Internationalization of Japanese Production Management

Takio Nakagawa*

1. Introduction

One of the most striking phenomena which influences world business competition is the growing internationalization of Japanese companies. Since the Group of Five (G5) meeting in 1985, Japanese companies have widely increased their direct overseas investments, especially in advanced countries, which have changed the conditions of international competition.

Many people, however, fail to see the managerial activities within Japanese companies which countribute to their competitiveness in the world market. Among the important activities are: within the individual company, the Quality Control (QC) circle movement and the <Kaizen> activities [7]; and within the larger business group, the control of parts and components subsidiaries and affiliated companies. These two systems, effecting a company at the same time, essentially have similar features which are logical extensions of the "Total Quality Control (TQC)" concept. These are the systems which, on the one hand, improve quality, cost and delivery, which are directly related to productivity both within and outside of a manufacturing plant. On the other hand, these are the systems which enhance mutual trust relationships among employees and between manufacturers and suppliers through exchange of information and technical, financial, and managerial assistance.

We can understand the characteristics of the internationalization of Japanese companies from the standpoint of the Japanese production management system. The following sections will discuss the Japanese production management system and how it is reflected in the internationalization of Japanese companies.

* Professor of Humanity and Social Sciences Mie University, Japan.

2. Japanese Management and Japanese Production Management System

(1) Japanese Production Management System

Japanese production management consists of two tiers: production management within a company and production management between a core company and its subcontracting companies within a business group. I call the first type, which is an ordinal production management system, internal production management system or internal system, because it is production management within a single company.

This internal system includes <Kaizen> activities, QC circle movements (quality control and quality management) 1), and other small group activities such as 5S, the safety system, the suggestion system, PM (Preventive Maintenance), JK (Jishu Kanri) and ZD (Zero Defect).

Two characteristic dimensions of these systems must be emphasized: it is a movement to improve quality and productivity on the one side; it is also a participative and democratic system on the other. When this internal system is expanded to the whole company, not only at the plant level but also to the top management level, it is called Total Quality Control (TQC). From the view point of TQC, "quality" does not mean just product quality but "satisfaction of customers". Thus, Japanese companies are inclined to make use of this "quality" concept and to think of long-term profits in their corporate strategy.

The second tier of production management system, which is a parts and components supply relationship between subsidiaries and affiliated companies and their parent or core company, is called the external production management system, because it is a production system outside of any one particular company. That comes as a logical extension of TQC and the QC circle movement within a company to the business group level. This system includes technological transfer of the internal system and the coordination of the companies of the group. This is a control relationship concerning cost, quality, scheduling and design and information exchange among the companies. The Just-in-Time system is a good example of this type of management system.

Both the external system and the internal system can improve productivity and efficiency by seeking good quality. In this sense both systems are not different from, and consistent, with each other, although their initial appearance and field of operations are different. One comment which must be added is that there are personal connections within the Japanese business group. This relationship makes possible a comprehensive and long-term relationship which is more than a simple trade and production management relationship. Thus, we have to evaluate this system not by short-term efficiency, but by long-term efficiency. A system with only short-term efficiency is not necessarily efficient in the long run.

Roos and et.al. [11] at MIT, call this system the "Lean System". They also emphasize the importance of this system as does the present author. They have researched the same subject in the automobile industry and have come to more or less the same conclusion as the author. They also contributed to my understanding by presenting data concerning the auto-

mobile industry. However, first, they fail to understand that this is not a phenomenon confined only to the automobile industry, but exemplified in all Japanese business. Second, they do not understand the importance of TQC. Third, they give a misleading name, "lean", to this system.

(2) Japanese Business Group

I have to explain here the Japanese business groups within which the external system work. It should be noted first that there are two types of business groups, more precisely two layers of business groups. Many foreign researchers, including the MIT group, misunderstand this fact and confuse the two types of groups.

The first type of business group is a horizontal one, as member companies virtually have equal status and rights, although one or more may constitute the core of the group. Some of these business groups originated from the "Zaibatsu", which were family owned conglomerates before World War II. In these business groups, the member companies mutually obtain each others shares, had trade relationships among themselves, held president meetings, exchanged information, and launched projects together. In addition, the member companies were usually the core companies of the second type of business groups.

The second type of business groups is a vertical hierarchical one, with the core campany of the business group directing and controlling its member companies through equity-holding or subcontracting trade relationships. Most member companies of the group are affiliates or subsidiaries of their core company, supplying parts and components or subcontracting with them. Thus, lower member companies in this structure are often subcontractors of upper member companies. The following discussion is on this second type.

I also have to explain a particular nature of the second type of Japanese business groups, because it is a little different from that of most business groups outside Japan. Many business groups around the world are constructed for a capitalistic objective which seeks only maximum profit. However, Japanese business groups are formed not in view of this capitalistic logic, but rather in view of logic of business operation or logic of production in particular. Member companies are engaged in operations related to the production process or the products of the core company. Thus, Japanese business groups are vertically integrated or related diversified types.

Why is the logic of business operation or production preveiling in Japanese business groups? The most important reason is that holding companies are legally prohibited in Japan. Although Japaneses companies, of course, possess a capitalistic motive, it is likely that, due to this prohibition, they are more interested in business operations or production operations. This is not the only reason that Japanese business groups are more oriented to business operations. The historical orientation towards technology since the Meiji Era and the intense competitive performance of small and medium companies in Japan are the other reasons.

Whatever reasons are there regarding the logic of business operation orientation, it is important that the Japanese business groups are more keen on the production process than on

capitalistic return. The external production management system is performed within this type of business groups.

(3) Effectiveness of the External Production Management System

How effective is this production management system within business groups? When the whole production system is considered, there are two other possible measures: Complete in-house manufacture system and open market buy-out appropriation. In fact, GM depends on an in-house system and manufactures most of its own parts and components. On the other hand, European automobile companies make use of the external open market and buy many parts and components from outsiders. Then, why do Japanese companies depend on a hybrid system, namely subcontracting? Further, is this system more efficient than the other systems?

We have to evaluate the advantages and disadvantages of the three systems, namely, in-house, subcontracting and open market. Nakamura [10] investigated these three systems and discussed information certainty on production and flexibility subject to market condition change. The Japanese White Paper on Small and Medium Businesses [3] in 1969 discussed the advantages of the subcontracting system and pointed out the importance of cost reduction for buyers and capital savings for suppliers. There are numerous researches concerning this matter.

I would like to insist here that both the in-house system and open market system have both strong points and weak points regarding cost, quality, delivery among other factors. These systems are not perfect. Thus, if an appropriate management system exists which complements their weak points, the production system by subcontracting is more advantageous than the other two in pursuing the optimum combination of cost, quality and delivery. In other words, the Japanese business groups can attain most effective production through cost management, quality control, delivery management and design-in management.

(4) Technology Transfer of Japanese Production Management within a Business Group

The essestial part of Japanese production management is "Quality Control" or "Total Quality Control" (TQC), which began after World War II under the influence of two American engineers, Dr. Deming and Dr. Juran. "Quality" in view of TQC does not only mean quality of product, but also satisfaction of customers in a wider sense. This idea helped Japanese business groups introduce production management on a business group basis and made the groups efficient.

The movements of <Kaizen> and QC circles which are conducted within a company spread to other companies in the same business group because of the logic of TQC and the idea pursuing the optimum combination of cost, quality and delivery. It is natural for a core company to demand the same efficiency even in its subcontracting companies, which manufacture parts and components, so as to secure good quality for the finished products. Thus production management within a business group is a logical extension of TQC of the core company.

Actually this diffusion process proceeded in a two-folded way. The first is transfer of the QC circles and <Kaizen> activities philosophy. The next step is transfer of subcontracting management know-how. These two are closely related, but there remain some differences. The transfer of the former is a part of the transfer of the latter. Besides, the latter includes control of group companies and formation of networks. Managerial activities such as diagnosis, evaluation and selection, and information exchange on cost, schedule, quality and design are added to the latter. The transfer of the latter naturally comes later than that of the former. The know-how of the core company is transferred to its subcontractors in this way.

Although the subcontracting system is somewhat more advantageous than the others, its superiority is not immediately clear. We can see various types of subcontracting systems in reference to the insecure nature of this system. It is management which makes this system secure and stable. Historically, Japanese business groups were strengthened by the development of this management system.

After forming the combination of internal production management (<Kaizen> and QC circle movements) and external production management (the subcontracting system), Japanese companies managed to become strong competitors.

3. Internationalization of Japanese Companies and Japanese Production Management System

(1) Competitive Edge of Japanese Companies in the World Market

When we compare internationalization between American companies and Japanese companies, we can find some differences. The internationalization of most American companies is based on their technologically new products. According to Vernon's theory [13], the internationalization pattern is the product cycle type : production sites moves from an advanced country to developing countries. While, in the early stage of this type of internationalization, product development is more important, in a standardized or matured product stage, the production cost factor is more important in the selection of a production site.

The internationalization of Japanese companies, however, is different from that of American companies. It is better for us to assume a special factor to explain this difference or competitiveness of Japanese companies. This is neither a new product development ability, nor production factor cost. The special factor, in my opinion, is the superiority of production management.

K. Kojima [8] emphasized the special nature of internationalization of Japanese companies : labor intensive and transfer of standardized technology. Although it is hard to believe that this pattern is still relevant, the difference of Japanese internationalization is maintained. In this respect, K. Yamazaki [14] has already proposed the standardized technology advantage to explain the internationalization of Japanese companies. Standardized technology in his terminology is production management in my sense.

Japanese companies can export their products not only to advanced countries, but also to developing countries at the same time in course of their internationalization. Further, companies in developing countries which enjoy an advantage of production factor cost sometimes can export their standardized products to advanced countries, but this flow is not true in the case of their attempts to export to Japan. The superiority of production management can allow Japanese companies to be competitive even with these countries.

The internationalization of Japanese companies is based on production management which is forced to continuous adaptation, improvement and change. Although production management is not always dominantly powerful, it plays a critical role when products enter a mature stage. Japanese companies are competitive owing to this production management.

(2) Three Stages of Internationalization

American companies have internationalized in accordance with the product life cycle. How can we explain the internationalization process of Japanese companies ?

Japanese companies have been able to internationalize due to their competitive edge in their internal and external production management systems. This fact comprises two generic meanings, as explained above. First, the competitive edge is not in new product development abilities, but in production management ability. Second, the production management system is based on the business group or subcontracting. If we take into account these facts, the internationalization of Japanese companies can be thought of as consisting of three stages.

First stage : Export or domestic production with the production management.
Second stage : International transfer of internal production management system.
Third stage : International transfer of external production management system.

Japanese companies have naturally accumulated production management know-how in the home country. They chose to export their products from Japan to the world market, first to developing countries and then to advanced countries. Product export was the strongest and most profitable method at this stage.

The massive export by Japanese companies, however, eventually forced the developing countries at first, then the advanced countries also, to reduce or stop their imports from Japan. The developing countries gradually introduced an import substitution policy, which has promoted local production of the Japanese companies. The advanced countries also followed this strategy after losing their new product development abilities to Japan.

The success of production management inside Japan gave Japanese companies a strong export ability. However, this strength induced the restriction of import substitution policy in developing countries and trade friction with advanced countries, and the appreciation of the Japanese Yen. These trade restrictions have forced Japanese companies to establish local factories both in developing countries and in advanced countries.

Japanese companies started to produce locally, but only on a knock-down basis : they import the necessary parts and raw materials from Japan. Moreover, they import Japanese equipment

and machinery, because they preferred quality parts, raw materials and equipment produced in Japan to those made locally or in third world countries. The transfer of the internal production management system also started side by side with the local production. Transfer started to developing countries first, but later to advanced countries also.

Host countries, both developing and advanced countries, are still dissatisfied with the local production of Japanese companies. Local production just induces additional import of parts, raw materials and equipment. Thus, the host countries started to demand further localization: increase of local production ratios or local production of parts and components. After the localization policy, simple transfer of the internal system proves insufficient. Japanese companies now cannot import parts and components and are obliged to purchase them locally.

Japanese companies have to find local suppliers which are qualified to produce the necessary quality materials if possible. They need qualified companies on which they can rely in terms of cost, quality and delivery.

There are two methods to obtain these suppliers: to establish joint ventures or affiliates of Japanese domestic suppliers in host countries or to educate indigenous suppliers. It is easier for joint ventures and affiliates of Japanese suppliers to comply with production management. It is a long process to nurture indigenous suppliers: obviously however, this method is more preferable for the host countries. After completing the formation of a suppliers' group, the transfer of the external system will follow consequently.

(3) Transfer of the Internal System

The internationalization of Japanese companies based on production management needs a further step when it is transferred from within a business group to a group outside Japan. As the internal system includes both product technology and production management, its transfer is not simple. It is not easy to teach production management to local people.

There is some criticism of Japanese multinationals. It is said that Japanese companies are reluctant to transfer technology. Japanese companies rely on Japanese equipment. Japanese companies bring many compatriots to local companies. Part of these problems comes from the nature of Japanese production management. They need many Japanese engineers who can teach production management. They prefer Japanese equipment which is compatible with the Japanese production management system.

It takes more time to complete technology transfer than American companies. American companies, for which their competitive edge is new product development ability, can transfer their technology easily, because their technology is only product technology. Thus, American engineers do not need to stay for a long time.

Although Japanese companies started to transfer production management to developing countries earlier than advanced countries, it is not easy to transfer it to developing countries due to less favorable educational conditions. In this respect, transfer to advanced countries is more advantageous. Before the completion of the transfer, products of Japanese affiliated

companies in developing countries are of low quality and expensive. However, once transfer is completed, its effects are impressive. Indigenous or Japanese affiliated companies in developing countries which complete the transfer can export their products to other third world countries or even to Japan.

In advanced countries, the same process is still going on. The slogans at NUMMI, the Toyota-GM joint venture, indicate this process:

"Kaizen," The Never-Ending Quest for Perfection
The Development of Full Human Potential
"Jidoka," The Pursuit of Superior quality
Build Mutual Trust
Develop Team Performance
Every Employee a Manager
Provide a Stable Livelihood for All Employees

We can see the transfer process of the internal system in these slogans: <Kaizen> and QC movement on one hand and a human oriented approach on the other.

(4) Transfer of the External System

After the completion of the transfer of the internal system, sooner or later, Japanese companies will face its limitations. The demand of localization increases in devloping countries. Advanced countries are now following developing countries on the localization policy. Japanese companies face the necessity of the transfer of the external system: internationalization of parts industries and transfer of the business group system. One difference between developing countries and advanced countries is that there are usually some suppliers in advanced countries which may supply parts and components from the beginning to Japanese companies.

The transfer of the external system is more difficult than that of the internal. Forming an external system is a matter beyond finding suppliers and establishing a business group. Core manufacturers have to teach TQC and <Kaizen> activities and control cost, quality and delivery to their suppliers.

One of the main concerns of Japanese companies which launch local production is how to form the external production system or a group of suppliers who understand their requirements. To establish subsidiaries or joint ventures with Japanese suppliers is one idea. To find indigenous suppliers and to develop relationships with them is another.

The subsidiaries and joint ventures of Japanese suppliers are ready to respond to the needs of Japanese core manufacturers, because their parent companies are accustomed to the external system. However, as in developing countries, if local market size is not large enough to make a profit, Japanese suppliers may be reluctant to launch local production. Furthermore, the massive inflow of Japanese direct investment may raise an antagonistic feeling among indigenous companies and people. Thus, to get indigenous suppliers is probably better. It becomes necessary to transfer production management system to indigenous companies.

B. Asanuma [1] insists on the possibility of transfer of Japanese trade relationship between manufacturers and suppliers. However, reality is still lags behind theoretical possibility. At present, it is difficult to find out Japanese type business groups in any other country except Japan. Although there are some signs for future formation of business groups [5], the groups in other countries still lack production management in the Japanese sense. Japanese suppliers as a whole, which are affiliated to different business groups in Japan, play the role of supplier to other Japanese affiliated manufacturers in host countries. It is better to say that it is the formation of "Japanese affiliated companies" group. In addition to this "Japanese affiliated companies" group, there are some indigenous companies who are local suppliers to Japanese affiliated manufacturers. These companies may become the seeds of a future external system.

Toyota announced plans in 1990 for establishing an external system in host countries using local suppliers. This plan is called the Toyota Step Up Program. The three main principles of this plan are:

Suppliers' Meeting
Design-In
Guiding Quality and Productivity Improvement

This strategy of Japanese companies urges indigenous companies to decide whether to join Japanese suppliers' groups or not. If as indigenous company can afford to respond to the requirements of Japanese companies, it will have some chance to share new profits. If not, however, that the local company may lose its existing market share. It is a serious and important decision for indigenous companies.

4. International Transfer of QC Circle Movement

It is difficult to describe situations of the transfer of the external system because little progress has occurred in this area. On the other hand, the QC circle movement is a representative example of the internal production management system. Thus, it is possible to evaluate situations of the transfer of the internal system through QC circle movements around the world.

(1) QC Circle Movement and <Kaizen> Activities

The QC circle movement and <Kaizen> activities are representative of Japanese production management and they are considered as universal tools. The reason is that these activities, QC circles in particular, are both human oriented and task oriented. The QC circle is an activity which tries to improve productivity at the workshop level. It is an activity which requires mutual trust and equality among members at the same time.

Many academicians of leadership theory, e.g. Blake & Mouton [2] and J. Misumi [9], insist that the combination of high level of human orientation and high level of task orientation assure the highest performance. When people are motivated by a participative atmosphere and they are given good measurements for productivity improvement, high performance is

to be expected. QC circles and <Kaizen> activities are in accordance with this leadership theory. We can see a combination of incessant improvement activities and participative or democratic attitude in QC circles and <Kaizen> activities.

It does not mean, however, that QC circles are always effective in any situation. QC circles, of course, have some weak points and some limitations. First, as mentioned above, the competitive edge of Japanese companies is not in research and development abilities or in new product development abilities. In other words, QC circles and <Ksizen> activities can increase the efficiency at the production site, but not in the sphere of research and development. Although some concepts and ideas at the developmental phase which is near the production phase, can be acquired by means of QC circle activities, QC circle activities may interfere with the real creative ideas which are essential to research and development. Thus, Japanese companies are not assured to be competitive in the most innovative products market or industries.

Second, leadership theory does not always assure high performance or productivity, even if there is participative or democratic management. Fiedler's "contingency theory" [4] shows that participative management is not always universal 10). He suggests the importance of mutual trust between managers and their subordinates. Thus, without mutual trust and co-operation between managers and labor unions, QC circles cannot succeed. This aspect has an important implication for Japanese labor management, which will be discussed later.

Third, we have to pay attention to the difference between the office and the workshop. Office employees and managers who have completed high level education and believe in their ability often do not appreciate an equality system. They are likely to believe that meritocracy is more efficient. They can join individual-based suggestion systems, but are recalcitrant to team-based QC circles. Furthermore, various QC tools which are invented at the workshop level are usually not productive in the office. There are too many uncontrollable variables in the office. Existing QC tools are not so powerful as to solve the problems that contain many variables.

(2) QC Circle Movements Around the World

As mentioned above, the QC circle is considered to be basically universal despite its limitations. Thus, it is expected that the QC circle movement will spread worldwide. All companies have to master production management system as early as possible.

The countries which participated in the international conference on QC circles, ICQCC'90 and submitted their reports were India, China, Taiwan, Korea, Thailand, Malaysia, Singapore, Indonesia, the Philippines, Australia, France, the United Kingdom, Italy, Spain, Sweden, the USA, Mexico, Hungary, Bulgaria, the USSR, and South Africa [6]. Among these countries, India, Singapore, Korea, China, Taiwan, the Philippines, Indonesia, Thailand, Australia, and Mexico submitted more than two reports. QC circle movements are reportedly seen in 62 countries around the world including 15 in Asia, 3 in Oceania, 11 in North and South America,

23 in Europe, and 10 in Africa.

We can confirm, thus, that the QC circle movement is now spreading and especially popular in Asia. There are many reasons they are popular in Asia. First, Japanese companies have been launching local production in this region from the earliest period of their internationalization. Second, eduction and training activities have been conducted for companies in the region by AOTS and other institutions. Third, people in the region less contemptible for Japanese companies can accept Japanese ideas and management system more easily. Last, in many of these countries, people traditionally share family oriented culture and participative values.

Interestingly enough, the QC circle movement is spreading to not only Japanese affiliated companies, but also to indigenous companies and even American affiliated companies. Moreover, they are conducted in not only private companies, manufacturing companies, and in capitalist countries, but also in state enterprises, service companies and in socialist countries.

Not in alll countries, however, does the movement flourish. In Europe, the movement is facing resistance. For example, in Sweden, the number of QC circles is reportedly decreasing. In England and France, the movement is not popular and it is doubtful whether managers there really understand the ideas or not.

(3) Thailand Case of QC Circle Movement

I would like to show the QC circle movement in Thailand as a representative example in Asia where the movement is relatively popular so as to evaluate the situation of the movements around the world. In Thailand, the QC circle is well understood, because Japanese companies started to establish local production facilities relatively early as compared to other regions. Further, there is an institution, Technological Promotion Association (Thai-Japan), which promotes technology transfer, including the QC circle, from Japan. In this country, QC circles are conducted mainly in Japanese affiliated companies, but, indigenous companies and American affiliated companies have taken up QC circles also.

The first company which introduced the QC circle in Thailand was the Japanese affiliated Thai Bridgestone Co in 1974. After that, Japanese affiliated Hino, Thai Nippondenso, and the indigenous Siam Cement group, Bangkok Bank and others followed and have played leading roles. The registered number of QC circles is increasing year by year. The QC circle movement has penetrated into not only private companies and munufacturing companies, but also state enterprises, government offices, service companies, financial institutions, hospitals, universities and even the military services.

Of course, some companies and institutions among them are struggling to continue their QC circles. These companies and institutions are suffering from insufficient support from top management, inadequate understanding of QC tools by the workers, ineffectiveness at the offices and an unfavorable top-down style in the execution of orders.

Nevertheless, the Siam Cement group and Japanese affiliated companies have made great

achievement through QC circles. They have improved the quality of Thai products after long years of experience. Despite some limitations of the movement, the situation in Thailand presents a proof of the universality of the Japanese production management.

(4) Japanese Labor Management and Japanese Production Management

It seems that the QC circle movement, a part of Japanese production management, is logically and factually universal under certain conditions. There are some conditions which assure the success of the QC circle, such as sufficient support from top management, educational levels of employees, educational system within companies and institutions, participative management style, and an cooperative atmosphere between management and labor union.

Participative management and cooperative labor-management relationship are pre-conditions to assure successful team-work and participation at the workshop. Strong emphasis on in-house education and training programs is a condition to make employees understand the contents of QC circles. Long-time employment is recommended for continuation of QC circles.

These conditions are very similar to those of the Japanese labor management system. Considering this, we can suggest the correlation between Japanese labor management and Japanese production management. Although the correlation is not perfect, we can expect that the Japanese labor management system serves the role of infrastructure in implementing Japanese production management. In other words, Japanese management is important to sustain Japanese production management.

In view of this, we can recognize that some companies, though not so many, adopt not a strictly Japanese type but a similar kind of labor management system in Asia, in the USA and in Europe except Japan. Siam Cement in Asia, IBM, Xerox and others in the USA, and Marks & Spencer [12] in Europe are such cases. As the majority of companies in the world are not Japanese type, we sometimes fail to recognize these companies. However, these companies are often eminent in their respective businesses and in their countries. The policy of these companies are rather business and human oriented than short-term profit oriented. They are cooperative in labor-management relationship, give good education and training opportunities to their employees, are reluctant to lay them off and, most importantly, are enthusiastic about QC circles.

5. Conclusion

(Japaneses production management and the future of world competition)

The success or failure of the internationalization of Japanese companies depends on the transfer of the internal and external production management systems, since these systems are the source of the competitiveness of Japanese companies. It is likely that these Japanese production management systems can be transferred not only to Japanese affiliated companies, but also to indigenous companies around the world. At least, the transfer of the internal system

is logically and factually confirmed. Thus, companies which master the internal system are more competitive than other companies which do not. It is difficult for companies which fail to absorb the system to survive in matured industries for long.

Not all but some Japanese affiliated companies are succeeding in transferring the internal system. Some, though not so many yet, indigenous companies also are succeeding. Even some American companies are trying to transfer this system. However, most American companies have not yet fully understood the importance of these systems. American companies without the production management system only sought overseas production sites which offer cheap labor costs. These companies did not recognize the alternative. Now some American companies have moved their production sites back to the United State and try to pursue this alternative the Japanese production management system.

In matured industries in the world, Asian companies which are enthusiastic about QC circles will be more competitive and powerful. Most American and European companies which are indiferent to the production management system will loose their competitiveness and eventually slip out of the world market. Of course, some American and European companies which have new product development ability can be competitive and can survive. Other American and European companies which master the production management system can also survive. Dr. Juran, the father of TQC (Total Quality Control), recently reported that QC circle movements are rapidly spreading in the USA. If these movements succeed, more American companies can survive.

The Japanese production management system is a universal and dictatorial condition which determines courses of world competitions in matured industries. However, this system is not an absolute condition in any situations. This system is weak in research and development field.

This system is still struggling at office. We cannot say logically and factually that QC circle is very effective at offices where employees belive in the meritocracy. There is a difference between desires of office employees and those of factory workers. Most office employees and managers are more individualistic and do not like team-work. Moreover, QC circle movement lacks attractive tools which office employees and managers are interested in and which improve efficiency of office work dramatically.

Lastly, the problem concerning the transfer of the external system still remains unproved. The effectiveness of the external system depends on instable conditions even within Japan. Thus, it is not easy to fulfil the necessary conditions overseas. At least at present, we do not see any successful cases. It will take a long time to complete the transfer of the external system.

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