

Japanese Lean Manufacturing Principles - Technology Transfer

SUZUKI / GM CAMI Project - Case Study

Major 2 year on-site Consulting Project

CAMI is a joint-venture manufacturing company between Suzuki Motors and General Motors, based in Ingersoll, Canada, with two complete production lines manufacturing the Cultus/Swift car and Samurai/Vitara 4-wheel drive. The purpose of the joint venture was to allow Suzuki to expand into the American and European markets, and for GM to learn Japanese manufacturing methods (Technology Transfer).

Although GM had had a few joint-ventures with Japanese car manufacturers before, such as NUMMI in Kentucky, there were a number of features which make this venture different from previous ones: a) The plant was to be operated and managed purely by local (Canadian) people right from the very beginning yet apply a completely Japanese manufacturing and management style (assisted initially by 200 Japanese 'advisors'), b) the work force was to be completely unionised under a new agreement with the CAU, and c) the plant was to be completely green field in terms of site and people. In order for the venture to succeed under these parameters it was crucial for the initial technology transfer and training (of 2,000 'associates') to happen smoothly.

MACC-LR was awarded the contract to assist Suzuki in the initial consulting and preparatory training stages of this project, and F. Knuchel was the consulting project manager for the training. The consulting package comprised the preparation of training manuals for each plant shop including developing training videos, intensive 6-month training of selected 200 Suzuki managers and plant supervisors, as well as ongoing programme assessment of the actual technology transfer. Training involved language, intercultural, presentation and OJT training skills. As Suzuki had never done anything similar before, very little written material on the whole production system existed, even in Japanese, so a lot had to be researched through actual observation and interviews by the consultants, working closely with the 200 selected personnel in the training.

The two-year consulting project had divided the selected personnel in eight macro-groups, who were all given intensive 6-month training and joint counselling work staged in line with the subsequent Canadian plant schedules (transfer, plant section completion, trial production, recruitment, OJT training, start of production etc.). Apart from the video production and manuals research & writing crew, the MACC-LR project team consisted of eight consultants/trainers on-site for two years headed by F. Knuchel as project manager.

F. Knuchel's task was initially acquiring a thorough understanding of all the sections of Kosai plant (the Canadian plant to be modelled after this) and of the total production system. Then he had to translate this into a training programme that would allow the 200 selected Suzuki personnel to transfer the technology to 400 counterpart Canadians. They in turn would train over 2,000 plant operators. The assignment involved assessing each manager's specific job through interviews, establishing individual training needs, custom-designing the training, briefing, motivating and supervising MACC-LR's own consultants and trainers (quality control and ongoing progress assessment) and advising the Suzuki team on approach and improvements.

To this end F. Knuchel was totally integrated within the Suzuki project team at Head Office and Kosai Plant and took part in all relevant meetings; he also assessed the actual transfer training when Canadian groups visited Suzuki (1-month training in Japan), including trouble-shooting, assisting the Canadians, and subsequently improving the preparatory training based on the experience gained. At the end of Japanese side of the project, he spent a month in Canada at start of production evaluating the progress and success of the technology transfer (lean production).

The 'technology' itself being transferred was the whole production line with its multi-skilled team-work approach for each work unit of the plant from the stamping shop to assembly. It also dealt with general principles of lean manufacturing like small lot production, production levelling, TQC, waste removal, Kaizen, 5S, Andon, TPM and the various factors that enable JIT and lean production. Each supervisor had to be able to relate these principles to their individual work cells.

Most of the plant supervisors were in their forties and fifties, and although highly skilled in their jobs at Suzuki, had no high school or higher education and hence suffered from a complete lack of confidence in their ability to train 'foreigners'. Most of them had never been outside Japan and were extremely reticent about being transferred to Canada for two years, indeed about the whole project. Apart from basic language training, the programme needed to deal with the initially very negative attitude and develop confidence with the members, creating positive motivation through counselling.

The first three months of the full intensive 6-month training concentrated on this motivation and counselling together with basic language training. The second half consisted of a number of modules focusing on situational survival skills (for living in Canada), intercultural training, and training in actual presentation and training skills (Western style). Outside formal training work in this stage the participants spent the remaining time preparing their actual training, especially training materials, with the assistance of our consultants, and a lot of this work was done on-site in the plant. The results of this in turn fed back to the manual and video production teams, who needed the specific knowledge of each work section to develop their relevant parts in detail.

Overall, the whole project was highly successful, and was a major organisational learning experience for all involved. The 200 Suzuki advisors (all of whom had to be replaced temporarily back in their home plant during the project) were originally scheduled to return to Japan after two years at the Canadian plant. The transfer and actual production went so smoothly, however, that most were able to return within one year. Given the cost of relocation, expatriation and substitution in Japan, this meant a massive cost saving far greater than the cost of the initial MACC-LR preparatory stage consultancy and training. Indeed MACC-LR has a letter of thanks from Mr Suzuki saying that despite initial reservations about the high cost of the preparatory 2-year consultancy, the project had been successful beyond expectations, with a ten fold saving.

Moreover, Suzuki had gained the confidence, knowledge and know-how in such technology transfers; indeed many of the supervisors did not return to their previous jobs, but instead became part of a new technology transfer team who were subsequently involved in Suzuki's Hungary plant project and later their China and North Korea plant projects. Some were even seconded to other Japanese automotive companies involved in similar international technology transfers.

General Motors also gained a lot from the project in terms of key Japanese manufacturing techniques. Contrary to the NUMNI experience with Toyota, since the CAMI project was a total technology transfer to Canadian managers and operators involving the whole plant system, the depth of knowledge gained by GM was quite profound. Indeed it later gradually formed the basis of a change in approach at GM in general.

The core Canadian managers at CAMI (who themselves had been carefully selected and seconded to CAMI for their competence, youth and being open-minded to new manufacturing approaches) were sent after two years to GM's newly acquired Eastern European operations to transfer the whole Japanese manufacturing approach to the plants there. After having applied Japanese manufacturing techniques successfully to GM's peripheral plants, the team was later recalled home and became instrumental in implementing the learned approach to GM's core plants. Indeed it formed one of the basis of the overall change that has cascaded throughout GM in the last ten years.
