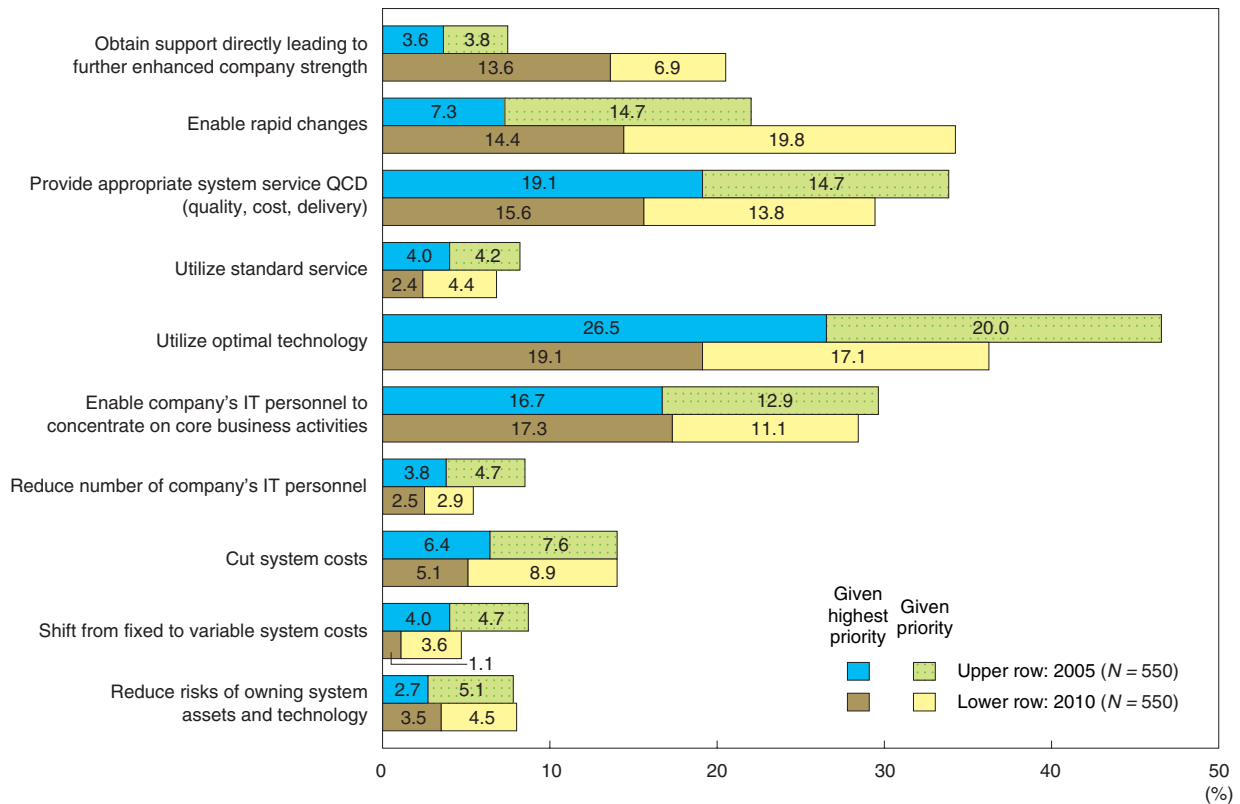
Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Figure 15. ERP (Enterprise Resource Planning) Applications



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2003, 2004 and 2005.

Figure 16. Objectives of Outsourcing



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2005.

Even if the demands among companies for IT utilization are increased, implementation of an information system may be hampered, resulting in impeded business activities. This is especially likely if the method of information system development remains the same as the current method, which could be described as similar to manual development at a factory, offering low speed, low productivity and low quality. Motives to utilize ERP are based on the desire to realize an information system quickly, at low cost and certainly for fields where standard products can be applied.

Turning to the objectives of IT outsourcing, we see a strong intention to use outside human resources and information systems as much as possible if the company's own IT personnel are insufficient. This will be accomplished by selecting a vendor that can provide appropriate service QCD (quality, cost and delivery) and optimal technology (Figure 16). Toward 2010, higher expectations are given to outsourcing, such as obtaining support that directly leads to further enhanced company strength or enabling rapid business changes.

6 Required Engineering Capabilities

Nevertheless, are there any problems in leaving everything concerning the supply of IT to an outside vendor? IT is a typical field that requires customizing and integrating technology. If an information system is the

source of a company's strength in which are embedded intangible assets peculiar to the company, the following engineering capabilities necessary for user companies should be retained not only for IT planning personnel but also for IT supply personnel:

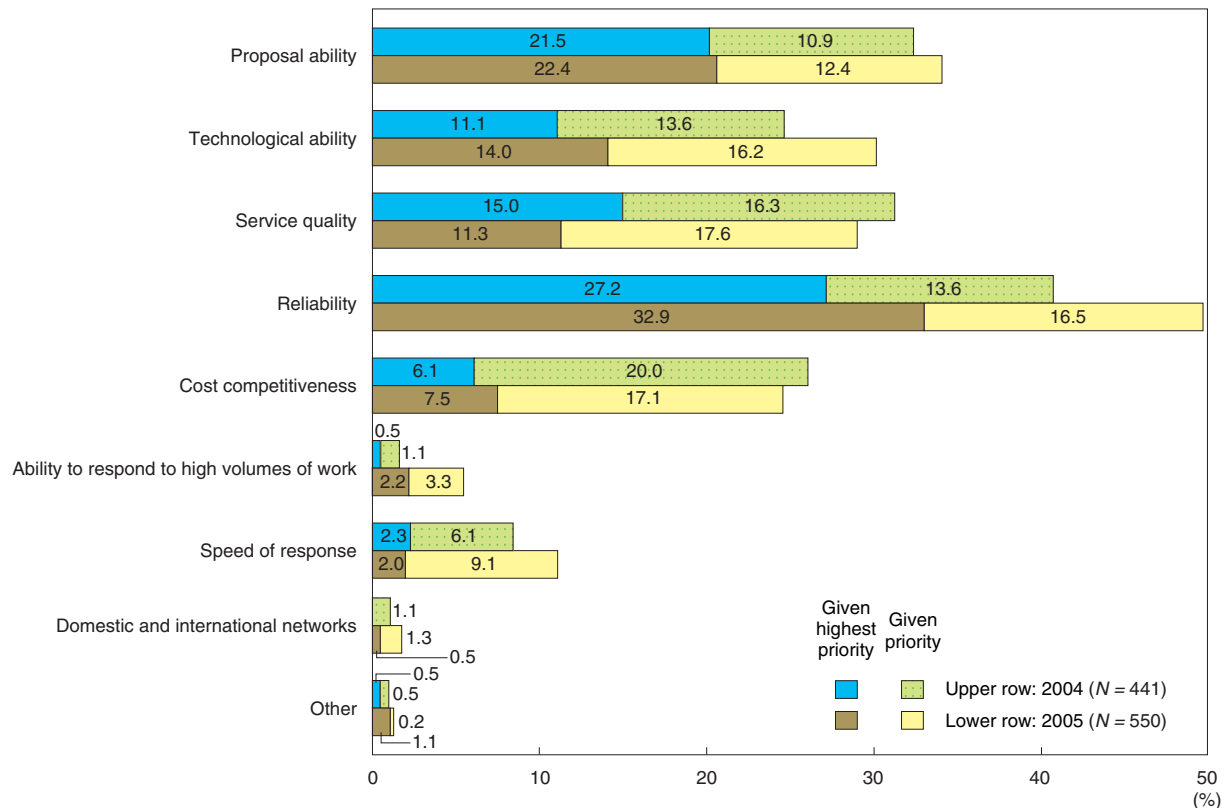
- Effectively utilize the existing accumulated information system assets of a company.
- Acquire overall optimization in terms of business structure, information structure and system structure.
- Concurrently promote information utilization and business innovations special to a company in parallel with planning and designing an information system.

Dedicated IT engineers who can take the lead in implementing these functions, such as IT architects, project managers and application managers, should be located within or in the vicinity of the company. If outside support is to be requested, reliable relationships equivalent to those with the company's own IT supply department are necessary.

7 Expectations Given to IT Vendors

Of course, technological capability, service quality and costs are important factors, but companies give the highest priority to reliability in actually selecting a core IT

Figure 17. Priorities in Selecting a Core Vendor



Source: "Surveys on Actual Status of IT Operations by User Companies" by Nomura Research Institute in November 2004 and 2005.

vendor (Figure 17). This tendency will further increase as we move toward 2010.

Under the circumstances where the fields of IT utilization will be expanded and IT utilization will be enhanced toward 2010, it is not possible for one company alone to provide all the required IT supply functions. It is absolutely necessary that outside expertise be utilized. Moreover, offshore outsourcing of system development to countries such as China and India will be increasingly accelerated in the future.

However, in utilizing outside resources, each company's expectations must be clarified and vendor's capabilities must be examined. For example, how efficient is a development vendor that can precisely and at low cost develop a system based on the specifications provided by a company? Does a company expect a service provider that can provide a business system for which a standard product can be used in a stable and efficient manner? Does it expect a collaborative partner to work together for information utilization that will directly lead to the creation of corporate value? Or does it expect a joint operator to jointly realize overall optimization in terms of the company's information assets and information system assets?

Even companies with high expectations must limit the use of outsourcing services if no IT vendor can meet its expectations. Information service companies on the supply side must also be equipped with professionalism to become a true partner of a company by shedding them-

selves of conventional practices of simply developing a system requested by a user or merely performing contracted work.

8 Increasingly Evolving IT Utilization by Companies

The technology of IT utilization by companies is still evolving. The enhancement of technology to better use information will enable the creation of customer value through establishing new means of communication with customers and increasing the rate of knowledge turnover among employees. These achievements will lead to improving a company's own unique strengths and achieving a level of management capable of responding to any change quickly.

For these purposes, management executives themselves must have a profound understanding of IT. The CIO should fulfill the role of bridging business and IT. IT planning personnel with diverse inter-business expertise who are fully equipped with information utilization capabilities and IT supply personnel inside and/or outside the company who have engineering capabilities must function as a team.

One recent argument is the matter of whether to expect a CIO to assume the role of promoting new businesses that make the best use of IT.

In many companies, the role of the CIO is to support personnel promoting business activities by means of IT.

At the same time, some companies assign their CIO the mission of expanding sales activities through the use of IT. However, if the CIO accepts responsibility for specific business activities, taking a balanced view of company-wide business activities inevitably becomes difficult. Many directors have expressed that assuming the position of a CIO has enabled them to take a more extensive view of overall business activities and information than before. Because of this, some companies urge directors who are expected to become presidents in the future to experience the position of CIO. As such, it may be reasonable to resolve this issue by considering that the primary role of a CIO is to ensure the overall optimization of information utilization throughout a company.

Another issue is whether to expect an outside vendor to provide support that directly leads to the strengthening of a company's unique competitive edge.

In companies where all IT-related operations were outsourced, moves to regain capabilities for business design and overall IT management within the company have started to emerge. These moves appear to be based on considerations that the company went too far to expect outside experts to develop optimum IT utilization combinations under the maxim of using the best practices because company employees know the company's business and work activities better than any outsider.

There are still many more fruits that a company can harvest from IT. Companies will further enhance IT utilization by continually reviewing what is most

appropriate for the company such as the positioning of a CIO and appropriate ways of using outsourcing services.

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