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THE CONSIDERATION OF JAPANESE SOFTWARE INDUSTRY WITH REGARD TO A NEW ERA

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This paper focuses especially upon an analysis of the subjects for consideration of Japanese software industry with regard to a new era. The main subjects are as follows:

- (1) *Changes in the market*
- (2) *Changes in the structure of enterprises*

1 Changes in the market

In order to summarize Japanese software market transformations, it is necessary to examine differences between the market of the new era and the existing market. Japanese software market transformations can be divided into: (1) transformation of the information processing needs (2) progress of personalization, and (3) transformations in relationships.

1. 1 Transformation of information processing needs

Formerly, the main aim of information processing for most Japanese corporations was laborsaving and efficiency. Beyond these first two aims, the ratio turned towards gaining predominance over the competition. Today it is turning towards the establishment of a business base, as can be seen in EDI.

During the past few years, Business Process Re-engineering (BPR) has garnered much attention, and the role of the information system is indispensable for BPR. Formerly it was difficult to find a communal base for data which handled dealings between corporations and their clients, but now, with the IT (information technology) called EDI, the realization of BPR has become a reality as it breaks through corporate walls. In this fashion, the aims of information processing and/or expectations regarding information system are being transformed from laborsaving towards SIS predominance over competition, and the establishment of a business base has become the main factor in the transformation of the market structure.

1. 2 Progress of personalization

Due to miniaturization, low pricing, and high efficiency of information equipment over the past few years, it is now easier for users to purchase and utilize information equipment. In corporations or administrative assemblies, those who need to utilize information are the individuals; therefore supporting the individual in his/her utilization of information is indispensable for any organization. In effect, the existing concept of the organization is being transformed with a more serious consideration being given to the role of the "individual".

1. 3 Transformations in relationships

Transformations in relationships means a transformation of the relationship between the industries or the corporations. For example, the hardware vendors and software corporations established their domains by themselves and drew clear-cut lines from each other in the past. But as technologies fused and with hybridization, it became hard for hardware corporations and software corporations to satisfy their clients within these boundaries. As the result, the domains between industries is being transformed into various shapes, such as cooperation, multiple

management, organizational division, etc.

The second transformation is taking place among international relationships. Formerly the software industry was regarded as a domestic industry. But as operations became borderless and more global in scale, information systems have been forced to become international. Also the increasing popularity of small-sized computers has promoted the distribution of package software and an internationalization of the market.

The third transformation occurs in the relationship between the software industry and its clients. Previously, the software industry regarded the information systems division of users as its client. But as the field work divisions of each corporation began to promote self-development, the role of the information systems divisions has become an object of serious concern, and the software industry itself is no longer able to deal with the needs of the new era within the confines of its existing relationships with its clients.

Formerly the software industry was regarded as an "order-receiving industry", but in order to survive, self-renewal into an "order-creating industry" should be carried out. In order to deal with the transformation of the information processing needs, a proposal based upon a bold idea of realizing cost-breakthroughs is definitely called for.

A new business focusing on services for the individuals is necessary in order to cope with personalization. Services for the individual have a close relationship with the field of administration and society, and the field that the software industry has avoided taking part in, those services at the window, for example, have to be launched. Technical sources for this field are the technologies required for coping with networking, opening up, downsizing and multimedia participation, and these technologies will become the lifeline for the software industry.

With regard to globalization, a joint development and technical tie-up with foreign corporations will be the lifeline of business.

In order to deal with transformations of relationship with clients, a distribution channel for software and other products will have to be established in some way since there is not a single channel of information systems for the users at this time.

2 Changes in the structure of enterprises

Transformation of the business structure includes (1) a transformation of the business form, (2) a transformation of technology, (3) a transformation of the methods of supplying commodities.

2. 1 Transformation of the business form

Forming a new business is the result of cooperation between two different types of industries, i.e. cooperation between information and communication, or communication and broadcasting. As seen in the new social capital concept of Japan, the demand for equipping the infrastructure is increasing in order to build a society with a high level of processing to information, and various kinds of businesses related to supplying this infrastructure are anticipated.

2. 2 Transformation of technology

In the software industry there was a tendency towards restricting the technology of software development, especially of those most essential technology. The introduction of the CASE tool and the methodology of system development was discussed in order to increase the productivity of software development. But the services of the software industry itself are being transformed, and a reformation of the essential technologies which are inclined towards the development of software development is no longer applicable. The development of the technologies of systems

integration and the development of the technologies which allow for the realization of business integration are important in the future.

The same thing can be said about the management technologies. In a software development, the relationship between the users and the software corporations is a relationship between the entruster and the trustee, and project controls such as cost control, delivery date control, and quality control have been regarded as management technology. But in the supply services of the future such as software products or database supply, planning is the most important step, and the management technology has to be regarded as the control of the business as a whole, including planning, opening up new channels, developing, and bill collecting.

Within integration technology, systems integration was regarded as the most important aspect. But in light of the introduction of CATV and multimedia, and the unification of hardware, software, and "user-ware", and also when we consider the integration technology as a business, the importance of systems integration technology is a matter of course; business integration is what takes on new and added importance.

2. 3 Transformation of the methods of supplying commodities

First, it must be pointed out that the method of carrying out transactions is being transformed. The existing method of commissioned contracts, i.e. the contract of man-power business, is being transformed into a contract type of situation in which the software corporations assume the risk by themselves. Introduction of RFP (Request For Proposal), in advance of the transaction, which clarifies the matters of the transaction itself are indispensable, and also the standardization and the form of the presentation (packaged sets) of know-how are quite important. Customizing was the ordinary way of things in the Japanese software industry in the past, but without building know-how into the produced package software, it becomes impossible to survive in the cost competition.

In the United States, packaged software is ordinary, and the business of supplying package software which is low cost, tested and proved is the mainstream. The Japanese software industry has to transform itself into the American way of doing business.

Secondly, there exists a need for technical tie-ups, technical introductions, technical development and joint development with or among different types of industries. Especially in terms of the business integration technology, as some advanced corporations in the software industry have already realized, a constitutional reform such as the establishment of a think-tank division and/or a tie-up with think-tank corporations or consulting corporations is required.

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