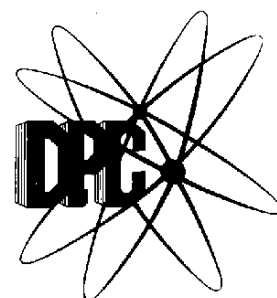


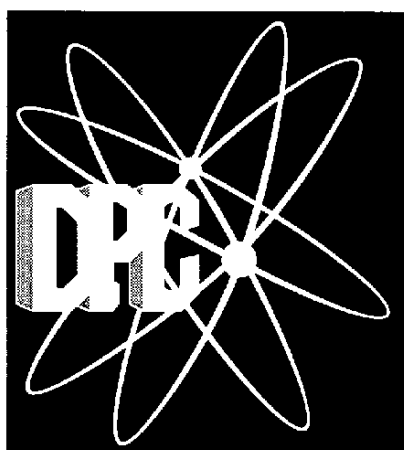
Databases in Japan 1994



Database promotion Center, Japan (DPC) was established in 1984 with the information suppliers, users and related industrial circles approved by the government. DPC is a non-profit organization aimed at the promotion, research, production and dissemination of database services worldwide.

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Database Promotion Center, Japan

CONTENTS

I The Course and Present State of Databases

1. Introduction	1
2. The Course of Databases	2
3. Database Trends in Japan	3
3.1 Trends in the Database Service Market	3
3.2 Trends in the Database Service Industry	4
3.3 Status of Commercial Database Utilization	4
4. Database Trends Overseas	5
5. Trends of In-house Databases	6
6. Increased Regional Databases	7
7. New Activities Related to Databases	8
8. Administrative Use of Information	9
9. Database Promotion Policies of the Ministerial Offices	10

II Trends of the Database Service Market

1. Trends of Database Sales	13
2. State of Database Distribution	15
2.1 The Growing Number of Distribution Databases	15
2.2 State of Database Distribution by Category	16
2.3 Steadily Increasing Proportion of On-line Domestic Databases	16
3. Comparison of Database Conditions in the United States and Japan	20
3.1 Comparison of Database Industry Strength	20
3.2 Comparison of the States of Database Distribution	22

III Trends of the Database Service Industry

1. Positioning of Database Services	23
2. The Sales of Database Service	24
2.1 Ratio of Database Sales to Company Gross Sales	24
2.2 Ratio of Japanese Database Sales to Total Sales	25
2.3 Sales Ratio by Supply Method	25
2.4 Year-on-Year Growth Rate Changes in Company Database Sales	25
2.5 Expected Annual Growth Rate of Sales over Next Five Years (Company Level)	26
2.6 Expected Annual Growth Rate of Sales over Next Five Years (Industry Level)	28
3. Media Holding the Highest Expectations	28
3.1 Service Forms Holding the Highest Expectations	28
3.2 Growth Rate Forecasts	28
3.3 Outline of Database Services Holding the Highest Expectations	30
4. Distribution of Databases	30
5. Problems in Database Construction	31
6. Types of Data (Text, Image and Video Data)	31
6.1 Types of Data Supplied (or Scheduled to Be Supplied) on Databases	33
6.2 Positioning of Image and Video Data	33
6.3 Contents of Image and Video Databases Scheduled to Be Supplied in the Future	33
7. Database Supply by CD-ROM	34
7.1 Whether or Not CD-ROM Databases Are Being Supplied	34
7.2 Categories of CD-ROM Databases	34
8. Present State of Overseas Database Supply	36

IV Use of Commercial Databases

1. Actual Results and Planned Database Usage	39
1.1 Utilization Status by Organization	39
1.2 Usage Status by Company Division	41
2. The Types and Contents of Most-Used Commercial Databases	41

2.1	Most-Used Database Vendors and Database Files	41
2.2	On-line and Off-line Database Utilization	43
2.3	Categories of Frequently Used Databases	45
2.4	Types of Data Used	46
3.	On-line Database Utilization	47
4.	Issues on Pricing and Utilization	47
4.1	Pricing Issues	47
4.2	Utilization Issues	47
5.	Increased Database Utilization by PC Network Services	47
6.	Questions Relating to CD-ROM	49
6.1	Utilization of Information on CD-ROM	49
6.2	Categories of Information Use	49
6.3	Currently Used CD-ROM Software	49

V Computerization at the Administrative Level

1.	Activities Surrounding the Establishment of a Foundation for Computerization at the Administrative Level	51
2.	Administrative Operations and Their Computerization	52
2.1	Enthusiasm for Promotion of Office Automation (OA)	53
2.2	Changes in Society's Administrative Needs and Administrative Systems	53
2.3	Clerical Processing Standards Unsuitable for OA	54
2.4	Expediency through Ideas from the Supply Side	54
2.5	Evaluation Criteria for Effects of Computerization Investments	54
3.	Future Accommodations	54
3.1	Objective of Computerization at the Administrative Level and Establishment of Evaluation Criteria	54
3.2	Systematic Execution Based on Long-Term Planning	55
3.3	Clerical Processing Standards Premised on Computerization	55
3.4	Development of Human Resources	55
3.5	Establishment of a Computerization Base	56

LIST OF FIGURES

Figure	Page
II-1 Growth in Annual Sales of the Database Service Industry	14
II-2 Growth in Sales of the Database Service Industry Compared with the Same Month of the Previous Year	15
II-3 Transition of Databases Accessible in Japan	17
II-4 Graphical Comparison of Database Circumstances in the U.S. and Japan	21
III-1 Positioning of Database Services	24
III-2 Distribution of Year-on-Year Changes in Database Sales	26
III-3 Distribution of Expected Annual Average Growth Rate of Database Sales over Five Years (Company Level)	27
III-4 Distribution of Expected Annual Average Growth Rate of Database Sales over Five Years (Industry Level)	27
III-5 Media Expected to Demonstrate the Highest Growth over the Next Five Years (N=120, multiple replies)	29
III-6 Annual Average Growth Rates of Media Expected to Grow over the Next Five Years (Forecast)	29
III-7 Problems in Database Construction (N=72, multiple replies)	31
III-8 Types of Data Currently Being Supplied On-line (N=60, multiple replies)	32
III-9 Types of Data Currently Being Supplied Off-line (N=48, multiple replies)	32
III-10 Types of On-line Data for Which There Is Future Demand (or for Which an Increase in Supply Is Sought) (N=43, multiple replies)	32
III-11 Types of Off-line Data for Which There Is Future Demand (or for Which an Increase in Supply Is Sought) (N=41, multiple replies)	34
III-12 Whether or Not CD-ROM Databases Are Being Supplied	34
III-13 Growth in Databases Supplied Overseas	37
IV-1 Categories of Frequently Used Databases (multiple replies)	45

LIST OF TABLES

Table	Page
I-1 International Comparison of Database Sales (1991,1992)	5
II-1 Annual Sales by Various Information Service Sectors	13
II-2 Transition of Database Distribution Ratio Category	17
II-3 Distribution by Category of Databases Accessible in Japan (Number of Databases)	18
II-4 Comparison between Japanese and United States Databases (1992)	20
III-1 Supply Status of CD-ROM Databases (No. of Companies)	35
III-2 Number of Domestic Databases Being Supplied Overseas (Actual Numbers)	36
IV-1 Annual Average Costs for Databases by Company Size	39
IV-2 Highly Utilized Vendors, According to the Number of Replies (N=491, multiple replies) (Aggregate of top three vendors of utilization given by each respondent)	42
IV-3 Databases with High Utilization Frequency (N=473, multiple replies)	43
IV-4 Ranking of Vendors by Number of Contracted Users	44
IV-5 On-line/Off-line Utilization Rates (N=441)	45
IV-6 Types of Data Currently Being Used or for Which a Future Increase in Usage is Desired (multiple replies)	46
IV-7 Comments on Functions, Operability of Commercial Database (multiple reply)	48
IV-8 Frequency-Used PC Network Service Menus (multiple replies)	49
IV-9 Currently Used CD-ROM Software (N=131, multiple replies)	50
 Appendix	
Table-1 Japanese Databases Accessible Overseas (1994:Producers)	57
Table-2 Japanese Databases Accessible Overseas (1994:Distributors/Agents)	66
Table-3 Japanese Database Planned for Overseas Expansion (1994)	85
Table-4 Address of Overseas Service Points (1994:Producers/Distributors)	86

I The Course and Present State of Databases

1. Introduction

The year 1993 saw a further worsening of business conditions and an expanding global recession. It was also a year of searching for "new frameworks." In the United States, the Clinton administration began its first year after victory in the presidential election based on a campaign slogan advocating "change." In Europe, on the other hand, the European Community unified market was inaugurated on January 1 as a result of continuing efforts that started in 1985. In Japan, the Hosokawa coalition administration was established in August, putting an end to the Liberal Democratic Party's single party reign, which had been in existence since 1955.

Although transitions were made on a global scale, movements to create new frameworks following the end of the cold war have encountered difficulties. Following the inauguration of the Clinton administration, there have been personnel problems and congressional adjustments that have made it difficult to work out a well-defined policy. In Europe, nationalist movements have come to the forefront, resulting in intensification of ethnic conflicts in numerous former Communist bloc countries. Moreover, economic and political instability in Russia is continuing to increase.

The current economic recession in Japan, which began in May 1991, is growing more serious. Although recovery seemed near in the spring of 1993, the economy has showed little sign of such since that time, and in fact, the recession appeared to deepen. Monthly department store sales continue to demonstrate double-digit drops from the same periods of the previous year, while scheduled equipment investment by corporation decreased for the third consecutive year. Corporate business performance suffered a decrease in ordinary profit for the fourth straight year. As a result, the number of firms operating at a loss continued to grow, resulting in reduced hiring.

The database industry, which has constantly demonstrated growth, is no exception. According to the "Survey of Selected Service Industries" published by the Ministry of International Trade and Industry (MITI), sales for the database service industry in 1992 fell for the first time, decreasing by 0.9% from the previous year.

The cause of this long-term recession, currently in its third year, is not simply economic cycles. Rather, the general view is that its inception accompanied structural changes in both society and the economy. The materialistic frameworks that have been in existence have reached a deadlock, indicating a need for new frameworks that make active use of intellectual resources such as information and software. In view of this situation, there are growing expectations that databases will allow advanced utilization of required information.

The Database Promotion Center, Japan (DPC), drafted specific proposals in March 1993 for

policies to promote information utilization by government and municipal offices based on a new concept as a result of studies conducted by the Ad Hoc Committee for Strategic Information Utilization. The major contents of those proposals are shown in (1) through (6) below. These proposals emphasize the need to change the current point of view from "large-volume, routine processing" to information utilization that supports individual thinking processes.

- (1) Information resources of central government offices thus far have generated numerous results in increasing the efficiency of large-volume, routine and repetitive work (investments totaling about ¥2.77 trillion throughout 17 years).
- (2) For the future, instead of conventional large-volume, repetitive and routine processing, it will be necessary to propose policies rapidly and computerize nonroutine operations including evaluations and judgments. Investment for this is estimated to be approximately ¥4.41 trillion.
- (3) New systems must incorporate the newest technologies, including downsizing and open networks, so that these systems are easy to use.
- (4) Information gathered by government offices, estimated to be recorded and stored on approximately 200,000 reels of magnetic tape, will be loaded into data servers installed at about 4,200 locations throughout the country. These servers will then be connected with an open network.
- (5) Approximately 470,000 high-performance personal computers or workstations will be allocated, focusing primarily on personnel departments. Policy supervisors and others will then be able to access required information easily even without knowledge of the procedural language or the existence of data.
- (6) Data and software results can also be utilized for regional, private corporation and individual lifestyle advancement. Investment in information utilization by central government offices will play the role of a catalyst.

2. The Course of Databases

The history of database services in Japan began in the 1970s. In 1970, the Nihon Keizai Shimbun, Inc. created a database of corporate financial data and stock prices. Although this database was sold on magnetic tape, it is considered to be the forerunner of databases in Japan. Later, database services began to appear in various fields. The Japan Information Center of Science and Technology (JICST) introduced its science and technology information database, and the Japan Patent Information Center began patent information database services.

Starting in the 1980s, the importance of databases was recognized by both government and private sectors. This situation was summarized in a statement saying, "In the highly advanced information society of the future, although databases will be an important social foundation as a means of utilizing information, the present state of databases in Japan is far behind that in the

United States and Europe, and as such, promotional policies are necessary." With this in mind, the Ministry of International Trade and Industry (MITI), Congressional Federation for the Promotion of Information Industry, Correspondence Council of the Database Service Industry (currently the Japan Database Industry Association) and other organizations began to submit specific proposals and reports relating to database promotion. Many problems that were raised then remain today.

As part of these database promotion policies, DPC was established in April 1984. Now in its 10th year, DPC has striven to promote databases in Japan through expanded use and education of databases, support of database construction and projects including clearing (guides to database utilization), surveys, research and promotion of international exchange.

3. Database Trends in Japan

3.1 Trends in the Database Service Market

Despite being regarded as a representative of high-growth industries in Japan, sales in the database service industry in 1992 registered ¥214.1 billion, a decrease of 0.9% from the previous year, primarily due to the effects of the sluggish economy.

By individual service form, sales from on-line services reached ¥164.2 billion, accounting for 76.7% of the total. Off-line services registered sales of ¥49.9 billion, accounting for 23.3% of the total. Compared with the previous year, although sales from on-line services increased by 10.8%, off-line services decreased by 26.5%. Although the on-line ratio of overseas databases had previously remained at approximately 98.4% throughout the past several years, the ratio of on-line domestic databases, which had originally been somewhat low, has been increasing steadily each year, climbing to 78.2% in 1992.

On the other hand, the number of commercial databases available in Japan is still increasing. According to the Database Directory of MITI, the number in 1992 increased by 4.2% from the previous year, to 2,799.

With respect to their contents, accompanying the sophistication of computer-related technology and the diversification of corresponding needs, the proportion of fact databases has increased annually, reaching 77.2% in 1992.

By category, 37.8% of commercial databases are business-related; 29.2% in natural science and technology; 27.3% in the general category; and 3.2% in social and cultural science. Furthermore, although classified in the general category, when "newspaper, journals and news" information and "who's who/organizations" information are incorporated in the business category, the share of the business category swells to 51.8%.

Looking at the number of commercial databases in Japan and those overseas, there are 932 "domestic databases" produced in Japan, accounting for 33.3% of the total, while there are 1,867

databases produced overseas, or 66.7%. The percentages have not changed significantly in recent years.

3.2 Trends in the Database Service Industry

An increasing number of database services are being provided on CD-ROM. In looking at the results of the "Survey of Japanese Database Services" conducted by DPC in the fall of each year, the number of firms providing database services on CD-ROM exceeded 30% of the number of responding firms (1993 survey). In addition, the proportion of total database sales accounted for by CD-ROM databases was 5.1% for domestic databases and 4.3% in the case of overseas databases according to the 1992 survey. In the 1993 survey, however, this figure had increased to 8.5% for domestic databases and 9.1% for overseas databases. Consequently, CD-ROM is positioned as the top database service for which the most growth can be expected in the next five years. Some of the reasons for the appeal to users of CD-ROM include: greater savings on space than micro materials and printed matter; elimination of communication costs; and fixed charges made in a single payment. On the other hand, disadvantages of CD-ROM use that have been pointed out include: a lack of uniformity of software for database access; and a sense of high cost associated with software. It is therefore important to eliminate these problem areas to further promote CD-ROM databases in the future.

There are many firms that list picture and image data as a type of data that they would like to provide on a commercial database in the future. With respect to the time at which they would like to provide such services, 70% of the firms stated that "they are not considering it for the time being" or "do not know." Thus, it appears unlikely that a large number of firms will begin providing picture and image data in the near future.

To gain an understanding of the extent of downsizing, one of the major trends currently affecting computerization, a part of the fact-finding survey of database services in 1993 asked questions concerning downsizing of commercial database construction and service systems. According to those findings, 29% of the replying firms (organizations) indicated that they were implementing some form of downsizing for the purpose of reducing construction and operation costs. Although more than half stated that they had attained that objective, 74% of those firms that had not implemented downsizing questioned the effectiveness of downsizing, and had no plans for implementing downsizing in the future.

3.3 Status of Commercial Database Utilization

According to the results of the "Survey of Japanese Database Services" for 1993, the annual amount spent on database utilization per firm according to firm size was ¥3.385 million for small and medium-sized businesses, and ¥50.387 million for large corporations, representing

approximately a 15-fold difference. According to the previous survey, small and medium-sized businesses spent ¥4.474 million while large corporations spent ¥43.882 million. Since the difference at that time was only about 10-fold, 1992 can be said to be a year in which small and medium-sized businesses attempted to close the gap with large corporations in terms of database utilization.

One of the characteristics of recent database utilization is the increased speed of usage lines. In on-line database utilization, public telephone lines are conventionally used at an access rate of mainly 1,200 bps. However, as a result of increasing line speeds, this access rate increased to 2,400 bps in 1993.

For the future, numerous users sought greater sophistication of database utilization, followed by an increase in the number of databases that can be accessed, and the desire for databases to be used by anyone as a result of connecting with in-house systems. These replies support the fact that databases should proceed toward enabling as many people as possible to make more advanced use of a diverse range and abundance of information.

4. Database Trends Overseas

LINK Resources Corporation (LINK) refers to the database industry in the United States as electronic information services. The survey fields are diverse, covering finance, seating reservations, marketing, credit, laws and patents, science and technology, insurance, real estate,

Table I-1 International Comparison of Database Sales (1991,1992)

Country/Region	1991		1992	
	In millions of dollars	In 100 millions of yen	In millions of dollars	In 100 millions of yen
Japan	1,728	2,160	1,946	2,141
The United States (Incl. Canada)	10,209	12,761	10,958	12,054
The United Kingdom	1,726	2,157	1,890	2,079
France	490	613	575	633
Germany	386	482	460	506
Western Europe (Total)	3,561	4,451	3,995	4,395

Note: Currency conversions made at the rate of \$1=¥125 in 1991; \$1=¥110 in 1992.

Sources: Sales in Japan were obtained from "The Survey of Selected Service Industries, MITI," overseas database sales were obtained from LINK Resources Corporation.

news, products, transportation and library information. In Europe, on the other hand, the database industry is referred to in terms of on-line services. Fields in this survey are classified into securities, foreign exchange, products, corporate fundamentals, econometrics, corporate credit, personal credit, news, marketing and science and technology. The emphasis is placed on finance-related fields, however.

Although LINK's survey is somewhat different by definition from the Survey of Selected Service Industries conducted annually by MITI, Table I-1 attempts to provide an international comparison of database sales between the United States, Europe and Japan in 1991 and 1992. Sales in the United States continue to remain far ahead of those in other countries, while sales in Japan are comparable to those in the United Kingdom.

Sales in 1993 of electronic information services in the United States are expected to increase by 8.1% compared with the previous year, to \$11.8 billion. The annual average growth rate for the five-year period from 1992 to 1997 is expected to be 9.5%. This rate is one point greater than the prediction of one year ago. This increase is considered to have been caused by a return to prosperity in electronic information services in the United States. There are currently a wide assortment of important projects being implemented in the United States, including the "Information Superhighway Project," being proposed by Vice President Gore, which calls for connecting the entire United States by optical fiber, connecting universities and hospitals by computers, as well as developing new technologies relating to multimedia, two-way CATV and personal computer communication. CD-ROM sales have reached \$449.3 million, and are predicted to increase to \$2.6 billion in 1997.

The size of the on-line service market in Europe in 1993 is expected to reach \$4.56 billion, corresponding to an increase of 14.1% compared with the previous year. An average growth rate of 11.1% is expected for the next five years. This figure has been revised downward from 15.9%, the forecast of one year ago. Thus, the on-line service market in Europe also appears still unable to break free of the continuing economic recession. In looking at the on-line service market, real-time fields in the financial sector continue to dominate. These fields accounted for more than 70% of total sales in 1992. CD-ROM sales in Europe reached \$345 million in 1992, and are predicted to reach \$1.6 billion in 1997.

5. Trends of In-house Databases

Computer users, including private corporations and government and municipal offices, delayed making information-related investments due to current economic recession. According to the "Survey of Japanese Database Services" conducted in 1993, the rate of ownership of in-house databases of small and medium-sized businesses, which had previously been quite low, increased from 42.7% in 1992, to 50.0% in 1993, a considerable increase. However, overall figures, including large firms and public organizations, remained essentially unchanged,

increasing only slightly from 63.1%, to 65.4%.

The petroleum and chemical industries had the highest ownership rate by industrial category, at 80.6%. This was followed by the finance and insurance industries, at 70.0%, and the electrical, general and transportation equipment manufacturing industries, at 69.8%. Among in-house databases, those types having the highest ownership rates were customer management databases, at 41.4%, personnel management databases, at 39.3%, and inventory management databases, at 33.3%.

Downsizing of in-house database construction and maintenance systems has not progressed to such an extent as generally talked about, with the exception of the construction industry. More than 70% of the firms surveyed had not yet implemented any form of downsizing. The delay by public service organizations is particularly conspicuous. The main reasons for not implementing downsizing were a shortage of personnel and uncertainty about resulting benefits. Also, there are many firms that have no plans for implementing downsizing in the future. Thus, any major progress in this area is unlikely for the time being.

With respect to the types of data used on databases, as a result of increasing user awareness on the coming age of multimedia, a rapid increase in the amount of image data can be expected, in addition to currently available numerical and text data.

Connection with external networks has increased rapidly in these several years. In terms of the connection rate, although public services currently demonstrate the highest connection rate, private corporations are also tending to increase connections with outside databases, accompanying the proliferation of electronic accounting services, and so forth. For the future, there is expected to be a growing number of firms that will exchange product order receiving and placement data with contracted manufacturers, distributors and sales agents.

6. Increased Regional Databases

Accompanying the birth of the Hosokawa administration, which advocated Cabinet decisions on public spending and "decentralization of power" based on "new social capital" centering on an information infrastructure, regional use of information has attracted considerable attention.

The New Media Community Project was implemented by MITI in 1984 as the first government policy for regional use of information. This was followed by the successive implementation of other projects, including the Hi-Vision Community Project of MITI, the Teletopia Plan and Hi-Vision Community Project of the Ministry of Posts and Telecommunications, the Greentopia Plan of the Ministry of Agriculture, Forestry and Fisheries, and the Intelligent City Project of the Ministry of Construction. Reports will be submitted that describe how regional use of information is promoted, and to what extent promotion and activation of regional society were achieved as a result of these policies and projects.

Despite implementation of the various policies mentioned above, the degree of centralization

of information in Tokyo has increased, causing the information gap between Tokyo and outlying regions to expand even more. Projects for promoting regional use of information have thus far been promoted by the third sector in the form of receiving low-interest financing and preferential tax measures based on the government's viewpoint of the public good along with promoting efficiency and economic feasibility in the private sector. However, in the case of using this third-sector format, there are problems with respect to a lack of business awareness on the part of those parties concerned, as well as the responsibility between local governments and private corporations, who are responsible for financing, not being clearly defined. As a result, projects employing this format are beginning to become bogged down.

To succeed at increasing regional use of information, it is critically important to train and develop personnel having specialized knowledge and technology relating to computers and databases in each region. In addition, the presence of leaders that attempt to aggressively promote the regional use of information cannot be overlooked. The information policies being adopted by Gifu prefecture are typical regional-led policies. These policies call for the promotion of regional use of information through participation by local residents focusing on the concept of "information centers." These information centers refer to locations for production of information as a form of value in an information society. These centers are regarded as equivalent to farms and factories in the sense of producing things of value. These policies also advocate the formation of numerous information centers in a region as being necessary for regional use of that information. More specifically, to aggressively promote the creation of space where producers of information can make contact with each other, the Nagara River Sports Plaza was constructed in July 1993, and a prefectural community center, prefectural culture hall and future exhibit are scheduled for construction in 1994. In addition, open discussions have been established to provide opportunities for direct exchange of opinions between administrative supervisors and local residents.

The "Tohoku Database Society" was inaugurated in the Tohoku region in 1993 as the sixth database promotion group in Japan. In addition, the Shikoku Database Promotion Association was established in July 1991. This group is actively engaged in various activities such as lecture meetings, seminars on various topics, training and surveys.

7. New Activities Related to Databases

Multimedia and PDAs (Personal Digital Assistants) have recently attracted considerable attention as technologies for construction and utilization of databases.

Although considerable expectations are being placed on multimedia as a technology that realizes freer communication between computers and their users, since this technology involves converting voice and image information into digital data and performing computer processing in unity with character and numerical information, there are many problems that remain to be

solved, including the establishment of technologies for compression and restoration of huge amounts of data.

PDA's for home information appliances are targeted at a wider range than multimedia players. Characteristics of these devices include: a pen input system; the use in address book and personal scheduling management; and the ability to provide an office environment while being portable and equipped with a wireless modem.

Some recent trends in package databases include the rerecording and sales of popular television programs and the publication of smaller editions of newspapers on CD-ROM due to the advantages this medium offers as a medium for inexpensive, large-volume distribution. Electronic publishing is another example of new forms of package databases.

Due to the huge initial investment and maintenance expenses required to construct a database, adequate protection for databases is a necessity. However, as a result of the revision of the Copyright Law in Japan in 1986 and "Council Directive on the Legal Protection of Databases" issued by the EC (European Community) in 1992, the way has been paved for legal protection of databases as independent literary works. One recent topic in Japan is examination of copyrighting problems relating to multimedia software by the "Copyright Council Multimedia Subcommittee."

Ever since "Information System Security Guidelines" were adopted at the OECD directors meeting in November 1992 with respect to security and protection of databases, member nations have been attempting to make accommodations by reviewing their own systems. The United States has already begun standardization of database codes, and the drafting of standard codes, revision of the penal code and other organizational aspects will hopefully also be carried out in Japan.

On the other hand, another urgent topic concerns international regulation of database fields. As a result of an agreement concluded at the Uruguay Round of GATT held in December 1993, it has become necessary to observe and follow international rules concerning the issue of intellectual property rights.

8. Administrative Use of Information

Movements surrounding the use of information by administrative organizations became extremely active in 1993.

The Information Industries Committee of the Industrial Structure Council prepared a report in June 1993 on policy issues for promotion of information utilization based on a present day awareness of information utilization and the present state of information utilization in Japan. Although the establishment of social infrastructure had previously referred to public works focusing primarily on civil engineering projects such as the construction of roadways, ports and harbors, and sewers and water lines, according to this report, "administrative use of information"

is perceived as being an important topic for establishment of social infrastructure. The establishment of a data communications base toward realization of a highly advanced information society was set forth as a major pillar for "establishment of new social infrastructure."

The final report of the Ad Hoc Council for Promotion of Administrative Reform issued in October 1993 advocated the need to systematically implement promotion of information utilization, something that has started remarkably late in Japan.

In January 1994, the Ministry of Posts and Telecommunications issued a policy proposal entitled, "Towards the New Creation of the Data Communications Industry." The proposal calls attention to the need for the establishment of a data communications base, the problems of combined communication and broadcasting, as well as the need for international cooperation.

In February 1994, a cabinet-level decision was made regarding "Policies for Promoting Administrative Reforms in the Future." These policies propose promotion of administrative use of information based on overall administrative planning in the form of drafting policies for projects of each ministerial office linked with that planning. They also call for promotion to be carried out in the form of a five-year plan starting in 1995. However, some ministerial offices have embodied specific plans in the third revised budget for the 1993 fiscal year. Consequently, promotion of administrative use of information can be said to have already moved from the planning stage to implementation.

Administrative operations that are accompanied by data processing can be broadly divided into two categories. The first consists of large-volume, routine and repetitive tasks such as social health insurance, taxation and statistics. The second consists of "non-routine thinking tasks" that include collection and analysis of information and utilization of information used in making decisions to propose policies and proceed with their implementation. Examples of these include international cooperation and industry promotion policies. With respect to the latter, the use of information, including database utilization, has not progressed to an adequate level. In this regard, there is quite a delay compared with the private sector.

In the case of administrative use of information, the advanced use of information by administration as a whole is expected to be realized first by central ministerial offices aggressively implementing the use of information followed by spreading the use to regional governments. One of the most essential factors for achieving this is the training of personnel. Thus, the development of information-literate personnel, who are capable of not only operating computers, but are also able to freely manipulate information by taking advantage of networks and databases, is of the utmost importance.

9. Database Promotion Policies of the Ministerial Offices

To contribute to promotion of increased use of information, MITI is promoting the construction and utilization of databases considered to have high priority in terms of social needs.

Together with implementing policies for the comprehensive establishment of databases through various administrative measures, MITI is also conducting surveys on trends of various types of information supply services. In addition to promoting the New Media Community Project again in 1993, MITI has also attempted to substantiate establishment of databases oriented toward small and medium-sized businesses.

The Management and Coordination Agency is surveying the state of database construction in various ministerial offices. According to the "Survey of the State of Database Construction" in 1991 conducted by the Management and Coordination Agency, 277 databases were being operated by 19 ministerial offices. This corresponds to approximately a seven-fold increase in comparison with 1980, the first year of the survey. According to a survey of the "Providing of Statistical Data by Magnetic Tape to the Private Sector" conducted by the Statistics Council based on the agreement of related ministerial offices, the external supply of data is currently being supplied to the private sector on magnetic tape. With respect to administrative data other than statistical data, in addition to the Management and Coordination Agency providing data such as reports from the Extraordinary Administrative Research Council and the Administrative Reform Council to the private sector in 1993, the Japan Patent Office is already providing patent gazettes data; the Ministry of Transport, automobile registration data; and the Meteorological Agency, meteorological data, to the private sector. However, numerous inadequacies remain in the system for providing government-owned data to the private sector. Moreover, together with it being necessary for the private sector to create an environment that enables effective utilization of that information, including the addition of added value such as by editing and processing the data to provide it to the general public in an easily visible form, there is a strong anticipation that private information suppliers endeavor to efficiently take advantage of government-owned data, considered to be a valuable public asset.

The Science and Technology Agency inaugurated the "Meeting for Research Information Network" under the supervision of the Science and Technology Meeting Policy Committee in July 1993. This association is engaged in the conducting of studies relating to the desired state of research information networks in Japan.

II Trends of the Database Service Market

1. Trends of Database Sales

Database services are classified in the "information service industry" in terms of their industrial positioning.

The information service industry contains a diverse range of businesses, including software, commissioned computing, and so on. According to the "Survey of Selected Service Industries," a collection of selected statistics issued by MITI, total sales of the entire information service industry in 1992 totaled ¥7.128 trillion, representing only a slight increase of 1.3% from the previous year.

This industry has previously been recognized as a high-growth industry, having attained an annual growth rate of better than 30% in the past. The relatively low growth in 1992 represents the impact the collapse of the bubble economy and the accompanying recession had on this industry. In particular,

Table II-1 Annual Sales by Various Information Service Sectors

Classification	1991			1992		
	Annual sales (¥1 million)	Ratio(%)	Increase from the previous year(%)	Annual sales (¥1 million)	Ratio(%)	Increase from the previous year(%)
Total	7,039,659	100.0	119.9	7,127,787	100.0	101.3
Data processing	1,094,800	15.6	113.6	1,100,128	15.4	100.5
On-line information processing	715,700	10.2	110.3	723,363	10.1	101.1
VAN	230,036	3.3	113.1	227,563	3.2	98.9
Data processing	485,664	6.9	109.0	495,800	7.0	102.1
Off-line information processing	379,100	5.4	120.5	376,765	5.3	99.4
Software development and programming	4,301,045	61.1	124.4	4,296,116	60.3	99.9
Software development	3,575,139	50.8	123.0	3,635,664	51.0	101.7
Sales of software products	725,905	10.3	131.5	660,452	9.3	91.0
Data entry	209,607	3.0	102.6	201,123	2.8	96.0
Machine time sales	59,217	0.8	110.4	47,212	0.7	79.7
Facility management services	308,837	4.4	112.0	363,394	5.1	117.7
Database service	215,981	3.1	114.5	214,064	3.0	99.1
On-line	148,135	2.1	114.8	164,199	2.3	110.8
Off-line	67,845	1.0	113.8	49,865	0.7	73.5
Various types of research	313,731	4.5	120.2	277,238	3.9	88.4
Market research	165,070	2.3	124.2	127,678	1.8	77.3
Other research	148,661	2.1	116.1	149,560	2.1	110.6
Miscellaneous services	536,443	7.6	114.6	628,511	8.8	117.2

Source: "Prompt Report of the Survey of Selected Service Industries," MITI, August 1993

"software development and programming," which had previously accounted for more than 60% of information services and had been the major driving force in the industry, registered a decrease in sales from the previous year for the first time.

Sales generated from database services also felt the effects of the economic recession. According to the same survey, database sales decreased from ¥216 billion this past year, to ¥214.1 billion (Fig. II-1).

By supply medium, on-line database services generated sales of ¥164.2 billion (76.7%) of the total of ¥214.1 billion in 1992, while off-line database services totaled ¥49.9 billion (23.3%), indicating the overwhelmingly large proportion of sales generated from on-line services. Furthermore, although sales from on-line database services increased by 10.8% from the previous year, off-line services registered a decrease of 26.5%. Total database sales dropped only slightly as a result of the considerable decrease in sales generated by on-line database services (Table II-1).

The effects of the business slowdown are also vividly apparent in the "Monthly Report of the Current Survey of Selected Service Industries" issued by MITI. In contrast to the annual Survey of Selected Service Industries, this report surveys information service sales on a monthly basis, thereby

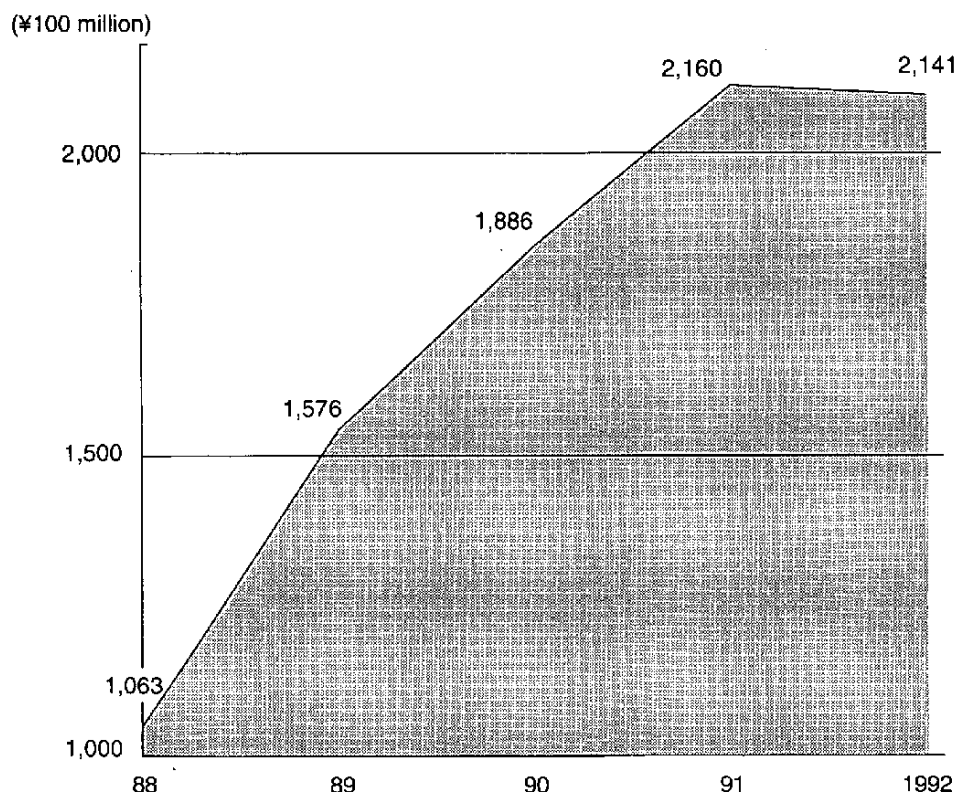


Figure II-1 Growth in Annual Sales of the Database Service Industry

Source: Prepared from "Report of the Survey of Selected Service Industries," MITI

providing a more accurate picture of the current situation. The figures in this monthly report, for month-on-month changes from the previous year in information service and database sales from January 1992 to October 1993 are shown in Fig. II-2. Beginning in May 1992, database sales have continued to fall below the monthly levels of the previous year with the exceptions of August 1992 and September 1993.

2. State of Database Distribution

2.1 The Growing Number of Distribution Databases

Information about databases available in Japan can be obtained from the "Database Directory" issued by MITI. This directory has been issued annually since its inception in 1982. It is a guidebook for the databases available in Japan.

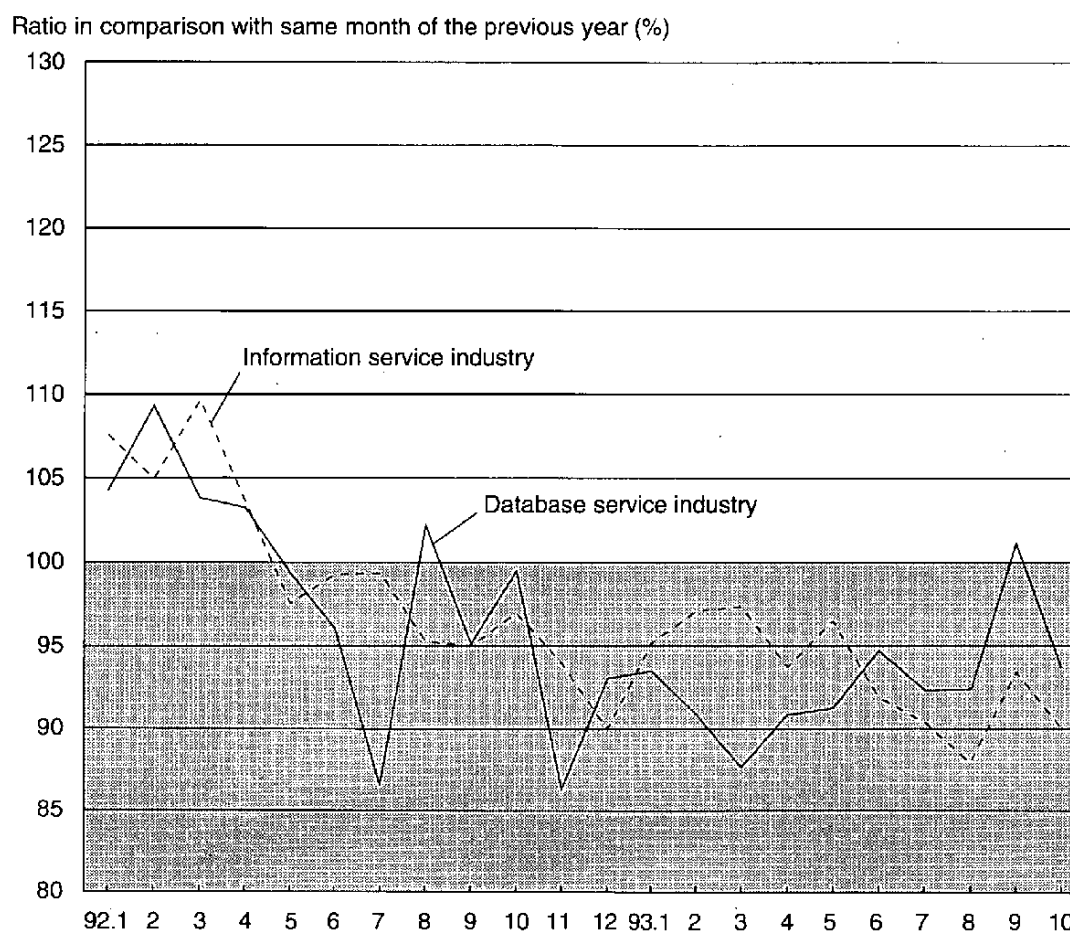


Figure II-2 Growth in Sales of the Database Service Industry Compared with the Same Month of the Previous Year

Source: Prepared from "Monthly Report of Current Survey of Selected Service Industries," MITI

According to the 1993 edition of the Database Directory issued in October 1993, the number of databases increased by 4.2% from the previous year, to 2,799.

The number of domestic databases also continued to demonstrate an increasing trend, rising 33.3%, to 932. Furthermore, the number of organizations (corporations) reported in the directory increased by six firms from the previous year, to 228 (Fig. II-3).

2.2 State of Database Distribution by Category

Databases that can be accessed in Japan are classified into four categories. These categories are: General, 27.3%; Natural Science and Technology, 29.2%; Humanities, 3.2%; and Business, 37.8%. In addition, when "newspapers, journals and news" as well as "who's who/organizations," for which business use is large but are classified in the general category in the Database Directory, are incorporated into the business category, the business category accounts for more than half of all databases, at 51.8%. This trend has remained unchanged since 1986 (Table II-2).

In looking at a further breakdown of these categories, those subcategories for which 100 or more types of databases are distributed based on the actual number of databases consist of: newspapers, journals and news, at 322; corporate finance and profiles (overseas), at 235; medicine, pharmaceuticals, biotechnology and biology, at 164; finance, securities and foreign exchange, at 156; marketing and products at 132; and electricity, electronics and information, at 130. These databases are concentrated in fields subject to rapid change, that is a high frequency of data renewal.

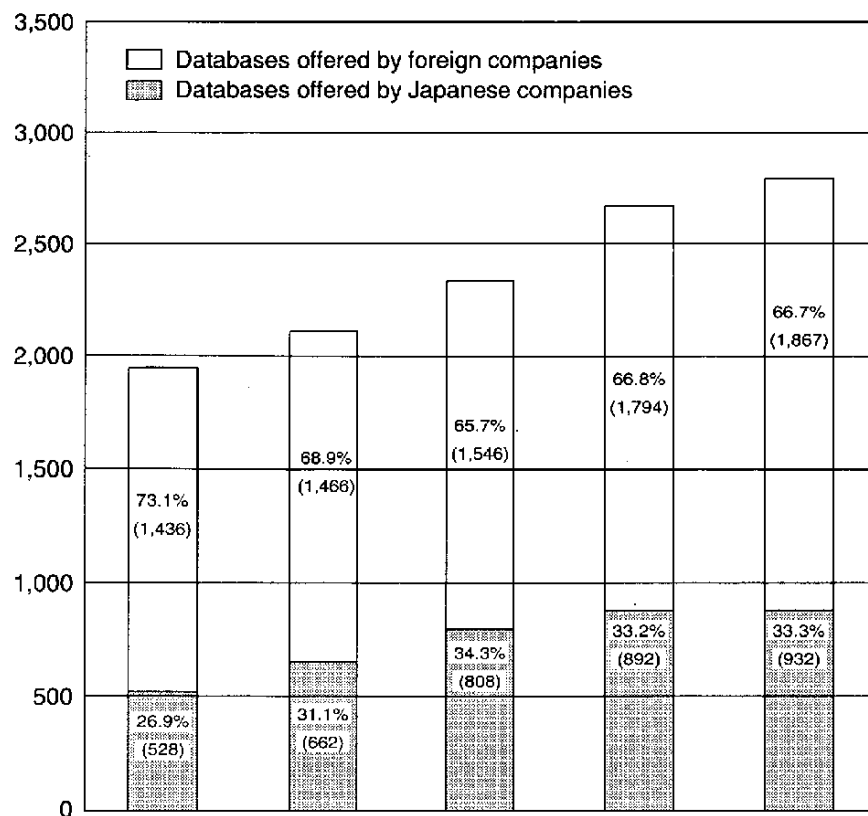
In addition, those subcategories that have continued to demonstrate an increasing trend throughout the past several years include "newspapers, journals and news," "recreation, leisure and sports," "patents," "space, earth and marine," "vital statistics," and "corporate finance and profiles (Japan)" (Table II-3).

2.3 Steadily Increasing Proportion of On-line Domestic Databases

Analysis of the Database Directory reveals that 90% of the databases that can be accessed in Japan are on-line databases. The proportion of on-line overseas databases is especially high, at more than 98%. On the other hand, the proportion of on-line domestic databases currently stands at only 78.2%.

However, the proportion of on-line domestic databases has steadily increased during the past several years. Incidentally, although the proportion of on-line domestic databases in 1989 was only 70.5%, this figure increased to 73% in 1990, 75.3% in 1991 and 78.2% in 1992. The increase in the proportion of on-line domestic databases in the general category has been particularly conspicuous.

Furthermore, the proportion of on-line overseas databases has remained relatively constant at roughly 98.4% throughout the past several years.



	1988	1989	1990	1991	1992
No. of databases	1,964	2,128	2,354	2,686	2,799
No. of reported companies	194	211	213	222	228

Figure II-3 Transition of Databases Accessible in Japan

Source: "Database Directory," MITI

Table II-2 Transition of Database Distribution Ratio Category

Category	1986	1987	1988	1989	1990	1991	1992
General	18.0 %	19.8 %	21.4 %	24.9 %	26.4 %	26.8 %	27.3 %
Natural science and technology	30.9	27.6	31.1	29.6	31.3	29.6	29.2
Humanities	4.0	3.6	3.9	3.8	3.8	3.5	3.2
Business	46.9	48.9	43.3	41.4	38.1	39.5	37.8
Others	0.2	0.1	0.3	0.3	0.4	0.6	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number of databases	1,483	1,795	1,964	2,128	2,354	2,686	2,799
Business (modified value)	52.7 %	57.5 %	54.1 %	53.1 %	50.5 %	52.9 %	51.8 %

Source: "Database Directory," MITI

Table II-3 Distribution by Category of Databases Accessible in Japan
(Number of Databases)

(continued on next page)

		1986	1987	1988	1989	1990	1991	1992
General	Subcategory							
	General (Encyclopedia and document guide)	34	45	47	62	66	70	69
	Newspapers, journals and news	49	112	153	192	231	287	322
	Who's who / Organizations	38	42	53	58	62	72	68
	Government administration	21	19	13	26	30	39	38
	Laws	28	25	25	65	67	56	63
	Politics	21	19	19	22	32	40	43
	Health and sports	6	7	11	10	9	14	15
	Travel and scheduling	7	14	5	6	8	7	8
	Recreation and leisure facilities guide	10	15	18	19	31	37	39
	Domestic culture and home life	8	11	15	7	10	9	12
	Dictionary and supplementary files	20	23	23	23	25	31	33
	Place names, maps and addresses	6	4	11	10	13	12	11
	Other	19	20	26	29	37	47	42
	Subtotals	267	356	419	529	621	721	763
Natural Science and Technology	General science and technology	42	42	67	60	73	74	73
	Patents	50	55	64	65	75	79	82
	Medicine, pharmaceuticals, biotechnology and biology	87	104	123	129	140	164	164
	Chemistry	56	58	91	94	97	111	101
	Physics	4	4	4	3	6	6	6
	Mathematics	4	4	2	3	4	4	4
	Electricity, electronics and information	76	64	71	81	115	114	130
	Machinery	9	11	12	11	14	16	18
	Construction (civil engineering, architecture)	10	13	6	13	18	17	18
	Space, earth, and marine	14	17	20	20	21	22	28
	Atomic power	1	2	3	3	3	4	4
	Environment and pollution	25	28	46	45	50	46	48
	Energy and resources	23	23	23	24	26	33	41
	Agriculture	16	16	11	12	13	12	13
	Meteorology	11	12	13	13	13	12	12
	Metals and materials	11	11	17	20	32	39	38
	Food	6	7	7	8	9	9	8
	Fibers, lumber and pulp	4	4	5	5	5	5	5
	Other	9	9	9	22	24	28	23
	Subtotals	458	495	611	631	738	795	816

Source: Prepared from the "Database Directory," MITI

Table II-3 Distribution by Category of Databases Accessible in Japan
(Number of Databases)

	Subcategory	1986	1987	1988	1989	1990	1991	1992
Humanities	General humanities	8	10	10	10	11	8	9
	Education	15	12	17	17	15	12	12
	Sociology	6	8	6	6	8	11	7
	Vital statistics	8	9	17	20	26	28	32
	Law	1	2	1	1	1	2	1
	History and political science	2	2	2	2	2	2	2
	Arts (movies, music)	5	7	7	7	5	9	8
	Psychology	4	4	5	3	3	3	2
	Linguistics	2	2	2	3	2	3	2
	Philosophy	1	1	1	1	1	1	1
	Religion	7	6	7	9	9	8	8
	Other	1	1	2	2	6	6	6
	Subtotals	60	64	77	81	89	93	90
Business	General business industry	51	72	67	62	77	95	93
	Marketing and products	66	98	93	102	109	130	132
	Economy (overseas)	111	127	111	108	71	86	73
	Economy (Japan)	31	54	62	76	82	86	89
	Corporate finance and profiles (overseas)	117	143	139	149	204	238	235
	Corporate finance and profiles (Japan)	49	66	61	66	72	78	88
	Accounting and management	13	16	12	10	10	13	15
	Finance, securities and foreign exchange	117	137	138	140	134	156	156
	Energy industry	34	53	37	38	8	8	15
	Communications and broadcasting	19	20	31	32	27	33	28
	Agriculture, forestry and fisheries	23	11	11	7	10	9	9
	Chemical industry	7	8	9	9	9	10	10
	Labor	10	9	9	8	6	7	6
	Architecture and construction	6	7	4	5	5	6	6
	Transportation	14	16	19	23	16	22	23
	Sales and services	4	7	9	7	7	15	15
	Distribution and real estate	3	4	6	8	10	9	9
	Other	20	30	33	31	39	61	57
	Subtotals	695	878	851	881	896	1,062	1,059
	Other	3	2	6	6	10	15	71
Grand totals		1,483	1,795	1,964	2,128	2,354	2,686	2,799

Source: Prepared from the "Database Directory," MITI

3. Comparison of Database Conditions in the United States and Japan

Since there is a lack of data based on the same standards among countries, it is difficult to make a strict comparison. However, comparison with databases overseas provides a good model for gaining an understanding of the positioning of databases in Japan. Here, a comparison was made of the conditions surrounding databases in the United States, an advanced database nation, and Japan. Since the data used was issued by each country, this comparison was prepared to mainly provide a graphical comparison of differences between the two countries (Fig. II-4).

The following eight parameters are used as comparison indicators. Parameters (1) through (4) can be interpreted as indicating the strength of the database industry. Parameters (5) through (8) serve as a measure of the state of database distribution.

- (1) Database sales
- (2) Number of passwords
- (3) Number of producers
- (4) Number of participating organizations
- (5) Number of distributed databases
- (6) Number of domestic databases
- (7) Number of business databases
- (8) Number of fact databases

3.1 Comparison of Database Industry Strength

In looking at those indicators relating to strength, the database industry in the United States is overwhelmingly superior in all areas. Incidentally, database sales in the United States are 5.6 times than in Japan, while the number of passwords, used as an indicator of the number of users, is seven times larger. Although the number of passwords of U.S. vendors includes the number of passwords of

Table II-4 Comparison between Japanese and United States Databases (1992)

Criteria	Japan	U.S.
(1) Database sales	1.0	5.6
(2) No. of passwords	1.0	7.1
(3) No. of producers	1.0	9.7
(4) No. of participating organizations	1.0	8.7
(5) No. of distributed databases	1.0	2.5
(6) No. of domestic databases	1.0	5.2
(7) No. of business databases	1.0	2.1
(8) No. of fact databases	1.0	2.1

Note: Sources and calculation methods are the same as indicated in Figure II-4.

Outer graph: U.S.
Inner graph: Japan

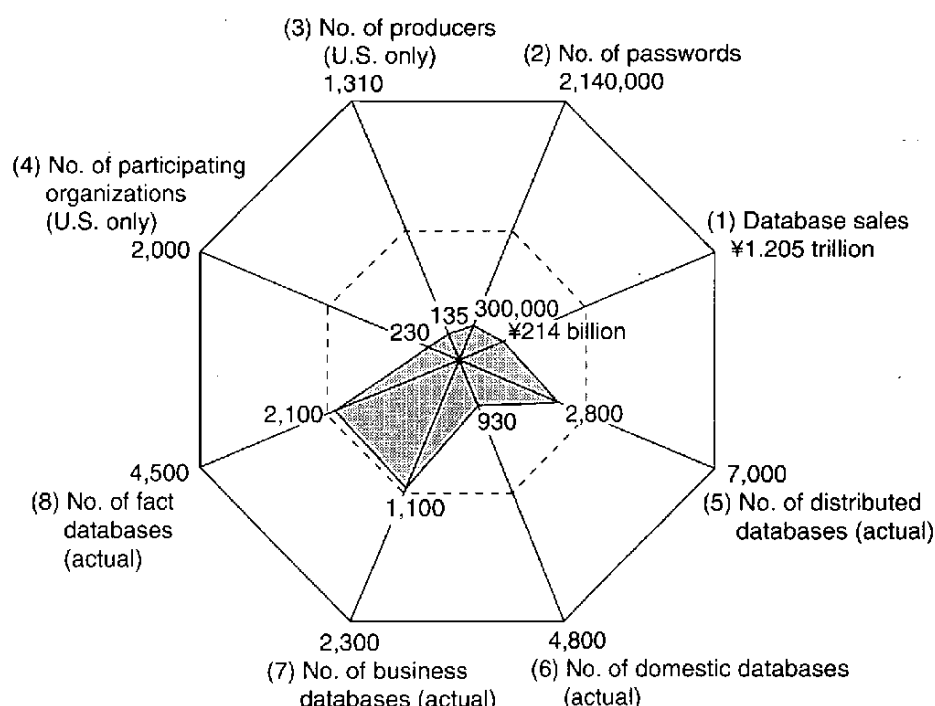


Figure II-4 Graphical Comparison of Database Circumstances in the U.S. and Japan

- Note 1: Database sales for the United States indicate approximate figures calculated at the rate of ¥110/US\$ for estimates prepared by LINK Resources Corporation. Sales for Japan according to the "Survey of Selected Service Industries," MITI, 1992.
- Note 2: The numbers of passwords are according to "Nikkei New Media (January 1, 1993)." The figure for the United States refers to its IDP Report, and for Japan, according to its survey. However, the figure for U.S. passwords is the sum of "services for business" and "information of money market services," excluding "services for general" and "computer reservation system".
- Note 3: Items (3) to (8) for the United States were compiled and analyzed based on "Gale Directory of Databases" vol. 1 (On-line) and vol. 2 (stand-alone such as CD-ROM), issued in Jan. 1993. Also the figures were based on Martha E. Williams' dissertation. The numbers for Japan are according to the "Database Directory" (1992).

overseas users such as those in Japan, this too reflects the dominance of English as an international language. Consequently, it would probably be better to include the portion of overseas users for any comparison of industry strength.

In addition, in looking at the number of participating organizations in database fields, the number in the United States is 8.7 times greater than in Japan. When limited to producers in particular, the difference increases to nearly 10 times more.

3.2 Comparison of the States of Database Distribution

The majority of databases distributed (accessed) in Japan are overseas databases primarily originating in the United States. Thus, differences such as those that arise when comparing industry strength do not appear when comparing the state of distribution.

Incidentally, the number of databases, in the United States, 7,000, is 2.5 times more than the 2,800 in Japan. The numbers of business databases and fact databases, which also function as barometers of database development, are also each 2.1 times more in the United States than in Japan. When taking into consideration the populations of the United States and Japan (that of the United States being approximately twice as large), these figures can be said to be about the same. However, the United States far outdistances Japan with respect to domestic databases. There are 5.2 times more domestic databases in the United States than in Japan.

III Trends of the Database Service Industry

This chapter provides an introduction to trends in the database service industry of Japan based on the 1993 edition of the "Survey of Japanese Database Services (Vendor Edition)" (see footnote) conducted by DPC.

1. Positioning of Database Services

In the database service industry, there are entries from a diverse range of industrial categories. In other words, for many of those companies, the provision of database services is performed as only one of their businesses. Under such situations, is it possible to determine whether database services are their major business or not? In this survey, there are no clear definitions for what is meant by major business, such as accounting for more than 50% of total sales. Thus, the positioning of "major business" is thought to contain some degree of future expectations on the part of the replying companies.

Footnote

Attributes of the 135 Replying Companies

(1) Industrial Category

The most common industrial category to which firms engaged in database services belong is "information processing and information service" containing 70 companies (51.9%). This category is followed by "other manufacturing industries," including printing, publishing and newspapers, containing 24 companies (17.8%), as well as "other services for establishments," including think tanks, broadcasting and communications, containing 17 companies (17.8%).

(2) Service Business Types

"Producers," "producers/vendors" and "agencies," respectively, account for 30 firms (22.2%).

(3) Capital, Annual Sales and Number of Employees

1) Capital

Those companies having capital of "¥50 million or more and less than ¥500 million" were the most common, at 42 companies (31.1%). This was followed by companies having capital of "less than ¥50 million," at 41 companies (30.4%).

2) Annual Sales

There were 25 companies (18.5%) generating annual sales of "¥1-5 billion," 20 companies (14.8%), at "¥10-50 billion," 19 companies (14.1%), at "¥100-500 million," and 16 companies (11.9%), at "¥500 million - ¥1 billion." Furthermore, annual sales here refers to the total sales of each company, and not sales generated from database services.

3) Number of Employees

There were 24 companies (17.8%) in the category of "1,000-5,000 employees." This was followed by 23 companies (17.0%) at "20-50 employees," and 20 companies (14.8%) at "5-20 employees."

In this survey, 57 (42.2%) of the 135 companies that replied stated that database services are currently their major business. In looking at the changes over the past four years in the percentage of companies that replied that database services are their major business, although this percentage has increased, rising from 32% in 1989 to 34% in 1990 and to 41% in 1991, a percentage of only 39% was recorded in the previous survey (1992), indicating that this increasing trend has come to an end. In the current survey, however, this figure again rose by three points to 42%. There were 80 companies (59.3%) that replied that they intend to make database services their major business. This represents an increase of 10% over the percentage obtained in the previous survey. In view of the prolonged business recession, it is difficult to know whether this trend represents expectations for the future (Fig.III-1).

Looking at these results by business type, in the case of producers/vendors and producers, the number of companies that regard database services as their major business both at present and in the future have high ratio. In the case of vendors, those whose position database services as their major business both at present and in the future have a low ratio.

2. The Sales of Database Service

In many cases companies are engaged in database services as only a part of their business activities. It is difficult, therefore, to estimate database sales. We have attempted here to portray the positioning of databases as a business from several different viewpoints relating to sales. They are:

- (1) Ratio of database sales to company gross sales
- (2) Ratio of Japanese domestic database sales to total database sales
- (3) Ratio of database sales by supply method
- (4) Year-on-year growth rate of database sales
- (5) Estimated growth rate of database sales over the next five years
- (6) Estimated growth rate of sales of the entire database industry over the next five years

2.1 Ratio of Database Sales to Company Gross Sales

Looking at 92 companies from which replies were received, the overall average ratio of database sales to company gross sales is 23.9%, one point more than in the last survey.

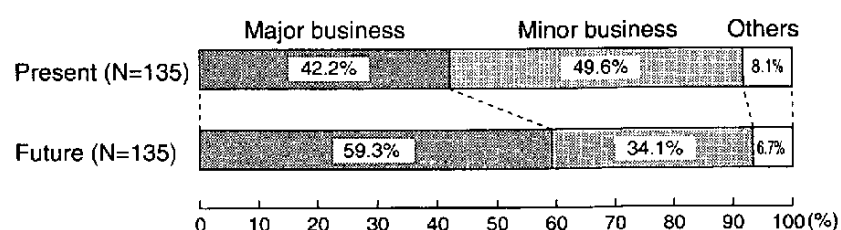


Figure III-1 Positioning of Database Services

However, when looking at the overall distribution of replying companies according to the range of the sales ratio to gross sales, the most common range is 1-5%, at 20.7%. This is followed by a range of 15-50% and less than 1% at 17.4% of the replying companies. The ratios are almost the same as the results of the last survey. However, the number of companies for which database sales account for less than 10% of gross sales remains large, accounting for more than half at 52.1%.

By business type, producers demonstrate the highest ratio of database sales, at 36.3%. Although about half of producers' sales is less than 10% of the total sales amount, 25% of producers indicate more than 90%.

2.2 Ratio of Japanese Database Sales to Total Sales

The ratio of Japanese database sales to total database sales is 86% for all the 118 companies replying. This ratio has remained essentially unchanged each year (85.9% in the previous survey, 86.0% in the survey two years ago). In other words, although Japanese databases are said to be dependent on overseas databases, the dependence is merely in terms of the number of databases being distributed. In terms of actual utilization, the ratio of Japanese databases to total is overwhelmingly large. In terms of the numbers of databases, 66.7% are overseas databases while 33.3% are Japanese databases. By service form, the ratio of Japanese database sales of producers is, of course, 100%. This ratio is 75% for vendors, 97% for producers/vendors and 78% for information brokers. The ratio of Japanese database sales is high for all service forms, and the ratio is nearly the same as that of the previous year.

2.3 Sales Ratio by Supply Method

First, with respect to Japanese databases (110 replies), the ratio of on-line sales is the highest at 60.2%. This is followed by magnetic tape (MT) at 12.7% and CD-ROM at 8.5%.

In the case of overseas databases (39 replies), although the ratio of on-line sales is higher than that for Japanese databases at 64.9%, the ratio of sales of databases on magnetic tape is lower at only 2.9%. The ratio for CD-ROM is close to one-tenth of the total, at 9.1%.

2.4 Year-on-Year Growth Rate Changes in Company Database Sales

Perhaps reflecting current economic trends, there is a clear difference between this year's survey results and those of past years in the growth rate of database sales. In the surveys conducted in previous years, growth rate was identified in terms of the average annual growth rate over the past three years. According to those replies, the overall average in the previous survey (112 replies) was high, at 25.4%. In addition, the most commonly reported growth range was 10% to less than 20% which accounted for 38.4% of the replies. Furthermore, there were three companies (2.7%) at which the growth rate had

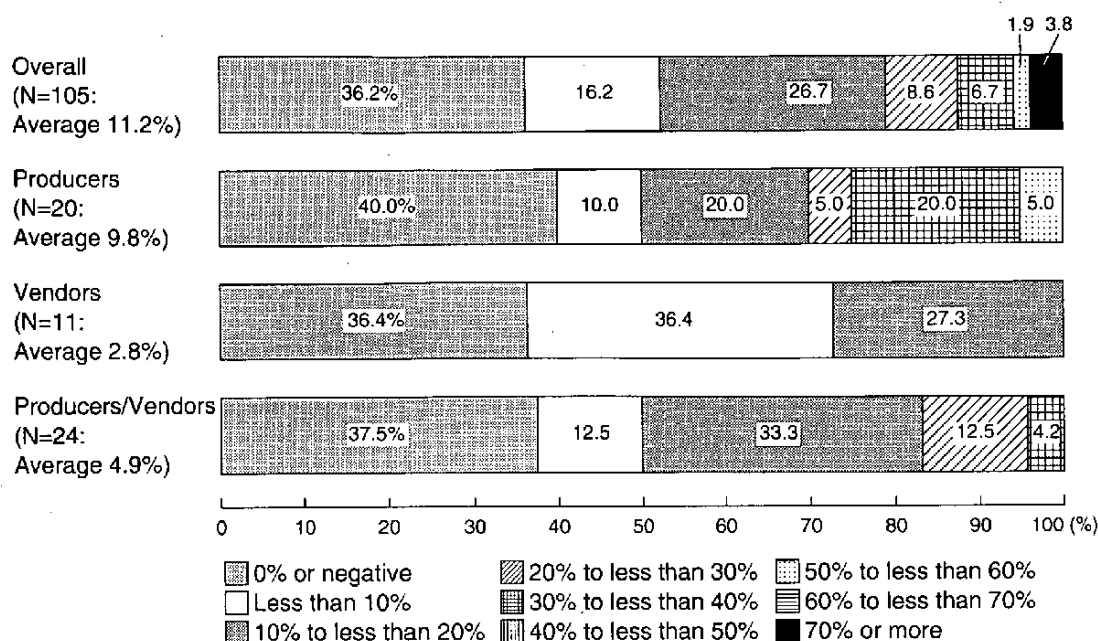


Figure III-2 Distribution of Year-on-Year Changes in Database Sales

decreased, and 13 companies (11.6%) at which there had been essentially no growth.

The current survey identified year-on-year growth rate in comparison with the previous year, not the average growth rate over the past three years. Consequently, a direct comparison cannot be made. However, the overall growth rate decreased to 11.2%, corresponding to a level less than half that recorded in the previous survey (105 replies).

Moreover, one of the major characteristics in the current survey was the increase in the number of companies at which year-on-year changes in sales decreased from the previous year (17 companies, 16.2%), as well as the number of companies at which sales remained at the same level of the previous year (21 companies, 20%). In other words, nearly 40% of the companies (36.2%) replied that database sales either remained at the same level of the previous year or decreased.

In looking at service forms, 40% of producers replied that sales had either remained essentially unchanged or decreased in comparison with the previous year. In addition, despite there having been no vendors replying that sales had remained unchanged or decreased in the previous survey, 36.4% indicated such in the current survey (Fig. III-2).

2.5 Expected Annual Growth Rate of Sales over Next Five Years (Company Level)

When companies were asked to project their average annual growth of database sales over the next five years, the average annual growth rate overall (103 replies) was 19.2%. This represents a decrease of nearly nine points from the level of 28.1% obtained in the previous survey.

In looking at the ranges of growth rates, there were two replies (1.9%) indicating negative growth, and nine replies (8.7%) indicating that the growth rate would remain unchanged. The most common reply was

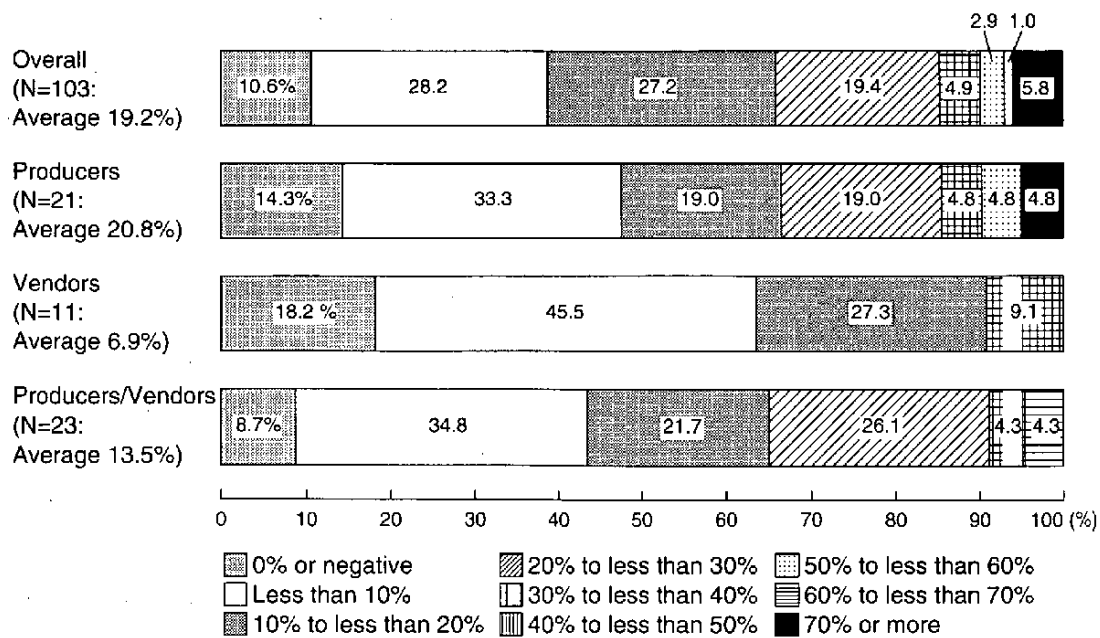


Figure III-3 Distribution of Expected Annual Average Growth Rate of Database Sales over Five Years (Company Level)

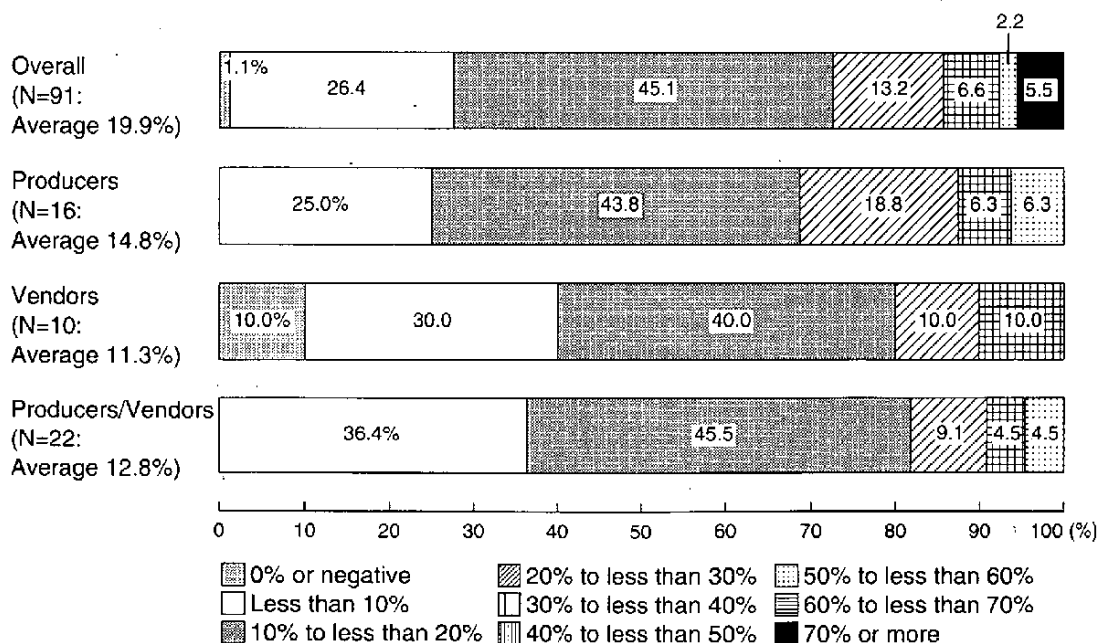


Figure III-4 Distribution of Expected Annual Average Growth Rate of Database Sales over Five Years (Industry Level)

that indicating an annual average growth rate of less than 10% given by 29 companies (28.2%).

By service form, vendors predicted the lowest growth rates, a difference from the results of the previous survey. Incidentally, there were no vendors in the previous survey that replied that they expected negative or unchanged growth, while 10% replied that they expected growth of 70% or more. In the current survey, the former increased to 18.2%, while the latter fell to zero. Overall forecasted growth rates of vendors decreased considerably, from a level of 20.6% in the previous survey to 6.9% in the current survey (Fig. III-3).

2.6 Expected Annual Growth Rate of Sales over Next Five Years (Industry Level)

This growth rate was identified for the first time in this survey. Companies were asked to estimate the expected annual average growth rate of database sales over the next five years not for individual companies, but for the database industry as a whole. The overall average of the 91 companies replying was 19.9%, indicating a level not much different from the estimate of 19.2% for the company level. However, there were no replies indicating negative growth for the industry overall, and only one reply indicating that sales would remain unchanged. The most common reply was for a growth rate of 10-20%. This answer was given by 45.1% of the companies, indicating that nearly half are concentrated in this range (Fig. III-4).

3. Media Holding the Highest Expectations

Although databases are supplied on a diverse range of media, it may be worthwhile to consider what types of media hold the greatest expectations over the next five years. Major media types were presented in the form of a multiple choice question, and the companies replying were asked to select up to three media forms for which they held the highest expectations. The companies were also asked to predict the growth rates for each of those media.

3.1 Service Forms Holding the Highest Expectations

Among the 120 replies, CD-ROM (including CD-I, electronic books, and so forth) was selected by 101 companies (84.2% of the total number of the companies replying, multiple replies). This was the top reply and far outdistanced other service forms. CD-ROM was followed by PC network services indicated in 63 replies (52.5%), current on-line database services in 45 replies (37.5%) and fax services in 38 replies (31.7%). (Fig. III-5)

3.2 Growth Rate Forecasts

The following takes a look at forecasted growth rates, in the order of major media for which the highest expectations are held. The annual average growth rate over the next five years for CD-ROM

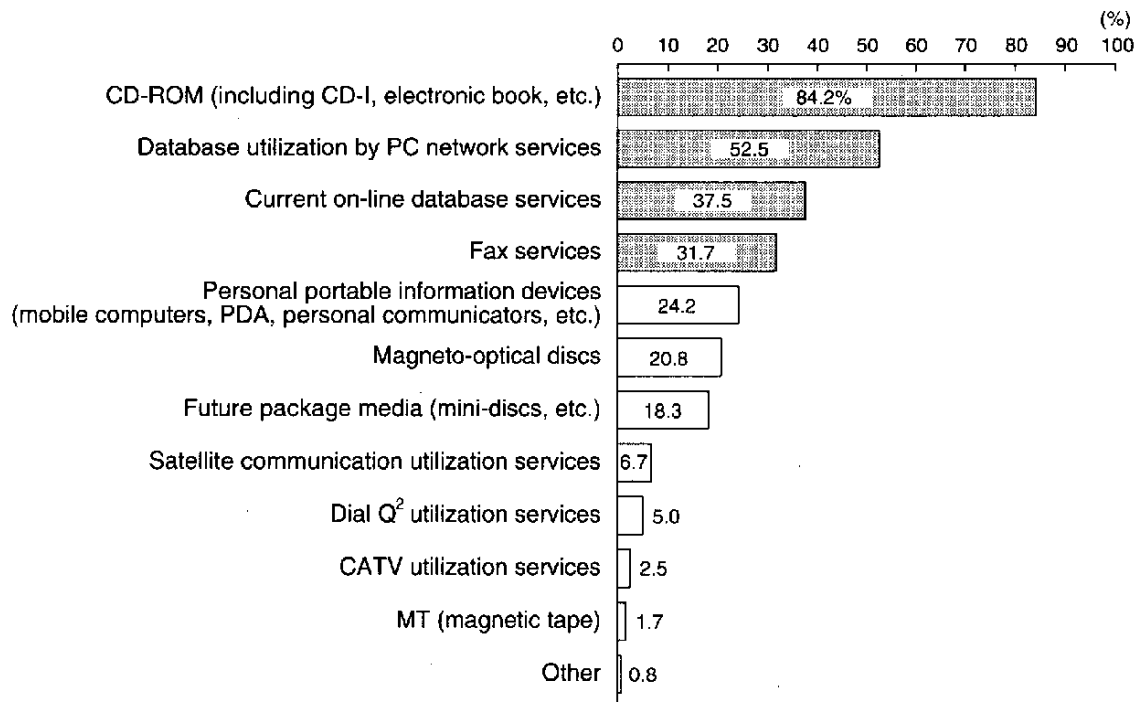


Figure III-5 Media Expected to Demonstrate the Highest Growth over the Next Five Years
(N=120, multiple replies)

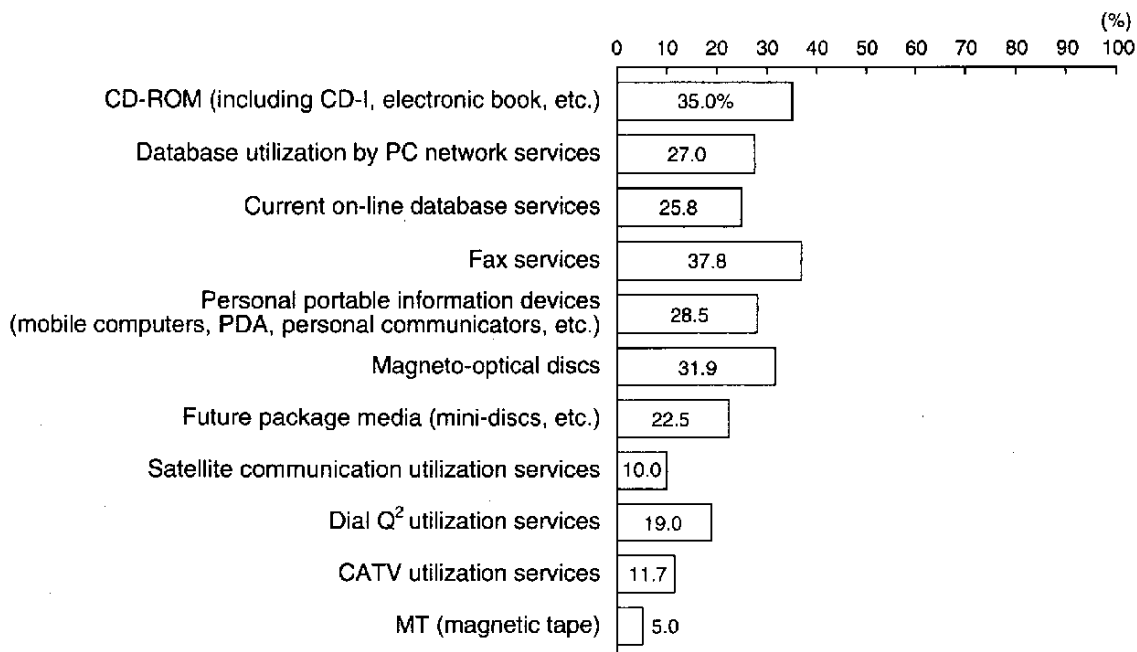


Figure III-6 Annual Average Growth Rates of Media Expected to Grow over the Next Five Years
(Forecast)

(including CD-I and electronic books), the media for which the greatest expectations are held selected by 84.2% of the companies, is expected to be 35%.

A growth rate of 10 to less than 20% was the most common, being indicated in 17 replies (25%). In addition, forecasts of 20 to 30% were made by approximately the same number of the companies replying. Moreover, there were seven replies that indicated a growth rate of 100% or more (10.3%).

The expected annual average growth rate for database utilization by PC network services ranked second in terms of expectations, at 27%. Of the replies, 47.6% indicated a growth rate of 10 to less than 20%, accounting for nearly half of the companies.

In third place was current on-line database services. This supply form was expected to demonstrate a high annual average growth rate of 25.8%. Although the replies exhibited a pattern similar to that of PC network services, with 40.6% of the replies indicating a growth rate of 10 to less than 20%, in the case of current services, there was also a large group of replying companies that predicted a growth rate of less than 10%, at 28.1% (11.9% for PC network services).

Fax services were selected as the fourth ranked service form in terms of future expectations. This service form was among the top three choices of 38 of the 120 replying companies. However, in terms of the annual average growth rate over the next five years, this supply form was ranked first, expected to demonstrate growth of 37.8%. By descending growth rate, the services were ranked as follows: 1st - fax services (37.8%), 2nd - CD-ROM (35.0%), 3rd - magnet-optical discs (31.9%), 4th - personal portable information devices (28.5%), and 5th - PC network services (27.0%). (Fig. III-6)

3.3 Outline of Database Services Holding the Highest Expectations

The companies replying were next asked to freely describe their image of database services with the greatest expectations over the next five years. Those replies relating to CD-ROM were again at the top. Twenty-eight of a total of 84 replies (33%) contained "CD-ROM" as the key word. Replies relating to "mixed text and image databases using CD-ROM" were particularly large in number. In addition, even if replies did not contain CD-ROM as their key word, there was still a considerably large number of replies that mentioned "image databases." Other replies indicated high expectations for multimedia or picture databases.

4. Distribution of Databases

There are two methods employed for the distribution of databases created by database producers. In the first, producers supply their own databases, while the second involves commissioning supply to other vendors.

Fifty-seven of the 73 producers replying indicated that they supply their databases on their own (78.1%, multiple replies). Thirty-four producers are commissioning supply to other firms (46.6%). This indicates that many producers have taken on the role of producers/vendors, supplying the

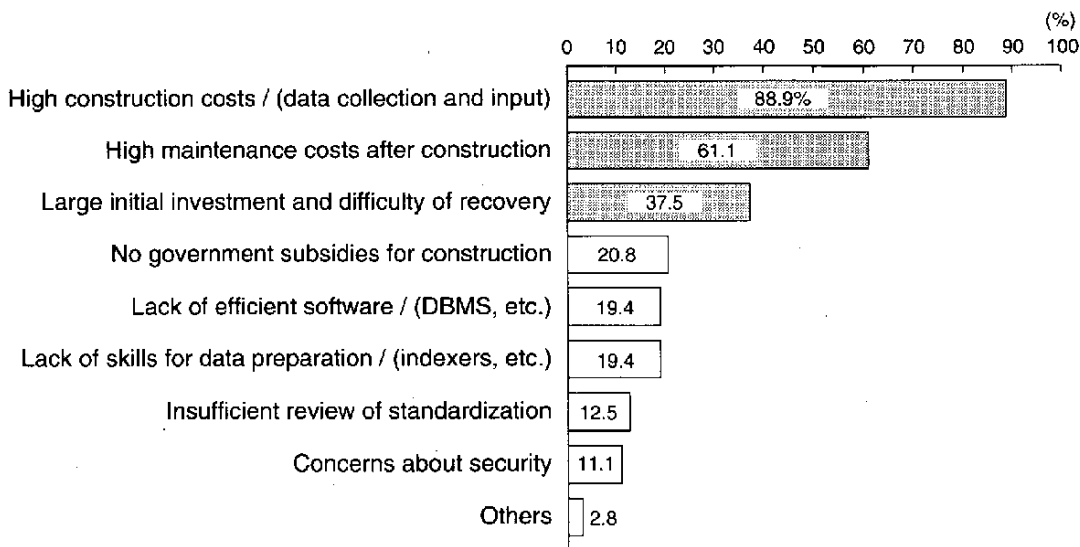


Figure III-7 Problems in Database Construction (N=72, multiple replies)

databases they have created. At the same time, since nearly half of all producers are commissioning supply of their databases to other vendors, it appears that distribution methods are becoming increasingly diverse.

The number of commissioned firms used by companies commissioning supply to other firms was 7.8 on average for the 32 companies replying. However, since 28% of the companies replying are commissioning supply to only one firm, while 25% are commissioning supply to two firms, more than half of these producers are commissioning the supply of their databases to no more than two firms.

5. Problems in Database Construction

Among problems faced by database producers in construction of databases, cost-related problems continue to rank high. The three problems cited most often consisted of (1) time and cost required for gathering and entering data (88.9% of the 72 companies replying / multiple replies); (2) heavy burden of maintenance costs after construction (61.1%); and (3) difficulties in depreciating the initial investment (37.5%).

In other words, the bearing of cost is considered to be the foremost problem in database construction. This is followed by software shortages, personnel shortages and a lack of standardization. This trend has remained unchanged over the past several years (Fig. III-7).

6. Types of Data (Text, Image and Video Data)

One new question in the current survey dealt with the types of data supplied by commercial databases. This question was asked with respect to on-line and off-line services, as well as current and future data. One of the purposes of this question was to determine the potential of image or video databases.

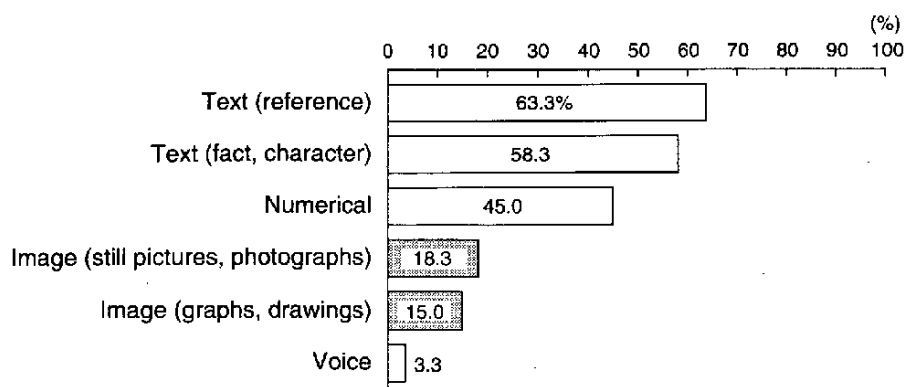


Figure III-8 Types of Data Currently Being Supplied On-line (N=60, multiple replies)

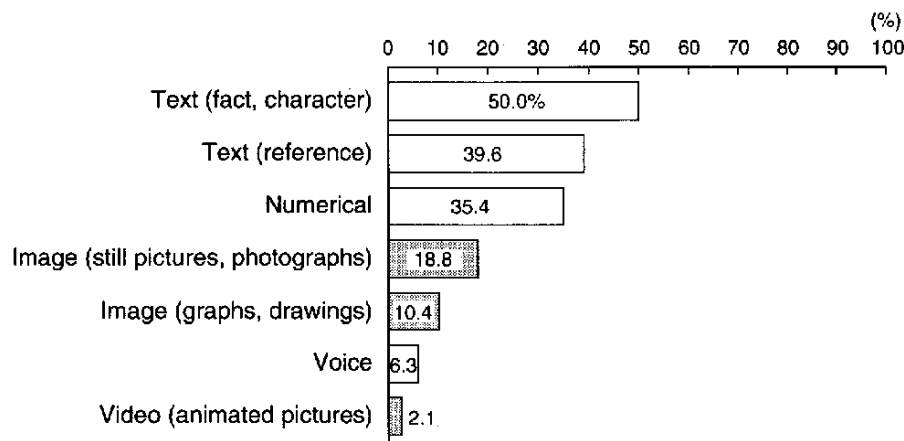


Figure III-9 Types of Data Currently Being Supplied Off-line (N=48, multiple replies)

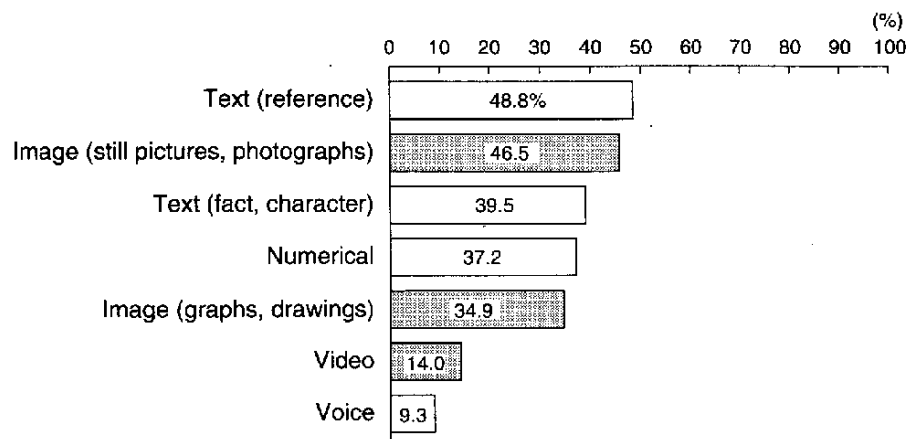


Figure III-10 Types of On-line Data for Which There Is Future Demand (or for Which an Increase in Supply Is Sought) (N=43, multiple replies)

6.1 Types of Data Supplied (or Scheduled to Be Supplied) on Databases

To begin with, the top three types of data currently supplied on databases from a total of 60 replies consisted of (1) text (reference) data at 63.3%, (2) text (fact, character) data at 58.3%, and (3) numerical data at 45% (multiple replies). Image data (still pictures, photographs), and image data (drawings) accounted for 18.3% and 15%, respectively. However, there were still no replies indicating the supply of video (animated picture) data (Fig. III-8).

Among the types of data supplied on an off-line basis, the top three types are the same as those for on-line services, although the percentages of replies are lower. In addition, both types of image data are ranked fourth and fifth, indicating a nearly identical pattern. However, video data, for which there were no replies for on-line services, appear in this section, despite only one reply (2.1%). (Fig. III-9)

On the other hand, in looking at types of data for which there is future demand or for which an increase in supply is sought, the pattern changes considerably when comparing on-line and off-line services. For on-line services, image (still picture) data accounted for 43 replies or 46.5%, moving this category into second place. Video data, which is currently not being supplied, was mentioned in 14% of the replies, and entered sixth place (Fig. III-10).

In looking at future types of off-line data, image (still picture) data was ranked first, collecting 41 replies or 46.3%. Video data, at 26.8%, shared fourth place with numerical data (Fig. III-11).

6.2 Positioning of Image and Video Data

As was previously mentioned, many replies received indicated that there was a demand for increasing present supplies, as well as future demand for image and video data. However, as is indicated below, whether or not a large number of companies will begin to supply image and video data in the near future is somewhat questionable.

The first question relates to the positioning of image and video data by companies supplying such data at present. The most common reply was "partial service" indicated in 9 of 24 replies (37.5%). There were only two replies (8.3%) that indicated "core service." When companies not presently supplying image and video data were asked when they might begin supplying such data in the future, the most common reply was "not considering at the present time" indicated in 26 of 63 replies (41.3%). Eighteen replies (28.6%) indicated the timing of the beginning of supply of such data is unknown. On the other hand, even when the number of replies indicating that such services would be started within one year as well as those indicating that services would be started in three years are combined, the total is only approximately 30%.

6.3 Contents of Image and Video Databases Scheduled to Be Supplied in the Future

When companies were asked about the contents of image or video databases in future supplied

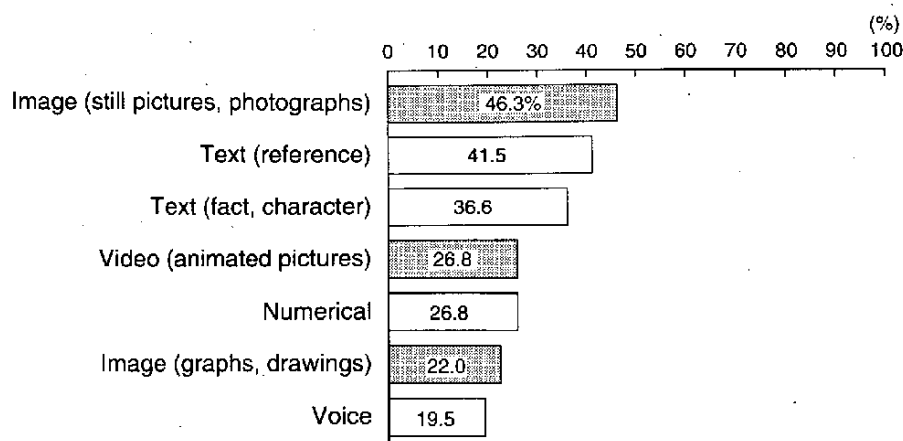


Figure III-11 Types of Off-line Data for Which There Is Future Demand (or for Which an Increase in Supply Is Sought) (N=41, multiple replies)

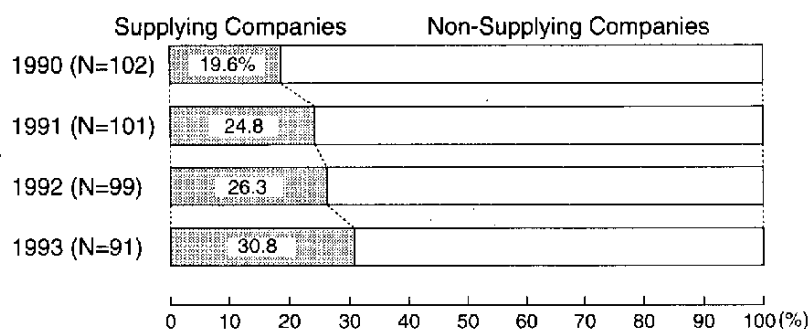


Figure III-12 Whether or Not CD-ROM Databases Are Being Supplied

databases, replies consisted of map information, product information, educational materials, magazine articles among others.

7. Database Supply by CD-ROM

7.1 Whether or Not CD-ROM Databases Are Being Supplied

The number of companies and organizations supplying databases by CD-ROM is steadily increasing. The number of the companies replying exceeded the 30% level for the first time, in the current survey. Incidentally, in looking at the trend over the past four years, the proportion of companies supplying databases by CD-ROM has increased from 19.6%, to 24.8%, then to 26.3% and to 30.8% in the current survey (Fig. III-12).

7.2 Categories of CD-ROM Databases

There are 27 companies currently supplying CD-ROM databases. The categories of these databases

Table III-1 Supply Status of CD-ROM Databases (No. of Companies)

	Currently supplying (N=27)	Scheduled to supply in the future (N=26)
[General]	[22]	[17]
Audio-visual, games, entertainment	1	—
Dictionary, encyclopedia and document guide	5	1
CAI	—	1
Magazine, book and periodical information	6	5
Who's who	3	2
Newspapers, journals and news	7	7
Desktop	—	1
[Business]	[11]	[16]
Finance, securities, foreign exchange and market information	1	1
Standards	1	1
Corporate finance and profiles	3	2
Economics and business	—	1
Product information	0	2
Parts catalog	1	—
Maps and mapping, telephone numbers and address codes	1	4
Statistics and populations	1	1
Laws, regulations, precedents, taxes and tax information	3	4
[Natural Science and Technology]	[9]	[8]
Medicine, pharmaceuticals, biotechnology and chemistry	3	4
Energy, resources and the environment	1	—
Meteorology and climates	—	1
Science, technology and patents	3	2
Computers and software	1	1
Materials and components	1	—
[Humanities]	[1]	[3]
Education and religion	—	2
Arts, culture, literature and history	1	1
[Other]	[1]	[0]
Grand Totals	44	44

include 22 in the general category, 11 in the business category, nine in the natural science and technology category, and one in the humanities category. Those subcategories for which there was the largest number of replies include "newspapers, journals and news" (seven replies), "magazine, book and periodical information" (six replies) and "encyclopedia and document guide" (five replies), (Table III-1).

Table III-2 Number of Domestic Databases Being Supplied Overseas (Actual Numbers)

Time of Survey	February	July	July	July	July	July	July	June
Item	1987	1988	1989	1990	1991	1992	1993	1994
No. of Databases	28	83	104	155	226	290	306	353

8. Present State of Overseas Database Supply

The Japan Database Industry Association (DINA) was commissioned by DPC in June 1994 to conduct the eighth survey targeting DINA members, DPC supporting members and other organizations engaged in database services. Survey forms were sent to 200 organizations from which replies were obtained from 126 (response rate: 63.0%).

There were 41 replying organizations that are supplying database services for overseas users, and 11 that plan to supply such services. The number of databases being supplied overseas from Japan has continued to increase over the past seven years. The number of domestic databases being supplied overseas stood at 353 as of June 1994. This corresponds to an increase of 15.4% from the previous year (Table III-2).

The distribution of these 353 databases by category consists of 27 databases in the category of science and technology (7.6%), 145 in the category of economics, business and finance (41.1%), and 168 in the general category (47.6%). There are nine databases covering the categories of economics, business and finance and general (2.5%), two covering the categories of science and technology and economics, business and finance (0.6%) and two covering all categories (0.6%).

In addition, in looking at the distribution by language, 225 of these databases are in Japanese (63.7%), 69 in English (19.6%), 50 in both Japanese and English (14.2%) and five in English and other languages (1.4%).

In looking at supply forms, there are 264 on-line databases (74.8%), 37 offered on magnetic tape (10.5%), 27 offered on-line and on magnetic tape (7.6%), 13 offered on-line and on magnetic tape, CD-ROM and CD-I (3.7%), nine offered on CD-ROM/CD-I (2.5%), two offered on-line and on CD-ROM/CD-I (0.6%), and one offered on magnetic tape and on CD-ROM/CD-I (0.3%).

With respect to the proportion of database sales generated overseas, 59 of the 63 organizations replying to this question (93.7%) answered 5% or less. There were two organizations (3.2%) that replied that overseas sales accounted for 6-10% of database sales. There were two organization (3.2%) that replied that overseas sales accounted for 51% or more of its total database sales. Furthermore, the majority of those organizations that replied that overseas sales were 11% or more created their databases in English in accordance with overseas needs. These suppliers provide their databases on-line through a system having service outlets located overseas. In addition, one organization that replied that overseas sales account for 51% or more of database sales is the Japanese representative of an overseas corporation.

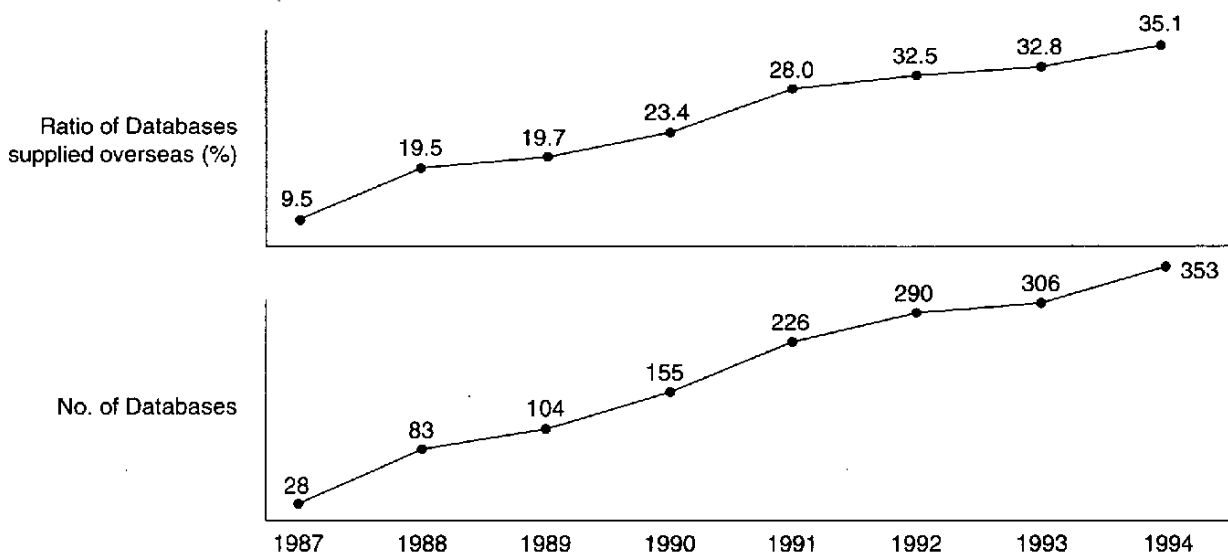


Figure III-13 Growth in Databases Supplied Overseas

There are a total of 1,007 domestic databases according to the Database Directory (1993 edition) of MITI. Although these two surveys were conducted at different times, an overall trend can be determined by comparing the two. When a percentage is calculated, it is found that 35.1% of domestic databases can also be utilized overseas.

In 1987, there were only 28 databases being supplied overseas and the ratio to domestic databases was 9.5%. Both the number of databases and the percentage above have continued to increase since then, as shown in Fig. III-13 (refer to the tables of the Appendix for further details).

IV Use of Commercial Databases

1. Actual Results and Planned Database Usage

1.1 Utilization Status by Organization

According to the 1993 edition of the "Survey of Japanese Database Services" (User Survey), an overall average of 67.6% of the replying companies presently use database services. In terms of company size, 55.2% of small and medium-sized businesses presently use database services. This number increases to 71.2% in the case of large companies. By industrial category, oil/chemistry leads the way at 89.6%, followed by electric/general/transport machinery manufacturing at 75.8%, construction companies at 72.2% and business-to-business service companies at 70.4%. Thus, more than 70% of the companies replying in these industrial categories are database users.

Table IV-1 shows the average annual monetary amount of database usage per company by company size for 1992, along with the planned amounts for 1993. To begin with, the ratio of the

Table IV-1 Annual Average Cost for Databases by Company Size

(Unit: ¥10,000)

Company size	Actual result of 1992 (N=427)			Planned for 1993 (N=428)		
	Japanese databases	Foreign databases	Total	Japanese databases	Foreign databases	Total
Small / medium	223.7 (66.1)	114.8 (33.9)	338.5	227.3 (1.6)	116.4 (1.4)	343.7 (1.5)
Large	4,022.8 (79.8)	1,016.0 (20.2)	5,038.7	3,783.2 (- 6.0)	998.3 (- 1.7)	4,781.5 (- 5.1)
Public service	125.1 (71.6)	49.7 (28.4)	174.7	133.3 (6.6)	45.0 (- 9.5)	178.3 (2.1)
Average of secondary industry	1,263.6 (73.8)	449.4 (26.2)	1,713.0	1,287.5 (1.9)	451.5 (0.5)	1,738.9 (1.5)
Average of tertiary industry	6,836.8 (81.5)	1,549.2 (18.5)	8,386.0	6,234.5 (- 8.9)	1,498.8 (- 3.3)	7,733.3 (- 7.8)
Average	2,694.6 (79.6)	692.3 (20.4)	3,386.9	2,568.6 (- 4.7)	687.7 (- 0.7)	3,256.3 (- 3.9)

Note: The actual numbers shown in parentheses indicate the proportion of Japanese database usage to foreign database usage, while the figures in parentheses for planned use indicate the growth rate compared with the previous year. The units for both are percentages.

monetary amount of Japanese database usage to that of foreign database usage in 1992 is approximately 4:1, which is almost the same result as obtained in the previous survey in 1991. This indicates that the monetary amount of Japanese database usage is overwhelmingly large. In addition, this gap is larger than that in the previous survey. On the other hand, the actual number of commercial databases that can be used in Japan according to the 1992 edition of the "Database Directory" was 1,867 foreign databases and 932 Japanese databases. Thus, the monetary amount of usage and actual number of databases available are opposite.

The average amount spent on database usage is ¥3.385 million per company for small and medium-sized businesses, and ¥50.387 million for large companies. This indicates a 14.9-fold gap between the two groups. In comparison with the average annual monetary amount of database usage for the previous survey in 1991, although the amount spent by small and medium-sized businesses decreased by 24.3% (from ¥4.474 million, to ¥3.385 million), the amount spent by large companies increased by 14.8% (from ¥43.882 million, to ¥50.387 million) in the current survey after having registered negative growth (down 2.3%) in the previous year. Since the forecast in the 1992 survey indicated a slight increasing trend for small and medium-sized businesses and a decreasing trend for large companies, budget tightening by small and medium-sized businesses had a major effect on actual usage.

In contrast, the forecast for 1993 suggests that small and medium-sized businesses will maintain their current pace, whereas large companies will pay less.

Looking at the average monetary amounts of database usage by industrial category for 1992, the amount for finance/insurance runs far ahead of the others at ¥557.781 million. This is followed by other manufacturers at ¥30.965 million. Commerce at ¥29.306 million and other service for the establishments at ¥27.256 million. Compared with the average monetary amount of usage in 1991, the amounts spent by members of the iron and steel, nonferrous metal and metal manufacturing industries is decreasing by 52.1% (from ¥ 9.239 million, to ¥ 4.421 million). In addition, the amounts spent by members of other manufacturing industries as well as the finance and insurance industries decreased in comparison with the previous year. On the other hand, those industries that spent amounts that far exceeded the levels of the previous year included other services for establishment (up 179.7%), commerce (up 80.0%) and construction (up 69.8%).

Conversely, looking at the forecasts for growth rates in 1993, amounts spent by members of the iron and steel, nonferrous metal and metal manufacturing industries are expected to demonstrate considerable growth, increasing by 52.6%. Thus, an expenditure comparable to 1991 is forecast for these industries. However, the monetary amount for tertiary industries is expected to be sluggish. In particular, a severe situation has been predicted in which the industrial average decreases by 7.8%, and that for the finance and insurance industries decreases by 17.5% (from ¥ 557.781 million to ¥ 460.339 million).

Looking at these results in terms of the ratio between Japanese and foreign databases, Japanese databases are used more frequently than foreign databases on an absolute monetary basis in all industrial categories. Although the dependency of the tertiary industries, in terms of industrial average,

on domestic databases on a monetary basis is higher than that of secondary industries, in looking at this finding by industrial category, the industry demonstrating the highest dependency on domestic databases is the construction industry (96.0%), while the lowest dependency is demonstrated by the oil and chemical industries at 42.6%.

1.2 Usage Status by Company Division

In looking at the status of database usage by company division on a monetary basis, research divisions demonstrate the greatest usage at 24.2% in terms of a simple average. This is followed by survey divisions (22.7%), patent divisions (14.1%), planning divisions (11.7%) and sales divisions (10.7%). The order of the planning divisions and sales divisions has reversed in comparison with the results of the previous survey.

The status of usage by division demonstrates different trends depending on the industrial category. Utilization by research and patent divisions is consistently high throughout secondary industries, while research divisions demonstrate a high utilization rate of more than 40% on average, particularly in the oil and chemical, iron and steel, nonferrous metal and metal manufacturing industries.

On the other hand, usage by sales and research divisions is also high among tertiary industries. Similar to the results of the previous survey, more than 30% of the replies indicated that usage by survey divisions, particularly with respect to "information processing and information supply services," exceeds 90%. In addition, the utilization rates by sales divisions are high in the commerce, finance and insurance, and construction industries.

2. The Types and Contents of Most-Used Commercial Databases

2.1 Most-Used Database Vendors and Database Files

Table IV-2 shows the top three database systems in terms of monetary amount of usage by companies. The systems are ordered starting with the system most frequently listed by the companies replying. Overall, the top-ranking systems listed were JOIS (287 replies, 58.5%), Nikkei Telecom (253 replies, 51.5%), PATOLIS (209 replies, 42.6%), DIALOG (204 replies, 41.5%) and STN (104 replies, 21.2%). These top five ranked systems have remained in the same place over the past several years. Japanese vendors account for the majority of the listings, including those ranked sixth and lower. Looking at these figures by company size, JOIS and G-Search, which ranked at sixth, are used more frequently among small and medium-sized businesses than large companies. In the case of large companies, the top-ranking systems were JOIS (57.3%), Nikkei Telecom (55.1%), PATOLIS (51.4%) and DIALOG (44.3%). Among small and medium-sized businesses, the top-ranking systems were JOIS (61.8%), DIALOG (47.1%), PATOLIS (42.6%) and Nikkei Telecom (33.8%). Although the systems selected by the companies are essentially the same, there is a large difference in the ranking

Table IV-2 Highly Utilized Vendors, According to the Number of Replies (N=491, multiple replies)
(Aggregate of top three vendors of utilization given by each respondent)

Order in 1992	1993		Name of service system
	Order	No. of replies	
1	1	287	JOIS
2	2	253	Nikkei Telecom
3	3	209	PATOLIS
4	4	204	DIALOG
5	5	104	STN
6	6	96	G-Search
10	7	43	COSMOS
7	8	42	ELNET
10	9	40	NICHIGAI-ASSIST
14	10	33	BRANDY
	11	30	DIALINE
8	11	30	TSR
9	13	25	NEEDS-IR
10	13	25	Quick Video-1
10	15	19	Reuter Monitor Service

starting with the second-ranked system. JOIS is used frequently by small and medium-sized businesses.

Analysis by industrial category reveals that although Nikkei Telecom is used most frequently among members of tertiary industries, demonstrating a utilization rate of 54.5%, this service ranks only fourth at 48.9% in the average among secondary industries. However, compared to the large difference in selection rates between secondary and tertiary industries with respect to top-ranked systems such as JOIS and PATOLIS, the range of users is broad.

Table IV-3 shows the top five databases (files) in terms of highest utilization frequency. The top-ranked databases in terms of utilization frequency are in line with the replies listing the most frequently used systems.

Although this survey on the monetary amount of utilization is targeted at business users, the ranking of contracted users of on-line information services (vendors) according to Nikkei New Media (published by Nikkei Business Publications, Inc.) is shown in Table IV-4 for reference purposes. This survey is conducted twice annually, in January and July, and is conducted independently by the above publication focusing on representative database users in Japan.

According to this survey, the number of passwords of contracted users of on-line information services (vendors) as of January 1, 1994 was 325,321 for the 24 companies surveyed. This represents an increase of 8.0% compared with the figure for January 1, 1993. The number of passwords of

Table IV-3 Databases with High Utilization Frequency (N=473, multiple replies)

Order in 1992	1993		Databases
	Order	No. of replies	
1	1	237	JICST File on Science and Technology Document
3	2	203	Nihon Keizai Shimbun Article File
2	3	180	Patent/Utility Model
5	4	126	COSMOS 2
	5	102	Yomiuri Simbun News Database
4	6	88	TSR-BIGS
8	7	72	CA
7	7	72	WPI
10	9	61	Nikkei Personnel Data Bank
11	10	53	MEDLINE
9	11	50	CA-SEARCH
	12	43	Nikkei General Economic File
	12	43	WHO
14	14	42	JICST Domestic Medical Document File
13	15	41	Asahi Simbun News Database
6	15	41	Trade Mark

contracted users as of January 1, 1994, is greatest for the Nihon Keizai Shimbun, Inc. This is the same result as the previous year. TKC Corp. has moved into second place overtaking QUICK Corp., from its ranking of third this past year. In addition, G-Search Corporation has moved up to fourth place from its previous ranking of fifth to overtake NEC Corporation, with each of these companies moving up in order (Table IV-4).

2.2 On-line and Off-line Database Utilization

The utilization rate according to usage on a monetary basis was identified through the following questions in the current survey (Table IV-5):

- (1) Utilization of on-line services other than by PC network services
- (2) Utilization of on-line services by PC network services
- (3) Utilization of off-line services by MT
- (4) Utilization of off-line services by CD-ROM
- (5) Utilization of other off-line services

Overall, (1) above accounted for 70% of utilization in the case of domestic databases, and 80% in the case of overseas databases. These figures are no different from the forecasts for 1993. The

Table IV-4 Ranking of Vendors by Number of Contracted Users

Ranking of On-line Information Service Companies (vendors) by No. of Contracted Users

Supplying Companies and Organizations	Name of Services	Description	No. of passwords		Growth Rate (%)
			As of Jan. 1 1994	As of Jan. 1 1993	
Nihon Keizai Shimbun, Inc.	Nikkei Telecom, NEEDS-IR, TS, BULK, NEXIS, LEXIS, DJN/R, LEXPAT, FT PROFILE, etc.	Economic, corporate, financial, management finance, stock and bond price information, newspaper and magazine article information, news article information from the United States and Europe, U.S. and European financial information, etc.	76,459	70,327	8.7
TKC Corp.	LEX/DB, TPS1000, DYACOX, AUDIT1000, MIN/DB	Full-text DB of judicial precedents, legal ordinances, etc., management indicators, corporate affairs, management planning, tax payment planning, etc.	47,911	39,899	20.1
QUICK Corp.	QUICK-10, Video-1, FF, 21 watch, Indicator Board, etc.	Comprehensive economic information focusing primarily on securities and finance.	*1) 47,000	*1) 50,000	-6.0
G-Search Corp.	G-Search	Newspaper article information, corporate information, magazine and book information, industrial, economic and management information, etc.	29,475	22,296	32.2
NEC Corp.	C&C-VAN Database service	Corporate information, newspaper article information, economic and trade information, semiconductor technology information, etc.	26,200	23,400	12.0
Japan Information Center of Science and Technology	JOIS, JOIS-F, STN-International, etc.	Scientific and technological information on medicine, pharmaceuticals, science and engineering, factual data in DNA spectra and chemical compound property laws and standards, etc.	16,400	16,400	0.0
KINOKUNIYA Co., Ltd.	DIALOG, QUESTEL, NUMERICA, EC On-line, JOIS, WESTLAW, ASSIST, DIALINE, G-Search, C&C-VAN, ELNET, etc.	Scientific and technological literature information on medicine, chemistry and patents, new business, corporate, newspaper and foreign book publications, etc.	14,008	13,682	2.4
MARUZEN Co., Ltd.	DIALOG, QUESTEL/DARC, DIALINE, G-Search, JOIS, LEXIS, LEGISLATE, Data-Star, etc.	Scientific and technological literature information on medicine, patent information, business and corporate information, publishing information, newspaper article information, etc.	13,510	12,870	5.0
FUJITSU FACOM INFORMATION PROCESSING Corp.	FENICS Comprehensive Database Service, G-Search, etc.	Newspaper article information, corporate information, magazine and book information, industrial, economic and management information, etc.	8,900	8,600	3.5
Japan Patent Information Organization (JPIO)	PATOLIS, PATOLIS-INPADOC	Japanese and foreign patent information	5,966	5,517	8.1
TEIKOKU DATABANK, Ltd.	COSMOSNET (including COSMOS-1,2,3, etc.)	Corporate information, personal information, etc.	5,736	6,083	-5.7
NIPPON SHUPPAN HANBAI Inc.	NOCS	Newly published book and magazine information	5,200	4,200	23.8
JAPAN INFORMATION PROCESSING SERVICE Co., Ltd.	JIP/Infostream, (BRS, ORBIT, DRUGBASE, JAPICDOC, KIKAKUNET, MEDX)	Scientific and technological literature information, patent information, medical and pharmaceutical information, standard information, advertising information	4,550	4,470	1.8
TOHAN Co., Ltd.	SUPER TONETS	Newly published book and magazine information	4,530	3,730	21.4
KK KYODO NEWS SERVICE	AP, DJ, Telerate, DJN/R	Financial, stock prices and commodity market information, general news article information	4,300	4,300	0.0
TOKYO SHOKO RESEARCH, Ltd.	TSR-BIGS, TSR-FINES, TSR-VAN	Corporate and finance information, information on corporations, corporations paying large amounts of taxes, etc.	3,910	3,727	4.9
USACO Corp.	BRS, ORBIT	Medical, pharmaceutical and cultural science information, patent information	2,800	3,000	-6.7
KOKUSAI INFORMATION SERVICE Co., Ltd.	Dow Jones, FT Profile, NEWS NET, Data-Star, FT Profile, Nikkei Telecom, etc.	Domestic and overseas corporate, economic and financial information, medical and scientific information, etc.	2,500	3,000	-16.7
Nichigai Associates, Inc.	NICHIGAI-ASSIST	Who's who, book information, magazine article information, management and business information, etc.	1,590	1,349	17.9
Electronic Library Inc.	ELNET (ELMOR, ELDB, ELSDI, etc.)	Newspaper and magazine article information	1,550	1,400	10.7
Japan Construction Information Center	JACIC NET	Construction administration news, personal affairs and public works related information, building materials and technology, corporate information, etc.	1,244	1,239	0.4
TOYO INFORMATION SYSTEMS Co., Ltd.	BRANDY	Trademarks	1,200	1,150	4.3
Chemical Data Service, Inc.	CD-NET	Chemical industry related newspaper information, chemical product information, corporate information, statistical information	382	380	0.5
Tokyo Kantei Corp.	Tokyo and Osaka metropolitan area apartment database	Real estate information	*2) —	*2) 181	—
Total for 23 On-line Information Service Companies (Vendors)			325,321	301,200	8.0

*1) No. of dedicated terminals

*2) 2,500 in terms of no. of users

Note: Includes some companies functioning as both producers and vendors

Source: Nikkei Business Publications, Inc. "NIKKEI NEW MEDIA (1994.02.07, page 5)."

Table IV-5 On-line/Off-line Utilization Rates (N=441)

		1992 Results		1993 Forecast	
		Domestic	Overseas	Domestic	Overseas
On-line (excluding PC network services)		71.1(%)	81.5(%)	70.3(%)	80.0(%)
PC network services		19.4	9.2	19.7	9.8
Off-line	MT	3.8	1.6	3.7	1.3
	CD-ROM	2.8	4.7	3.4	5.9
	Other	2.9	2.9	3.0	3.0

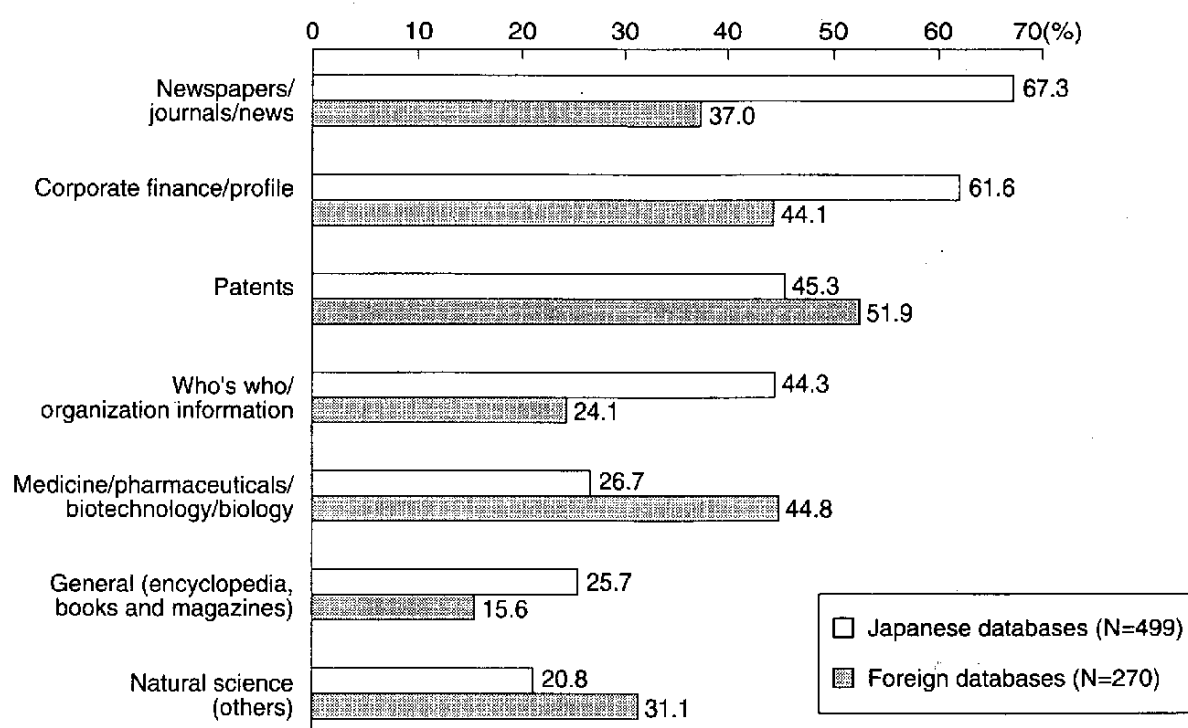


Figure IV-1 Categories of Frequently Used Databases (multiple replies)

proportion of off-line utilization of (3) through (5) combined accounts for approximately only 10% for both domestic and overseas databases. Utilization by PC network services of (2) accounts for about 20% in the case of domestic databases and approximately 10% for overseas databases. Those industries having the largest number of replies that selected (2) by industrial category for both domestic and overseas databases consisted of other manufacturing industries, information processing and information service industries and electrical, general and transportation machinery manufacturing industries.

2.3 Categories of Frequently Used Databases

Fig. IV-1 provides a summary of those replies pertaining to the categories of frequently used

commercial databases according to whether they are produced in Japan or overseas. In the case of Japanese databases, the top category is newspapers/journals/news (67.3%). This is followed by corporate finance/profile (61.6%), patents (45.3%), and who's who/organization information (44.3%).

On the other hand, the most frequent categories among foreign databases consist of patents (51.9%), medicine/pharmaceuticals/biotechnology/biology (44.8%), corporate finance/profile (44.1%) and newspapers/journals/news (37.0%). As a recent trend, Japanese databases are used most frequently in the categories related to general information or business, such as newspapers/journals/news and who's who/organization information, while foreign databases are used most frequently in the categories relating to natural sciences such as patents and medicine/pharmaceuticals/biotechnology/biology.

2.4 Types of Data Used

Table IV-6 indicates those types of data that are currently being used or for which a future increase in usage is desired. This data is shown separately for on-line and off-line utilization. The type of data for which there was the largest number of replies was on-line text (reference) data. This was followed by on-line text (fact, character) data and numerical data. In addition, although the order is the same when only looking at off-line services such as those available through CD-ROM, in the case of image data, still pictures (photographs, etc.) were indicated more frequently than graphs.

Next, in looking at the types of data desired to be used in the future or for which a future increase in

Table IV-6 Types of Data Currently Being Used or for Which a Future Increase in Usage is Desired (multiple replies)

	Currently Being Used (N=464)		Usage Desired to be Increased (N=171)	
	On-line (N=456)	Off-line (CD-ROM, etc.) (N=128)	On-line (N=290)	Off-line (CD-ROM, etc.) (N=171)
Text (reference)	385 (84.4)	93 (72.7)	143 (49.3)	86 (50.3)
Text (fact, character)	264 (57.9)	65 (50.8)	126 (43.4)	78 (45.6)
Numerical	161 (35.3)	28 (21.9)	114 (39.3)	38 (22.2)
Image and graphical (graphs, drawings)	37 (8.1)	7 (5.5)	99 (34.1)	39 (22.8)
Image (still pictures, photographs)	10 (2.2)	11 (8.6)	92 (31.7)	63 (36.8)
Video (animated pictures)	1 (0.2)	1 (0.8)	28 (9.7)	31 (18.1)
Voice	0 (0.0)	2 (1.6)	17 (5.9)	16 (9.4)

Figures in parentheses indicate percentages of the total number of replies.

Note: Reference refers to secondary information such as directories.

usage is desired, in addition to the conventional data types of text and numerical data, there are also high expectations for image, video and voice data with respect to both on-line and off-line services. There was an especially large number of replies desiring on-line usage, leading to expectations of greater proliferation of multimedia-compatible on-line services.

3. On-line Database Utilization

In using databases on an on-line basis, the most conventional method is to display the retrieved data on a terminal and then to make hard copies. This manner of use was listed by an overwhelming 91.3% of the 503 companies replying. Usage involving downloading the results followed by processing was listed by 26.2% of respondents, and use after accumulating in an in-house database was given by 17.5%. The latter response showed a slight increase from the previous survey. Thus, it appears that users are able to select the manner in which they use databases according to the form of the data or system specifications.

4. Issues on Pricing and Utilization

4.1 Pricing Issues

There were 380 replies from companies that expressed dissatisfaction with the price of database information, corresponding to 75.2% of the overall average. This figure represents an increase of 71.1% from the results of the previous survey.

4.2 Utilization Issues

Table IV-7 lists various problems concerning commands or operation and function of database services. Of the 472 companies replying, 66.1% selected "inconsistent commands". Other problems listed by respondents included the need for a comprehensive thesaurus (35.6%) and slow search speed (34.7%). However, the ratio concerning search speed has been decreasing year by year.

By industrial category, there is an overwhelming level of awareness among secondary industries of problems. In particular, due to the lack of uniformity of commands and the selection rate with respect to gateway functions being considerably higher than among tertiary industries, there is estimated to be a high proportion of users using a multiple number of systems.

5. Increased Database Utilization by PC Network Services

Of the 747 companies replying, 342 (45.8%) indicated that they are using PC network services. This corresponds to a similar level in this past year's survey. This means that nearly half of all replying

Table IV-7 Comments on Functions, Operability of Commercial Database (multiple reply)

Problems	Secondary Industry Average	Tertiary Industry Average	Total
Inconsistent commands	74.2(%)	52.6(%)	66.1(%)
Insufficient function keys	13.6	10.5	11.4
Only command driven is available for searching	7.2	9.9	8.5
Only menu driven is available for searching	5.4	9.9	6.1
Insufficient keywords	19.0	21.1	19.7
Need of a comprehensive thesaurus	40.3	30.9	35.6
Need function that allows reference to the appearance frequency of specific keywords by file or by database	14.0	15.1	13.3
Unable to perform downloading	21.3	30.3	22.9
Lack of gateway function	18.6	9.9	15.5
Need functions that apply to expert systems	9.0	7.2	8.7
Natural language necessary as search language	31.2	14.5	23.3
Machine translation necessary as a function	11.3	4.6	7.6
Problems with connection procedures	14.5	16.4	16.1
Slow search speed	30.8	40.1	34.7
Others	3.6	5.9	4.7
	(N=221)	(N=152)	(N=472)

companies are using PC network services.

Looking at the utilization rate of PC network services by company size, the rate is 37.1% for small and medium-sized businesses and 49.5% for large companies. By industrial category, similar to the results of the previous survey, data processing and information service demonstrated the highest rate, with the rate of utilization, 60.5%. Other services for establishments follows this with 53.5%.

Conversely, the industries demonstrating the lowest figures are the iron and steel, non-ferrous metal and metal manufacturing industries at 25.0%. The average for tertiary industries as a whole is 50.5%, thus exceeding the average of secondary industry (43.8%).

Examples of frequently used PC network services include NIFTY-Serve (73.5%), PC-VAN (19.0%) and Nikkei MIX (6.0%). The concentration of PC network service utilization on NIFTY-Serve has grown recently. This trend is the same when analyzed by either company size or industrial category.

Examples of frequently used menus in overall PC network services include database (54.5%) and electronic mail (46.9%). This trend is the same as observed in this past year's survey (Table IV-8). By industrial category, utilization of electronic mail in the commerce industry is extremely high (71.4%), far exceeding that of databases. In addition, utilization of electronic mail in the construction industry is also high (62.5%), essentially at the same level as BBS (Bulletin Board System).

Table IV-8 Frequency-Used PC Network Service Menus (multiple replies)

Menu \ Company size	Small/medium (N=50)	Large (N=235)	Total (N=352)
Database	60.0(%)	54.9(%)	54.5(%)
Electronic mail	40.0	49.4	46.9
BBS (electronic bulletin board)	26.0	36.2	35.8
Electronic conferences	12.0	14.9	14.2
Transaction services	2.0	4.7	4.5
Others	10.0	8.9	9.9

6. Questions Relating to CD-ROM

6.1 Utilization of Information on CD-ROM

Of the 743 companies responding, 148 (19.9%) replied that they currently use commercial information on CD-ROM (such as databases, etc.). This percentage corresponds to an increase of 4.9 points from the previous survey, and the ratio of this type of utilization shows steady growth. Looking at the utilization rates by industrial category, that for public services such as education institutions and libraries is high (31.6%) in view of the nature of the system and data.

In addition, regardless of whether or not CD-ROM is used at present, those companies that replied that they planned to use CD-ROM in the future totaled 234 of a possible 567 companies (41.3%). In looking at these results by industrial category, the oil and chemical industries, having a utilization rate second to public services at present (28.6%), demonstrated the highest planned rate of utilization (58.1%).

6.2 Categories of Information Use

With respect to the categories of information currently being used on CD-ROM, 42 of 142 companies (29.6%) selected medicine/pharmaceuticals/biotechnology/biology and science technology/patent and 41 (28.9%) selected bibliography/publications.

6.3 Currently Used CD-ROM Software

Table IV-9 shows the list of specific CD-ROM software currently being used. Among the 131 companies replying 36, or 27.5% (the highest percentage) used the software for unexamined patent applications. In general, the use of CD-ROM database in secondary industries is increasing. Unexamined patent applications and unexamined utility model applications show the high ratios in secondary and tertiary industry categories.

Table IV-9 Currently Used CD-ROM Software (N=131, multiple replies)

Order	No. of Replies	CD-ROM Software
1	36	Unexamined Patent Applications
2	29	Unexamined Utility Model Applications
3	28	MEDLINE
3	28	KOJEN
5	27	J-BISC
6	17	CD-HIASK
7	16	Scientific and technical journal general catalog
8	14	CD-BOOK
9	8	Current Contents
9	8	DIALOG ON DESK
9	8	Legal precedent literature information CD-ROM

V Computerization at the Administrative Level

1. Activities Surrounding the Establishment of a Foundation for Computerization at the Administrative Level

The economic recession currently confronting Japan is the result of various factors, including the after-effects of the collapse of the bubble economy, the appreciation of the Japanese yen, and structural problems with the Japanese economy. In any case, there are no signs indicating that recovery will be easy. Amidst these circumstances, although the government is implementing systematic reforms, including tax programs, and working on new policies in various fields, the effectiveness of those efforts remains unclear. Although strengthening of public enterprises was a means employed against past recessions, since their effectiveness is doubtful given the present economic structure, there is growing support for the establishment of new social infrastructure.

Conventional social infrastructure consisted of the establishment of public works, concentrating on civil engineering projects for flood control, erosion control, roadways, ports, airports, sewage works, parks and residential housing, as well as building social welfare, cultural and health care facilities. However, in view of sluggish corporate investment and personal consumption, benefits from similar projects may not brighten the business environment. Consequently, the government is attempting to achieve aggressive deployment of programs to ensure public safety, increase the use of computers, accommodate the growing elderly population and promote regional revitalization. These projects will be undertaken in such a way so as to stimulate the economy by encouraging investment in the private sector as well as projects that contribute to the formation of a comfortable environment and way of life. With respect to establishment of facilities, efforts are being made to promote increased speed and increased utilization in education and research, as well as utilization of information by the administrative sector. In other words, computerization of the administrative sector has become not only an internal issue, but also the target of the establishment of new social infrastructure.

As a result of the globalization and the borderless qualities of the Japanese economy and the effects of the appreciation of the yen, the Japanese industry is relocating its production bases overseas. Accompanying this relocation, information bases are also becoming increasingly decentralized to make operations more efficient and reduce costs. As the world's economies grow more interdependent, the government is expected to adopt new policies in view of the importance of establishing the foundation of an information infrastructure in Japan.

In June 1993, the Information Industries Committee of the Industrial Structure Council issued a report regarding policy issues on promoting computerization based on the desire to utilize information at present and on the present state of computerization in Japan. In addition to pointing out the importance of the establishment of databases as a part of establishment of an environment for

promoting computerization led by the private sector, this report also calls for the systematic promotion of computerization at the administrative level. In January 1994, the Ministry of Posts and Telecommunications issued a policy proposal entitled, "Towards the Creation of a New Data Communication Industry." This proposal calls attention to the importance of establishing a foundation for data communications, problems associated with merging communications and broadcasting, and the need for international cooperation. The final report of the Ad Hoc Council for Promotion of Administrative Reform issued in October 1993 points out the implementation of systematic policies to promote "computerization that has fallen remarkably behind in Japan." In other words, today, when there is a strong interdependency between domestic and international society and computerization is continuing to expand, if computerization is not also established at the administrative level, it will hinder the development of society.

Thus, voices calling for promotion of computerization at the administrative level have suddenly become louder during this past year. Corresponding actions taken by administration are also materializing. In February 1994, a cabinet-level decision was made concerning promotion policies for future administrative reforms. These policies call for computerization at the administrative level to be incorporated in a comprehensive, priority government program. Such efforts will be further promoted in a double-layer structure consisting of the above program along with individual programs of each ministry in concert with it. This project is scheduled to be implemented in the form of a five-year program to start in 1995. However, fundamental facilities such as LAN and so forth have been materialized in the third revised budget for the 1993 fiscal year by some ministerial agencies, indicating that programs for promoting computerization at the administrative level have already entered the stage of implementation.

2. Administrative Operations and Their Computerization

Operations performed at the administrative level can be broadly divided into two types. The first type consists of administrative policies and guidance; the second type, public works processing. The former refers to the recognition of social needs, including international cooperation, industrial promotion, building up social infrastructure and regional development, the drafting of policies for the realization of the above, and reliable implementation of those policies. The latter refers to the implementation of licensing and approvals, along with social insurance, health care insurance, taxation and statistics in the case of the central government, and public works, such as community affairs and waterworks projects, in the case of local governments.

Accompanying the progress of computerization in Japanese society, computerization at the administrative level is also proceeding steadily. Administrative policies and guidance mentioned above involves gathering and analyzing information followed by the planning and drafting of policies. These tasks are performed repeatedly, often on a trial and error basis. Thus, this is a field in which the creation of routine processing is difficult. The targets of information processing are not always

generalized, and there is little difference between government and private sectors. In "public works processing," computerization is progressing in numerous fields such as statistics. The processing of individual tasks does not particularly lag behind the private sector. However, in order to keep services available impartially to all citizens, there are various small-scale, regional operations. Therefore computerization has not progressed in these areas.

On the other hand, computerization at the corporate level has passed through the stage of efficient processing of individual tasks, and is growing into active utilization of linked operations (eventually linked operations between corporations), and the creation of market competitiveness and new marketing strategies as a result of giving added value to business information. In contrast, computerization at the administrative level unquestionably lags behind. In other words, although computerization of individual tasks is proceeding, since each of these tasks is processed individually, there is no connection between operations.

Computerization at the administrative level also lags far behind the private sector with respect to the creation of new added value through the linking of information, which has been evaluated as highly effective.

The following factors are possible causes of this lag.

2.1 Enthusiasm for Promotion of Office Automation (OA)

Administrative operations are based on laws, and all processing ought to be strictly standardized. In actuality, however, there are many aspects that rely on the judgment of a particular supervisor. Since the target of these administrative operations is an ever-changing society, there are many times when specific situations differ from those in effect when a particular law or statute was established. Since laws are enacted to accommodate social issues that have become apparent, administrative officials are forced to make appropriate judgments to observe the spirit of the law with respect to unforeseen circumstances.

Thus, the idea that there are limitations on OA and its implementation is obstructing the actualization of computerization needs.

2.2 Changes in Society's Administrative Needs and Administrative Systems

The society at which administrative policies are targeted is changing continually. As a result, the establishment of administrative organizations lags behind. For example, although transformation to an international society is essential in a wide range of administrative fields, this was not provided for when each administrative organization was established. Each division must establish its own organization for internationalization. Administrative divisions are further divided into smaller organizations, and their scope tends to be limited to the organization to which they belong. Consequently, despite comprehensive accommodations required for specific social needs, in actuality, only individual

accommodations end up being made that are dispersed among each organization. Since cooperation between organizations can be made possible through sharing of information, computerization at the administrative level is an effective tool for accomplishing this cooperation. However, sectionalism is a barrier to this cooperation.

2.3 Clerical Processing Standards Unsuitable for OA

Processing procedures are established for administrative clerical work based on the premise of manual work. Thus, various obstacles appear when efforts are made to implement computerized clerical processing by OA. For example, in Japan, many documents are required to be stamped for approvals. Such a system does not fit in well with computerization. Thus, if OA and OA systems can be introduced only partially, the resulting procedures can be more troublesome.

2.4 Expediency through Ideas from the Supply Side

Various administrative services along with the clerical processing of licenses, permits and dispersal have been developed mainly through the administrative or supply side. These services and clerical procedures are monopolized by the government in society. Thus, there is little motivation for investing in computerization, nor is there any risk of being criticized if the expected return on those investments is not realized.

2.5 Evaluation Criteria for Effects of Computerization Investments

Since administrative operations constitute a monopoly, it is difficult to compare them objectively, and any measurement of the effects of their investments is correspondingly difficult. In the case of conventional investments in computerization by the administrative sector, labor savings, rationalization and increased capacity were used as evaluation criteria. In the case of individual tasks, even if evaluation criteria can be applied by making comparisons before and after an investment, when attempting to raise the quality of administrative operations through the organizational cooperation described above, difficulties are encountered when applying these criteria. As a result, computerization in this field is given low priority and investments are not promoted. Unlike the private sector, it is necessary to clearly define special evaluation criteria for computerization investments by the administrative sector because it is difficult to compare investments.

3. Future Accommodations

3.1 Objective of Computerization at the Administrative Level and Establishment of Evaluation Criteria

In the past, the most common objectives of investments in computerization at the administrative level consisted of conservation of labor to accommodate personnel shortages, rationalization to accommodate increased processing volume and other internal administrative impacts. However, with the coming of the present computerized society, a delay in computerization at the administrative level can obstruct the development of society. If services provided to domestic and international society are the objective of government administration, then administrative investment in computerization should be one means of achieving that objective.

In making these investments, it is necessary to establish evaluation criteria and formulate these criteria in such a way that they are compatible with economical evaluation criteria in the private sector.

3.2 Systematic Execution Based on Long-Term Planning

Although it is necessary that computerization at the administrative level be carried out promptly, efforts should not be hurried. In addition to economic reasons such as budget restrictions, hurried efforts should be avoided because of the accompanying revision of clerical processing standards to be described later and reform of administrative systems including development of personnel resources. The productivity of government agencies will continue to be dependent on human resources. Reform of administrative systems will therefore require long-term and comprehensive planning that is flexible enough to accommodate a changing environment along with reliable implementation of that planning.

3.3 Clerical Processing Standards Premised on Computerization

Although the present state of administrative clerical work is predominantly in the form of written documents, it is necessary that the promotion of computerization be premised on computerized information. Applicable fields include revision of internal administrative decision-making processes, and documents relating to decisions, approval regulations and clerical practices. Examples also include revision of clerical and service procedures such as applications, reports, reception and notification of citizens, accommodation of computerization of documents and records having storage requirements, verifying power or testimonial power in the government and private sectors, and mutual cooperation and designation of authority of related agencies enabling integration of the receiving functions of various applications and notifications by making active use of communication networks.

3.4 Development of Human Resources

The most important resource of government agencies is their workers. Even if various investments are made in computerization and a suitable environment is established with respect to systems and processing standards, if the people using those investments are insufficiently skilled or trained, those investments will not be effective. Since computerization at the administrative level is accompanied by

reform of administrative systems, it is important to develop the human resources that will be responsible for that reform.

In addition to training personnel to be able to use computers, it is also necessary to develop personnel to have the ability to make active use of clerical processing. In other words, personnel must be trained to have computer literacy. In addition to utilization of internal information during the course of making various administrative judgments, administrative personnel will also be required to have an accurate understanding of their situation by making active use of information from related agencies, the private sector and overseas sources. These personnel will also be required to have the ability to implement policies that are in harmony with other members of the administration.

3.5 Establishment of a Computerization Base

All administrative personnel should be provided with their own workstation or personal computer to improve information processing capabilities. However, what is more important is the establishment of a communications environment using networks and so forth. In view of the need to deal with numerous issues today requiring administration to act as a single body, there are many cases in which these issues cannot be accommodated by individual workers or departments, or through simply strengthening clerical processing capacity and capabilities. These issues can only be accommodated by combining improved quality using the total strength of the administrative sector through the active use of networks.

The reason for the delay in the progress of computerization at the administrative level is the need to support thinking tasks such as the drafting of government policies and so forth. Ideas are formulated and revised while collecting and analyzing information and maintaining communication with related personnel. It is therefore necessary to create software that enables this series of tasks to be performed easily by operating a computer without interrupting the thinking process.

To ensure equal access to services by all citizens, administrative operations are implemented throughout Japan in the form of similar types of clerical work being performed on various processing capacities. In the promotion of computerization, it will be necessary to promote standardization of functions and develop software that can flexibly adapt to differences in processing volume.

Appendix

Table 1 Japanese Databases Accessible Overseas (1994:Producers)

Subject ①:Science and Technology Language J:Japanese Vendor Status P:Producer Format O:Online
 ②:Economics, Business E:English D:Distributor M:Magnetic Tape
 and Finance O:Others A:Agent /Floppy Disk
 ③:General or Others T:Telecommunication C:CD-ROM/CD-I
 Carriers

Company	Database	Description	Subject	Language	Status	Format	Main Countries
ADVANSIS (AVS)	ACSISS-E	Online daily POS database of home electric appliances and durable consumers' goods obtained from 1,100 shops in Japan	②	J	P/D	O/M	U.S.A.; Germany; France; Holland; U.K.; Singapore; China
	INTELECT	Sales information of home electric appliances and durable consumers' goods obtained from 6,000 shops in U.S.A.	②	E	P/D	M	
Asahi Shimbun	AERA Article Database	Articles from weekly journal 'AERA'	③	J	P	O/M/C	U.S.A.; Europe; Asia
	Asahi News Service (ANS)	Articles from 'Asahi Evening News'	③	E	P	O/M/C	
	HIASK	Articles from Asahi Shimbun (Morning and Evening Edition) of 18 districts	③	J	P	O/M/C	
C. Industrial Research Institute	Computer Industry Index	Directory of 20,000 companies and institutions in 14 areas related to computer industry, provided with 5 to 10 data elements	②	J	P/D	M	U.S.A.
	Japan Software Company Directory	Description of Japanese information processing and software development companies, provided with 30 data elements	②	J/E	P/D	M	
CHEMICAL DATA SERVICE INCORPORATED (CDS)	CD-NET	Integrated information on chemical industry in Japan provided in Japanese	①/②/③	E	P/D	O	U.S.A.; Europe
	Guide to Current ENCS Listed Chemicals	Guide for retrieving the ENCS listed chemicals	②	E	P/D	M	
	JCD-NET	Integrated information on chemical industry in Japan provided in English	①/②/③	J	P/D	O	
COMLINE Business Data, Inc. (COMLINE)	CDN	News on Japanese companies in major seven industries	②	E	P	O/M	U.S.A.; Europe
	TFW	Information on Japanese finance and economy	②	E	P	O/M	
Database Promotion Center, Japan (DPC)	Database Directory	Electronic version of the 'Database Directory' published by MITI	③	J	P	M	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Dataquest Japan, Ltd. (DQJ)	DQ MONDAY	Price and market trends for semiconductors in the world	②	E	P/D	O	U.S.A.
Dun & Bradstreet Business Information Services Japan K.K. (DBBISJ)	DUNSPRINT	Credit information of Japanese companies including financial, historical, and other descriptive data	②	E	P	O/M/C	Worldwide
EDUCA Inc. (EDUCA)	Japanese Language Thesaurus	Dictionary of basic vocabularies in Japanese and English with examples	③	J/E	P	M	U.S.A.
ELECTRONIC LIBRARY Inc. (EL)	ELNET	Citation to articles, with full-text image data, of 45 Japanese major newspapers and 150 Japanese journals including monthly economic reports	③	J	P/D	O	U.S.A.; Europe; South-East Asia; China
Japan Association for International Chemical Information (JAICI)	Chem-J	Bibliographic citation of chemical literature published by Japanese chemical societies	①	E	P/D	M	
	NQRS	Numerical data of Nuclear Quatropole Resonance Spectrum (NQRS)	①	E	P/D	M	Europe
Japan Audit Bureau of Circulations (JABC)	ABC Data Online Service	Circulation data of Japanese newspapers and journals	③	J	P/D	O/M	
JAPAN CENTER FOR INTERCULTURAL COMMUNICATIONS (JCIC)	ECONOMIC REPORTS	Financial reports issued by government related banks	②	E	P/D	O	U.S.A.; Canada; U.K.; France; Germany; Denmark; Holland; Belgium; Austria; Korea; Hong Kong; Thailand; Malaysia; Philippine; Singapore
	FACTS OF JAPAN	Various kinds of statistical data	②	E	P/D	O	
	FOREIGN AID	Statistics of overseas development activities by Japan including ODA	②	E	P/D	O	
	GOVERNMENT AND ELECTION SYSTEM	Description of activities of the Japanese government agencies, as well as the election systems and history	③	E	P/D	O	
	GOVERNMENT TEXT	Policy related announcement by Japanese government in English	③	E	P/D	O	
	INDEX OF GOVT. & ORGANIZATIONS PUBLICATIONS	Bibliographic information and contents of publications for overseas publicity issued by government and related organizations	③	E	P/D	O	
	ORGANIZATIONS FOR INTERNATIONAL COMMUNICATIONS	Description of activities of the Japanese organizations related to overseas publicity and international exchange	③	E	P/D	O	
	PREFECTURES	General description of forty seven Japanese prefectures	③	E	P/D	O	
	PUBLIC OPINION POLL	Public opinion poll from the Prime Minister's Office	③	E	P/D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Japan External Trade Organization (JETRO)	Import Procedure by Commodity in Japan		②	E	P	M	Worldwide
	Japan Regional Investment Guide		②	E	P	M	
	Japan Trade Directory		②	E	P	M	
	JETRO Publications in English		②	E	P	M	
	JETRO Quest		②	E	P	M	
	Market Approach to Japan		②	E	P	M	
	Market Trends in Japan		②	E	P	M	
	Potential Importers		②	E	P	M	
	Trade Fairs in Japan		②	E	P	M	
	Your Market in Japan		②	E	P	M	
Japan Patent Information Organization (JAPIO)	Japio	Bibliographic information and abstracts in English of Japanese public patents from 1976	①	E	P	M	U.S.A.; France
Keizai Bunken Kenkyukai	JOINT	Bibliographic Information of magazine articles on economic and industry	②	J	P	O	U.S.A.; U.K.; Singapore; and others
Marketing Intelligence Corporation (MiC)	JOTI	Data on Japanese travellers abroad	②	J/E	P	M	U.S.A.; U.K.
	SDI Annual Report	Sales trend data of pharmaceuticals	②	J/E	P	M	
MARUZEN CO., LTD.	MI-PARTNER	Bibliographic information of Japanese books	③	J	P/D	O	U.S.A.
METRO Inc.	FAMILIS	Personal name, address, telephone number, age, etc. extracted from various directories and survey data	③	J	P	M	U.S.A.; Canada
National Diet Library (NDL)	JAPAN/MARC	Machine-readable catalog of books and periodicals published in Japan	③	J	P/D	M	U.S.A.; Canada
	JAPAN/MARC on Disc (J-BISC)	Machine-readable catalog of books and periodicals published in Japan	③	J	P	C	
New Glass Forum (NGF)	International Glass Database	Fact data on the relation between formations and properties of glass	①	E	P	C	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NHK JOHO NETWORK INC. (NHK-JN)	JAPAN BUSINESS TODAY	Japanese business related news texts and various data on Japanese major companies	②	E	P	C	U.S.A.
Nichigai Associates, Inc.	NICHIGAI ASSIST BOOK	Contents information of books published after 1986 (40,000 books per year), provide outlines of novels	③	J	P/D	O/M/C	
	NICHIGAI ASSIST BOOK/ MONTHLY	Monthly version of 'BOOK' database	③	J	P/D	O	
	NICHIGAI ASSIST MAGAZINE	Index to articles, since 1981, of 1,300 journals in business and economics	③	J	P/D	O/M/C	
	NICHIGAI ASSIST PRIZE	Information on 2,00 Japanese prizes in various areas, with 200,000 prize-winners' data	③	J	P/D	O/M	
	NICHIGAI ASSIST WHO	Biographical information of 330,000 writers in Japan, with bibliographic information of their publications	③	J	P/D	O/M	
Nihon Keizai Shimbun, Inc. (NIKKEI)	China Economic Databank	Major economic statistics data from mainland China	③	J/E	P/D	O	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	Commodity Market Data	Price data and demand/ supply data of major commodity market conditions (daily, weekly, and monthly)	②	J/E	P/D	O/M	
	Consumer Radar	Originally obtained data on the attitudes and reality of consumer behavior toward financial issues	②	J	P/D	O/M/C	
	Consumer Statistics Data	7,000 series of statistical data on consumer price from the General Affairs Agency	②	J/E	P/D	O	
	Corporate Action Related Data	Data related to new stock issuing such as patterns of fund raising, increase and decrease of capital, stock split, and other information on fund raising for listed companies	②	J/E	P/D	O/M	
	Corporate Profile	Description of Japanese major companies. Data elements such as name of CEOs, address, telephone number, year established, outline of business, major stock holders, summarized financial data, sales by line of business, are included	②	J/E	P/D	O/M/C	
	Daily Exchange Rate & Interest Rate Data	Daily data of foreign and domestic exchanges	②	J/E	P/D	O/M	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Nihon Keizai Shimbun, Inc. (NIKKEI)	Earnings Estimate for Listed Companies	Estimated and actual data of balance of settlements of accounts at the end of fiscal year, interim closing, and consolidated financial statements for listed companies	②	J/E	P/D	O/M	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	Economic Data by Size	Economic statistical data by size of small-to-medium sized companies based on data from the Small and Medium Enterprises Agency and the Smaller Business Finance Corporation	②	J/E	P/D	O/M	
	Energy Data	Demand/supply data and cost data on petroleum, coal, electric, gas, and nuclear power, as well as general economic statistical data	②	J/E	P/D	O/M	
	Financial Statement for Banks	Balance of settlements of accounts for banks since 1974	②	J/E	P/D	O/M/C	
	Financial Statement for Insurance Companies	Balance of settlements of accounts for non-life insurance companies submitted to the Ministry of Finance since 1983	②	J/E	P/D	O/M/C	
	Financial Statement for Listed Companies	Balance of settlements of accounts at the end of fiscal year, interim closing, and consolidated financial statements, since 1964, for listed companies other than banks, securities houses, and insurance companies	②	J/E	P/D	O/M/C	
	Financial Statement for Security Houses	Balance of settlements of accounts for security houses submitted to the Ministry of Finance	②	J/E	P/D	O/M/C	
	Financial Statement for Unlisted Companies	Financial report information submitted to the Ministry of Finance by unlisted major companies since 1977	②	J/E	P/D	O/M/C	
	Flash Financial Report for Listed Companies	Balance of settlements of accounts at the end of fiscal year, interim closing, and consolidated financial statements for listed companies other than banks security houses, and insurance companies, as disclosed	②	J/E	P/D	O/M	
	Futures Data	Trading and price data of forward buying stock and bond	②	J/E	P/D	O/M	
	Industrial Data	Statistical data on various industry obtained from MITI and industrial associations	②	J/E	P/D	O/M	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Nihon Keizai Shimbun, Inc. (NIKKEI)	International Trade Statistics	International trade statistics by commodity and country based on the Ministry of Finance data	②	J/E	P/D	O	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	Japanese Economic Model	Quarterly model of short-term forecast for Japanese economy, integrating the hole aspects of Japanese economy including energy and finance. Monthly 'Standard Forecasts' with updated information is provided, capable of customized simulation	②	J/E	P/D	O	
	Major Market Indices Data	Nikkei stock price average data, stock price average data for Nikkei 500 major stocks, volume of margin transactions for three exchanges, and others	②	J/E	P/D	O/M	
	Marketing Report for Unlisted Companies	Marketing report information submitted to the Ministry of Finance by unlisted major companies since 1977	②	J/E	P/D	O	
	News Flash	Real-time daily news from all over the world, categorized by subject	③	J/E	P/D	O	
	Newspapers and Magazines for Text Search	Articles from news papers including four Nikkei publications and several magazines published by Nikkei BP	③	J/E	P/D	O	
	Nikkei Macro Economic Statistics	12,400 major national statistics of Japanese economy including statistics of earnings, production, corporate management, finance, international trade, international balance of payments, labor, commodity prices, and consumption	②	J/E	P/D	O/M	
	Nikkei Monetary Databank	Major economic statistical data including money supply, interest rates, capital circulation, and other general financial statistics	②	J/E	P/D	O/M	
	Option Data	Trading and price data, volume, and positions of options and stock price index options	②	J/E	P/D	O/M	
	Personnel Data Bank	Personnel data of executives of major companies and managing staff of government employees. Data elements such as title, place of employment, home address, birth date, educational history, graduate data are included	②	J	P/D	O/M	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Nihon Keizai Shimbun, Inc. (NIKKEI)	Portfolio Related Data Service	Various indices on risks and returns in Japanese and US stock market investment with portfolio evaluation and optimization system	②	J/E	P/D	O	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	POS Data	POS data of 1,000,000 items including foods, household appliances, and others obtained from 400 stores	②	J	P/D	O/C	
	Regional Databank	Regional data including area, population, housing, land price, number of establishments by industry, and shipments for 3,400 cities, towns, and villages	②	J/E	P/D	O	
	Regional Economic and Financial File	Regional market data including industry, finance, local public finance, consumption, commodity price, labor, and commerce for the metropolises and districts	②	J/E	P/D	O	
	Regional Input Output Table	Input output tables within and between regions provided by MITI	②	J/E	P/D	O	
	Short-Term Model for Seven Advanced Nations	Quarterly metrical model for Japan, U.S.A., U.K., France, Germany, Italy and Canada, intended to provide short-term forecasts	②	J/E	P/D	O/M	
	Statistical Data of Prices	Wholesale price indices, import price indices, and input-output indices from the Bank of Japan	②	J/E	P/D	O	
	Statistics on Corporations	Estimated statistical data based on 'Statistics on Corporations', published by the Ministry of Finance, updated quarterly	②	J/E	P/D	O/M	
	Statistics on Construction	Statistics on orders received, starting works, cost of construction, and other construction related statistical data	②	J/E	P/D	O/M	
	Statistics on Products, Shipments, and Inventory	Statistics on products, shipments, and inventory based on MITI's data	②	J/E	P/D	O/M	
	Stock Bond Data	Stock data of listed companies and over-the-counter trading in national stock market and bond data for Tokyo and Osaka Exchanges	②	J/E	P/D	O/M	
	Technical Indices for Industries and Each Issue	Basic indices and indices by industry as well as value added indices data on Tokyo and Osaka Exchanges	②	J/E	P/D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Nihon Keizai Shimbun, Inc. (NIKKEI)	Unlisted Debenture Data	Evaluated market price of unlisted public offering debenture calculated based on the circular notice from the Ministry of Finance	②	J/E	P/D	O/M	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	World Economic Long-Term Model	Annual metrical model for long-term forecasts of the world 9 regions. Capable of customized simulation	②	J/E	P/D	O	
Nomura Research Institute Ltd. (NRI)	NRI/E	Information on Japanese economy, industry, and finance	②	E	P	O	U.S.A.; Germany; France; U.K.; Belgium
QUICK Corporation	QUICK VIDEO-I	Real-time distribution of the stock price, market conditions, closing account, financial information, and news from all the securities exchange in Japan; stock price and index from overseas major securities exchange market	②	J/E/O: Numeric	P/D	O	U.K.; U.S.A.; Hong Kong; Switzerland; Singapore; Bahrain; and others
QUICK Corp.	QUICK-10	Integrated financial information systems for traders, offering domestic and international stock information and related news. Automatically updated with various functions including name registration, graph and chart development	②	J/E/O: Numeric	P/D	O	Hong Kong; Korea; Singapore; Australia; and others
	QUICK-10E	A version of QUICK-10 targeted for Europe, U.S.A. and Middle East	②	J/E/O: Numeric	P/D	O	U.K.; U.S.A.; Switzerland; Germany; France; Bahrain; and others
	QUICK-FF	Real-time information of future market and option with the capability of flexible selection, calculation and editing based on one's investment strategy	②	J/E/O: Numeric	P/D	O	Hong Kong
	QUICK-VS	Multi-vendor terminal sharing system for QUICK and other financial information vendors	②	J/E/O: Numeric	P/D	O	U.K.
Technomics, Inc.	Pharmcast Data	Information on medicines and pharmaceuticals	①/②	E	P	M	U.S.A.; Europe
TEIKOKU DATABANK, LTD. (TDB)	COSMOS2	Descriptive information of 200,000 Japanese companies	②	E	P	O/C	
The Japan Information Center of Science and Technology (JICST) /JOIS	JICST File on Current Science and Technology Research in Japan	Description of research projects planned or ongoing in Japanese public research institutions, based on questionnaire survey	①	J	P/D	O	U.S.A.; U.K.; Germany; Korea

Company	Database	Description	Subject	Language	Status	Format	Main Countries
The Japan Information Center of Science and Technology (JICST) /JOIS	JICST File on Medical Science in Japan	Bibliographic information, with abstracts, of articles in the fields of health science published in Japan, compiled from 'Igaku Chuo Zasshi' (abstract journal of medicine published since 1903) and JICST Domestic Medical File offered since 1981	①	J	P/D	O	U.S.A.; U.K.; Germany; Korea
	JICST File on Science and Technology	Bibliographic information, with abstracts, of 670,000 articles in the fields of science and technology, collected from scholarly journals, proceedings, technical notes, public literature, and others in 50 countries	①	J	P/D	O	
	JICST File on Science, Technology, and Medicine in Japan	Bibliographic information, with abstracts, of literature in the fields of science, technology, and medicine in JICST File on Science and Technology and JICST File on Medical Science, translated into English	①	E	P/D	O	
	JICST Holding List File	Machine-readable catalog of JICST library collection	③	J	P/D	O	
The Japan Information Center of Science and Technology (JICST) /STN	JGRIP	Description of research projects planned or ongoing in Japanese public research institutions	①	E	P/D	O	U.S.A.; Europe; U.K.; and others
	JICST-E	Bibliographic information, partially with abstracts, of Japanese literature in the fields of science, technology, and medicine, translated into English	①	E	P/D	O	
The Long Term Credit Bank of Japan (LTCB)	Database for Overseas Sales Offices	Company profile information	②	E	P	O	U.S.A.; U.K.; Hong Kong
THE YOMIURI SHIMBUN	THE DAILY YOMIURI DATABASE	Electronic version of 'The Daily Yomiuri' a Newspaper written in English	③	E	P	O	U.S.A.; Europe
	YOMIDAS	Collection of articles from Yomiuri Shimbun including Tokyo, Osaka, Western, and Central versions	③	J	P	O	
TOYO KEIZAI INC.	Brief Message on Closing Accounts	Sole and consolidated account information of 2,200 public and 530 over-the-counter companies	②	J/E	P	M	Worldwide
	Business Performance Forecasts	Forecast data of business performance of 2,200 public companies and 530 over-the-counter companies	②	J/E	P	M	
	Major Shareholders	Top 20 shareholders of 2,200 public and 530 over-the-counter companies	②	J/E	P	M	

Table 2 Japanese Databases Accessible Overseas (1994:Distributors/Agents)

Subject	①:Science and Technology ②:Economics, Business and Finance ③:General or Others	Language	J:Japanese E:English O:Others	Vendor Status	P:Producer D:Distributor A:Agent T:Telecommunication Carriers	Format	O:Online M:Magnetic Tape /Floppy Disk C:CD-ROM/CD-I
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Company	Database	Description	Subject	Language	Status	Format	Main Countries
Asia Data Research, Inc (ADR)	ADR Market Trend Search	Retail panel data of home electric appliances and photo cameras in Asian countries	②	J/E	D	M	Hong Kong; China; Indonesia; Singapore; and others
	GfK RETAIL PANEL	Retail panel data of home-electronic appliances and photo cameras in European countries	②	J/E	A	M	Europe
CHEMICAL DATA SERVICE INCORPORATED (CDS)	ECHOICE	Directory of Chinese chemical products and manufacturers	②	E	A	M	U.S.A.; Europe
COMLINE Business Data, Inc. (COMLINE)	DISCLOSURE	Financial statements of US listed companies and annual reports of Japanese, US, and European companies	②	E	A	C	
DENTSU INC.	ELNET	Citation to articles, with full-text image data, of 45 Japanese major newspapers and 150 Japanese journals including monthly economic reports	③	J	A	O	U.S.A.; Hong Kong; France
G-Search Limited	AERA Database	Collection of articles from weekly magazine 'AERA'	③	J	D	O	Worldwide
	ASAHI ONLINE DATABASE	Collection of articles in English from 'Asahi Evening News' and English version of 'Asahi News Services'	③	E	D	O	
	Asahi Shimbun Database	Collection of articles from 'Asahi Shimbun'	③	J	D	O	
	Asahi Shimbun Evening Online	News-flash of 'Asahi Shimbun Evening version' including articles from first, second, and social pages	③	J	D	O	
	Asia Business Information	Micro-business information of Asian countries	②	J	D	O	
	Atomic Energy Code Information Database	Program information of atomic code	①	J	D	O	
	Best Ten Toys of the Week	Sales data of toys in the week	③	J	D	O	
	BOOK	information on the contents of books published in Japan	③	J	D	O	
	BOOK/MONTHLY	Monthly version of new information from 'BOOK' database	③	J	D	O	
	CAR SENSOR	Articles from 'CAR SENSOR' the automobile journal	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
G-Search Limited	Catalog of Journals and Newspapers	Catalog of domestic journals, newspapers, and newsletters with their circulation, price, description and codes	③	J	D	O	Worldwide
	CD New Score Information	Information on newly published and forth-coming CD titles	③	J	D	O	
	Company Information by Teikoku Databank	Profiles of more than 1,000,000 companies in Japan	②	J	D	O	
	Company Information by Tokyo Shoko Research	Profiles with performance information for current three years of more than 500,000 companies in Japan	②	J	D	O	
	Company Information Retrieval Service	Cross-file retrieval system from several databases of newspapers and company profiles	②	J	D	O	
	Cross-File Retrieval of Company Information	Cross-file retrieval system from eight company databases	②	J	D	O	
	Database Directory	Description of databases available in Japan	③	J	D	O	
	Database of Directories	Bibliographic information and general description of directories published in Japan	②	J	D	O	
	DIAMOND Personnel Directory of Companies	Personnel directory of major companies in Japan with personnel changes and corporate structure	②	J	D	O	
	ECONOMIST	Electronic version of 'Economist' journal, full-text	③	J	D	O	
	ELISNET (Technical Information of Semi-Conductors)	Technical information of semi-conductors devise	①	J	D	O	
	EP-Sensor: Sector Flash	Medium and long-term historical data on socio-economic trends from 'EP-SENSOR' covering current two terms	②	J	D	O	
	Executives' Personal Profile by Tokyo Shoko Research	Biographical information with address of executives of more than 500,000 companies in Japan	②	J	D	O	
	Extraordinary Administrative Research Council and the Administrative Reform Council Report	Reports and suggestions from Extraordinary Administrative Research Council and the Administrative Reform Council	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
G-Search Limited	Financial Information by Teikoku Databank	Financial records of companies in Japan	②	J	D	O	Worldwide
	Financial Information by Tokyo Shoko Research	Financial records of companies in Japan	②	J	D	O	
	Flash of the Administrative Reform Council's deliberations	Provide the outline of the degenerations from the Administrative Reform Council's discussion and announcement	③	J	D	O	
	Gendai Yogo no Kiso Chishiki (Basic Knowledge of Modern Terminology)	Electronic version of the 'Gendai Yogo no Kiso Chishiki (Basic Knowledge of Modern Terminology)' published by Jiyu Kokuminsha	③	J	D	O	
	Industrial and Technical Information on China	Major articles related to industry and technology from Chinese domestic newspapers	②	J	D	O	
	Industrial News	News-release from companies, government bodies, and related organizations	②	J	D	O	
	Information Industry Hotline	Flash information of 'The Daily Network News'	③	J	D	O	
	INTELLECT	Judicial precedent and related information on intellectual property lawsuits	②	J	D	O	
	J-League Flash	Game schedule and forerunners of J-League	③	J	D	O	
	JETRO ACE	Collection of reports and statistics from 80 overseas points of JETRO	②	J	D	O	
	JTB Hotel Information	Directory of domestic hotels and lodges	③	J	D	O	
	Kagaku Kogyo Nippo Database	Articles from 'Kagaku Kogyo Nippo' the leading newspaper for chemical industry	②	J	D	O	
	Laser-Disk Information	Laser-disk information published in 'CD-Journal'	③	J	D	O	
	Law Database	Full-text of current law held by the General Affairs Agency	②	J	D	O	
	LEX/DB	Full-text of civil and administrative cases and related information	②	J	D	O	
	Listed and Over-the-Counter Companies by Toyo Keizai	Detailed information on the listed, over-the-counter, and foreign affiliated companies in Japan	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
G-Search Limited	MAGAZINE	Articles from 1,300 magazine published in Japan	③	J	D	O	Worldwide
	Mainichi Daily News	Collection of English language articles from 'Mainichi Daily News'	③	E	D	O	
	Mainichi Shimbun Database	Collection of articles from the 'Mainichi Shimbun'	③	J	D	O	
	Manual of Company Events and Festivals	Instructional manual on how to proceed company events and festivals	③	J	D	O	
	Market Search on Company Trends	Reference to the marketing research information on companies	②	J	D	O	
	Market Search on Consumer Trends	Reference to the marketing research information based on questionnaire to consumers	②	J	D	O	
	Market Search on Products and Industries	Reference to the marketing research information of all industries and their products in Japan	②	J	D	O	
	Market Search Reference directory	Reference to the marketing research reports and articles	②	J	D	O	
	Music CD Catalog	Bibliographic and price information with critics for music CD	③	J	D	O	
	NEW BUSINESS INDUSTRY REPORT	Research report of remarkable industries' trends and issues including description, structure, and profitability information	②	J	D	O	
	News flash of Asia Business Information	News flash of 'Asia Business Information', updated daily with 50 articles held for a week	②	J	D	O	
	Nihon Kogyo Shimbun Database	Collection of articles from 'Nihon Kogyo Shimbun'	③	J	D	O	
	Nihon Nogyo Shimbun Database	Collection of articles from 'Nihon Nogyo Shimbun'	③	J	D	O	
	Nikkan Kogyo Shimbun Database	Collection of articles on new products and technology from 'Nikkan Kogyo Shimbun'	③	J	D	O	
	NIKKAN SPORTS	Collection of articles from 'Nikkan Sports' newspaper	③	J	D	O	
	Pharmaceutical Company Information	Detailed company profiles of pharmaceutical manufacturers and wholesalers	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
G-Search Limited	Pharmaceutical Information Service	Pharmaceutical information from the price standards for medicines based on the attached documents, with urgent news	①	J	D	O	Worldwide
	PIA Cinema Club (Western and Domestic Movies)	Casting, prize winning, and story of more than 15,000 movies	③	J	D	O	
	PRIZE	Information on prize-winners and prizes in Japan	③	J	D	O	
	Reference Guide to PC Journals	Collection of articles from 15 major PC journals	③	J	D	O	
	Sankei Shimbun Database	Articles from 'Sankei Shimbun'	②	J	D	O	
	SEIKATSU-SHA Questionnaire Library	Summarized version of 'SEIKATSU-SHA DATA' published by JMA Research Institute, Inc.	②	J	D	O	
	Shokuryo Shimbun Database	Articles from 'Shokuryo Shimbun' the leading newspaper for food industry	②	J	D	O	
	TEIKOKU DATABANK: JAPANESE COMPANIES	Business information of 180,000 Japanese companies	②	E	D	O	
	Title of Weekly and Monthly Magazine	Title information of 32 popular magazine	③	J	D	O	
	TITLE SEARCH	Title information of 32 popular journals	③	J	D	O	
	Tomorrows New Drugs	Information on the each phase (from pre-clinical to sales) of the development of new drugs	①	J	D	O	
	Video & LD Flash	Domestic on-sale information of video and LD	③	J	D	O	
	WHO	Personnel information on those extracted from newspapers, magazines, and books published in Japan	③	J	D	O	
	Yomiuri Shimbun Database	Collection of articles form 'Yomiuri Shimbun' and 'Yomiuri Katei Shimbun'	③	J	D	O	
Information Services International Dentsu, Ltd.	Asahi Minryoku	Historical series of statistical data on regional economy by prefectures and areas	②	J	D	M	
	JSD	Real-time stock price information of Tokyo and Osaka Stock Exchanges, provided by Jiji Press, Ltd.	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Japan Association for International Chemical Information (JAICI)	QCLDB	Bibliographic database of ab initio quantum chemistry	①	E	D	M/C	U.S.A.; Europe
Japan Weather Association (JWA)	Maritime Weather Reports	Weather reports on the North Pacific Region	③	O: Numeric	D	M	U.K.; China
	Weather Satellite Data	Analysis data from the NOAA and Himawari weather satellites	③	O: Numeric	D	M	U.K.; U.S.A.; China
	Weather Satellite Imagery	Image data from the NOAA and Himawari weather satellites	③	O: Numeric	D	M	
MARUZEN CO., LTD.	EL-NET	Bibliographic information of articles from 40 newspapers and more than 120 journals with full-text image of FAX delivery	③	J	D	O	U.S.A.
NEC Corporation (NEC)	C&C-VAN DATABASE	Information on companies, economy, and international trade	②/③	J	D	O	U.S.A.; U.K.; and others
	DIALINE	Information on books published in Japan and others	②/③	J	D	O	
	ELISNET	Information on electronic device including semi-conductor device	①	J	D	O	
	NICHIGAI ASSIST	Information on biography, books, and journals	③	J	D	O	
	NIKKEI TELECON BiZ	Articles from newspapers, company information, and other general textual information, with download-ing capability	②/③	J	D	O	
NIFTY Corporation	Administrative Information on the Restoration of Margin	Publicized documents on restoration of margin from rising of the yen	②	J	D	O	Worldwide
	AERA Database	Collection of all the articles from weekly magazine 'AERA' published by Asahi Shimbun	③	J	D	O	
	All Star Quiz of Five Popular Sports	Collection of quiz on Professional baseball, horse racing, golf, sumo wrestling	③	J	D	O	
	Apple & Macintosh	Information on Apple and Macintosh	③	J	D	O	
	Asahi News Service	English version of articles from 'Asahi Shimbun'	③	E	D	O	
	Asahi Shimbun Database	Collection of articles from 'Asahi Shimbun'	③	J	D	O	
	Asahi Shimbun Newflash	Newsflash from 'Asahi Shimbun'	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Asia Business Information	Macro-economic and business information of ASEAN and NIES countries	②	J	D	O	Worldwide
	Asia Newslash	Business information on NIES & ASEAN countries and China	②/③	J	D	O	
	Best Ten Toys of the Week	Sales data of toys in the week	②	J	D	O	
	Blood Line and Racing Prediction of Racing Horses	Prediction of race results just before the high prize horse races held on Saturday and Sunday	③	J	D	O	
	Book Street	Information on new books, best-sellers and lectures	③	J	D	O	
	Book/Monthly	Monthly revision of new information from 'BOOK'	③	J	D	O	
	Books on PC	Review of books related personal computers	③	J	D	O	
	Business Information Guide	Directory of business related organizations	③	J	D	O	
	Business Letter Examples	Collection of Japanese business letter examples	③	J	D	O	
	CAR SENSOR	Articles from 'CAR SENSOR' the automobile journal	③	J	D	O	
	CD New Score Information	Information on newly published and forthcoming CD titles	③	J	D	O	
	Ceremonial Precedents	Ceremonial manners and precedents on marriage, funeral, and ancestral worship	③	J	D	O	
	Cfarbase in English	Financial information of 8,000 major international companies	②	E	D	O	
	Cfarbase in Japanese	Financial information of 8,000 major international companies	②	J	D	O	
	Chunichi Shimbun Chubu District News	Collection of local articles from 'Chunichi Shimbun Chubu (Central Japan) version	③	J	D	O	
	Chunichi Shimbun Headline News	Summary of newslash from 'Chunichi Shimbun'	③	J	D	O	
	Chunichi Shimbun News Summary	Summary of selected articles from 'Chunichi Shimbun' morning edition	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Chunichi Shimbun Tokai-Hokuriku Financial Information	Financial information of nine prefectures in Tokai-Hokuriku region from 'Chunichi Shimbun'	②	J	D	O	Worldwide
	Cosmo Calendar Astrology	Fortune of love derived from the astrology with scientific analysis based on the Space ecology	③	J	D	O	
	COSMOS2	Financial and descriptive data on Japanese companies from Teikoku Databank	②	J	D	O	
	Current Index to Journal Articles	Index to current articles of newly published journals, categorized into various fields	③	J	D	O	
	Current Index to PC Journals	Summary of articles from major PC journals	③	J	D	O	
	Database of Directories	Bibliographic information and general description of directories published in Japan	③	J	D	O	
	Dataquest Industry Analysis of Information Systems	Trends and analytical information on information systems industry	①	J	D	O	
	Dial Q2 Program Guide	Description of programs offered from Dial Q2	③	J	D	O	
	DIAMOND Personnel Directory of Companies	Electronic version of the 'Directory of Personnel in Japanese Companies' published by Diamond Press	③	J	D	O	
	Directory of Discount Stores	Directory of 1,080 discount stores	③	J	D	O	
	Directory of Faximile Numbers	Electronic version of 'Joho FAX Denwacho (FAX Directory)' published by TOMOE	③	J	D	O	
	Directory of Restaurants in Keihanshin Area	Directory of gourmet restaurants in Kyoto, Ohsaka, and Kobe area	③	J	D	O	
	Discount Information	Price information at the major discount shops	③	J	D	O	
	Domestic Concert Information	Information on concerts held all over Japan by area and genre	③	J	D	O	
	Economic Policy Information of the Government	Information on reports from government agencies, the Bank of Japan, the Federation of Economic Development, and the Liberal Democratic Party	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Economic Trends	Macro economic information including economic trends for World and Japan	②	J	D	O	Worldwide
	Economic Trends Reports of Small Businesses	Electronic version of 'Chusho Kigyo (Small Business) Business Radar'	②	J	D	O	
	ECONOMIST	Electronic version of 'Economist' journal published by Mainichi Shimbun	②	J	D	O	
	Educational News from Mainichi Shimbun	Articles on education and entrance examinations from 'Mainichi Shimbun'	③	J	D	O	
	ELISNET (Technical Information of Semi-Conductors)	Technical information of semi-conductor devise	①	J	D	O	
	Employment Information of Japanese Companies	Employment trends of companies in Japan	②	J	D	O	
	English Business Letter Examples	Collection of business letter examples in English	③	E	D	O	
	English Letters for Technical Fields	Collection of examples of English letters and sentences for technical use	③	E	D	O	
	English News Release	Collection of news release in English	③	E	D	O	
	Extraordinary Administrative Research Council and the Administrative Reform Council Report	Reports and suggestions from Extraordinary Administrative Research Council and the Administrative Reform Council	②	J	D	O	
	FAIRS AND EVENTS	Newsflash on fairs and events held in Japan	③	J	D	O	
	Finding Books	New book information	③	J	D	O	
	Fishing Information from Kansai	Fishing information of Western Japan from weekly 'Tsuru Sunday'	③	J	D	O	
	Flash of the Administrative Reform Council's Deliberation	Provide the outline of the deliberation from the Administrative Reform Council's discussion and announcement	②	J	D	O	
	Flower Market Information	Price information of flowers at Tokyo Ohta Flower Market	②	J	D	O	
	FM & OASYS SERIES	Information and training course guide for OASYS and FM-series of Fujitsu	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Gendai Yogo no Kiso Chishiki (Basic Knowledge of Modern Terminology)	Electronic version of the 'Gendai Yogo no Kiso Chishiki (Basic Knowledge of Modern Terminology)' published by Jiyu Kokuminsha	③	J	D	O	Worldwide
	Guide to CD Titles	Articles from monthly 'CD Journal'	③	J	D	O	
	Guide to Excellent Eating Places in Tokyo	Electronic version of 'Tokyo Oishiimise Guide (Tokyo Excellent Eating Places)'	③	J	D	O	
	Guide to Golf Membership Market	Information on golf-club membership prices	③	J	D	O	
	Guide to High-Tech Training Courses	Information on training courses held by Kodo Gino Kaihatsu Center (High-technology Development Center)	③	J	D	O	
	Guide to Marine Pilots License	Information on how to obtain 4th grade marine pilots' license	③	J	D	O	
	Guide to PC Magazine	Bibliographic information of major PC magazines	③	J	D	O	
	Guide to PC Related Goods	Database of software and book information of PC	③	J	D	O	
	Guide to Popular Spots	Information on the popular shops based on the questionnaire survey to 20s	③	J	D	O	
	Hit Product Information	Information on remarkable and well sold commodity	②/③	J	D	O	
	Hokuriku Honobono Information	Sightseeing guide of Hokuriku Region	③	J	D	O	
	Home Town Information	Information on cities, towns, and villages all over Japan	③	J	D	O	
	Horse Race Tip	Numerical data of horse race forecasts	③	J	D	O	
	Hotel Directory	Directory of member hotels of Japan Hotel Association	③	J	D	O	
	House of Law Information	Information on law related to daily life and on revision of law	③	J	D	O	
	I-N Industrial Statistics	Production, shipment, stock data and trade information for all industries in Japan	②	J	D	O	
	Industrial and Technical Information on China	Major articles related to industry and technology from Chinese domestic newspapers	①	J	D	O	
	Industrial News	News-release from companies, governments, and related organizations	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Information for Obtaining Driver's License	Information on how to obtain driver license	③	J	D	O	Worldwide
	Information Industry Hotline	Online news-flash for 'The Daily Network News', an industrial newsletter for information industry	①/③	J	D	O	
	Information on Administration of the Ministry of Posts and Telecommunications	Information on the formation of policy by the Ministry of Posts and Telecommunications	②	J	D	O	
	Information on U.S.A. by Front Line	Information on economy, business and Japanese affiliated companies in U.S.A.	③	J	D	O	
	International Trends Weekly	International trends on politics, economy, and society, as well as on national policy	②	J	D	O	
	Introduction to C Language	Information on how to write programs in C-Language	③	J	D	O	
	J-League Flash	Game schedule and forerunners of J-League	③	J	D	O	
	JAPAN MARC	Catalog of books published in Japan, delivered to the National Diet Library	③	J	D	O	
	JETRO ACE	Collection of reports and other materials from overseas points of JETRO, provided with textual and numerical information	②	J	D	O	
	JETRO-WINDS	information for promotion of Japanese imports including trade fairs and after-service of imported goods	②	J	D	O	
	Jiji Press Sport News	Collection of articles on sports from Jiji Press	②	J	D	O	
	JTB hotel Information	Directory of domestic hotels and lodges	③	J	D	O	
	Judicial Precedents of Intellectual Property	Laws and judicial precedents related to intellectual property since 1975	②	J	D	O	
	Kagaku Kogyo Nippo Database	Articles from 'Kagaku Kogyo Nippo' the leading newspaper for chemical industry	②	J	D	O	
	Kyodo Financial and Economic Newflash	Economic newflash from Kyodo News Service	②	J	D	O	
	Kyodo Flash News Database	Online newflash from 'Kyodo News Service'	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Kyodo Newsflash	Newsflash from 'Kyodo News Service'	③	J	D	O	Worldwide
	Laser Disk Information	Domestic on-sale information on laser disks	③	J	D	O	
	Law Database	Full-text of current law held by the General Affairs Agency	②	J	D	O	
	Letax Proxy Service	Sending Letax of the Post Office using E-mail	③	J	D	O	
	Library of Questionnaire on Living People	Digest version of 'Seikatsusha (Living People) Data'	③	J	D	O	
	MAINICHI DAILY NEWS	English newsflash of Mainichi Shimbun	③	E	D	O	
	MAINICHI ONLINE DATABASE	Collection of articles from 'Mainichi Daily News'	③	E	D	O	
	Mainichi Shimbun Company News Release	News release from Japanese companies and industries	②	J	D	O	
	Mainichi Shimbun Database	Collection of articles from the 'Mainichi Shimbun'	③	J	D	O	
	Mainichi Shimbun Headline News	Summary of articles from 'Mainichi Shimbun'	③	J	D	O	
	Mainichi Shimbun Health and Medical Information	Information on health care, beauty care, and medical services	③	J	D	O	
	Mainichi Shimbun Lottery Information	Referral of winning number of lottery and other information	③	J	D	O	
	Mainichi Shimbun Newsflash	Newsflash from 'Mainichi Shimbun'	③	J	D	O	
	Mainichi Shimbun Photographic Database	News photograph database	③	J	D	O	
	Mainichi Shimbun Regional News	Real-time regional news from 'Mainichi Shimbun'	③	J	D	O	
	Manual of Company Events and Festivals	Instructional manual on how to proceed company events and festivals	③	J	D	O	
	Market Search	Reference to the market research reports issued by public and private institutions	②	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Medical Information on Remarkable Diseases	Description by medical practitioners on heart attack, cardiac infarction, cerebral apoplexy, hepatitis, ulcer of stomach and duodenum, gastric cancer, and atonic dermatitis	③	J	D	O	Worldwide
	MRI Business Letter	Full-text of publicly held research reports written by researchers of the Mitsubishi Research Institute	②	J	D	O	
	MRI Seminar Lectures	Full-text of lectures at seminars held by Mitsubishi Research Institute	③	J	D	O	
	New Business Industry Report	Research reports of 350 remarkable industries' business trends and analysis	②/③	J	D	O	
	New-Business Hi-Tech Information	Technological and products information of Japanese high-technology industries	①/②	J	D	O	
	NHK News Texts	Broadcasted news texts by NHK	③	J	D	O	
	NHK Newsflash	Broadcasted news texts by NHK	③	J	D	O	
	NICHIGAI ASSIST	Information on biography (WHO), books (BOOK), journal articles (MAGAZINE), and corporate management tactics (MANAGEMENT)	②/③	J	D	O	
	Nihon Kogyo Shimbun Database	Collection of articles from 'Nihon Kogyo Shimbun'	③	J	D	O	
	Nihon Nogyo Shimbun Articles	Collection of articles from 'Nihon Nogyo Shimbun'	③	J	D	O	
	Nihon Shokuryo Shimbun Database	Collection of articles from 'Nihon Shokuryo Shimbun'	③	J	D	O	
	Nikkan Kogyo Shimbun Database	Collection of articles from 'Nikkan Kogyo Shimbun'	③	J	D	O	
	Nikkan Sports Newspaper Information	Collection of articles from 'Nikkan Sports Newspaper'	③	J	D	O	
	NIPPAN MARC	Catalog of books published in Japan, distributed by Nihon Shuppan Hambai	③	J	D	O	
	NTT Town Page	Telephone directory of 1,110,000 companies	③	J	D	O	
	NY Entertainment Information	Updated information on events held in New York City	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Online Stock Price Newflash	Stock price news from first and second section of Tokyo Stock Exchange (TSE)	②	J	D	O	Worldwide
	ORICON Music Guide	Ranking list of popular songs and artists information	③	J	D	O	
	PC Hardware Database	Description and price information on PC hardware products	③	J	D	O	
	PC New Products Weekly	Description and price information of new PC products	③	J	D	O	
	Per-Golf Information	Results of tournaments and new products on golf	③	E	D	O	
	Pharmaceutical Company Information	Company information of pharmaceutical industry	②	J	D	O	
	PIA Art Museum Guide	Exhibition schedule for 50 museum near Tokyo	③	J	D	O	
	PIA Cinema Club (Western and Domestic Movies)	Casting, prize winning, and story of more than 15,000 movies	③	J	D	O	
	PIA Road Show Information	Updated road show guide	③	J	D	O	
	PIA Ski Ground Guide	Information on depth of snow, events, availability of parking lots, and coupons of ski ground within the distance of a day trip	③	J	D	O	
	PIA Ticket Guide	Purchasing guide for tickets	③	J	D	O	
	PIA Ticket Information of the Day	Day ticket information of concerts held within and close to Tokyo City	③	J	D	O	
	Popularity and Ability of Racing Horses	Information concerning the horses registered in the race	③	J	D	O	
	Precious Metal Market	Information on precious metal prices	③	J	D	O	
	Professional Baseball Game Newflash	Daily game news of professional baseball	③	J	D	O	
	Q and A on Taxation	Basic information on taxation in Q & A style with letters of Tax Law	③	J	D	O	
	Questionnaire Data of Youth	Data collected from young women living in the Tokyo Metropolitan Area	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Ranking of University Entrance by Yoyogi Seminar	Information on the difficulty of university entrance examination based on the survey conducted by Yoyogi Seminar, a preparatory school	③	J	D	O	Worldwide
	Recruit Guide for Mass Communication Industry	Information on seminars and orientation for recruiting new graduate held by mass-communication industry	③	J	D	O	
	Reference to Music of TV, Movie, and Commercial Songs	Information on title, name of artists, and CD new title publications of theme songs and musics of TV programs, movies, and commercial songs	③	J	D	O	
	Reference to Research Reports	Summary of research reports from public and private research institutions	②/③	J	D	O	
	Remarkable New Book Titles	Information on new books by genre from Mainichi, Shimbun	③	J	D	O	
	Reports from Mitsubishi Research Institute	Forecasts for 90's of various fields based on case studies	②/③	J	D	O	
	Robots and FA Products	Information on industrial robots and factory automation products	①	J	D	O	
	Safety Information for Passengers Abroad	Safety information for Japanese passengers abroad	③	J	D	O	
	Saitama Prefectural Information	Current administrative information announced by Saitama Prefecture	③	J	D	O	
	Sankei Shimbun Database	Collection of articles from morning and evening edition of 'Sankei Shimbun'	②	J	D	O	
	Sanwa Money Center Report	Information and analytical reports of Tokyo, London, and New York stock markets	②	J	D	O	
	Sanwa Soken Financial and Economic Information	Information of foreign money exchange market and economic news	②	J	D	O	
	Sight-seeing Information	Information on festivals, events, sight-seeing spots, and accommodations	③	J	D	O	
	Special Menu for Rice	Rice related articles extracted from Mainichi, Asahi, and Yomiuri Shimbun	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Sport Information from Mainichi Shimbun	Inside stories and personality of sport players	③	J	D	O	Worldwide
	Star System Video List	Major video movies casted by popular foreign actors and actresses	③	J	D	O	
	Summary Weekly and Monthly Magazine	Summary of articles of popular magazine	③	J	D	O	
	SUPONICHI Entertainment Information	Entertainment and show business information	③	J	D	O	
	SUPONICHI F1 News	Newsflash on the results of F1 races	③	J	D	O	
	SUPONICHI FAX Service of Well-known People	Faximile transmission service of biographical information with pictures published on 'Sport Nippon' since 1967	③	J	D	O	
	SUPONICHI Horse Racing News	Information on horse racing and popular horses	③	J	D	O	
	SUPONICHI Sumo Information	Newsflash on victory or defeat of Sumo matches	③	J	D	O	
	SUPONICHI Sports Topics	Collection of articles related to sports such as Soccer, Rugby and Golf	③	J	D	O	
	TDN Horse Race Guide	Horse race guide held by JRA	③	J	D	O	
	Teikoku Databank Financial Information	Financial information of 250,000 Japanese major companies	②	J	D	O	
	The Teleputing Hotline	News related to telecommunications and information services in English	③	E	D	O	
	The Yomiuri News Service	News flash in English language from 'Yomiuri Shimbun'	③	E	D	O	
	This Week's Stocks to be Watched	Information on remarkable stocks selected by editors of investment magazines	②	J	D	O	
	Title of Weekly and Monthly Magazine	Title information of 32 popular magazine	③	J	D	O	
	TITLE SEARCH	Table of contents of industrial and technological journals issued in Japan	③	J	D	O	
	TKC Legal Information	Judicial precedent and related information on civil cases and administrative cases	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	Toku-Toku Information	Information on benefits, premiums, and gifts offered from various media	③	J	D	O	Worldwide
	Tokyo Community Guide	City-life information collected from Tokyo city and its 23 wards	③	J	D	O	
	Tokyo Survival Guide	Guidance information on Tokyo Metropolitan Area in English	③	E	D	O	
	Top News of Morning Newspapers	Newsflash of top articles from national newspapers	③	J	D	O	
	Toyo Keizai Company Information	Detailed information on Japanese listed companies and foreign owned companies	②	J	D	O	
	Travel, Taste and Sports	Profiles and special information on travel, local tastes, and sport facilities	③	J	D	O	
	Trends in New York	City guide for New York City	③	J	D	O	
	Trends in Paris	City guide for Paris	③	J	D	O	
	Trends of Vegetable and Fruit Market	Price information of vegetables and fruits at the Ohta and Tsukiji markets, with those at Osaka market	②	J	D	O	
	TSR Company Information	Summarized data on 500,000 Japanese major companies	②	J	D	O	
	TSR Financial Information	Financial information of 50,000 Japanese major companies	②	J	D	O	
	Tsukiji Fish Market price information	Wholesale price information of flesh fish from Tsukiji Fish Market	②	J	D	O	
	TV and Movie Daily guide	Ratings of TV programs and movies	③	J	D	O	
	Updated Fishing Information	Information on techniques and points of fishing	③	J	D	O	
	Urban Development Information	Urban development and planning information of Japan	③	J	D	O	
	Video and Laser Disk Information	Domestic on-sale information of video, laser disk, and compact disc video	③	J	D	O	
	Weekly Flash of 'ECONOMIST'	Collection of articles from 'ECONOMIST' journal of the week	②	J	D	O	
	Welcome to 1200 Years of Kyoto	Information on more than 1,000 events and 600 ceremonies held in Kyoto	③	J	D	O	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
NIFTY Corporation	World Report	Information extracted from 'Trade-pla' World reports	③	J	D	O	Worldwide
	Yamagata Regional Information	Sightseeing guide of Yamagata Prefecture	③	J	D	O	
	Yomiuri Shimbun Database	Collection of articles from the 'Yomiuri Shimbun'	③	J	D	O	
	Yomiuri Shimbun Newflash	Newflash from 'Yomiuri Shimbun'	③	J	D	O	
Nihon Keizai Shimbun, Inc. (NIKKEI)	Asian Corporate Profile	Description of companies in Asia including 12,000 Chinese manufacturers, 1,800 Korean listed companies, 600 Hong Kong listed companies, and 1,000 Japanese-owned companies in Asia	②	E	D	O/M	U.S.A.; U.K.; Germany; France; Switzerland; Italy; Canada; Hong Kong; Singapore; Korea
	CITIBASE	Major economic statistics and indices for United States	②	E	D	O	
	Data on Borrowing by Financial Institutions	Data on borrowing by the financial institutions provided by the Industrial Bank of Japan	②	J/E	D	O/M	
	IFS Data	Financial statistics and price indices with GNP for IMF member countries	②	E	D	O	
	Input-Output Tables	Expanded input-output tables originally developed by NIKKEI, basic government table and its supplements, and connected industry input-output tables are included	②	J/E	D	O	
	OECD Economic file	Major economic indices including GNP for IMF member countries	②	E	D	O	
	OECD National Income Statistics File	National expenditure and its itemized break-down for 13 industrial nations	②	E	D	O	
	World Bank External Debt Statistics	Balance of debts and other economic indices of 105 developing countries	②	E	D	O	
Research Institute of International Trade and Industry (RIITI)	Input-Output Table	Input-output table of Japanese industries, provided by the Ministry of International Trade and Industry (MITI)	②	O: Numeric	D	M	U.S.A.
Software Development Co., Ltd. (SDC)	EMBL-GDB	Configuration of nucleic acid	①	E	D	C	
	IASL-GDB	Configuration of nucleic acid	①	E	D	C	
	NBRF-PIR	Protein database	①	E	D	C	
	PBIO-CD	Patented biochemical configuration database	①	E	D	C	

Company	Database	Description	Subject	Language	Status	Format	Main Countries
Software Development Co., Ltd. (SDC)	SWISS-PROT	Protein database	①	E	D	C	
Technomics, Inc.	Actfund	Information on antibiotic substances	①	E	D	M	U.S.A.; Europe
The Japan Information Center of Science and Technology (JICST)/JOIS	Nikkan Kogyo Shimbun Articles	Bibliographic information with abstracts of articles related to new products and new technology with related company trends	②	J	D	O	U.S.A.; U.K.; Germany; Korea
	CABA	Worldwide database of agricultural and related literature, since 1973	①	E	D	O	
	FSTA	Bibliographic database containing the literature on food science and food industry	①	E	D	O	
USACO Corporation (USACO)	KITASATO Microbial Chemistry Database-Plus2	Physiologically activated materials extracted from actinomycetes, mold, and bacteria	①	E	D	M	U.S.A.; Europe

Table 3 Japanese Database Planned for Overseas Expansion (1994)

Subject ①:Science and Technology Language J:Japanese Format O:Online
 ②:Economics, Business and Finance E:English M:Magnetic Tape /Floppy Disk
 ③:General or Others O:Others C:CD-ROM/CD-I

Database	Description	Subject	Language	Format
Atomic Bomb Database		③	J/E	
BIBin	Bibliographic information of public patents and utility models are stores in one sheet of CD-ROM FOR each year	①	J	C
DIAMOND Company Personnel Directory	Electronic version of the 'Directory of Personnel in Japanese Companies' published by Diamond Press	②	J	M
Fact Database of Sintered Powder Metal	Database of numeric data (Si units) extracted from technical articles related to sintered powder metal. Text are written in English and data from different articles can be shown on the same display	①	E	C
Fact Database of Thermostable Alloy	Database of numeric data (Si units) extracted from technical articles related to thermostable alloy. Text are written in English and data from different articles can be shown on the same display	①	E	C
JCH	Description of listed companies at Tokyo, Osaka, and Nagoya Security Exchange, translated into English from 'Kaisha Shiki Ho', a quarterly-published company directory in Japanese	②	E	M/C
PHARMA JAPAN	Electronic edition of 'PHARMA JAPAN', newsletter for overseas pharmaceutical and medical professionals	②	E	O
PHARMACAST	Information on domestic and international test drug and new medicine	①	E	O
THE DAILY YOMIURI	Electronic version of English language newspaper 'THE DAILY YOMIURI'	②	E	O
TRCMARC	Machine readable catalog (MARC) of books published in Japan, updated weekly and information on all the forth-comming books are included	③	J	O
Undecided	Information on life in Japan for foreigners	③	J/E	M
	Catalog and standards of products	②	E	C
	Technical information	①	E	C
	Information on Asian companies including Chinese companies	②	E	O/M
	Information on Japanese pharmaceutical products	②	E	O/M

Table 4 Address of Overseas Service Points (1994:Producers/Distributors)

Company	Contacts	Address	Telephone	Facsimile	Status
ADVANSIS (AVS)	ADVANSIS, Inc.	2-9-20 Shinjuku, Shinjuku-ku, Tokyo 160, Japan	+81-3-3352-2596	+81-3-3352-2624	Headquarter
	GfK Handelsforschung GmbH & Co. KG	Nordwestring 101, D-8500 Nurnberg 90, Germany	+49-911-3950	+49-911-336970	Agent
	NPD	900 West Shore Road, Port Washington, NY 11050-0402, U.S.A.	+1-516-625-0700		Partner
Asahi Shimbun	New Media Division, Asahi Shimbun	3-27 G-901, Nakadai, Itabashi-ku, Tokyo 174, Japan	+81-3-5541-8689	+81-3-5541-8691	Headquarter
Asia Data Research, Inc. (ADR)	ADR Marketing Service Ltd.	Room 2314, Park-in-Commercial Center, 56 Dundas Street, Yaumatei, Hong Kong	+852-359-3333	+852-332-5841	Branch; Headquarter
	Asia Data Research, Inc.	7F Shiratori Bldg., 2-1-2 Shinjuku, Shinjuku-ku, Tokyo 160, Japan	+81-3-3352-6215	+81-3-3352-2579	Headquarter
	GfK Handelsforschung GmbH & Co. KG	Nordwestring 101, D-8500 Nurnberg 90, Germany	+49-911-3950	+49-911-336970	Agent
C. Industrial Research Institute	C. Industrial Research Institute	4-32-6-706 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160, Japan	+81-3-3377-9886	+81-3-3377-9876	Headquarter
CHEMICAL DATA SERVICE INCORPO- RATED (CDS)	COMLINE BUSINESS Data NY, INC.	c/o ULMER Brothers, Inc. 80 Maiden Lane, 22nd Fl., New York, NY 10038, U.S.A.	+1-212-480-2100	+1-212-344-8074	Agent
	Information Service Division, CHEMICAL DATA SERVICE INCORPO- RATED	2-15-13 Tsukishima, Chuo-ku, Tokyo 104, Japan	+81-3-3536-1201	+81-3-3536-1210	Headquarter
	TEKNO-INFO CORPORATION	500 Trotwood PL. Louisville, KY 40245-4071, U.S.A.	+1-502-254-5728	+1-502-254-9128	Agent
COMLINE Business Data, Inc. (COMLINE)	COMLINE BUSINESS DATA NY, INC.	80 Maiden Lane, 22nd Fl., New York, NY 10038, U.S.A.	+1-212-480-2100	+1-212-344-8074	Agent
	COMLINE Business Data, Inc.	Marukusu Bldg., 1-12-5 Hamamatsu-cho, Minato-ku, Tokyo 105, Japan	+81-3-5401-4567	+81-3-5401-2345	Headquarter
Database Promotion Center, Japan (DPC)	Database Promotion Center, Japan	7F World Trade Center Bldg., 2-4-1 Hamamatsu-cho, Minato-ku, Tokyo 105, Japan	+81-3-3459-8581	+81-3-3432-7558	Headquarter
Dataquest Japan, Ltd. (DQJ)	Dataquest Japan, Ltd.	6F, Shinkawa Sanko Bldg., 1-3-17 Shinkawa, Chuo-ku, Tokyo 104, Japan	+81-3-5566-0411	+81-3-5566-0425	Branch Office in Japan
	Dataquest, Inc.	1290 Ridder Park Drive, San Jose, CA 95131-2395, U.S.A.	+1-408-437-8000	+1-408-437-0292	Headquarter
DENTSU INC.	Electronic Library Division, DENTSU INC.	1-11 Tsukiji, Chuo-ku, Tokyo 104, Japan	+81-3-5551-7116	+81-3-5551-2345	Headquarter

Company	Contacts	Address	Telephone	Facsimile	Status
Dun & Bradstreet Business Information Services Japan K.K. (DBBISJ)	Dun & Bradstreet Business Information Services Japan K.K.	3F, Roppongi Yamada Bldg., 3-5-27 Roppongi, Minato-ku, Tokyo 106, Japan	+81-3-3583-0451	+81-3-3583-0560	Branch Office in Japan
EDUCA Inc. (EDUCA)	EDUCA Inc.	Sanyo Bldg. 1 Naito-cho, Shinjuku-ku, Tokyo 160, Japan	+81-3-3352-8611	+81-3-3352-8613	Headquarter
ELECTRONIC LIBRARY Inc. (EL)	Electronic Library Division, DENTSU INC.	1-11 Tsukiji, Chuo-ku, Tokyo 104, Japan	+81-3-5551-7116	+81-3-5551-2345	Agent
	ELECTRONIC LIBRARY Inc. (EL)	Colins 8, 8-11-13 Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan	+81-3-3779-1225	+81-3-3779-1377	Headquarter
	NI+C International Co.	IBM Kawasaki Bldg. 1-14 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa 210, Japan	+81-44-245-8030	+81-44-245-8027	Agent
G-Search Limited	G-Search Limited	LOOP-X Bldg. 3-9-15 Kaigan, Minato-ku, Tokyo 108, Japan	+81-3-5442-4381	+81-3-5442-4391	Headquarter
Information Services International Dentsu, Ltd. (ISID)	Information Services International Dentsu, Ltd.	4-11-10 Nakano, Nakano-ku, Tokyo 164, Japan	+81-3-3228-6100	+81-3-3319-6989	Headquarter
	ISI-Dentsu of America, Inc.	1114 Avenue of the Americas, New York, NY 10036, U.S.A.	+1-212-789-2300	+1-212-789-2333	Branch Office
	ISI-Dentsu of Asia, Ltd.	Suite 1001, Central Plaza, 18 Harbour Road, Wanchai, Hong Kong	+852-829-0829	+852-802-8477	Branch Office
	ISI-Dentsu of Europe, Ltd.	4th Floor, Imperial House, 15-19 Kingsway, London WC2 6UU, U.K.	+44-71-836-4666	+44-71-404-0392	Branch Office
Japan Association for International Chemical Information (JAICI)	FIZ Chemie GmbH	Franklinstrasse 11, D-10587 Berlin, Germany	+49-30-390-76	+49-30-390-76	Agent
	Japan Association for International Chemical Information	Nakai Bldg., 6-25-4 Hon-Komagome, Bunkyo-ku, Tokyo 113, Japan	+81-3-5978-3622	+81-3-5978-3600	Headquarter
	Kay Pool	9520 Linden Avenue, Bethesda, MD 20814, U.S.A.	+1-301-493-6595	+1-301-897-3487	Agent
Japan Audit Bureau of Circulations (JABC)	Japan Audit Bureau of Circulations	Shisei-Kaikan, 1-3 Hibiya-Koen, Chiyoda-ku, Tokyo 100, Japan	+81-3-3501-1491	+81-3-3501-1494	Headquarter
JAPAN CENTER FOR INTERCULTURAL COMMUNICATIONS (JCIC)	JAPAN CENTER FOR INTERCULTURAL COMMUNICATIONS	2-7-7 Hirakawa-cho, Chiyoda-ku, Tokyo 102, Japan	+81-3-3238-9111	+81-3-3238-9696	Headquarter
Japan External Trade Organization.(JETRO)	Japan External Trade Organization	2-2-5 Toranomon, Minato-ku, Tokyo 105, Japan	+81-3-3582-5564	+81-3-3585-7499	Headquarter

Company	Contacts	Address	Telephone	Facsimile	Status
Japan Patent Information Organization (JPIO)	DIALOG Information Services, Inc.	3460 Hillview Avenue, Palo Alto, CA 94304, U.S.A.	+1-415-858-4234	+1-415-858-7069	Partner
	European Patent Office (EPO)	Dienststelle Wien, Schottenfeldgasse 29, Postfach 82, A-1072 Wien, Austria	+43-1-521-26-0	+43-1-521-26-54-91	Partner
	Japan Patent Information Organization	Sato Dia Bldg. 4-1-7 Toyo, Koto-ku, Tokyo 135, Japan	+81-3-5690-5581	+81-3-5690-5566	Headquarter
	QUESTEL	Le Capitole 55, avenue des Champs Pierreux 92029 Nanterre Cedex, France	+33-1-46 14 55 76	+33-1-46 14 55 11	Partner
Japan Weather Association (JWA)	Information Processing Division, Japan Weather Association	4-5 Kojimachi, Chiyoda-ku, Tokyo 102, Japan	+81-3-3238-0480	+81-3-3262-9549	Headquarter
Keizai Bunken Kenkyukai	Keizai Bunken Kenkyukai, c/o Keidanren Library	1-9-5 Ohtemachi, Chiyoda-ku, Tokyo 100, Japan	+81-3-3279-1411 (ex.2813)	+81-3-5255-6256	Headquarter
Marketing Intelligence Corporation (MiC)	Marketing Intelligence Corporation	2-14-11 Yato-cho, Tanashi-shi, Tokyo 188, Japan	+81-424-23-1111		Headquarter
	Maritz Marketing Research, Inc.	1297 North Highway Drive/ Fenton, St.Louis County, MO 63099, U.S.A.	+1-314-827-1610	+1-314-827-3224	Branch
	Nicholas Hall & Company	35 Alexandra Street, Southend on Sea, Essex SS1, IBW England, U.K.	+44-702-433-422	+44-702-430-787	Branch
MARUZEN CO., LTD.	MARUZEN International Co., Ltd.	1200 Harbor Blvd., 10th Floor, Weehawken, NJ 07087, U.S.A.	+1-201-865-4400	+1-201-865-4845	Branch
	MASIS CENTER, MARUZEN CO., LTD.	2-3-10 Nihonbashi, Chuo-ku, Tokyo 103, Japan	+81-3-3271-6068	+81-3-3271-6082	Headquarter
METRO Inc.	ACTON DIRECT	P.O. Box 5059, Lincoln, NE 68505-0059, U.S.A.	+1-402-466-8400	+1-402-466-9074	Partner
	METRO Inc.	Tokai Bldg., 2-4-2 Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan	+81-3-3490-5021	+81-3-3490-1069	Headquarter
National Diet Library (NDL)	National Diet Library (NDL)	1-529 Nagata-cho, Chiyoda-ku, Tokyo 100, Japan	+81-3-3581-2331 (ex.2103)	+81-3-3597-5617	Headquarter
NEC Corporation (NEC)	NEC Corporation	5-7-1 Shiba, Minato-ku, Tokyo 108, Japan	+81-3-3798-9111	+81-3-3798-9170	Headquarter
New Glass Forum (NGF)	New Glass Forum	3-1-9 Shinbashi, Minato-ku, Tokyo 105, Japan	+81-3-3595-2775	+81-3-3595-0255	Headquarter
NHK JOHO NETWORK INC. (NHK-JN)	NHK JOHO NETWORK INC.	9-23 Kamiyama-cho, Shibuya-ku, Tokyo 150, Japan	+81-3-3481-1771	+81-3-3481-1777	Headquarter

Company	Contacts	Address	Telephone	Facsimile	Status
Nichigai Associates, Inc.	Nichigai Associates, Inc.	Dai-3 Shimokawa Bldg., 1-23-8 Ohmonkita, Ohta-ku, Tokyo 143, Japan	+81-3-3763-7581	+81-3-3764-0845	Headquarter
NIFTY Corporation	CompuServe Inc.	5000 Airlington Center Boulevard, Columbus, OH 43220, U.S.A.	+1-614-457-8600	+1-614-457-0504	Agent
	NIFTY Corporation	Ohmori Bell-Port A, 6-26-1, Minami-Ohi, Shinagawa-ku, Tokyo 140, Japan	+81-3-5471-5803	+81-3-5471-5890	Headquarter
	POSDATA COMPANY, LTD., Overseas Information Service	2nd Floor Taehanjedang Bldg., 7-23, Shincheon-dong, Songpa-gu, Seoul, Korea	+82-2-411-1327	+82-2-411-1555	Partner
	Taiwan Telecommunica- tion Network Services Co., Ltd. (TTN)	15th Floor, 120 Chien-Kuo, N. Road, Sec 2. Taipei, Taiwan, R.O.C.	+886-2-515-0330	+886-2-504-5593	Partner
Nihon Keizai Shimbun, Inc. (NIKKEI)	F.T. Business Enterprises, Ltd.	P.O. Box 12, Sunoury Middlesex, TW16 7UD, U.K.	+44-932-761444	+44-932-781425	Partner
	GENOIS Wirtschafts- datenbanken	Postfach 1102 Kasernenstrasse 67, D-4000 Dusseldorf, Germany	+49-211-887-1534	+49-211-379-330	Partner
	Nihon Keizai Shimbun America, Inc.	1325 Avenue of the Americas, Suite #2500, New York, NY 10019, U.S.A.	+1-212-261-6241	+1-212-261-6249	Branch
	Nihon Keizai Shimbun Europe, Inc.	Bush House, Aldwych, London WC2B 4PJ, U.K.	+44-71-895-9107	+44-71-379-0378	Branch
	Nihon Keizai Shimbun Singapore Pte Ltd.	331 North Bridge Road, #13-02/03, Odeon Towers, Singapore 0718	+65-336-4122	+65-336-4016	Branch
	Nihon Keizai Shimbun, Inc.	1-9-5 Ohtemachi, Chiyoda-ku, Tokyo 100-66, Japan	+81-3-5294-2407	+81-3-5294-2413	Headquarter
Nomura Research Institute, Ltd. (NRI)	Nomura Research Institute, Ltd.	Dai-2 Yamaman-Bldg., 6-7 Nihonbashi Koami-cho, Chuo-ku, Tokyo 103, Japan	+81-3-3249-9402	+81-3-3639-0273	Headquarter
	WEFA, Inc.	401 City Avenue, Bala-Cynwyd, PA 19004, U.S.A.	+1-215-667-6000	+1-215-660-6477	Agent
QUICK Corp.	QUICK AMERICA CORPORATION	Broad Financial Center, 33 Whitehall Street, New York, NY 10004, U.S.A.	+1-212-804-3000	+1-212-269-8084	Branch
	QUICK Corp. London Branch	65 Clifton Street, London EC2A 4JE, U.K.	+44-71-247-2222	+44-71-377-2201	Branch
	QUICK Corp.	Ohtemachi-Bldg., 1-6-1 Ohtemachi, Chiyoda-ku, Tokyo 100, Japan	+81-3-3201-5915	+81-3-3201-5033	Headquarter
	QUICK INFORMATION (H.K.) LIMITED	35th Floor, Gloucester Tower, 11 Pedder Street, Central, Hong Kong	+852-521-6200	+852-868-4191	Branch

Company	Contacts	Address	Telephone	Facsimile	Status
Research Institute of International Trade and Industry (RIITI)	Research Institute of International Trade and Industry	Kibiki-kan Ginza Bldg., 2-8-9 Ginza, Chuo-ku, Tokyo 104, Japan	+81-3-3535-5348	+81-3-3535-5347	Headquarter
Software Development Co., Ltd. (SDC)	Software Development Co., Ltd.	3-8-12 Shibuya, Shibuya-ku, Tokyo 150, Japan	+81-3-3406-3711	+81-3-3406-6850	Headquarter
Technomics, Inc.	Technomics, Inc.	Nihonbashi TM Bldg., 1-8-11 Nihonbashi Horidome-cho, Chuo-ku, Tokyo 103, Japan	+81-3-3666-2952	+81-3-3666-2730	Headquarter
TEIKOKU DATABANK, LTD. (TDB)	TEIKOKU DATABANK, LTD.	2-5-20 Minami-Aoyama, Minato-ku, Tokyo 107, Japan	+81-3-3408-1108	+81-3-3404-4339	Headquarter
	TEIKOKU DATABANK AMERICA, INC.	750 Lexington Ave., 28th Fl., New York, NY 10022, U.S.A.	+1-212-486-2637	+1-212-486-2638	Branch
The Japan Information Center of Science and Technology (JICST)	Data Communications Corp. of Korea (DACOM)	DACOM Building 65-228, 3-Ga, Han Gang-Ro Yong San-Gu Seoul, 140-716 Korea	+82-2-220-7272	+82-2-796-8811	Agent
	FIZ-Karlsruhe	P.O. Box 2465, W-7500 Karlsruhe 1, Germany	+49-7247-808-555	+49-7247-808-666	Agent
	Institut de l'Information Scientifique et Technique (INIST)	2, Allee du parc de Brabois, 54514 Vandoeuvre-Les Nancy, France	+33-83-50-46-80	+33-83-50-46-83	Agent
	JICST Paris Office	c/o CNRS 27, rue Damesme, 75013 Paris, France	+33-1-4581-1077	+33-1-4581-1196	Branch
	JICST Washington Office	Suite 1050, 1550 M Street, N.W., Washington, D.C. 20005, U.S.A.	+1-202-872-6370	+1-202-872-6372	Branch
	National Technical Information Service (NTIS)	5285 Port Royal Road, Springfield, VA 22161, U.S.A.	+1-703-487-4822	+1-703-321-8547	Agent
	The Japan Information Center of Science and Technology	2-5-2 Nagata-cho, Chiyoda-ku, Tokyo 100, Japan	+81-3-3581-6411	+81-3-3581-6446	Headquarter
The Long Term Credit Bank of Japan (LTCB)	The Long Term Credit Bank of Japan	2-13-30 Kami-Osaki, Shinagawa-ku, Tokyo 141, Japan	+81-3-3440-2111	+81-3-5488-7617	Headquarter
THE YOMIURI SHIMBUN	THE YOMIURI SHIMBUN	1-7-1 Ohtemachi, Chiyoda-ku, Tokyo 100-55, Japan	+81-3-3217-8217	+81-3-3217-8279	Headquarter
TOYO KEIZAI INC.	TOYO KEIZAI INC.	1-2-1 Motoishi-cho, Nihonbashi, Chuo-ku, Tokyo 103, Japan	+81-3-3246-5580	+81-3-3242-4067	Headquarter
	TOYOKEIZAI AMERICA INC.	380 Lexington Ave., 45th Fl., New York, NY 10168, U.S.A.	+1-212-949-6737		Branch
USACO Corporation (USACO)	USACO Corporation	1-13-12 Shinbashi, Minato-ku, Tokyo 105, Japan	+81-3-3502-6471	+81-3-3593-2709	Headquarter



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