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Characteristics of the Environment Surrounding
Online Information Services In Japan

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1. Introduction

Recorded information, irrespective of types and media, are primary resources for any kind of intellectual activity. Speedy and efficient access to those resources should be assured for better academic studies and research. Thus, it becomes important for us to know about recent online information services based on a large volume of stored information and sophisticated processing systems as well as the information environment whose change is accelerated by rapid advances of computer and telecommunication technologies.

Ever-increasing advances in technology and a decline of their cost have made substantial changes in the ways to produce, store, search, and deliver information. The changes, in turn, have impacts on user behavior, types of information services, library activities, and so forth. New kinds of information service organizations which take full advantage of online data processing techniques are emerging as well.

In general, the environment surrounding online information services can be depicted as in the following figure:

![Figure 1.1 Online Services Environment](image)

Producers are organizations which compile databases and supply them to vendors and other clients, while the vendors (distributors) operate information retrieval systems or act as representatives to sell information in the databases online to users. Telecommunication networks physically link various users to the vendors. Libraries and information brokers play intermediary roles between the vendors and the end-users by searching for needed information on behalf of those who are not familiar with methods for accessing the services.

The types of databases fall into four categories: bibliographic, numeric, text-numeric, and full-text. In some cases, graphic types may be considered
Databases which contain chemical compound structures are a typical example.

2. Brief history of the information service developments in Japan

It is not easy to give an overall systematic view of online information services since they stem from different roots. For example, in the United States bibliographic services came from the traditional abstracting and indexing services while numeric services came from data processing companies and research institutes. This tendency is also found in the Japanese scene.

The first significant undertaking in the area of services in Japan was formed by a newspaper publishing company, Nihon Keizai Shinbun, Inc. (NKS), which has noted expertise in economics and related fields. The service, named Nikkei Economic Electronic Databank System (NEEDS) was established in 1970, starting as the first timesharing service (called NEEDS-OTS/I) in 1972, which offers micro-economic statistical data. In 1973, a more sophisticated system called NEEDS-TS/II was launched. It provides not only macro-economic statistical data but also forecasting models for macro-economics. The earlier system was integrated into the later one in 1975. For bibliographic data, NKS started the NEEDS-IR batch service in 1978 and an online service via DEMOS in 1981. Now it offers three databases, NIKKEI, IEE-ENERGY, and JOINT.

Scientific and technical information is vital for the advancement of science and technology. The Japan Information Center of Science and Technology (JICST) was established as a special non-profitmaking organization by legislation in August 1957 to promote better dissemination of scientific & technical information to organizations and individuals engaged in the information field. JICST started a first phase online information service, called JICST Online Information System (JOIS) in 1976. After adding new functions, including Chinese character processing, a more advanced system called JOIS-II has been in operation since April 1981.

One of the biggest book distributors, Maruzen Company, has expanded its traditional service activities to include online information service and, with the establishment of the MASIS Center in 1977 as the database service division of Maruzen, the Center has been the Japanese representative of DIALOG since 1978 and the QUESTEL and DARC systems of Telesystemes of France since 1982.

MASIS has acted as the representative of the Canadian bibliographic utility, UTLAS, since 1980. As of March 1984 there are six user organizations in Japan. To enlarge the market, MASIS is scheduled to construct an UTLAS center in Tokyo from which cataloging data from Toronto are made available to member libraries.

Kinokuniya, another big book distributor, initiated a computerized information retrieval system called Alerting-search Service from Kinokuniya (ASK) in 1971 and opened online information services in 1980. It is also a DIALOG representative and also distributes INKA of West Germany, ISI, NIH-EPA/CIS, and Predicasts PTS.

Japan Patent Information Center (JAPATIC), which offers domestic and foreign patent information, started an online service called Patent Online Information...
System (PATOLIS) in 1979 while Tokyo Shoko Research began to operate the TSR-COMPASS service for corporate financial information internationally via GE MARK-III in 1978. Still more comprehensive corporate information has been provided nationally since 1981.

The year 1980 should be remembered as a turning point for Japanese information services since transpacific online data transmission became available, and the MASIS Center and Kinokuniya established dedicated lines that year. The lines were named MARUNET and KINOLINE (now changed to KINOCOS MONET), respectively. In the same year the Kokusai Denshin Denwa Corporation (KDD) opened an international public telecommunication line for data transmission called International Computer Access Service (ICAS). It was the first telecommunication channel between Japan and other countries. As a result, several American information services such as Data Resources, Inc. (DRI) and the New York Times Information Bank became available in Japan with resulting impacts in several fields. The new wave was accelerated when ICAS service was expanded to European countries in 1982 and a new service called VENUS-P, in which ICAS was integrated, was initiated in 1983.

Services from two of the big three bibliographic database vendors, SDC and BRS, became available through Japan SDC, Japan Information Processing Service Co., Ltd. (JIP), and USACO. Japan SDC launched an online information service in 1979 based on magnetic tapes supplied from SDC. Then, the service was enlarged and direct access to SDC databases became possible when ICAS was established in 1980. JIP and USACO also play a cooperative role since 1982.

Heiwa Information Center Co., Ltd. has been operating online database services called HINET since 1982. It offers so far two kinds of bibliographic database, TECNOSRC and TITLESRC.

Another noteworthy service institution is the Teikoku Data Bank, Ltd. which has been operating the Comprehensive Survey for Management Operation Systems (COSMOS) since 1983. The Data Bank specializes in corporate financial and other corporate information.

There are other institutions which play quite important roles in the online information service market. The Japan Pharmaceutical Information Center (JAPIC), for example, is a bibliographic database producer who compiles the JAPICDOC database which has been available through the vendors JIP and Toyo Information System since 1979. Quotation Information Center (QUICK) provides stock quotations while the Japan Association for International Chemical Information, a representative of CAS ONLINE service, began service in 1983. The Nomura Research Institute (NRI), a leading research institute and think tank, is also famous as a producer and distributor. Information Services International—Dentsu, Ltd. (Dentsu), which uses the GE MARK-III international network, is another major distributor, particularly in the numeric database service. Japan CDC operates the same type of numeric database service, Control Data Call service, to provide financial, portfolio and marketing information. Similar information on other organizations is listed in the Detabesu daicho soran1 and Detabesu Katsuyo Gaiko2. (The first directory covers 157 domestic and 522 foreign databases available in Japan.)
The National Diet Library (NDL) is also contributing to the rapid progress of online information services. NDL has been developing a totally computerized system based mainly on a Japan MARC database since 1977. Consequently, machine publication of the Japan National Bibliography (weekly list) was initiated in 1978, and NDL began to distribute Japan MARC tapes to the requesting libraries by way of the Japan Library Association. As of 1983 there are thirty-three libraries which subscribe to the tapes.

The Monbusho (Ministry of Education, Science and Culture) is developing a national information system for academic institutions called the Science Information System (SIS). When completed, the system will provide support to the academic community in the humanities and social sciences as well as the natural sciences and technology by offering not only bibliographic information on journal articles but also union catalog data for individual academic libraries to facilitate quick inter-library loans among members.

Finally, it is worth mentioning the non-profitmaking services undertaken at academic institutions. The first online system in this category was the TOOL-IR system developed at the Tokyo University which began service to academic groups in 1975 by using the Chemical Abstracts Condensates database, COMPENDEX, and some other databases in later years.

The UTOPIA system of Tsukuba University includes more than twenty databases such as BIOSIS, CA SEARCH, ERIC, Excerpta Medica, INSPEC, SCI, SSCI, Japan MARC, etc.

While universities, in terms of number of users and databases, are not dominant forces, they should be appreciated for giving impetus to the development of online searching in Japan.

3. General characteristics of the information service environment

The Information environment in Japan is characterized by the following aspects:

1) high need for foreign information
2) complex procedures are required for processing Japanese texts
3) low production and little use of machine readable bibliographic information in the social sciences and humanities

Foreign services are popular and have strong potential needs. Hence several organizations are working for foreign information service agencies. The typical example is DIALOG. Two DIALOG representatives, i.e. the Maruzen MASIS Center and Kinokuniya, compete with each other to enlarge their shares of the online service market. In addition, both institutions are widening their scope to include European information in their service, as already mentioned. Another major bibliographic information service, SDC, also has a representative, namely Japan SDC. Table 2.1 shows popular foreign bibliographic databases and their Japanese representatives.
Table 2.1  Popular Foreign Databases and their Representatives
(in order of use)

<table>
<thead>
<tr>
<th>MASIS</th>
<th>KINOKUNIYA</th>
<th>JAPAN SDC</th>
<th>JIP/USACO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MEDLINE</td>
<td>CA SEARCH</td>
<td>WPI</td>
<td>MEDLINE</td>
</tr>
<tr>
<td>2 CA SEARCH</td>
<td>MEDLINE</td>
<td>WPIL</td>
<td>CA SEARCH</td>
</tr>
<tr>
<td>3 EXCERPTA MEDICA</td>
<td>EXCERPTA MEDICA</td>
<td>RINGDOC</td>
<td>BIOSIS PREVIEWS</td>
</tr>
<tr>
<td>4 CLAIMS</td>
<td>CLAIMS</td>
<td>ORBIT</td>
<td>NTIS</td>
</tr>
<tr>
<td>5 DIAL INDEX</td>
<td>BIOSIS PREVIEWS</td>
<td>USPATENTS</td>
<td>EXCERPTA MEDICA</td>
</tr>
<tr>
<td>6 NTIS</td>
<td>DIALOGINDEX</td>
<td>CAS</td>
<td>INSPEC</td>
</tr>
<tr>
<td>7 BIOSIS PREVIEWS</td>
<td>INSPEC</td>
<td>ORBIT</td>
<td>PRE-MED</td>
</tr>
<tr>
<td>8 INSPEC</td>
<td>COMPENDEX</td>
<td>CHEMDEX</td>
<td>CROSS</td>
</tr>
<tr>
<td>9 PTS</td>
<td>NTIS</td>
<td>APILIT/APIPAT</td>
<td>COMPEDEX</td>
</tr>
<tr>
<td>10 COMPEDEX</td>
<td>PTS</td>
<td>PESTDOC</td>
<td>PTS</td>
</tr>
</tbody>
</table>

[Note: Data from MASIS and Kinokuniya were from 1982, while Japan SDC and JIP/USACO are from 1983. Extracted from Joho Shisutemuron except one concerning Japan SDC.]

NSK acts as the representative of DRI and the New York Times Information Bank in addition to its core services. Another example is NRI which is the representative of Interactive Services. Dentsu acts as a distributor for foreign services in Japan as well as offering Japanese service to foreign users. There are ten network nodes from which Japanese users will get access to databases in Cleveland, Ohio, and Japanese-made databases are also included in the services.

Domestic telecommunication is under strict control by Nihon Telephone & Telegraph (NTT), and international telecommunication, by the KDD. There are no profit-making organizations which operate high quality telecommunication lines for information delivery services. Liberalization of telecommunication networks is still on the way. As a result, information service corporations must develop their own dedicated lines for their services since existing public telephone lines are not adequate for reliable, speedy and inexpensive transfer of digital information. Or they have to use the NTT information system, Dendenkosha Multi-access Online System, DEMOS. For example, NEEDS-IR and TSR-BIGS are using the system while JOIS, JAPATIC, and NEEDS-TS use dedicated lines.

There are two methods to access foreign services, dedicated lines and VENUS-P. The MASIS Center and Kinokuniya have developed domestic dedicated lines for connecting users to their own international dedicated lines. For example, MASIS has six network nodes in Tokyo, Tsukuba, Osaka, Nagoya, Hiroshima, and Fukuoka. Kinokuniya has eleven nodes in Sapporo, Sendai, Mito, Tsuchiura, Toyama, Tokyo, Shizuoka, Nagoya, Osaka, Hiroshima, and Fukuoka. Then, access to DIALOG databases from other cities is carried out via VENUS-P.
Most end-users of the vendor services are affiliated with profit-making companies. The data from MASIS Center shows that 90% of DIALOG users come from industry while universities and government agencies make up only 4%. In the case of QUESTEL/DARC 97% of the users are from industry.

A recent survey polled the use of online information services. (See note 7.) As a whole, databases in the fields of science and technology, chemistry, medicine, and economics are used heavily. This is confirmed in table 2.1. There are virtually no public or school libraries which subscribe to the services for their patrons. This may be because domestic databases searchable by Japanese characters which cover social science and humanities are very few. Actually, only NDL MARC and databases offered by NSK can be classified in this category.

Furthermore, Japanese texts are not easy to process at terminals unless operators are trained thoroughly in how to use the terminals. This is because Japanese character sets and sentence structure are not amenable to the efficient processing of machine readable information. This hampers the rapid popularization of database services. In fact users at libraries and information brokers are less influential in the development of the information society than in, for example, the United States.

Judging from the results of the survey conducted in 1983 there is a slight "migration phenomenon." Table 3.1 shows the number of libraries using databases in different media. It shows an environment where the migration phenomenon will be analysed. Fifty-two out of 123 libraries responding to the questionnaires ceased subscribing to hard copy abstracting & indexing journals. Out of the fifty-two libraries, eighteen are academic while thirty-four belong to governmental organizations or private companies. Major factors are considered as follows:

a) completely online searching (15 libraries)
b) partially online searching (16 libraries)
c) other than online searching (20 libraries)

Table 3.2 shows the reasons for the cancellation of the subscription from a different aspect.

Some examples of the abstracting or indexing journals which were cancelled are:

- Chemical Abstracts: 19 libraries
- Kagakugijutsu Bunken Sokuho: 9
- GRA & I: 8
- Excerpta Medica: 6
- Biological Abstracts: 6

There are no libraries which stopped subscribing to Index Medicus.

With respect to the future of abstracting or indexing journals, different views are held by academic and other types of libraries as shown in Table 3.3. Since it has not been common to charge users at academic libraries search fees, librarians tend to use printed media as a searching means more than in other institutions.
### Table 3.1 Use Patterns of Media

<table>
<thead>
<tr>
<th>DATABASES</th>
<th>ONLINE FILE</th>
<th>PRINT MEDIA</th>
<th>ONLINE</th>
<th>PRINT</th>
<th>BOTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDLINE</td>
<td>Index Medicus</td>
<td></td>
<td>7</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>CA Search</td>
<td>Chemical Abstracts</td>
<td></td>
<td>6</td>
<td>22</td>
<td>34</td>
</tr>
<tr>
<td>EXCERPTA MEDICA</td>
<td>Excerpta Medica</td>
<td></td>
<td>4</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>JICST</td>
<td>Kagakugijutsu Bunken Sokuho</td>
<td></td>
<td>6</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>NTIS</td>
<td>GRA &amp; I</td>
<td></td>
<td>2</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>CLA MS TM/US PATENTS</td>
<td>US Official Gazette</td>
<td></td>
<td>0</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>COMPENDEX</td>
<td>Engineering Index</td>
<td></td>
<td>4</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>INSPEC</td>
<td>Physics Abstracts, Electrical &amp; Electronics Abstracts, Computer &amp; Control Abstracts</td>
<td></td>
<td>7</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>PREDICASTS</td>
<td>PREDICASTS Index (US, International, Europe)</td>
<td></td>
<td>0</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>BIOSIS</td>
<td>Biological Abstracts, Biological Abstracts/RPM</td>
<td></td>
<td>5</td>
<td>35</td>
<td>25</td>
</tr>
</tbody>
</table>

A: Academic Libraries  O: Other Types of Libraries

<table>
<thead>
<tr>
<th>Reason</th>
<th>Academic Libraries</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Online Files</td>
<td>9</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Reduction of Information Services</td>
<td>13</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>44</td>
<td>68</td>
</tr>
</tbody>
</table>
Table 3.3 Opinions on Abstracting and Indexing Journals

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Academic Libs</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online media will become dominant and use of print media will drop drastically</td>
<td>6 (13.3%)</td>
<td>12 (15.8)</td>
<td>18</td>
</tr>
<tr>
<td>Online and print media will have equal importance</td>
<td>23 (51.2%)</td>
<td>22 (28.9)</td>
<td>45</td>
</tr>
<tr>
<td>Dominance of media depends on the particular database</td>
<td>15 (33.3%)</td>
<td>37 (48.7)</td>
<td>52</td>
</tr>
<tr>
<td>Other</td>
<td>1 ( 2.2)</td>
<td>5 ( 6.6)</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>45 (100%)</td>
<td>76 (100)</td>
<td>121</td>
</tr>
</tbody>
</table>

4. Database producers and vendors in Japan

Large Japanese database companies are normally integrated producers which not only produce databases but provide users with related online services. Good examples are the Japan Information Center of Science and Technology (JICSTO and Nihon Keizai Shinbun (NKS)).

JICST, an influential organization, offers the following services:

a) Publication of abstracting journals in physical sciences and engineering
b) Custom search services
c) Literature search services
d) Translation services
e) Photoduplication services

JICST's online service uses not only their own databases but also ones such as MEDLINES, CA SEARCH, TOXLINE, CAB, CANCERLIT, COAL, and BIOSIS. JICST produces and distributes the following databases:

a) JICST file on Science and Technology (JICST). 1975-
b) JICST file on Research in Progress in Japan (JICST Clearing). 1977-
c) JICST file on Medical Science in Japan (JMEDICINE). 1981-
The first file covers bibliographic data and abstracts of many Japanese and non-Japanese articles. It is the online counterpart of the abstracting journal, *Kagakugijutsu Bunken Sokuho* (Current Bibliography on Science & Technology). The average length of an abstract is 300 Japanese characters (kanji and kana) which is equivalent to about 100 words in English. More than 3.5 million records are included with about 0.4 million records added annually. This file is used more frequently than the other two files. JICST Clearing is a referral base about research at 540 institutions in the public sector, but it is not used substantially.

The JMEDICINE database is gaining rapid popularity despite its relatively small size of about 30,000 records, and despite the fact that coverage is limited to Japanese articles in the field. At present, however, even high level researchers are somewhat reluctant to use articles in foreign languages. Surveys showed that JICST (J0IS) is used more frequently than foreign services such as DIALOG, SCD, and BRS. NEEDS and PATOLIS are also used heavily.

JICST initiated another online service in October 1984 based on the *NIKANN KOGYO–MULTIPLE AND EFFECTIVE DATABASE OF INDUSTRIAL AREA* (NK–MEDIA). The database includes news about new products and technology appearing in the *Nikkan Kogyo Shinbun* and is produced by the newspaper company. About 15,000 articles have been stored in the database since April 1983.

The Japanese syllabary is the main language of access to the JICST database, though roman letters are used for foreign words stored in the index as descriptors or keywords. Chinese characters are not used for searching, but they appear in the bibliographic data on the terminal. JICST has its own telecommunications network with ten access nodes in Sapporo, Sendai, Tsukuba, Tokyo, Toyama, Nagoya, Osaka, Hiroshima, Takamatsu, and Fukuoka. For further information, see the papers by Shusaku Suwa and Fumio Takano (See notes 10 and 11).

NSK is another leading company providing economics information. All the databases operated by NSK are domestic and either bibliographic or numeric in nature. The database supplied by NSK are as follows:

1) Numeric databases

MACRO ECONOMIC STATISTICS, PRICES (wholesale, export/import price indexes), HOUSEHOLD SURVEY (consumer price index, etc.), INDUSTRY (COMMODITIES), INPUT/OUTPUT TABLES (government and MITI tables), INTERNATIONAL TRADE, ENERGY, AGRICULTURE, CONSTRUCTION, BANKING AND FINANCE, MARKETING, COMMODITY PRICES, CORPORATE FINANCE, BANK FINANCE, CORPORATE EARNING ESTIMATES, STOCK and BOND PRICES, MONEY MARKET INDICATORS.

2) Models

JAPAN MACRO, ENERGY, AGRICULTURE, LIVESTOCK and FEED, INPUT/OUTPUT, BANKING and FINANCE, CORPORATE.
3) Bibliographic databases

a. NIKKEI: Economic industrial and corporate news appearing in Japanese newspapers and periodicals. Articles are stored in two forms—forty-character summaries and 200-character abstracts. Records are cumulated since 1975, but only a portion of the records of the past four years are available online. About 7,000 records were stored as of 1983.

b. JOINT: The most comprehensive bibliography on business and economics journal articles from about 1,000 journals, bulletins, monthly reports, etc. This database was added to the NKS service in 1981. It is maintained by the Institute of the Journal of Industrial Titles and has a counterpart indexing journal of the same name. About 130,000 records were included as of 1983.

c. IEE-ENERGY: This database contains overseas energy information, namely summaries and abstracts of articles on energy selected from about sixty of the world's leading newspapers and journals. The Institute of Energy Economics (IEE) translates the articles into Japanese and enters them in the database. The data is comprehensive back to January 1979 though only a portion of the past four years is available online. As of 1983 about 50,000 records are in the database.

NEEDS-TS has been operated by its own computer system with access nodes to NEEDS-TS located in Tokyo, Osaka, and Nagoya. Ninety percent of TS users are in Tokyo with most of the remaining 10% in Osaka and Nagoya. In addition, NEEDS-IR is serviced via NTT's DEMOS system which provides more nodes to the users. Searching can be done by Japanese syllabary only.

Since 1979 JAPATIC provides several kinds of patent information using NTT's dedicated line, D-l, and public telephone lines. It offers five databases: Japanese patents, utility models, designs, trade marks, and International Patent Documentation Center (INPADOC).

The HINET systems of the Heiwa Information Center operates two database services. The TECNOSRC database, which has existed since 1982, contains more than 100,000 records from five business newspapers as of March 1984. The subjects covered in TECNOSRC are new products and technology, and marketing strategies of individual corporations. Subject access to the database uses a controlled vocabulary. Another database called TITLESRC was initiated in 1983. The database covers science & technology and contains articles from about 850 Japanese journals. Since the database and JICST Science & Technology have many records in common, most records in TITLESRC can be found also in the JECST database. HINET is using a special software called HAPPINESS for selecting indexing words. HAPPINESS processes each title by extracting important words as indexing words. This results in quicker indexing which makes possible shorter time lag in updating records. Now more than 6,000 records are added to the database per month, and the time lag is limited to ten days to one month.
Teikoku Data Bank, Ltd. (TDB) which initiated online information service in 1983, contains the credit reports compiled and cumulated at TDB. Databases provided from TDB are COSMOS-1 (corporate finance), COSMOS-2 (corporate information), and TEIKOKU CREDIT REPORT. TDB also provides magnetic tape distribution, offline searching, and facsimile transmission of output from the databases.

QUICK was established in 1971 for the purpose of transmitting stock price information from the stock markets in real time; it launched online service in 1974. The core databases of QUICK are of an ephemeral nature. Its online service is powered by dedicated lines.

A few organizations act only as producers without providing online information themselves. Tokyo Shoko Research (TSR) is an example. It produces TSR-COMPASS and TSR-FINES (corporate finances) and TSR-BIGS (corporate information). They are distributed by other organizations, however; that is, GE MARK-III and NTT’s DEMOS. Now TSR-COMPASS is available in thirty-six countries. Other examples are JAPIC and NRI which are mentioned above.

NDL may also be included in this category. It produces data for Japan MARC, General Index to the Debates of the National Diet, Serials in Western Languages Held by NDL, Japanese Serial Publications Held by NDL, and Japanese Periodical Indexes in machine readable form. More than 300,000 records are contained in the Japan MARC database alone. Although online access to the databases in the NDL is left to the NDL staff and public services is not operational yet, plans for this purpose are being discussed. Mitsubishi Research Institute, Ltd. (MRI) is conducting an experimental project to examine how the Japan MARC database can be used cooperatively by special libraries. The project is being carried on simultaneously in the Tokyo and Osaka areas. The number of participating libraries amounts to seventy-five as of March 1984. BASIS software, with functions to process Japanese characters, is used at the project. A similar project aimed at academic libraries is planned for the Kyoto area by a different group, and other projects utilizing Japan MARC tapes have been carried out by several organizations.\(^{13}\)

5. Conclusion

One cannot say that Japanese online information services are already in a developed stage; however, promising signs of rapid progress are apparent in several areas.

The Ministry of International Trade and Industry is taking measures to foster and support domestic database services. The first step was the publication of a Directory of the Database Services. In April 1984 a new organization was approved by MITI which aims at promoting database production activities and diffusing online information services more widely. Twenty major companies in the information industry are members of this organization.

The Monbusho is developing a Science Information System, a nationwide database of catalog information for academic libraries.
The NDL plans to initiate in 1985 an online public service based on its database. Users will have access to information from not only Japan MARC but also other databases such as General Index to the Debates of the National Diet and Japanese Periodical Indexes. In addition, more and more institutions are embarking on information services using Japan MARC. It is likely that the first Japanese bibliographic utility will appear in the near future. The success of the project by MRI and the expected liberalization of a domestic data transmission network will have substantial influence on the advent of the utility.

Recent advances in the processing of Japanese texts are dramatic. Word processors and software which have excellent functions for inputting, editing, deleting, and displaying are now available at reasonable costs. There is also recent progress in computerized techniques for parsing Japanese texts and extracting important keywords as well as transcribing Chinese characters into Japanese syllabary. The system developed by Heiwa Information Center, HAPINESS, and one at JICST are typical examples of such software. We can conclude, thus, that information services in Japan have great potential for further development and are characterized by uniqueness which in turn is providing opportunities for new R & D projects.

References


(6) Untitled pamphlet distributed from MASIS Center.


(8) More detailed data will be shown in an article to be published this year.


(12) Pamphlet issued by NKS.