

Japan's Role in Transfer of Technology*

By Prof. Jean-Pierre Lehmann

INSEAD. Euro-Asia Centre

Thirty years ago the label 'made in Japan' conveyed an image of cheapness in price and quality with cheap labour having been involved in the manufacturing process. In the course of these recent decades the Japanese faced the daunting challenge of dramatically improving not only the quality of their products but also the quality of their image. They have done, one must admit, dramatically well. Today not only are Japanese products held in high esteem—with names like Sony, Matsushita, Honda conveying images of high quality—but their management system has become also a subject for great admiration. The historical dimension, however, must not be ignored, whether in understanding the process of technological development in Japan itself, or whether in terms of seeking to derive lessons from the Japanese experience.

In the course of this lecture this afternoon I should like to touch on a number of areas which are relevant to the process of technological transfer in Japan itself and, I believe to the direction which technological transfer from Japan will take. A good deal of this is familiar territory and so I propose to cover the various points fairly quickly. My approach, therefore, is more to look at the forest, than individual trees, and more conceptual than empirical.

Brief reference must be made to the Meiji period. Within the complex issues involved I only wish to raise two here. One was the manner in which technology was transferred from the West. Firstly, the emphasis that was placed on developing all adequate infrastructure both in material and human terms, secondly, the pattern of imitation adaptation innovation and eventually 'origination': thirdly, that the international environment in which Meiji leaders were operating was in fact more hostile to gaining industrial and technological independence than is the case for developing countries today. The second issue is that one can argue, I think, that Japan's experience as a late developer in a difficult international environment has influenced the country's attitudes to the developing World, whether in terms of technology transfer aid, and so on.

The trends of what one might call 'integrated technological development' were considerably accelerated in the course of the post-war years due to a combination of both favourable and unfavourable circumstances. The infrastructure was refined and expanded, this being especially the case in education with the result that by the early 70's Japan had

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the strong comparative advantage of having the most educated workforce in the world. Furthermore, at corporate level technology was developed within a pattern which closely integrated acquisition–diffusion within the firm–management–production–marketing–RND. The Japanese not only understand, but implement the concept of *total* quality, namely not only the quality of the products but the quality of management, of industrial relations and interfirm information flows, of the marketing, advertising and after sales service etc. Of great importance is the concern for the customer : as the NEC lesson to its employees makes clear, the corporation must be seen as a tree, the trunk corresponding to the people, namely the employees of NEC, the branches are their products, and the sun represents the customers if clouds should come between the sun and the tree the tree will die.

Japan has moved from a technology importing country to a technology exporting country and most of its technology is exported to Asian countries. Similarly Japanese DFI in Asia grew rather spectacularly in the late 60s and 70s. There are a lot of expectations regarding the contribution Japan can–possibly should–make : indeed there are those who argue that World economic growth could be significantly accelerated by a sort of Japanese technology Marshall plan. In discussing these expectations let me first relate the experience of Japanese technology transfer to Europe.

Western Europe is not a major source of Japanese DFI, in fact it corresponds to about 10 percent of Japanese overseas investments. In the manufacturing sector–and over 50 per cent of Japan's DFI in Europe is in the U.K.–the nature of the operations consist essentially of assembly plants and mainly 100 per cent subsidiaries. There is, therefore, comparatively little technology being transferred. In management terms, while the Japanese have tended to be quite successful with the workforce and it is important and interesting to ask why–relations between Japanese and local managers are not without tensions. In terms of transferring 'organisational technology', I might point out, as one example that a not single Japanese operation in Europe has Q.C.C.s, and the reasons for this deserve attention. Also for a variety of reasons individual European governments have different views on the desirability of attracting Japanese inward investments. Basically the U.K., Belgium and the Netherlands are keen, Germany is somewhat neutral, while France and Italy are hostile. Again the reasons are interesting.

Coming to Asia and looking at the prospects of Japanese investments and technology transfer for the developing countries, one point must be immediately made, and in my opinion, stressed. If we take the five ASEAN nations alone, at present approximately 95 per cent of their exports to Japan are raw materials. As Americans and Europeans have discovered, the Japanese market is an exceedingly difficult one to penetrate. I am not here passing a value judgement, but simply stating a fact : about 20 per cent of Japan's imports consist of manufactured goods, as opposed to an average of about 45 to 50 per cent for the other

OECD countries. Unless things change a great deal—and this I believe to be unlikely, at least in the medium term—Japan is unlikely to play the role of generator of economic development for the region in the sense that not only must technology be sold, but the resultant products should be bought.

In regard to technology transfer from Japan to the Asean region in general and Thailand in particular, I must firstly stress that I am by no means an expert on the subject. I have read a number of papers and talked to quite a few people, both Thais and Japanese, but my understanding is still based on impressions and not research. Essentially the complaints from the Thai side are that not enough technology is being transferred : that the technology is obsolete, that prices are too high, that not enough is offered in terms of training, that promotion prospects are limited, and that export restrictions impede the corporations' chances of becoming competitive in world markets. What is interesting is that, apart from the last point, very much the same complaints are made in Europe. Let me try here to play the role of impartial observer.

Many Japanese, both at Government and business levels, have become—justifiably concerned about their country's image in the world. In the hope of redressing the situation, there is today a lot of talk in Japan of *Kokusaika*, internationalisation. Now the Japanese have generally in the past been successful in achieving their objectives. This one, however, is a very tall order. One must bear in mind the unique degree of homogeneity among the Japanese : the sense of nationhood is extremely stronger, hence the internationalist concept is difficult. Also, referring back to the Meiji period, there is a feeling that they managed on their own and that this should equally apply to others. The prospects for 'industrial cooperation' the means to the internationalisation end are, in my opinion, not necessarily very good for the time being.

It must also be borne in mind that if many outsiders have difficulties in understanding the Japanese, the reverse is also true. Let me give an example on the training issue. The Japanese complain that if, for example, they bring a Thai engineer or Manager to Japan, for training, while they expect that upon his return he will share—hence diffuse his experience with others, in fact they find that he jealously guards it for himself either to seek promotion within the firm, or to get a better job within another firm. Neither Europeans or Americans would be upset by this behaviour as they would consider it being just "human-nature" Another important point is to bear in mind the Japanese self-perception of being poor, namely in natural resources : the Japanese have to remain extremely competitive in industry for the sake of her survival, hence a reticence to give anything away free that may jeopardise their future competitiveness.

In regard to the prospects of future technology transfer between Japan and the region here, another point has to be made. In the growing protectionist international environment, the

Japanese are finding themselves under great pressure from the U.S. and Europe, both of which obviously have a good deal of economic and political clout. Hence in the last three years or so while Japanese DFI especially to the U.S., but also to Europe has significantly increased, it has been decreasing in other regions and especially in the developing world.

Prime Minister Nakasone has taken a strong stance in seeking to promote a much more important and visible international role for Japan. Japan, however, is more accustomed to bureaucratic rule rather than political rule. It will be interesting to see whether Nakasone can change the situation. For my part I remain sceptical.

Japan has a great deal to offer, there is a lot that all of us can usefully learn from them. Throughout their history, however, the Japanese have tended to be students rather than teachers : students expect to receive, not to give. I think whether we are talking about the Thais, the Europeans, or anybody else, it would be naive on our part to assume that technology transfer from Japan will occur freely or even smoothly. Successful technology transfer depends both on the donor and the recipient. In my view and for reasons outlined above the initiative and the determination must lie with the recipient.