

THE IMPORTANCE OF SUBCONTRACTING RELATIONSHIP;

The Development of Subcontracting
Management in Japan and its Future*

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Many a people across the world now believe that supplier networks in Japan are one of the key factors which have contributed to its rapid economic development from the ruins of the War and its success in competing with other industrialised economies in the world markets. Japan's experience may be useful for developing economies and economic reforms in many countries. Though the idea is very convincing and it is natural that a number of overseas managers come to Japan to learn from the close and cooperating relationships between large factories and their supplying SMEs, there are a series of important facts which constituted well working supplier networks but are often overlooked. Fortunately, the world-wide studies, comparisons and discussions about the Japanese subcontracting system and the experience of

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the transplants of Japanese manufacturers and of their local supplying networks make it possible to understand these facts from different points of view.

Here I would like to reorganise them, based on many studies or reports, and my own interviews and dialogues with overseas managers and researchers.

1. Some theoretical hypotheses

Schonberger (1982) showed the disadvantage of excessive in-house production, the necessity of good supplier networks and the importance of JIT purchasing principle. Hartley (1986) also suggested big manufacturers to slim down the business and reduce the operation 'back to the core'.

Nevertheless, the early experiments in Western countries to adapt JIT purchasing were often disastrous. Womack *et al.* (1990) and some other reports (e.g. Oliver & Wilkinson (1988)) suggest that Western car makers reduced the number of supplying firms and improved delivery schedules but the change was simply a shift of costs to suppliers. The relationships have been still distant and promoted least trust.

The basic advantages attached to Japanese practices are not simply long-term relationships and mutual trust and cooperation between big assembly companies and suppliers. As Womack *et al.* correctly pointed out, 'Japanese suppliers face constant pressure to improve their performance, both through constant comparison with other suppliers and contracts based on falling costs' (p.168).

These studies and suggestions, however, also raise more basic questions about some indispensable conditions for the development

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of good supplier relations, based on the comparative experiences in Japan and Western countries.

- 1) First of all, suppliers' geographical proximity of their main customer, as well as the number of existing competent suppliers, is the key problem.
- 2) Then, the birth rate of new start ups of manufacturing firms and the technological and managerial competence of newly born small enterprises should be questioned. Hartley stressed that, by encouraging workers to start small workshops and to materialise their high motivation, entrepreneurship and loyalty, a large scale of very small and subordinating but specialised subcontractors can be supplied and develop a very efficient, low overheads and flexible supplier network, which is closely connected to and highly depending on their parent.
- 3) The management on purchasing practices and supplier relations, or deliberate efforts in 'subcontracting management', is very necessary for promoting well organised supplier networks. That was strongly suggested by Womack *et al.*, by showing much more important practices and techniques are the careful selection of suppliers and the formation of multi-tier structure, organising supplier associations, adapting Value Analysis, Total Quality Control and Statistical Process Control, and sharing the profits of savings.
- 4) Not only very close and cooperating relationships between large manufacturing firms and small suppliers, but technological linkages and cooperation between small firms are almost indispensable. Often overseas observers fail in finding the development of industrial organisations within Japanese small entrepre-

neurs' world.

These preconditions do not necessarily hinder the development of good practices outside Japan. But, without taking them into account, very simplistic efforts of emulation will inevitably lead to a deadlock in different backgrounds.

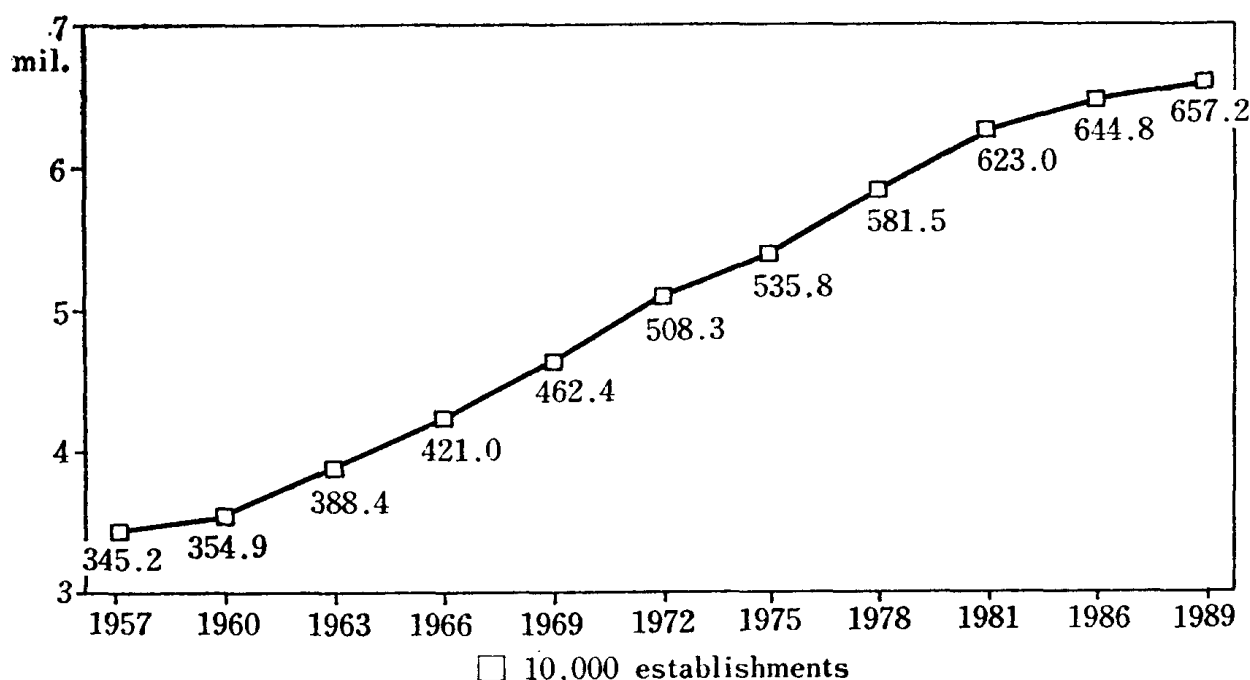
2. The expansion of the SME sector from the 1950s to the 1970s

In Japan, according to the *Establishment Census of Japan*, there are more than six million small and medium-sized enterprises (SMEs)¹⁾, and they have been playing indispensable roles in the economic society. Roughly one half of them, three million enterprises are in the wholesale, retail and restaurant or eating place industries and there they account for approximately 80% of all retail, and 60% of all wholesale turnover. These enterprises, including one and half million services businesses, have organised a smooth distribution network and satisfy diverse demand for good and services.

Very distinguished characteristics of SMEs in Japan, however, can be demonstrated by their presence in the manufacturing and construction industries. There are almost eight hundred and fifty thousand manufacturing SMEs and five hundred and fifty thousand construction SMEs in Japan, the former of which claim

1. In Japan the Medium and Small Enterprise Basic Law (1963) officially defines SME (entrepreneur) as "any company whose amount of capital or total amount of investment is ¥100,000,000 or less as well as any Company and individual whose regular payroll employees are three hundred persons or less". As far as the wholesale, retail and service businesses are concerned, the least upper bound is slightly lower than the above.

Figure 1. Time trend of the number of small and medium establishments



more than 50% out of the annual manufacturing shipments or value added (see *Census of Manufactures*). They are supplying a wide variety of products of most industries, from daily necessities, such as foods and clothes, to metal products and machinery.

One of the interesting features of SMEs in Japan is that the number of them were consistently increasing in all the industries after world War II, which had been almost doubled in 30 years since 1957 (see Figure 1). Such an evident growth is rather exceptional in most advanced countries. In addition, this growth was accompanied by a large-scale replacement which showed around two hundred and fifty or three hundred thousand new start-ups and two hundred thousand withdraws. As far as the manufacturing industries are concerned, the number of manufacturing SM-Es was five hundred and fifty thousand in 1960, but eight hundred and seventy thousand in 1986. Very distinguishing trends of

growth were found in machine, electronics products, metal products, cloths and printing industries.

Their another feature is that most SMEs are very small, each of nearly 80% of which employs less than twenty people and 60% less than five. These very small or micro businesses are expected to allow family members to find employment and to earn a livelihood, rather than to grow up as a capitalist enterprise. Nevertheless, even micro businesses have plenty of technological skills and advanced small-scale equipment.

What we should not overlook is the historical fact that the enterprises even in the distribution industries have been supporting the development of the secondary industry, not only by expanding distribution networks of products both in domestic and export markets and supporting the process of trade-oriented economy for many years, but by organising production networks by themselves. Such network systems were often identified with very classic putting-out system, but small manufacturing firms were able to find their places in them and many useful experiences and practices for linking and managing manufacturing SMEs on the basis of division of labour system were accumulated. Later in many industries, mainly consumer goods manufacturing, putting-out houses changed their roles, by expanding product planning, development and marketing functions and directly undertaking part of manufacturing process, and become another type of manufacturing firms which utilise subcontracting system²⁾.

The motivation for new start ups was partly the desire of escaping from lower working conditions in SMEs and of climbing up social ladders, within the segmented labour market and under

closed employment practices in big companies. For many years it was common custom for workers in SMEs to start businesses after certain year's service with necessary skill and fund. The huge migration from rural and agricultural districts to urban and industrial towns from the 1950s to the 1970s accelerated this trend. Many farmers and their family members joined the horde of working population, mainly working for SMEs, and later farmers in rural areas converted their businesses to cottage workshops.

Nevertheless, if SMEs had been just small and weak, there expansion would have simply meant an obstacle against rapid and overall economic development in Japan. The most important fact is that they have been supporting indispensable part of the industrial development which demanded sophisticated modern technology and management technique. Then, the indispensable point is how they could find their role in the social division of labour and the industrial structure and could manage to acquire necessary technology, funds, skills and management practices.

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2. Some SMEs in the manufacturing industry are independently operating small-scale production, others are producing original goods by adopting their own special technology. But, leaving these independent enterprises, which may account for 30% out of manufacturing SMEs, most are depending on 'subcontracting commission'. According to *Basic Survey of Industry* 1981, out of some eight hundred thousand manufacturing SMEs in Japan, 65.5% are engaged in subcontracting business in many industries. The Law on the Prevention of Delay in the Payment of Subcontracting Charges and Related Matters officially defines 'subcontractors', as the SMEs which are commissioned and receive orders for manufacturing goods, semi-finished products, parts, appurtenances or materials or for repairing production equipment from bigger enterprises.

3. The Government's "SME modernisation policy" and the general technological progress in manufacturing SMEs

Around five decades ago, SME in Japan was a synonym for the backward and low productive economy, which was poorly equipped, paid very low wages to workers and often faced financial troubles. After world war II, though the number of SMEs quickly increasing and they supported exports, their basic conditions were not changed so much. Then, to promote the industrial recovery and economic growth, the Government initiated the "policy for the Modernisation of Small and Medium-sized Enterprises". Its own original purpose was to solve "the dual structure problem", which was at that time a symbolic expression of the large disparities of productivity and wages between big and small businesses and the latter's various disadvantages.

The Modernisation Policy took a series of unique measures : a) designating individual industries to be modernised ; b) the Minister in charge's drawing up individual modernisation plan ; c) consultation with the National SME Modernisation Council ; d) financial assistance for the modernisation of equipment, including credits with interest subsidy ; e) the Minister in charge's advice on the regulation of production and competition ; f) some special tax concession to the amalgamation of enterprises ; g) special accelerated depreciation articles for the modernisation projects ; h) advice and support to business conversion projects which can contribute to SME modernisation.

The policy eventually covered one hundred and eighty-one industries, which are almost all the SME industries. The total a-

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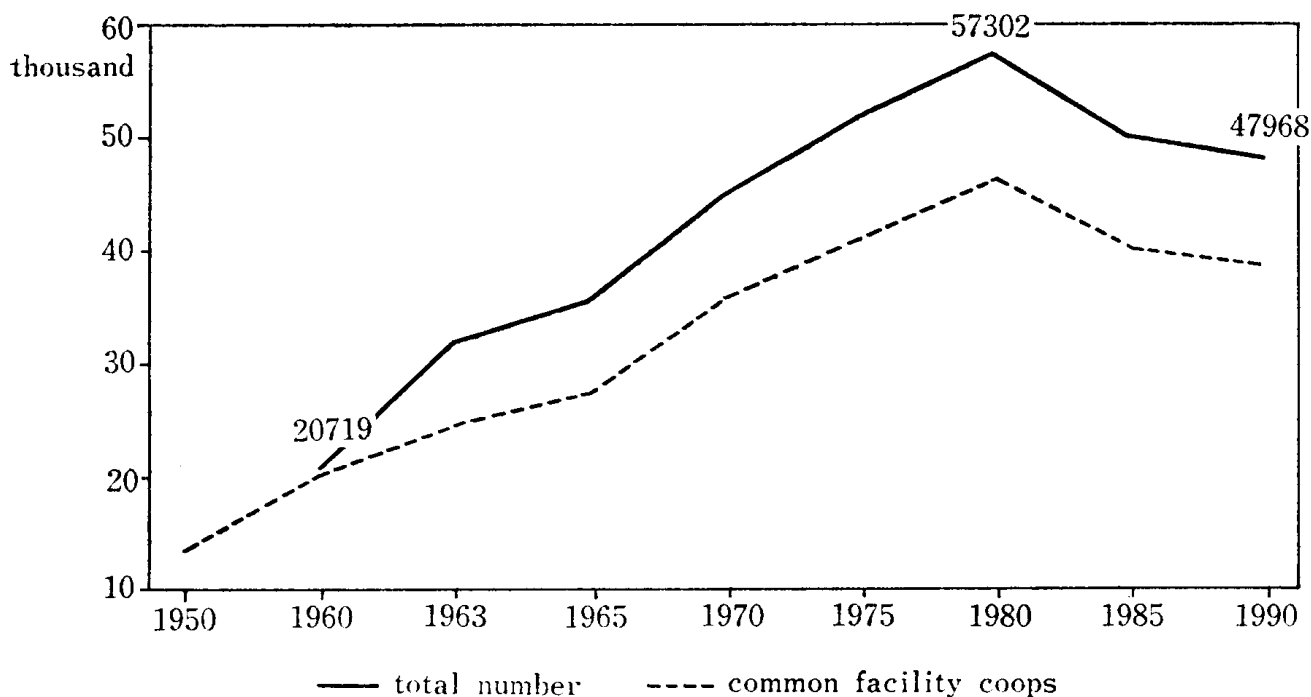
mount of investments supplied by the Government was considerable, e. g. 131 billion Yen just for the first three years from 1963 alone. Productivity of SMEs considerably accelerated, e. g. by 51.1% in five years from 1963, though the improvement of productivity in the big business sector exceeded and the productivity gap was not filled completely.

But the most characteristic implication of the Modernisation Policy was the fact that it was completely based on individual industries and encouraged the development of industrial associations and cooperatives comprised of SMEs. In most cases, modernisation projects and plans were initiated by these bodies under the Government's advice, and enterprises which would like to apply inevitably and willingly joined them.

The SME Upgrading Policy, which had been originally launched in 1963 and expanded since 1967 with the start of the Japan Small Business Corporation as its administration body, was combined with the Modernisation Policy and some other measures to enhance various policies for SMEs. The Upgrading Policy can give loans to projects which are to improve SME management and business environments, not only manufacturing SMEs, such as building new factory complexes and collective anti-pollution purifiers. To apply for the Upgrading projects, only business cooperatives and other associations are eligible, because Upgrading projects are mainly joint or collective ones.

Thus, the number of business cooperatives and other associations was dramatically increased, from 2,705 cooperatives in 1949 to 46,075 in 1980 (see Figure 2). If adding the number of other associations, it amounted to 57,302. Very notable is that in many

Figure 2. Trend of the number of SME Associations /Cooperative bodies in Japan



industries subcontracting SMEs formed 'subcontractors cooperatives'³⁾, covering those which took subcontracting orders from a single main customer. Subcontracting Enterprises Promotion Associations, established by the Law of 1970, encouraged subcontractors to organise cooperatives or associations and subcontractors cooperatives could enjoy some dedicated assistance under the Law's Promotion Project Plans. Subcontractors cooperatives, as well as supplier associations, have been useful bodies not only for giving financial help to their members, such as giving credit in advance to allow members to cash received bills of payment, but also for

3. According to the surveys carried out by the Central Committee of National Federation of Small Business Associations, approximately 5.0 % of all its member organisations are subcontracting or affiliate companies cooperatives. They can account for around 15/20% of its member organisations in the manufacturing industry.

modernising equipment and management system and improving the communication with parent customers.

The Government helped SME development by a variety of other measures, including encouraging financial systems dedicated to SMEs. Small Business Finance Corporation, National Finance Corporation and Central Bank of Commercial and Industrial Co-operatives are the Government-affiliated financial institutions for SMEs, and the last one was founded to provide financing for business cooperatives and their members. The aggregate of loans given by three institutions was more than 5,000 billion Yen every year. The Public Credit Supplementation (Loan Guarantee) System, started in 1950, was a subsidised credit insurance system and very popular among SMEs which hoped to buy advanced equipment by borrowing funds from private banks and found it difficult to be of high credit standing. A number of private financial institutions which were supposed to help SMEs were also encouraged and given preferred status by the Government. Mutual Loan and Savings Banks, Credit Associations (Shinkin Banks) and Credit Unions (Co-operatives) were well known and very helpful to SMEs. Their original systems were generally based on mutual benefit-oriented and cooperative organisations of SMEs themselves.

4. The development of the idea of "subcontracting management" since the era of the wartime economy

The origin of the subcontracting in Japan can be traced back to 'Otana-Shitajoku' (patron's shop/ underworker craftman) relations after the development of handicraft manufacturing industries, contracted construction work for craftsmen and manual workers,

or in-house contracting systems developed within modern industries. But the subcontracting system is believed to have been developed on a full scale by the diffusion of putting-out contracting forms on the one hand and systematic 'subcontracting management' on the other.

The latter was widely formed and adopted from the era of the semi-wartime economy on, when, to enhance the munitions production, it was crucially necessary to mobilise a large number of supporting and collaborating factories, to organise them scientifically and to improve their capabilities. Despite their number was quickly increased, above all in the machine industry, their very undeveloped technological capability strongly hindered the increase of production.

Under the Ministry of Commerce and Industry's guidance, many big factories tried to improve their measures on small supplying factories, not only occasionally choosing those which could sell at the lowest price, but, by adopting the standard of technological capabilities, making a prior selection and maintaining relations to materialise suppliers' speciality. The most advanced measure was designating a few supplying factories, keeping them from receiving other customers' order, establishing close relations, intervening their management practices such as the development of production equipment, giving financial assistance and management counseling, and controlling them tightly. On this third stage, showing 'attached relations', though small supplying firms lost their essential autonomy, they were able to improve technological capability considerably <Tasugi (1941)>.

In the 1940s, the Government and the Military and Navy au-

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thorities strongly promoted and controlled systematic subcontracting management in many key industries. As the supply of materials and resources was strictly regulated by the Government and most small and medium factories were demanded to join the war time munitions production with supplying parts to large factories, they were integrated to large factories' production systems and their relationship was very tight and hierarchical. Then 'attached' exclusive subcontracting relations were found everywhere.

After the defeat of the War and the collapse of wartime economy in 1945, most large factories faced paralysing situation and lost control on their manufacturing networks. On the other hand, many small firms quickly advanced to domestic and exporting civilian product market and began to leave from big companies' control. At that time, even in the engineering industry, the dependence on outsourcing was believed to be very low, and considerable numbers of small assembly firms and independent parts manufacturers temporarily appeared <Minato (1988)>.

Nevertheless, the Korean War and the following economic revival encouraged big corporations and the Government started to promote economic growth by adapting large scale industrial policy aimed at fostering key and heavy industries. Big manufacturing companies were expected to expand their production volume, sophisticate their equipment and management techniques, and become competitive in the export markets. Naturally, most small manufacturing firms had to rationalise and modernise their production system, in order to survive economic fluctuations. Big companies could support them by transferring technologies and

management skills and giving a variety of assistance. Big companies also needed many competent supplying factories to expand production and wanted to establish very close and long-term relations with them. Consequently, 'attached' subcontracting SMEs again became very common and they were able to enjoy many advantages.

5. Detailed and systematic practices in "subcontracting management"

As early as the late 1930s, some big factories launched sophisticated schemes of subcontracting management to ease difficulties within their expanding production systems, which was already outlined above. For instance, Okuma Manufacturing (machine tools) systematically introduced a new scheme for its attached supplying factories, with choosing competent firms the owner managers of which were personally reliable, regardless of their products and technical experience; encouraging their new investments in latest equipment to meet its principle of organising technological specialisation and division of labour by giving considerable financial assistance; lending or selling on the installment plan indispensable tools and gauges with expecting them to produce or to buy by themselves next time; supplying them processed steel materials; setting unit prices at its limits without asking them to form a written estimate; sending its own staff as the leading staff or managers in suppliers factories and training their workers; inviting some of their workers to its plant for several weeks to learn job operations and inspection methods, with paying part of the training cost; and gradually widening the

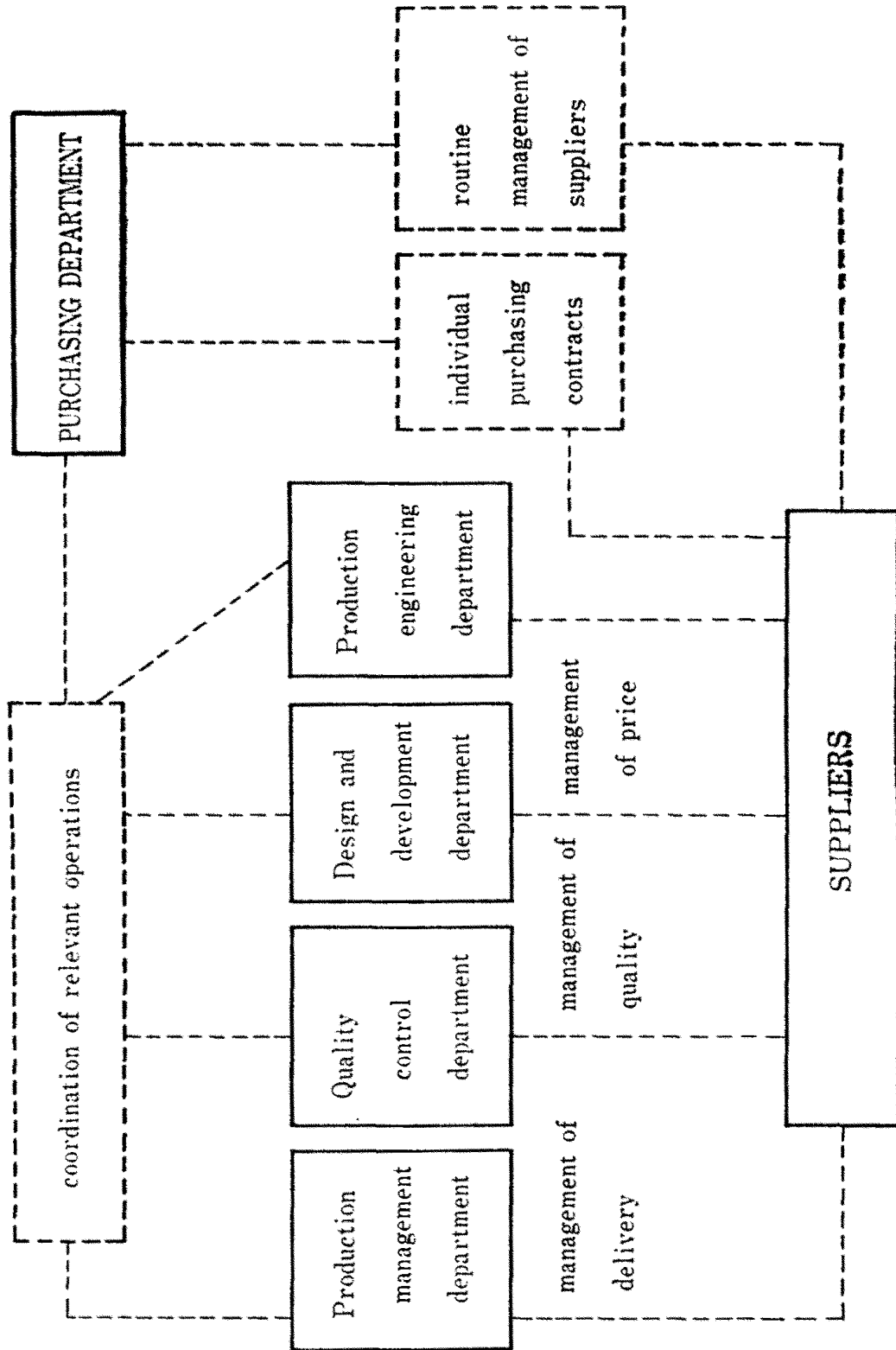
scope of the supplied jobs from rough machining to most processing machineworks <Tasugi (1941)>.

In the 1950s and thereafter, most big factories followed the above idea again and modified it with systematic methods of the Western purchasing management and cost analysis. The development of subcontracting management shows several stages, reflecting changing economic environments <Sato (1980)>.

The first stage (—1960) was 'gaining suppliers' period, when most big factories tried to find necessary number of competent suppliers which could cover the expansion of production and large scale investment. The practices such as lending equipment, supplying materials, and giving financial assistance were very common to make closer relationship.

The second stage (1960—73) was 'modernising and rationalising subcontracting management' period, when modern methods of purchasing and production management were largely adapted, including Value Analysis and cost accounting. These methods constituted basic principles of the selection of preferred suppliers and pricing arrangements. On the one hand, 'multiple sourcing' principle was strictly practiced to promote intense competition and selection among supplying firms, and on the other, technological specialisation was encouraged for competent suppliers. Value Analysis and Quality Control were then jointly developed and adapted in cooperation with competent suppliers. They were usually appointed to be the core of subcontracting networks, and comprehensive selection standards and integrated subcontracting management system contributed to the formation of multi-tier subcontracting structure among suppliers.

Figure 3. THE OUTLINE OF PURCHASING BUSINESS OPERATIONS
IN JAPANESE COMPANIES (Car Manufacturer)



Source : Kikai Shinko Kyokai Keizai Kenkyujo (1992)

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The third stage (1973—86) was 'integrating subcontracting management and reorganising suppliers' period, when, to cope with the unprecedented recession, big factories launched large scale cost reduction schemes which involved most suppliers. In 1975 Toyota Motors requested first-tier suppliers to employ Kanban system and JIT delivery principle, as well as centralising the administration of its purchasing management. The development of electronics information network system enabled highly integrated and efficiently centralised purchasing management. Reshuffle of suppliers was widely carried out and less competent suppliers were often shut out or degraded. The selection standards were about the comprehensive management skill of individual suppliers and their reliability. Conventional technological skills which could make up the marginal fringe of volume production systems were regarded less important or unnecessary. Selected suppliers were entrusted to expand their production spheres with receiving unitised or concentrated orders. In some cases, there was a gradual increase in the placement of orders to specialist manufacturers that were outside the group, to employ their unique technological skills.

The Government gave not only some help for the modernisation of SMEs and the development of subcontracting management, but also regulations on the subcontracting relationship to improve subcontracting SMEs' conditions and encourage cooperation between them and their parent firms. Unfair transaction practices and late payment taken by parent firms are regulated by the 1956 Law on the Prevention of Delay in Payment of Subcontracting Charges and Related Matters, and guidelines and practical

schemes for the promotion of subcontracting SMEs are carried out under the 1970 Law on the Promotion of Subcontracting SMEs. The promotional project plans are created and executed by cooperatives organised by subcontractors, mentioned above, with the cooperation of the parent firms <SME Agency (1986)>.

In this way, subcontracting management in Japan was gradually and empirically developed and sophisticated in many years (see Figure 3). Besides that, the principles and methods were often changed, reflecting the development of Japanese manufacturing industries and economic conditions.

6. Vertical ties between big manufacturers and suppliers and horizontal linkage among SMEs as a collective production system

Naturally the development of subcontracting management and very close and long-term relationship between big manufacturers and their preferred suppliers made up an institutionalised system in which vertical ties were strong. The inter-company relationship and the system itself in the 1970s and the early 1980s generally showed following features.

The ratio of in-house component production was low and the dependence on purchased parts and components was high; most typically, a big car manufacturer only produced less than 30% out of the total value added of a car, the rest of which were supplied by more than thirty thousand firms.

A parent factory contracted and traded with rather smaller number of regular suppliers, which were usually designated or qualified, with applying its own supplier assessment standards.

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Organisations of main suppliers, such as suppliers associations (Kyoryoku-kai) or subcontractors cooperatives, were working well to emphasise common corporate strategic objectives and exchange technological and marketing informations under their parent company's leadership and encouragement. Members could expect parent factory's various assistance, support, technical guidance and training.

Though a big factory divided its business into a variety of different processes and operations and placed its orders with many different subcontractors, they in turn often placed a portion of these orders with other smaller subcontractors. As their positions were usually designated by the parent company's assessment and qualification, including the membership of suppliers associations, a hierarchical order of enterprise group developed.

Most suppliers depended on a single parent factory as their main customer to a high degree, often seen as 'attached suppliers'; it was not rare a big customer represents more than 80% of a supplying firm's annual sales. Recently, however, this trend has been considerably changing (see below).

Besides that, rather smaller suppliers which were ranked in lower tiers often traded with a considerable number of customers, mainly because their production operations were not specialised in a particular final product and did not receive a single customer's order so frequently. They were often called 'floating subcontractors'.

Most researches so far mainly focused on vertical ties within subcontracting system, but the development of horizontal linkages within small entrepreneurs' world should be paid more attention

to. Basically, the majority of manufacturing SMEs are best thought of, not as relying directly on the market of final products, but as specialising in one specific part of a manufacturing process and technology. As they exist as part of collective and cooperative productive force and group of enterprises which reflect a highly specialised social division of labour, the expansion of division of labour following economic development can broaden their opportunities, with less fund and work force. Technological development and the expansion of product market can allow to subdivide a single manufacturing process into a variety of independent units which can be managed by individual entrepreneurs. The key point is how to organise and integrate them as a collective and technologically linked force.

Institutionally, subcontractors associations and cooperatives are typical organisations in which effective deployment and linking of supplying enterprises can be systematically carried out. For instance, these organisations often set up sectional meetings of managers or engineers to carry out technical studies jointly.

Informal groups can also be found among very small enterprises, which are not necessarily members of official organisations, and these groups recruit the enterprises which have similar types of processing facilities and technological skills or specialised but indispensable ones, such as heat treatment, plating and painting for the metal engineering industry, in the heart of industrial cities. 'Nakama' group members, keeping up their technological linkage, frequently exchange technological and market information, and share and subdivide the processing of ordered product among them, to support or supplement each other and to cope with indi-

vidual fluctuations in order volumes <Sato (1981)>. A sort of spontaneous partnership and technologically flexible specialisation can be pointed out in many cases⁴), and these groups support large supplying networks as industrial 'common roots', which supply both small but indispensable parts and very special products or services, such as trial prototypes, in rather small volume.

As far as small entrepreneurs' horizontal linkages are concerned, there would be a wide spectrum of institutional and functional features. One extreme would be a highly integrated and strongly controlled subcontracting system, the development and working of which a parent company takes the responsibility of administrating and managing, by adapting well developed principles and sophisticated management technique. Another would be a loose and less committed group, but even such a group may have a skilled leader organiser who has plenty of knowledge about business linkage and can fairly manage other members.

7. The economic and social performances and problems of 'Japanese subcontracting system'

The histories of the development of subcontracting systems in Japan may be interpreted as those of subcontracting management ideas and organisational structure. The differences in the development partly reflect the different levels of technological skill, the extent of importance within the whole production process and

4. We cannot hastily generalise these practices among very small suppliers as typically indicating the coming stage of industrial development and organisation, simply adopting the so-called 'flexible specialisation' thesis. First of all, these practices were originated from the dominance of ultra high volume production, as its manufacturing fringe.

the size of production.

Therefore, subcontracting management ideas and organisational structure have been, and will be always changing according to the development of technology and economic environment externally, and the development of business management of individual enterprises internally.

At the same time, as any systems have never been totally closed to new entry and outside competition, any members cannot expect their positions eternal without trying to do their best to improve their performance. The more institutionally formed is an organisation and the higher qualified a supplying firm, the harder is it to maintain its status.

In addition, if the controlling firm is very big and dominant, its economic power and stiff competition between subcontracting SMEs can make the issue of the distribution of economic fruits or profits and losses very critical. Generally speaking, under the typical subcontracting management practices, most suppliers are expected to reduce their production cost by no less than 3 or even 10% every year, simultaneously with showing improvement in quality standard and delivery schedule. It was common that parts price discounts were requested after volume production had commenced, to beat the marketable price target of final product.

For successful subcontractors in Japan, which must survive in accordance with the law of competition, the "relationship of close cooperation" and the "good communication" may be a double-edged sword, because they tolerate parent firm's sales and profit controls based on detailed cost accounting and production engineering. Though the pressure on them is not short-sighted unilateral

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exploitation, but to share mutual and long-term benefits, in some cases unhappy suppliers recently complained about their hardship and jointly requested increases in their production fees through their organisations. Latest reports about the “subcontractor rebellion” show a tip of the problems <see Ikeda (1990) ; *Nikkei Business*, January 27, 1992>.

Nobody could deny that the subcontracting in Japan contributed to the development of its economy and the growing presence of its industrial products in the world market. The Japanese car industry, for example, expanded by four hundred times in four decades, or twenty-seven times in three decades, and Japanese makers now produce one car by nearly one-fourth personnel of big car makers in the USA. SMEs were also able to find their growing position and stable demand.

Very efficient system, however, may cause some social problems, leaving the issue of profit distribution. Typical ones are traffic congestion and working time problems. Very frequent JIT deliveries from supplying firms are now criticised as a cause of extreme traffic congestion and air pollution. Suppliers effort to cope with small batches order in a short space of time also makes it difficult to give their workers more holidays and to reduce overtimes.

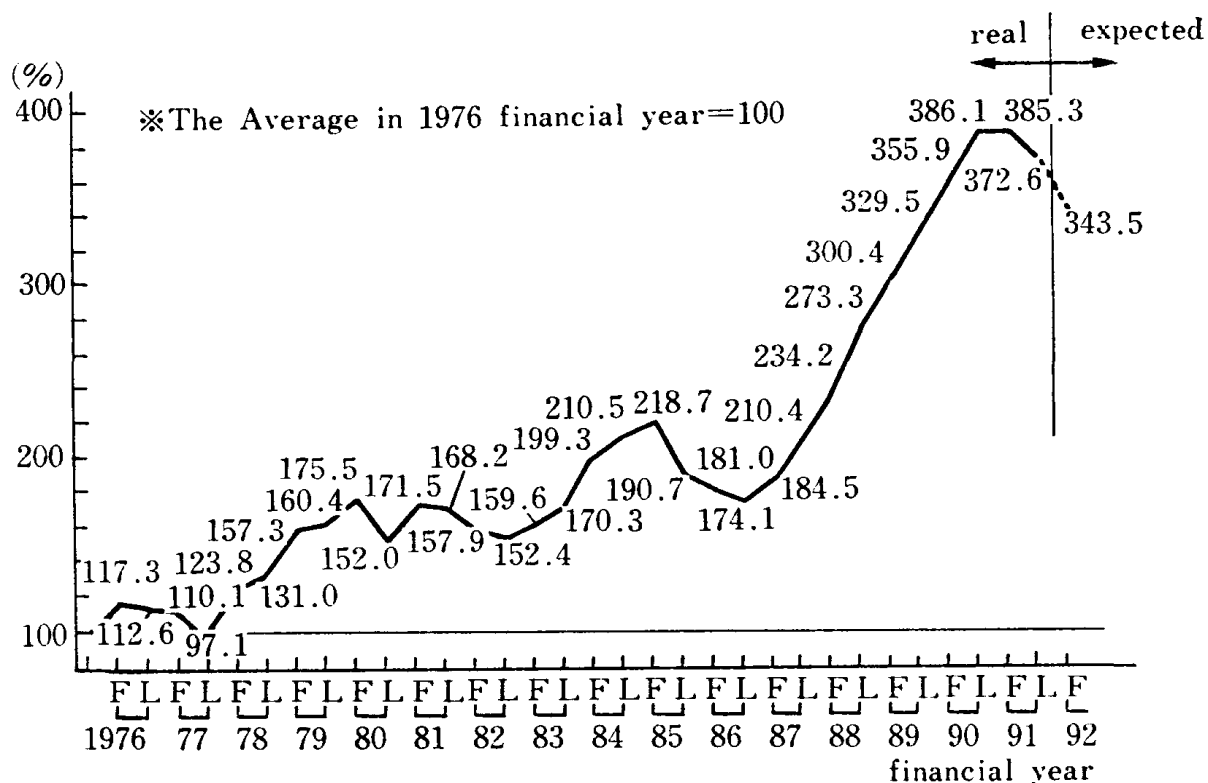
Most serious problem is how to harmonise the system and practices grown in Japan with other economies and societies. Otherwise, not only the efficiency of Japanese subcontracting would suffer from severe criticisms, but it could not work sufficiently any more in the age of globalisation.

8. The changing backgrounds to the Japanese system and the emergence of global production networks

Naturally, the backgrounds of the economic development in Japan have been changing considerably since the late 1980s.

- 1) The difficulties in exports after the rapid appreciation of the Yen against foreign currencies and NIEs' quick catch-ups in the world market are increasingly apparent.
- 2) Consequently, large corporations have been pursuing new policies of globalised management and an international division of labour network, which were started at the beginning of the 1980s. According to the MITI's survey, Japan's overseas production ratio accounted for 6.9% and the average local procurement ratio of Japanese companies was 70.6% in 1991.
- 3) Expanding global operations and increasing overseas procurement, as well as sophisticated technological development and automated production, including 'mechatronics' development and information technology, domestically demand rather higher ratio of in-house production in big manufacturing firms than before. Manufacturers in the engineering industry expect the growth of in-house production in the near future.
- 4) Matured and rather stable labour market and excessive demand do not generate huge migratory movement any more. The working conditions for workers in medium-sized enterprises were improved considerably. On the other hand, advanced technologies, soaring rents, labour shortages and hard competition in product markets now discourage new start-ups. The opening rate of businesses fell considerably, from 6.0% in the 1960s to

Figure 4. The Trend of SMEs Capital Investment



Source : Japan Small Business Finance Corporation, 'Research on Capital Investment in the Manufacturing Industry'.

3.4% during the period from 1981 to 1986. (*Establishment Census of Japan*). As many small entrepreneurs who started businesses in the 1950s and 1960s are now getting old, without finding suitable business successors, the closing rate is expected to grow quickly in the near future.

- 5) Thanks to the long and unprecedented economic boom and very favorable financial market in the end of 1980s, most SMEs could avoid business failures and invested in advanced equipment despite structural economic changes (see Figure 4). But that large scale capital investment is strangling SME management under the latest world depression and weakening demands. Economic cycle strongly requests them to rethink their strategies and to readjust themselves to the coming business environment.

- 6) Large scale world depression and weak demands, which have been quickly coming to the fore since the beginning of the 1990s, not only accelerated the progress of big corporations' global strategies, but also forced them to reconsider quickly their former strategies of marketing, product model line-ups or product ranges and production designing. Though this does not necessarily mean the immediate reorganisation or retrenchment of their global operations, every product and production activity must be revaluated from the point of profitability now and in future. This process may involve some closures of plants, mergers of companies or even redundancies of work force and supplying networks, which were already announced in 1992 and 1993.
- 7) The criticisms on the less desirable quality of working life and closed or exclusive economy and company system in Japan are being given both at home and abroad. At least Japanese corporations and ministries, as well as the people, have to be aware of the fact that Japan has already reached to the stage of very advanced economy and society and that social value should not be laid on simplistic pursuit of its own economic development and growth alone, but the overall improvement of the quality of life and balanced cooperation and mutual prosperity with any other nations. The issues of working time, housing shortage and trade imbalance are the symbols of the coming difficulties which Japan must overcome by all means. People also do not want to be excessively workaholic and simply concentrate their effort on reducing cost of every single part inch by inch endlessly, but to enjoy more creative and meaningful working life or respect traditional value. Thus, the very

efficient Japanese company system and production cannot be working well in the forefront of the world economy as before without receiving any modification and reorganisation.

9. The ideas of new production systems and the changing roles of manufacturing SMEs

The necessity of domestic mass-production is rather decreasing and the rise of new domestic functions involving strategic control, global business administration, R&D, trial development and prototype development of process engineering of volume production systems is apparent within big corporations.

Thanks to overall expansion of new peripheral and flexible work force both within big companies and industries in general, such as part-time workers, agency temporaries, contract workers, guest workers and so on, subcontracting firms are not any more expected to be simple economic buffers against economic fluctuation and supplies of the marginal working population.

Recently suppliers have been generally encouraged to be more independent than before and to find new market, but main manufacturing lines and the responsibility of management control on production network were transferred to core affiliates and subsidiaries of big corporations.

More emphasis is laid on technological speciality, independent designing and developing capabilities and universal adaptability among suppliers, and less on conventional mass production method. Competent suppliers' early involvement and overall effort in the stage of product developing become more important than before to develop a 'simultaneous' or 'concurrent' engineering manage-

ment, which is expected to connect concept development, designing, trial manufacturing, volume manufacturing, distribution and sales stages with each other, to reduce product development cost and time and to promote flexible adaptability to the change of market trends. The word 'design in' is now rather popular among Japanese managers, which is supposed that engineers of parts suppliers all-out cooperatively work with their counterparts at the design or development division of assembly manufacturer in the earliest stage of product development. In this case, participating suppliers must show not only their own designing and product development capabilities, but also those of assessing products and eminent production technology.

On the other hand, in the 1980s some suppliers changed their strategies, rejected subcontract business and sought to independently develop their own products instead. Naturally their immediate success has not been guaranteed, there are a considerable number of examples of manufacturing enterprises that put their know-how and experience to use and developed specialised products such as industrial equipment or mechatronics machinery.

The characteristics of subcontracting in Japan becomes more bilateral or collaborating and changeable relationship, and its institutional forms can diversify considerably, such as those controlled by a parent company's capital ownership, orientated to joint development, being independent parts manufacturing firms and so on. Some suppliers are likely to develop their own global network, following big manufacturers' global strategy.

The coming problem is, however, that most small and conventional suppliers may lose market and be frozen out, not only

because of the blow of the present economic depression, excessive production capacities and financial difficulties in a short term, but also because of the development of the large-scale economic and management restructuring process in a long term. Small-size and conventional supplying operations are no more as important as before, after the progress of automated production and the development of the basic modern industries in other countries. In addition, many big factories now rather expect increasing in-house production, partly because of the shortage of competent supplying firms in the 1980s (see Table 1 & 2).

As a result, highly integrated multi-tier subcontracting structure covering huge number of small suppliers is gradually dissolving. Quite likely to come is new hierarchical order along different relations and production systems under a core firm which controls global networking. A figure of simple and flexible 'core-peripheral' structure with a variety of complicated relations and operations may show the coming phase.

10. Feasible global partnerships of SMEs and between big manufacturers and supplying SMEs

Not only the necessity of off-shore production operations due to the appreciated Yen and the rising cost of domestic production, but a series of more fundamental economic and social factors at home and abroad demand Japanese industries to develop global networks and to bring up new global relationship of interdependence. For instance, almost saturating domestic labour market and structural labour shortage, despite the macro and short-term decrease in labour demand, as well as the stagnant number of

business start ups and the increasing number of business closures, erode accumulated skills and technological basis, and make it difficult to hold a wide variety of productive forces, or an 'all in one' complete set of industrial structure, within Japan.

Though the amount of Japanese direct investment in other countries and the overseas production ratio are quickly rising and it is widely believed that most Japanese transplants are much more successful than expected, one of the difficult problems for transplants is still how to find competent local suppliers and to build efficient and reliable supplier networks. In terms of financial performance, most reports suggest Japanese overseas manufacturing operations in Western countries so far do little more than break even, and the latest world economic depression certainly worsens their performance. JETRO (1990) shows that, despite the ratio of local procurement increased considerably, only less than 30% of Japanese manufacturing firms in Europe are satisfied with their local suppliers performance.

On the other hand, many subsidiaries of Japanese suppliers in Western countries, which launched overseas operations mainly in response to the request of their parent companies, now feel that their operations are under the tough pressure of triple dilemmas; weakening demand, difficulties in finding cooperative local subcontractors or partners and political criticism for their Japanese origin (see Nikko Research Centre (1990); *Nikkei Business*, April 20, 1992). The present difficult situation inevitably suggests that there are still too great gaps in social customs, institutional systems and common ideas related to intercorporate relationship and transactions.

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Table 1. THE REORGANISATION OF SOCIAL DIVISION OF LABOUR NETWORK SYSTEM IN THE ENGINEERING INDUSTRY (1)

Answers given by engineering enterprises about the relationship with their suppliers (N=136)

Termination of order in these years	Termination of order for customer's own reasons		Termination of order for supplier's reasons	
experienced (%)	12.5		39.9	
not experienced (%)	87.5		60.1	
The average number of suppliers with which orders were terminated	3.6		3.4	
The reasons for the termination (%)	quality problem	47.1	business conversion from manufacturing	20.0
	price unsettled	70.6	labour shortage	41.8
	delay of delivery	52.9	absence of business successor	32.7
	fail in coping with multi product and small volume production	23.5	expanding trade with another main customer in a different industry	14.5
	fail in beating cost target	5.9	fail in beating cost target	18.2
	labour shortage	11.8	fail in coping with multi product and small volume production	18.2
			price unsettled	16.4

SOURCE : Kikai Shinko Kyokai Keizai Kenkyujo (1991)

Table 2. THE REORGANISATION OF SOCIAL DIVISION OF LABOUR NETWORK SYSTEM IN THE ENGINEERING INDUSTRY (2)

Answers given by engineering enterprises about the trend of subcontracting order volumes (N=159)

Order volumes	Short term (1-2 years hence)		Middle term (3-5 years hence)	
decreasing	—		0.6	
slightly decreasing	4.2 (%)		8.8	
no change	29.4		21.4	
expanding	66.1		56.0	
The reasons for the decrease in order volumes	increase in in-house line production	50.0 (%)	increase in in-house line production	73.3
	increase in overseas parts procurement	16.7	increase in overseas parts procurement	20.0
	reduction of domestic products	16.7		
	technological change	16.7		
	reorganisation of supplier network and priority supplier principle	16.7	reorganisation of supplier network and priority supplier principle	20.0
			closures or conversions of suppliers	20.0
			decrease in domestic production following overseas production	6.7
The reasons for the increase in order	increase in domestic production	87.4	increase in domestic production	68.5

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volumes	new product development in a new area	22.1	new product development in a new area	36.0
	new parts order corresponding to a change of product range	13.7	new parts order corresponding to a change of product range	29.2
	expansion of outsourcing	9.5	expansion of outsourcing	15.7
			favorable exports	12.4
			increase in parts supply corresponding to the start of overseas operation	4.5

SOURCE : Kikai Shinko Kyokai Keizai Kenkyujo (1991)

No matter how the gaps seem great, a number of people and institutions are trying to bridge it and to construct new business relations in many countries. One of the examples is the EC policy towards an European Market in Subcontracting. The Commission issued many reports and guidebooks, sent missions to Japan and organised several conferences to study the characteristics of Japanese subcontracting and to promote subcontracting opportunities with both Japanese and European firms in Europe. With these help, the single European market can attract much foreign investment and support European-wide manufacturing networks across the borders, to give business opportunities to many SMEs and to vitalise European economy.

Japanese firms are trying not only to adapt their experience of subcontracting management on different soils, but to develop new ideas concerning business alliance and partnership on a global

scale. At home management principles and inter-company relationship are changing, and highly integrated multi-tier subcontracting networks covering so many suppliers are gradually dissolved. The latest economic depression accelerates this trend, and even in the car industry big car makers began not only to request further cost reduction, but to reduce the number of parts items, to standardise them as possible and to procure them from any suppliers which were not necessarily their own 'keiretsu' affiliates.

Majority of manufacturing SMEs are expected more independent and technologically specialised, not relying on a single parent customer but looking for their own new alliance with other enterprises, even though their main businesses are still to supply parts and components. Most of them never failed in developing their own horizontal linkages as common practices, and since the 1980s many strategically tried to organise new linkage with other enterprises in different industries in order to combine their own managerial resources with external ones and to cultivate new markets jointly (diverse exchange and cooperation, or 'business fusion' schemes).

On the other hand, different sense of values, cultural backgrounds and social customs abroad demand harmonisation of Japanese experience with them in a universal context, before it is received or adapted and a sort of global convergence is completed. At least very close and committed inter-company relations and highly integrated and controlled subcontracting system, as well as very tight management control on work practices, would be seen rather restrictive collaborations and not be welcomed as they are. In many internal cases, the Japanese sense of 'contract' ex-

tremely differs from the Western one, but most people have to respect official negotiations and contracted conditions to develop good and reliable relationship between different nationalities.

Another problem is how to generate many competent SMEs which can constitute basic productive force and supplying base in a national economy. Even advanced countries do not necessarily have plenty of manufacturing SMEs which can show distinctive qualities in their technological skills as suppliers. The shortage of funds, advanced small-scale equipment, staff training and managerial skills, which often relate to understanding customers' needs and developing cooperative ties with them, can be found in many SMEs in most countries.

Japanese experience is not suggestive enough, because it was strongly conditioned by Japan's peculiar history of economic development. The success of Japanese subcontracting might accidentally depend on unique historical conditions, which were mentioned above, and extraordinarily long lasting high economic growth. High economic growth was supported by successful manufacturing systems, and, in turn, it allowed leading companies to foster suppliers on their own account and most competitors within the systems to take a certain amount of rewards, even if they were strongly controlled and driven to reduce cost to the very limit. In addition, excessively committed and attached relations with or excessive dependence on a single customer are neither familiar and adaptable for SMEs in most foreign societies, nor permanent even in Japan.

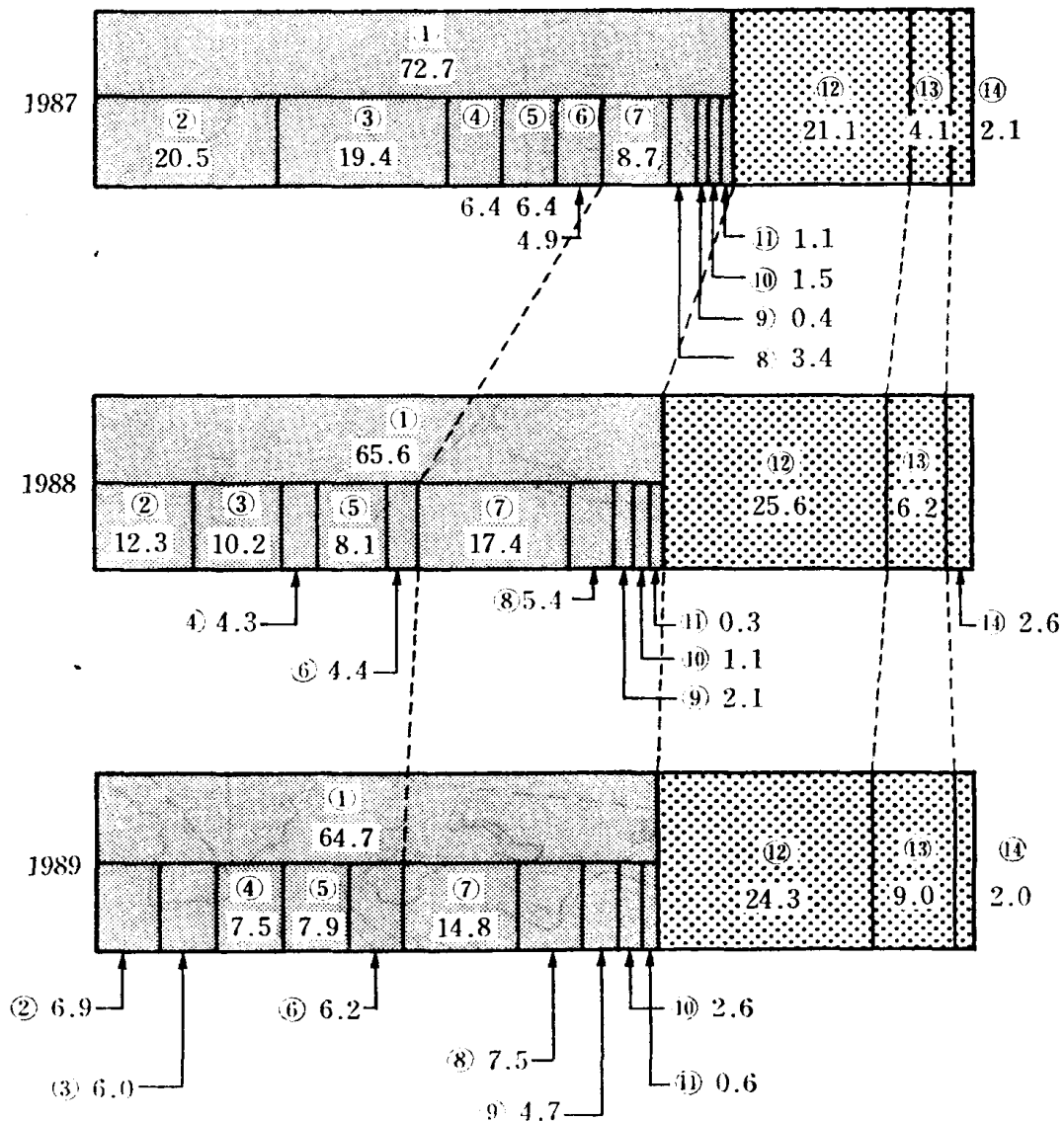
What can be made good use of from Japanese experience are about the role of governments, horizontal linkages of SMEs and

SMEs' experience of development itself. In February 1992 a report was issued by an advisory council to the SME Agency, MITI, which proposed a 'neo-image of SMEs towards the 21st Century'. That neo-image consists of 6 courses or aspects, and the 6th is about 'SMEs challengingly pursuing globalism and contributing to international community'. This objective covers the necessity of transmitting Japanese experience of planning and implementing SME policy measures to other countries, above all developing countries and East Europe. Japanese SMEs' positive contribution, including management and technical training and transfer of managerial resources, is also emphasised.

Concerning SMEs contribution itself, some latest experience after a wave of SMEs' considerable foreign investment (see Figure 5), suggests that Japanese SMEs can help local economies by encouraging local staff management and promoting the transfer of technologies <SME Agency (1991)>. Because most SMEs have not enough number of staff who can concentrate on individual overseas operation with sufficient knowledge and skill and cannot expect their parent companies' help so much, the key to their successful operations is to develop good and reliable partnership with overseas enterprises. Conversely, SME Agency's survey shows that the biggest problem affecting failures of SMEs overseas operations is 'discord with local partners'. Muramatsu (1991) also suggests both partners' equal participation in decision making can promise more successful development of global business partnership.

Chusho Kigyo Kenkyu-jo (1992) offers many interesting cases of SME global partnerships. An independent software developer ADC Co. employs only 10 people, but, having taken the exclusive

Figure 5. Number of Cases of Overseas Investments by Small and Medium Manufacturers by Region



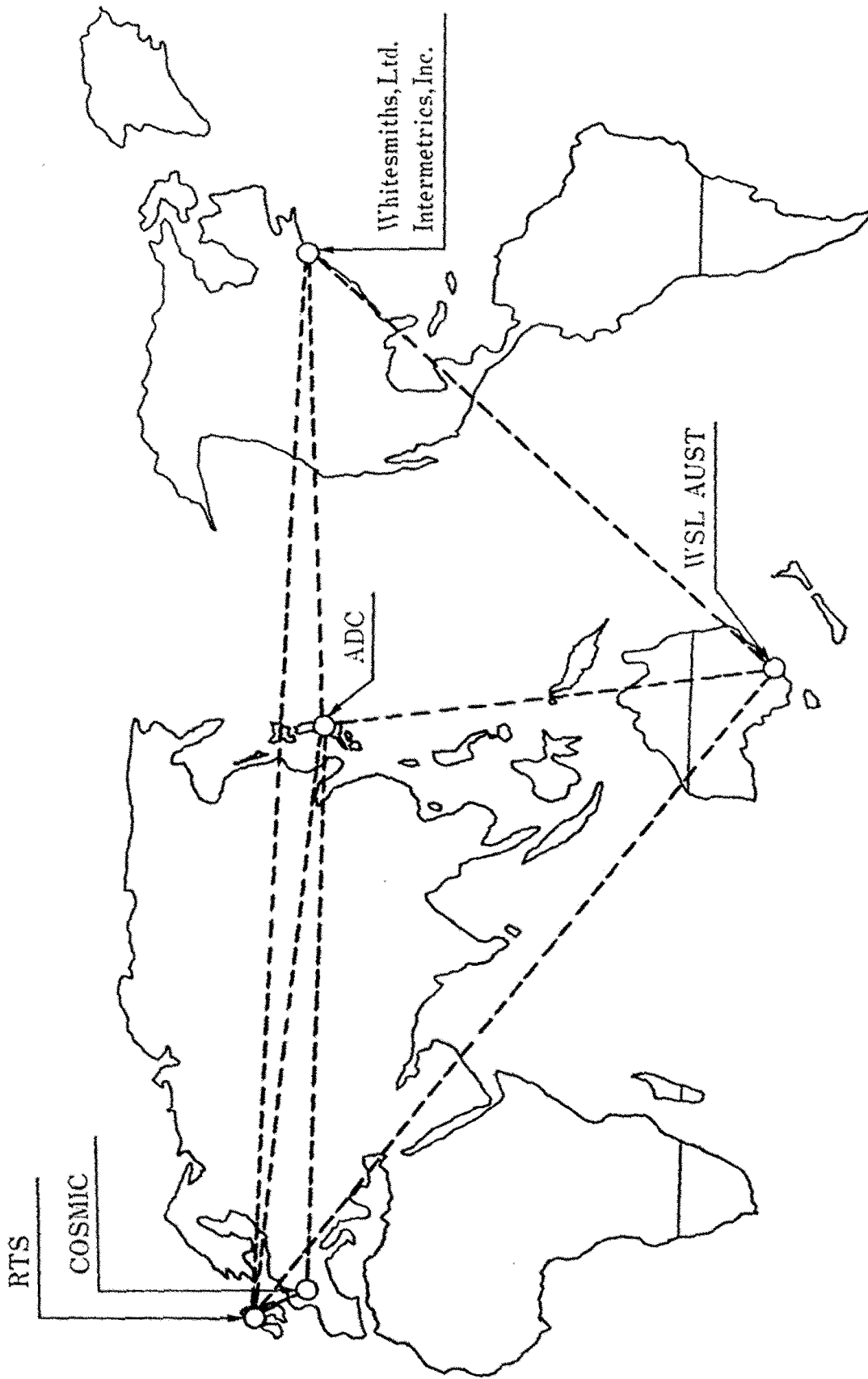
- ① Asia
- ② South Korea
- ③ Taiwan
- ④ Hong Kong
- ⑤ China
- ⑥ Singapore
- ⑦ Thailand
- ⑧ Malaysia
- ⑨ Philippines
- ⑩ Indonesia
- ⑪ Others
- ⑫ North America
- ⑬ Europe
- ⑭ Other

Source : Survey by MITI

- Note :
1. These figures include only cases where new securities have been acquired (establishment of local corporations or new capital participation).
 2. The number of cases of investments by small and medium enterprises includes individual investments as well as joint investments with large enterprises.
 3. As the subjects of the survey were revised to cover investments of Y30 million or more from the previous Y10 million or more, effective July 1989, there is no continuity in the graph.

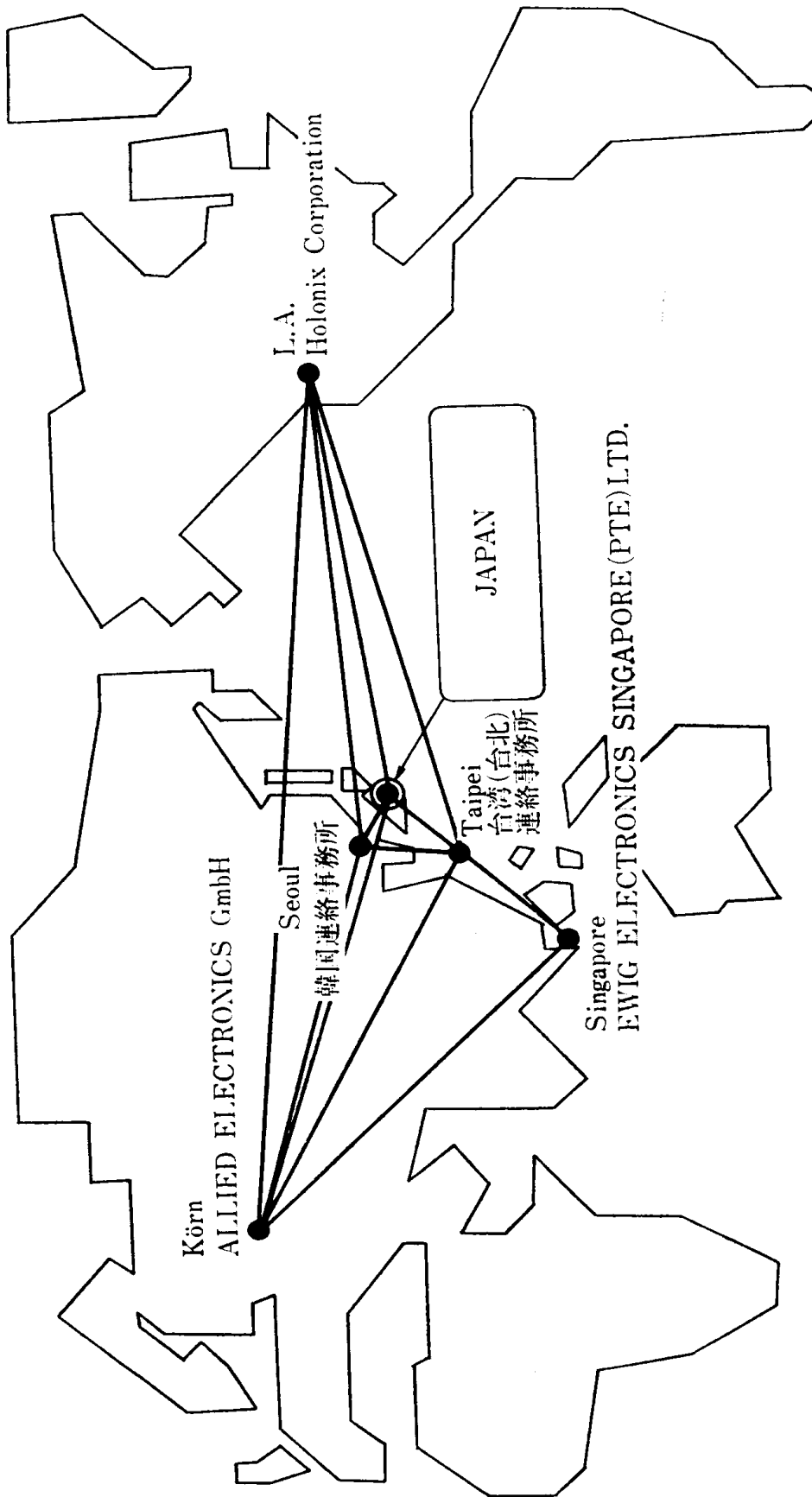
SOURCE : SMEA (1991)

Figure 6. ADC Co.'s World Support Network



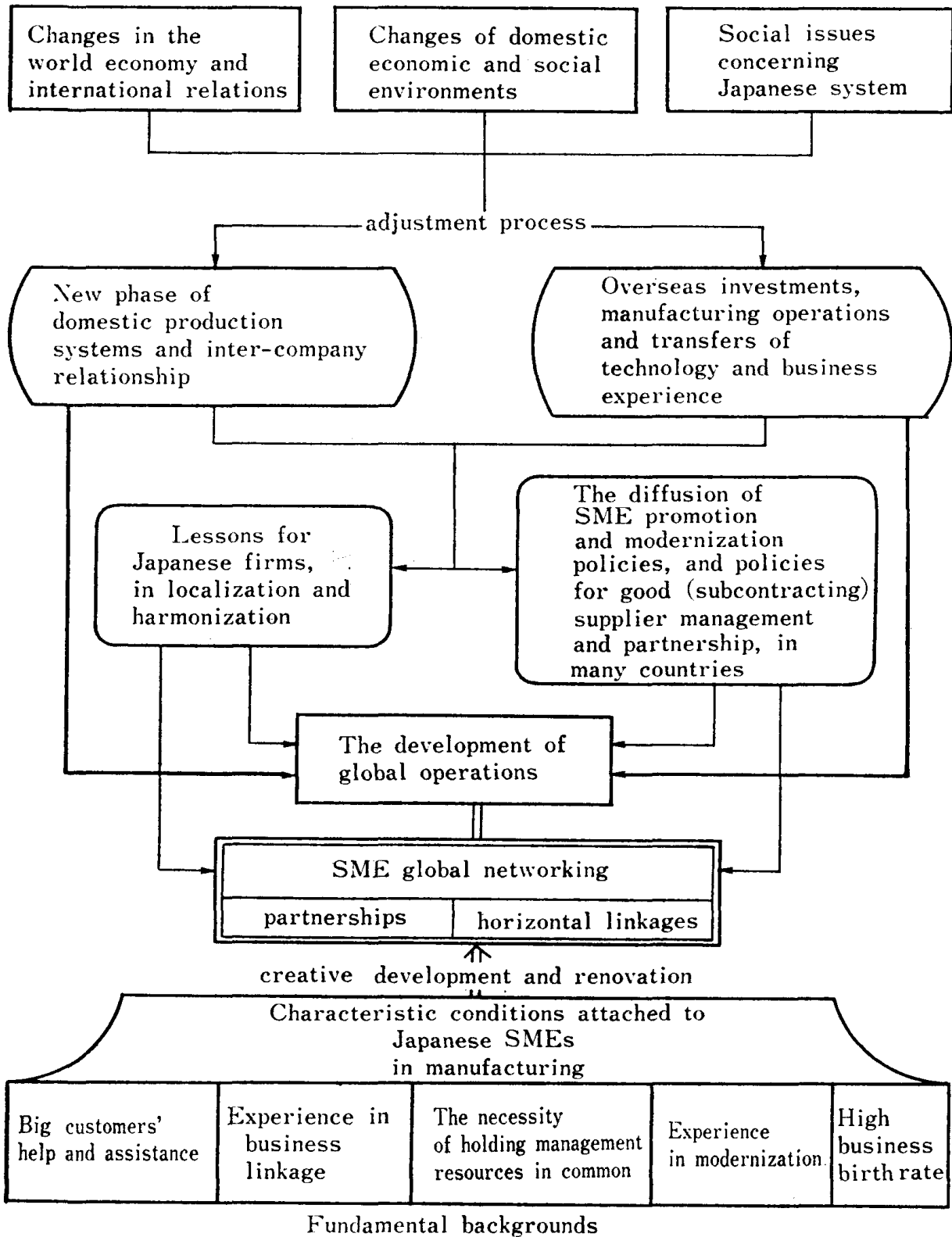
SOURCE : Chusho Kigyo Kenkyu-jo (1992)

Figure 7. EV Co.'s International Network



SOURCE : Chusho Kigyo Kenkyu-jo (1992)

Figure 8. THE LOGIC OF SME GLOBALISATION



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general agency for an American software company, quickly expanded its world support network in ten years (see Figure 6). All local partners can develop original product by themselves or jointly and cooperate together through their world-wide networking system in development, marketing and maintenance jobs.

EV Co. concentrates on optorotics development, by selling imported components and instruments and developing illuminant devices and control systems. It established 4 local subsidies in the world and made linkage with more than one hundred foreign enterprises (see Figure 7). EV's chairman strongly believes that global network and human contact which can promote international linkage are very indispensable for SME operation, because mutual understanding about different corporate culture and humanity should be set forth in advance. His philosophy is Japanese SMEs must extricate themselves from the survival race under excessive competition, and overseas encounter and exchange with different corporate culture will promise them a bright and creative future.

The time is not merely encouraging cooperation between big companies and small businesses, including subcontracting relationship. Promoting partnership between different businesses and new horizontal linkage of SMEs across borders, by utilising their skills, technological speciality and knowledge, is the coming indispensable subject. Though it will vitally require international trust, reliability and mutual communication in a mental sense, the philosophy of systematic and comprehensive policies, as well as management practices, which is designed for the development of competent SME sector and efficient business ties or linkages

with them, will be certainly necessary to create a better climate for it in a physical or economic sense. Government bodies, business institutions and many big businesses will be expected to play very important roles in implementing that philosophy.

APPENDIX

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