

design detailed parts of the system, which require more labour-intensive routine programming.

This means that such third-party software developers have little chance to carry out quality design work. This is left to foreign software developers who are more experienced in more highly specialized programming.

Information Service Industry

According to the Japanese government's classification system, the software industry is one of four segments of the information service industry.

The information service industry comprises:

- the *software industry* specializes in the development of computer programs;
- the *information processing industry* uses computers to provide various services for customers (computing service);
- the *information provision service industry* utilizes computers to retrieve information for customers (database services); and
- *other information related services* include consulting, researching and education.

Information Processing

The information processing industry provides computing and technical services, including consulting, software development and network services.

- *Computing services.* Approximately 15 years ago, when computers were very expensive, there was a large demand for computing services from customers who could not afford their own computers. The declining price of hardware has obliged information processing service companies to customize their services in order to survive.
- *Technical services.* The growth of office automation equipment has made systems integration the most important technical aspect of the software industry in Japan.

Japanese users have changed their attitude towards data processing. As systems have grown, the use of computer systems has evolved from conventional data processing to strategic

information systematization (SIS). Now, consulting services must focus on the total system.

- *Network services.* Many new business opportunities resulted from the liberalization of the communications industry in 1985. Companies specializing in value-added networks, or VANs, offer computer installation, network design and construction, and personnel training.

According to the Japan Information Service Industry Association (JISA), the VAN market value in 1988 was ¥34 billion.

Information Provision Service

Information provision services are provided by companies that offer database services. This is a relatively new business activity. In 1988, total sales of the Japanese database service industry were less than ¥106 billion. This is far below comparable U.S. and European figures.

The U.S. leads Japan in the distribution of general-purpose software products. Most widely used databases in Japan are made in the U.S.; Japanese databases account for a market share of less than 25 per cent.

According to MITI's "Database Survey," in 1987, there were 1 795 databases available in Japan, up 21 per cent from the previous year. Of these, 76 per cent were made abroad.

Of the serviced databases available in Japan, 48 per cent were business databases. This percentage is increasing. Natural science and technology databases accounted for 30 per cent, general information databases for 18 per cent and social sciences and humanities databases for 4 per cent.

Market Size of Information Service Industry

In 1988, sales in the Japanese information service industry increased by 43.4 per cent. Sales growth has been due to strong Japanese economic growth, supported by a prolonged appreciation of the yen and low interest rates.

Supported by private sector investment in network construction, total software sales are expected to reach ¥5 trillion in 1990, according to MITI's 1988 "Survey on the Special Service Industry."

In 1988, software development accounted for 54.6 per cent of total software sales compared with 48 per cent in 1986. This means that software development supported the information service industry.