

A Study of the B2B Progress in Japanese Enterprises

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Abstract

Most Japanese enterprises are confronted with a rapid decline of business performance due to the long time recession of the Japanese economy. They gradually lost their competitive advantages in global marketplaces especially in the business domains of matured products including PCs. Most of them are forced to take prompt measures to respond to their business environment. For the past few years, we have been conducting questionnaire surveys repeatedly about B2B information systems in small and medium-sized enterprises (SMEs). The results of these surveys show clearly that their business performances have no clear relevance to the utilization B2B information systems. In conclusion, from a management strategy point of view, Japanese SMEs are classified into the following four types: (a) a group of high technical skills in special fields irrelevant to the utilization of information systems, (b) a new business model oriented group, (c) a manpower cost reduction oriented group, and (d) a foreign manufacturing subsidiary group. In the near future, these groups seem to polarize into group (a) and group (d).

Keywords: competitive advantage, B2B, small and medium-sized enterprises, Japanese companies, management strategy

Introduction

With the rapid progress of B2B in recent years, most Japanese enterprises are confronted with complex issues: how to evaluate the effectiveness of B2B, how to resolve the shortage of high skill technical personnel, how to make mutual consent among enterprises concerned, etc. In this paper, we make an analysis of the present status of B2B utilization especially in small and medium sized enterprises (SMEs) in Japan, using examples from the questionnaire survey of 2001. (See yearly report, 2000, Research Institute for Economic and Business Administration, Kanto Gakuin University, Japan.) Then, we propose typical types of corporate strategy on the basis of utilizing B2B. In conclusion, we found four types of corporate strategy, (a) group of high technical skills in special fields irrelevant to the utilization of information systems, (b) new business model oriented group, (c) manpower cost reduction oriented group, and (d) foreign manufacturing subsidiary group. In near future, these groups seem to polarize into group (a) and group (d).

Current status of SMEs in Japan

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Target Enterprises

Our questionnaire surveys in 1991, 1998 and 2001 covered about 1,050 SMEs mainly located in Kanagawa Prefecture, and received answers from 243 enterprises. The distribution of responders is as follows; electric machinery industry is 21.2%, precision instrument industry is 15.3%, chemical indus-

try is 14.4% (including rubber and plastic), general machinery is 11.0%, metal industry is 9.3%, etc. Also, on the basis of payroll number, employer with less than 50 workers is about 32%, 50 to 200 is 34% and more than 200 is 34%.

Survey Results

Diffusion of online systems

The diffusion of on-line systems in SMEs is classifiable to type A, type B and type C. Type A is the stand-alone computer user group. A large majority of type A enterprises utilize stand-alone computer systems including PC mainly for in-house routine works. Type B is the terminal equipment user group. VAN service enterprises or large enterprises provide terminals. The majority of type B enterprises computerized order entry systems in the first step, prior to in-house routine jobs, because they are forced to introduce terminals by outside trading partners. While type C enterprises utilize inter organization (in B) information networks between head office and branch offices, between each office, and between related enterprises (B2B).

According to our surveys, in 1991, about 49.5% of SMEs belongs to type A. The ratio of type A declined sharply to 27.5% in 1998 and 14.0% in 2001. While type B shows sharp upturn from 7.7% in 1991 to 17.6% in 1998 and 26.3% in 2001. Also the ratio of type C is 42.8% in 1991, 54.6% in 1999 and 61.4% in 2001 (Table 1).

Table 1. Diffusion of on-line systems in SMEs

	1991	1998	2001
Type A (Stand-alone computer users)	49.5	27.5	14.0 (%)
Type B (Terminal equipment users)	7.7	17.6	26.3
Type C (Information Network users)	42.8	54.9	61.4

Objectives of B2B implementation

In these surveys the Objectives of B2B are classified to two levels. (Hanaoka, et. al., 1991) Level 1 objectives are to eliminate manpower cost, to eliminate business processing time, to improve processing accuracy, to standardize business procedures, realize consistent organization, etc., which affect mainly to improve routine work or standardized workflow. The level 2 objectives are to realize complete control of organization, to increase efficiency of management activities, to standardize management procedure, etc. which affect mainly to improve activities middle management.

According to the surveys, these objectives changed in the course of ten years from 1991 to 2001 shown in Table 2

Table 2. Objectives of B2B

	1991	1998	2001
Level 1 : Elimination of manpower	73.6	38.9	38.8 (%)
Elimination of processing time	27.6	16.7	16.6
Improvement of Processing accuracy	11.0	38.9	38.8
Standardize business procedure	44.0	44.4	44.4
Realize consistent enterprises	44.0	22.2	22.2

Level 2: Increase efficiency of management	59.3	33.3	33.3
Standardize management procedure	37.4	44.4	44.4

Distribution of computer applications

Table 3 shows the distribution of IS applications in 1991, 1998 and 2001.

Table 3. Distribution of IS applications

	1991	1998	2001
Order entry	71.6	63.2	68.2 (%)
Sales management	52.3	36.8	45.5
Logistics (distribution management)	20.5	15.8	18.7
Purchasing management	3.3	11.8	9.1
Inventory control	69.3	47.4	36.4
Accounting and financial control	54.7	52.6	40.9
Production control	55.7	47.4	59.1

Distribution of other ends

Table 4 shows the distribution of connected other ends of Information networks in 1991, 1998 and 2001.

Table 4. Distribution of other ends of Information networks

	1991	1998	2001
in B Within the same business place	30.8	64.7	59.1 (%)
Within a firm (including remote place)	63.7	41.2	50.0
B2B Parent firm	12.1	5.9	22.7
Daughter firm		3.3	11.8 9.1
Affiliated company	18.7	18.0	27.3
Prime contractor	11.0	17.6	0.0
Supplier (Merchandise resources)		17.6	5.9 31.8

Information obtained through information networks

Table 5 shows the trends of information obtained through information networks in 1991, 1998 and 2001.

Table 5 Distribution of information obtained from information networks

	1991	1998	2001
Information of shareholders alike	2.1	25.0	40.7 (%)
Technical information	25.6	45.0	58.2
Maintenance information	4.9	15.0	15.4
Patent Information	15.9	25.3	37.4
Market forces and sales information	12.2	26.7	35.2

Financial information	7.3	20.0	14.3
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Issues for utilizing information networks

Table 6 shows major issues for utilizing information networks in 1991, 1998 and 2001.

Table 6. Major issues for utilizing information networks

	1991	1998	2001
Lack of IT know how	46.3	60.9	56.8 (%)
Lack of IT training and advise	14.1	17.2	18.9
Lack of business process standardization	64.4	53.1	54.1
Lack of IT staff	53.2	45.3	51.4
Large initial investment for H/W and S/W	39.0	53.1	50.0
Long time to develop S/W	34.1	53.1	44.6
Difficult to connect to the existing systems		15.1	15.6 20.3
Large running cost	13.7	18.8	12.2

Future trends of implementation

Table 7 shows the future trends of information network implementation as of 1991, 1998 and 2001.

Table 7. Future trends of information networks implementation

	1991	1998	2001
Maintain the status quo	10.3	29.6	11.1 (%)
No concrete plan to enlarge scale	44.5	48.1	55.6
Plan to perform enlarge scale	45.2	18.5	27.8

Typical unreserved comments

There are many useful comments in these surveys. Typical comments are as follows.

- We need not introduce the latest IT because our core competence depends on technical skill of each employee.
- We dare to shift our production sites to Far-East countries because we cannot keep a lid on labor costs only by utilizing IT.
- IT is the most important contributing factor to create new business models.

Utilization Level of Information Networks

The effectiveness of introducing information systems (e) is expressible as the ratio of output (o) and input (i), where "o" means obtainable values by the use of information systems as shown in table 2., and "i" represents investment for information systems. The following four types of measures represent the strategy of utilizing information systems (Hanaoka, 1997 & 1998a). Namely,

- Type 1; "o" remains constant and "i" cut down (i-down, o const.),
- Type 2; "i" remains constant and "o" increase (i-const., o-up),

- c. Type 3; the ratio of "o" to "i" increase (o-extensive up, i-modest up, or o-modest down, i-extensive down),
- d. Type 4; "o" increase and "i" decrease (o-up, i-down).

Analysis and Discussion

Relations between Core Competence and Information Systems

Combination of core competence and information systems

Figure 1 shows the relations between types of core competence and utilization level of information systems. We can classify the characteristics of core competence into two types as shown in horizontal in figure 1. They are "Related to information systems" type and "Unrelated to information system" type. Also, in vertical, there are two typical utilization levels of information systems, i.e., type 1 (i-down, o-constant) and type 2 (i-constant, o-up). As a result, we can classify these relations into four types. They are Cell A, Cell B, Cell C and Cell D. (Hanaoka, 1998b)

		Core Competence	
		Related to IS	Unrelated to IS
Utilization Levels of IS	Type 1 1-down o-const	Cell B Cost reduction oriented (Manpower saving, etc.) (Level 1 users)	Cell A High technology, high skill labor oriented (Type B users)
	Type 2 1-const o-up	Cell C Minimize opportunity loss (New business process oriented) (Level 2 users)	Cell D Support diffusion of new high technology products (Type C users)

Figure 1. Relationship between core competence and utilization and level of information systems

High technical skills groups (Cell A and Cell D)

Most enterprises belonging to Cell A possess high technical skills in specific fields irrelevant to the utilization of information systems. In other words, Cell A type of organizations are peculiar to excellent Japanese SMEs, no matter whether they introduce the latest information systems or not. Meanwhile, most enterprises belonging to Cell D are a new business oriented group. Latest information systems such as new business models will support the diffusion process of high technology. This type of SMEs usually keeps competitive advantage to large enterprises in specific fields.

Matured product groups (Cell B and Cell C)

Most enterprises belonging to Cell B are manufacturers of matured products. One of the most important objectives of utilizing information systems is cost reduction. In other words, Cell B belongs to manpower cost reduction-oriented groups. Most of them are confronted with bruising competitive price cuts. Most enterprises belonging to Cell C will relocate their manufacturing facilities to Far East countries, such as

China, Thai, Vietnam, or the Philippines, if they cannot undercut the competitive price in Japan. At the same time, they develop new value-added products and produce them in Japan.

Future Trends

Our surveys indicate that in the near future SMEs in Japan seem to polarize into Cell A and Cell C. The most important factors for the future are as follows.

- a. Japanese SMEs should select characteristic features whether they should belong to Cell A or Cell C.
- b. Introduction of B2B applications is effective for the majority of SMEs belonging to Cell B, Cell C and Cell D.

Conclusion

The summaries of the surveys are as described below.

- a. Polarizations of Japanese SMEs to Cell A and Cell C will become marked.
- b. Introduction BtoB will accelerate in most SMEs.
- c. The core competence of high-performing SMEs, performance is independent whether they utilize information systems or not.

In general, most Japanese manufacturers products become in matured, such as PCs, electric appliances, home electric appliances, shipbuilding, etc. If the above polarizations continue for long-time, Japanese economic deterioration will become more serious, because the technology drains will accelerate Japanese shakeout.

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Biography

Sho Hanaoka is Professor of Management Information Systems at the Faculty of Economics, Kanto Gakuin University. He received his doctorate in philosophy from Tokyo Institute of Technology in 1997 and a master degree in geophysical prospecting from Kyoto University. His undergraduate degree is from the Department of Technology, Tohoku University. His research interest include; nature of virtual organization, outsourcing, mechanism for generating consensus between the IS Division and the end users.