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Adoptability of Japanese management practices in Sri Lankan industry

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Abstract
The effectiveness of Japanese management practices (JMPs) is often referred to as a major reason for Japan's economic miracle. In recent years, several countries also have achieved remarkable results by adopting some JMPs in their manufacturing organisations. Through the overview of an Indian experience, this paper attempts to examine how Sri Lankan industrialists can benefit from adopting JMPs in their organisations. It is suggested that JMPs, if properly adopted, can accelerate industrial development in Sri Lanka by contributing effectively towards achieving low cost, superior quality and high productivity.

Keywords
Adoptability, Japanese, management, practices, Sri, Lankan, industry

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Keywords: Japanese management practices; achieving low cost; superior quality and high productivity; adoptability; Sri Lanka.


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1 Introduction

Japan’s phenomenal rise to economic superpower during the post-war period is primarily a result of its rapid industrial development. Being able to produce goods of superior quality at the lowest cost, Japanese manufacturing enterprises have been able to beat all powerful competitors in the international marketplace. Japanese manufacturing management techniques and strategies stand out among several factors accounting for this success (Lee, 2002, p.2). Research indicates that a major contributor to the Japanese industrial success is their unique system of management practices (Kharbanda and Stallworthy, 1991). It is well known that they learned management practices from the West and modified them creatively to develop a more effective system, which is referred to as Japanese management or Japanese style-management (Whitehill, 1991; Fukuda, 1988).

Some of the Japanese management practices (JMPs) have been adopted by several manufacturing companies even in developed countries in the West and have produced outstanding results. The adoptability of JMPs to Western countries, however, is said to be limited by their vast cultural differences (Lee, 1987). In contrast, some hold the view that JMPs are more relevant and can be more easily transferred to other countries in the Asian region because these countries are somewhat similar to Japan in terms of their socio-cultural attributes (Wijewardena and Wimalasiri, 1996). This view is further supported by the findings of some studies which indicate that many business enterprises in a number of Asian countries such as Korea, Singapore, Malaysia, Thailand, Indonesia and India have achieved excellent results by adopting some of these JMPs (Yamashita, 1991; Fukuda, 1988; Agarwal, 1991). Careful examination of how these Asian countries have adopted JMPs can provide some useful insights to other countries in the region so that they may also learn from those experiences. For this purpose, however, it seems more appropriate for Sri Lankan manufacturers to examine the Indian experience because the two countries are considerably similar in terms of their economic, political and socio-cultural characteristics. Therefore, the purpose of this paper is two-fold. First, it presents an overview of how an Indian manufacturing firm has benefited from adopting some JMPs. Then, it attempts to examine the usefulness and feasibility of such an adoption in the Sri Lankan manufacturing sector.

2 Nature of JMPs

Any discussion of JMPs needs, first of all, to look at what they mean. One approach to the definition of JMPs has been to look at them as a model of best practice, which is not confined to any one institutional context. This is the approach of Womack et al. (1990),
who abstract a model from the Toyota production system in Japan, the core of which consists of production organisation, design and supplier relations. They then argue that this model is universally applicable. However, the assumption that there is a single model operative in Japan is a matter open to considerable debate. Therefore, culturalist and institutionalist explanations have taken a broader approach in defining JMPS, which includes not only the organisation of production, but also personnel policy, supplier relations and even the wider institutional framework (McCormick, 1994). Clearly, this approach provides a more comprehensive definition of JMPS. In order to better understand Japanese management systems, one needs to understand the social-technical systems (STS); which are based on the awareness that everything depends upon everything else, and that performance is the product of the interactions of the sub-systems (Fang and Kleiner, 2003, p.116).

Watanabe (2000) reveals that the Japanese management model consists of two complementary systems: the production system and the labour management system. The production system’s ‘intrinsic feature is its flexibility, the capacity to adjust product lines in accordance with changing market demand and the facility, in turn, to change worker inputs in accordance with changing production demands’ [Sutherland, (2004), p.41]. According to Watanabe (2000) there are three essential elements in the Japanese production system. First, it makes use of ‘just-in-time’ systems, whereby ‘each production unit or process produces only what is needed, only when it is needed, and only in the amounts needed’ [Watanabe, (2000), p.312]. As such production organisation is the core of Japanese success in manufacturing. It is then complimented by design activities, and supplier, labour and customer relation strategies which help to make the core activity work most effectively. JMPS have evolved within this manufacturing environment and include a variety of concepts, methods and techniques aimed at stimulating innovation and achieving low cost, superior quality, and high productivity. These are often described as group orientation, collective decision making by consensus, life-time employment, on-the-job training, job rotation, comprehensive welfare programmes, seniority based promotion, quality circles, just-in-time production and inventory systems, total quality control, continuous improvement, and target costing.

3 Experience of JMPS in India

It should be mentioned at the outset that our analysis presented in this section is based on the information and data reported by a few researchers who have conducted firm-level research in India (Nohria and Gladstone, 1991; Kaplinsky, 1994). What is interesting to note from these studies is that despite the fact that the large size of the Indian economy and the inward-oriented trade policy led most industrial producers to focus their operations almost entirely on the domestic market, about 30 Indian enterprises had made substantial strides in introducing JMPS by 1991. Furthermore, these enterprises included not only subsidiaries of foreign multinational corporations but also a considerable number of local firms. For pragmatic reasons, our discussion focuses on the JMP experience of only one Indian firm, Crompton Greaves Limited (CGL).

Crompton Greaves (CG) was incorporated in 1937 as a wholly-owned subsidiary of a British multinational corporation. Despite this foreign ownership, CGL has been operating largely as a locally-owned company, except for policies on dividends and major strategic expansions and acquisitions. It is a large, diversified engineering firm,
predominantly focused on the electrical products sectors. According to the company website:

"For the last 68 years, CG has become synonymous with electricity in India. In fact, the first unit of electricity was generated on a `Crompton Dynamo' at Calcutta in 1899. A pioneering leader since 1937 in the management and application of electrical energy, CG, today, is India's largest private sector enterprise, extensively engaged in designing, manufacturing and marketing high technology electrical products and services related to power generation, transmission, distribution as well as executing turnkey projects. The company is customer centric in its focus and it is the single largest source for a wide variety of electrical equipments and products. Further, the company is emerging as a first choice global supplier for high quality electrical equipments." (http://www.cgionline.com/overview.htm)

By the early 1980s, CGL was experiencing a considerable squeeze on pre-tax profits, which fell from more than Rs.12m crore on a turnover of Rs. 180m crore in 1981 to around Rs. 2m crore on a turnover of Rs. 190m crore in 1984. Its equity price performance on the stock exchange was considerably worse than that of the all-industry index, as well as the electrical/electronic sub-sector.

The then newly appointed Managing Director, who had studied JMPs, identified two major problems at CGL for the deterioration of its product market and the increasing cost. By introducing JMPs, he responded to this problem by redefining the corporate goals to increase profitability and growth without increasing borrowing or the number of employees. A series of growth targets were set – doubling turnover every four years; 10% of sales each year should come from new products; 25% of all products should be replaced every three years; the profitability target (pre-tax profit as a percentage of sales) were set at 4% by 1990 and 6%-7% by 1995-96. This compared with a rate of around 2% in 1988 and half that in 1985. These targets were to be met by restructuring in five areas:

1. a greater concern for customers
2. a greater concern for employees
3. an improvement in product quality and delivery
4. reduction in costs
5. the introduction of new products and the diversification into new electrical related areas.

The managing director's company's primary strategy for achieving these ends was to refocus the company's relationship with (and between) its employees and to engage in a fundamental process of micro-level organisational reform based on JMPs. He commenced the implementation of this strategy by visiting all divisions and regional plants of the company and holding open discussions with many employees. Managers were expected to replicate this process of open discussion throughout the firm. This was seen as a considerable shift from the past practice of managing the firm as a fully centralised organisation. This began with a programme of devolving management responsibility to a much lower level than previously for the purpose of inducing managers to 'own responsibility' for overall operating performance.
Several Japanese management and production techniques, such as just-in-time (JIT), total quality control (TQC) and cellular production were introduced at the plants. The company also used the Japanese technique of continuous improvement (Kaizen) by focusing on instituting a process in which continual incremental improvement would become a routine. To achieve this, goals were set in relation to three parameters – quality, productivity and cost – each of which could be measured. In the production process, one ultimate objective was to replicate Japanese ‘zero-defect’ practice. As previous quality standards had been weak, a gradual process of halving the target each year was adopted. Productivity was defined in relation to sales per employees. Cost reduction was the final tool used for achieving continuous improvement. Managers were required to prepare annual budgets, which included a number of detailed elements and were expected to meet continually moving targets.

Another step taken in this direction was to place a strong emphasis on Japanese-style teamwork. An involvement index (measuring participation in small group activities) was developed to measure participation with a target for 1995 of 100% involvement of senior management, 40–50% for white-collar workers, and 30% for the blue-collar work force. Small groups varied in nature including quality circles, value added management groups, and materials management groups. These were introduced company-wide and were accompanied by firm-wide conferences. In-house conventions were held annually on a range of subjects including technology, materials management and quality circles. These small groups had the effect of promoting continuous improvement through peer group pressure.

Training was another important element included in the human resource development programme. An aggregate ‘training exposure rate’ was set, defined as the number of people in training during the year divided by the total number of employees. Aiming at Japanese best practice, a target was also set of one 1% of all employees being involved as internal trainers. Within this training of the direct work force, attention was given to the multi-skillling, which was necessary to achieve flexibility. JMPs were implemented in all divisions and plants of the company and achieved remarkable results. For example, in the Ahmednagar plant, the average days of inventory held fell within two years from 85 days to less than 30 days for finished goods, and from around 50 days to less than 30 days for work-in-progress and raw materials. Similarly, the number of defective units fell sharply as a result of the implementation of QC circles programme. The greater the number of QC members, the lower the level of defective products. In the winding section of the plant, the percentage of defects fell from 4.3% in 1983–84 to virtually nothing after the implementation of JMPs.

The favourable impact of JMPs on the performance of this company was clearly visible from the early stages of their implementation. Labour productivity in the company as a whole mushroomed despite the low level of investment in new technologies. In early 1980, almost 10,000 employees were responsible for a total sales turnover of around Rs. 175m crores; in 1990 only about 8,500 employees accounted for over Rs. 550m crore turnover. This shows 3.7 times increase in labour productivity (during this period price level increase was only 1.3 times). Profit and dividends also rose markedly after introducing JMPs. Within five years from 1985 to 1990, free tax profit increased by about 9 times. Consequently, company’s share prices quadrupled between 1985 and 1989, compared to a stagnation of the all industry and electrical/electrical machinery indices. This change-around was almost entirely a result of the company’s new approach to
human resource management and the organisational changes introduced at the plant level, which were based on JMPs.

Today the company has achieved remarkable progress in terms of quality, technology and productivity as India's largest private sector enterprise in the business of electrical engineering. The company has integrated the Six Sigma methodology in its manufacturing processes. This methodology was actively pursued for ten products for which critical to quality (CTQ) characteristics were identified based on market feedback. Regional team has also been trained in Six Sigma technology for capture of customer's voice (http://www.cglonine.com/quality.htm). Through the commitment to responsible business activities through quality, technology and productivity, the company has achieved a turnover of ₹2,700 crore and receive a number of certifications in the ISO 9000/9001;2000/14001 series. The company became the first one to receive an ISO 9000 certification for finance and administration.

4 Appropriateness of Japanese management practices to Sri Lanka

Several Asian countries whose economic status was considerably lower than that of Sri Lanka during early years of the post-war period have achieved remarkably higher levels of economic development over the past few decades. Rapid industrialisation with a shift in emphasis from agriculture to industry has been the key to their success. It is apparent from the experiences of these countries that Sri Lanka with very low per capita income, high population, and inadequate income from its plantation sector needs to devote much greater attention to industrialisation if the country is to achieve rapid economic development. Fortunately, the government policy reforms in recent years, including emphasis on outward-oriented industrialisation, setting up of new industrial zones, encouragement of foreign investment in local industry, and privatisation of state-owned enterprises have made an appreciable progress in this direction. However, when compared with newly industrialised countries in Asia, Sri Lanka is still in a very weak position in terms of development indicators. This is evident from the figures in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Some economic indicators of selected countries in Asia 2004</th>
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<tbody>
<tr>
<td></td>
<td>Korea</td>
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<tr>
<td>Population (millions)</td>
<td>48.1</td>
</tr>
<tr>
<td>GNI per capita (US$)</td>
<td>20,400</td>
</tr>
<tr>
<td>GDP (millions of US$)</td>
<td>679,674</td>
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</tbody>
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The lack of physical and capital resources is often emphasised as the major and basic obstacle to achieving rapid industrialisation in Sri Lanka. It is well known that even Japan and newly industrialised countries (NICs) in the Asian region were confronted with the same obstacle during the initial years of their industrialisation. Nevertheless, they were able to overcome this obstacle successfully by managing their limited resources most efficiently. As such, the possible solution to this problem in Sri Lanka also is nothing other than the efficient management of its limited resources. Unfortunately, manufacturing enterprises in Sri Lanka, in general, when compared with their
counterparts in many other fast-performing countries in the region, seem to be less efficient in management of their resources particularly in terms of cost of production, quality of products, and productivity of labour. One of the principal reasons for this situation seems to be that some of the Western-style management practices used in Sri Lankan manufacturing organisations, perhaps due to their incongruity with the socio-cultural values of Sri Lankan people, are not appropriate and effective enough to increase productivity and accelerate profitability and growth. A study by Nanayakkara (1992) on the cultural impact on management in Sri Lankan organisations corroborates this view. It reveals that several socio-cultural institutions of the Sri Lankan society (i.e. family, caste, class, education and religion) contribute positively to the formation of a behavioural syndrome which is incompatible with the expectations of Western management theory and practice. It is a fact that as a legacy of the colonial British administration and due to the Western influence on management education and training in the country, Sri Lankan managers use Western-type management practices.

The success of outward-oriented industrialisation in Sri Lanka depends almost entirely on the ability of its industrialists to meet the challenge of their competitors in the international marketplace. This competitive strength, in turn, depends on their ability to produce quality goods at low cost. In this context, Sri Lankan manufacturers in the past, however, enjoyed a comparative advantage as a result of low wages. This comparative advantage, however, is gradually withering away due to the increasing wage levels in Sri Lanka. On the other hand, international competition even within the Asian region has increased severely in recent years. On the other hand, manufacturers in many other countries have been able to increase their competitive strength by using newer and more effective methods for minimising costs and maximising product quality and productivity. Several JMPs have helped them in this process (Kaplinisky, 1994).

Given the compatibility of some of the Japanese socio-cultural values and religious beliefs with those of the Sri Lankans, several JMPs, if properly adopted or adapted, can be expected to work very effectively in Sri Lankan organisations (Wijewardena, 1992). This assertion is further supported by the Indian experience discussed in the previous section of this paper.

Although the effectiveness of JMPs is unquestionable, manufacturers in developing countries may tend to think that they are applicable only to organisations with highly capital intensive manufacturing operations in developed countries. However, as evident from the situation illustrated in our Indian example as well as from the experiences of several other countries reported in the literature, several JMPs can be well adopted in a labour intensive manufacturing environment in developing countries as well. For instance, at CGL, cited in the Indian example, no extensive diffusion of electronics-based automation occurred before or after the adoption of JMPs. This confirms the suitability of JMPs for Sri Lankan manufacturing firms.

Many JMPs are based on the belief that human resources are the most important and profitable assets for a firm in the long run (Hatvany and Pucik, 1981). For example, job security, comprehensive welfare programmes, job rotation and training are all used for human resource development. This concept of careful attention to human resources, if carefully adopted, should help Sri Lankan manufacturing organisations greatly in increasing employee morale, mutual cooperation and labour productivity. For example, it is seen that the unprecedented performance achieved by the company in our Indian example was almost entirely a result of the company’s new approach to human resource
management. Its labour productivity has increased by about three times within five years after the adoption of JMPs.

Another most important feature of JMPs is their participative approach to decision making. When compared with the Western approach of individual decision making, the Japanese approach is more time-consuming. But it makes the implementation of a decision much faster and easier because no effort and time are needed for 'selling' the decision. This approach also encourages workers to make suggestions for quality and productivity improvements and cost reduction. A natural outgrowth of the suggestion programme is the well-known quality control circles (QC circles). The concept of QC circles has been adopted at CGL in India by setting up a variety of groups such as quality circles, value added management groups and materials management groups. It is interesting to note that the percentage of defects at the plant has fallen from 4.3% in 1983–84 to virtually nothing after implementing the QC circles programme at Crompton. Several Sri Lankan firms have also achieved excellent results by setting up some QC circles in recent years. Both these experiences show the appropriateness and usefulness of QC circles to Sri Lankan organisations.

The human resource-orientation of JMPs discussed above makes them particularly suitable for Sri Lanka because labour is the only resource that the country has in abundance. It is important to note that Japan, with people as its only resource, has been able to use those most effectively to withstand the shortage of all other productive resources and lead the country towards rapid development. Another factor that makes JMPs appropriate for Sri Lanka is that the level of education of Sri Lankan workers, in general, is relatively high. Workers are expected to participate actively in group discussions and suggestion programmes in a Japanese-style work situation and such participation is possible if they have attained a satisfactory level of education.

In addition to the human resource aspect of JMPs, Japanese manufacturing methods such as just-in-time (JIT), total quality control (TQC), continuous improvement (Kaizen) play a very significant role in achieving and maintaining high quality and low cost. Under the JIT system, customer demand triggers production in comparison to the Western-based 'push' manufacturing system that begins with the delivery of raw materials. When the JIT system is in operation, the demand for product ‘pulls’ subassemblies through the system as workers in the final stage of production dictate the flow of these subassemblies through the process. This process continues upstream through the beginning of the line, and beyond, to the suppliers of raw materials. Suppliers deliver materials to the beginning of the line just as workers need them through the just-in-time purchasing system. This system eliminates the need for storing raw materials (Young, 1992). Further, low levels of inventory continuously create a small crisis in the minds of workers, by forcing them to create a perfect subassembly unit every time. As a result, workers develop stronger work discipline and concentration. The JIT system provides little opportunity for workers to build any kind of slacks, or relief (through WIP) into the production process. In this sense, JIT is rather a philosophy, which employs as tools several production management practices such as set-up time reduction, level production planning, and multifunctional workers (Domingo, 1985).

A company-wide quality control system called total quality control (TQC) is another key contributor to the international competitiveness of Japanese manufacturing firms. In the simplest form, TQC means that quality is too important to be left to a few inspectors. Production workers must engage in quality control on a day-to-day basis. At the same
time, however, TQC broadens the definition of quality to cover all aspects of company operations. Quality and quality control are the responsibility of everyone in a Japanese firm (Gray, 1981). The ultimate purpose of TQC is to maintain the maximum possible quality with zero-defects. As reported by Nohria and Gladstone (1991), Crompton Greaves Company in India has achieved excellent results by adopting both JIT and TQC procedures. As such, there is no reason why Sri Lankan manufacturing enterprises cannot make use of these techniques for achieving quality and productivity.

Integrally tied to JIT and TQC is the philosophy of Kaizen which refers to a process of continuous improvement in production procedures and product characteristics, usually resulting from direct participation by the labour force. Imai (1986) describes Kaizen as the driving force behind Japan’s manufacturing success. It is an important part of the Japanese cost management system. The other important aspect of cost management is “target costing” (Genka kikaku) which is a market driven accounting practice. Under this system, the manufacturer first establishes a “target selling price” based on a systematic market research and specifies a “target profit margin”. The difference between these two figures is taken as the “target cost” of the product. This adjusted price-profit margin cost becomes the goal towards which everyone works. At the planning and design stage, engineers working on the new product interact frequently with various players (accountants, purchasing staff, shop-floor supervisors and suppliers) and they all work together to make sure that the final design meets the target cost. However, efforts made towards achieving the target cost should not have any adverse effect on the quality of the product. Thus, the critical feature of the Japanese system is its focus on getting costs out of the product during the planning and design stage. By contrast, manufacturers following the Western practice, when developing a new product, typically design it first and then calculate the cost.

Although Sri Lankan manufacturers who follow Western practices also strive to make their products at the lowest cost, they do not endeavour as hard as the Japanese to cut down costs at the planning and design stage. Even after this stage, the Japanese approach of “continuous cost reduction” is more intensive and effective than the Western approach of “periodic cost reduction”. According to the Western approach, the cost reduction is normally done at the end of a financial period through the identification of adverse variances and their causes. What is often done at this stage is to take action to see that actual costs will not exceed planned costs rather than attempting to cut the planned costs. As such, the Western approach is not as effective as the Japanese approach in cost reduction. This is one of the reasons why Japanese manufacturers have been able to beat even the most powerful Western competitors in the domestic and foreign markets. For Sri Lankan manufacturers, competition has been increasing at a faster rate in recent years. All high-performing economies in the region continue to strive for making their products more and more competitive in the international market through cost cutting and quality improvements. The increasing trend in wage rates indicates that the comparative advantage of low wages enjoyed by most industries located in Sri Lanka is also gradually withering away. Therefore, it is indispensable for Sri Lankan manufacturers to find newer and more effective methods for cost management and quality improvement even for their survival in the long-run.

It is evident from the above discussion that adoption of JMPS in Sri Lanka is quite appropriate and feasible. However, it is desirable for Sri Lankan manufacturers to investigate carefully how JMPS can be adopted in their organisations and what modifications need to be made before they are adopted. Successful adoption of JMPS in
Sri Lanka can accelerate the industrialisation process and lead the country towards NIC status in the foreseeable future.

5 Conclusions

As evident from several newly developed nations in Asia, it is through rapid industrialisation that Sri Lanka can achieve a high level of economic development. Although Sri Lanka has made an appreciable effort in this direction through government policy reforms particularly in past two decades, the progress is retarded by several factors such as high cost and low productivity. In addition, increased competition has created more difficulties for Sri Lankan manufacturers in both local and international markets. Under these circumstances, it is indispensable for them to look for newer and more effective ways and means of handling these problems. Since JMPs have been proved to be more effective than Western practices in tackling these problems, it is desirable for Sri Lankan manufacturers to make use of them in their organisations. Since most of the fast developing nations in Asia have achieved outstanding results by adopting some JMPs, it is also important for Sri Lankan manufacturers to learn from their experiences. Various reasons and advantages discussed in this paper show that JMPs can be easily adopted in Sri Lanka, perhaps with suitable modifications. If adopted appropriately, they can assist Sri Lanka greatly in achieving its industrialisation objectives.

References


**Websites**

