**CASE STUDY IV-9**  

**CUMMINS/KOMATSU/TELCO JOINT VENTURES (B)**

Part A of this case should be read before the following discussion of the relationships between Cummins and Komatsu, Ltd.

Komatsu Ltd. is a Japanese worldwide manufacturer and marketer of heavy construction equipment and industrial machinery, and is also involved in civil engineering projects. Komatsu has over 55 subsidiaries and affiliates located worldwide, with many in Japan, several in the United States, and others in Brazil, Mexico, Belgium, Canada, Singapore, France, Germany, the United Kingdom, Australia, and Indonesia. Exhibit 1 shows a breakdown of Komatsu’s 1993 sales and a five-year summary of sales and net income (all in millions of yen).

Komatsu’s construction equipment products include bulldozers, excavators, loaders, graders, dump trucks, cranes, compactors, pipe layers, coal haulers, tunnel boring machines, amphibious bulldozers, underwater rubble leveling robots, and construction robots. Komatsu’s industrial machinery products include many types of sheet metal and forging presses, laser cutting machines, fine plasma cutting machinery, band sawmills, multiplex machine tools, crankshaft millers, robot systems, semiconductor manufacturing equipment, and plastics injection molding machinery. Other Komatsu products include diesel engines, marine engines, power units, gas engines, engine-driven heat pumps, compressors, diesel generator sets, cogeneration systems, hydraulic equipment, torque converters, steel castings, intelligent panels, vehicular controllers, vision recognition systems, armored vehicles, and ammunition.

The largest of the two joint ventures between Cummins and Komatsu, Komatsu Cummins Engine Company (KCEC), will produce the Cummins-designed B-series engine on an assembly line located in Komatsu’s engine plant in Oyama, Japan. Production is scheduled to begin in 1996. At least 40,000 engines per year will be produced, with 30,000 slated to power Komatsu equipment and 10,000 to be sold by Cummins in the Japanese and Northern Pacific markets.

The other joint venture, Cummins Komatsu Engine Company (CKEC), will produce Komatsu-designed 30-liter engines in an existing Cummins plant in Seymour, Indiana. The 30-liter engine volumes will be low relative to the B-series volumes, with about 2,000 engines produced annually.

The Komatsu/Cummins joint ventures were announced in October, 1993, but Lankford got involved in April, 1993, when he visited Komatsu in Japan to begin conversations about systems for the proposed joint ventures. Lankford recalls:

> There were two people from Komatsu corporate and five systems people from the Oyama factory across the table from me. They had not thought about the problem and had not discussed the issues among themselves, so they were not ready to discuss anything substantive. I suspect that the Japanese did not want to talk about the systems issues until all the business issues had been completed and the contract signed. At any rate, it turned out to be a typical first meeting with the Japanese where we each talked about who we were and what kind of things we were interested in and agreed to meet later.

During this trip Lankford visited one of the Komatsu data processing centers. He recalls the experience:

> The data center director who took me on the tour spoke no English. His card did not even have English on the back. The interpreter spoke English well, but she did not understand the technical terms of the computer area. I could not ask any meaningful questions because she could not translate them into Japanese, nor could she translate answers back into English. Fortunately, it was an IBM shop, and I could tell a lot by just looking at the numbers on the computer components.

Most of the Japanese I have encountered understand some English, so if you speak slowly they will understand most of what you say. Not many of them speak English well enough to be easily understood, so communicating precisely is very difficult.

In early 1994, after the contract had been signed, Lankford went back to Japan to attend a meeting on aftermarket support issues. He also spent a day with the systems people at the Komatsu corporate office in Tokyo. He recalls:
The Komatsu systems people I have encountered are below average in their English language skills and must always have an interpreter. Many of the concepts we deal with in the systems world are very complex and are difficult to explain even to other English speaking people, which makes it very difficult to communicate well with the Japanese systems people. It is slow and frustrating to explain something, have it interpreted, and wait five minutes while the Japanese discuss it among themselves before they ask a question about it that you cannot understand. After several tries you give up and assume that you have communicated.

Lankford also found a number of cultural differences between Japanese and U.S. organizations:

The hierarchy is a lot stronger than it is here, and it is not accepted for a person to reach outside his level. In Japanese organizations they avoid any appearance of conflict and strive to reach consensus. When dealing with them on a problem they will say that they have to get back to you on it, and it usually takes them two weeks to discuss it among themselves before they ask a question about it that you cannot understand. After several tries you give up and assume that you have communicated.

In the U.S. we do not value age. We use bright young MBAs and put them in situations that will challenge them. In Japan they come from a totally different cultural background. Age and experience is highly valued and respected, so when I go to Japan I wear my 30-year pin and it means a lot to them.

Komatsu wants Cummins to send a team of six people over to meet with them—three systems people, a materials person from the Rocky Mount engine plant, an engineer, and a business leader. It will be very expensive to send such a team to Japan, but Lankford believes that it is necessary:

The Japanese feel some loss of face if we are only willing to send one person over to meet with them and they have six to nine people spending the day with him. We need to understand their feelings and get the right people there to get things done, and that means both systems people and business people.

The Komatsu Cummins Engine Company (KCEC)

Due to the dynamics of the industries in which they compete, there are important differences in how Komatsu and Cummins build engines. The Komatsu factory where KCEC will build its engines produces engines mainly to power Komatsu construction equipment, and they have stable production schedules and relatively long lead times with a standard product that has few engineering changes. Cummins primarily sells loose engines in a very competitive market where there are many different customers with diverse requirements and lots of engineering changes and where response time is critical, so production is very dynamic. For example, Komatsu runs its manufacturing requirements planning (MRP) system monthly, and Cummins runs its MRP weekly and often runs a daily net change MRP. Cummins will be selling 25 percent of the KCEC production in the dynamic loose engine market, and Komatsu will be using the rest of the engines in its construction equipment, so there may be different expectations from the two parent companies.

In June 1994, three Komatsu Cummins Engine Company people came to Columbus to learn about Cummins systems. They spent a week in corporate headquarters and a week at the B-series engine plant at Rocky Mount, North Carolina, that is a joint venture with Tenneco. The original presumption was that KCEC would use mostly Komatsu systems because the production line would be located in an existing Komatsu plant. However, Lankford believes that the Komatsu systems are inadequate to support Cummins’ business of selling loose
engines, and the visiting KCEC systems people returned to Japan very impressed with the functionality of the Cummins systems. Consequently, the decision as to what systems to use is up in the air. Komatsu is amply equipped with IBM mainframes and uses the same operating systems and communications software as Cummins, so Komatsu could use the Cummins Common Systems. Alternatively, Komatsu could run these systems remotely via a high-speed communications link to the Cummins Columbus Data Center as does the Cummins B-series engine plant in Darlington, England.

Because the KCEC engines will be built in the existing Komatsu factory, Komatsu will assign its own part numbers to the engine parts and assemblies to use throughout the manufacturing process. This means that Komatsu part numbers will be used when the data on the engines Cummins sells is reported to Cummins for the Original Engines Parts List (OEPL) system that Cummins uses to support its aftermarket. Komatsu will provide a cross-reference list that can be used to translate from the Komatsu part numbers to the corresponding Cummins part numbers.

Both Komatsu and Cummins are very protective of their aftermarket business, and they have agreed that Komatsu will service the engines it sells, Cummins will service the engines it sells, and neither will take any overt action to interfere with this arrangement. The consequence of this agreement is that the cross-reference list for translating from Komatsu part numbers to Cummins part numbers cannot be provided to either Cummins or Komatsu distributors. However, this cross-reference list can be used at Cummins corporate headquarters to translate the part numbers of the KCEC engines Cummins sells from Komatsu numbers to Cummins numbers, and this OEPL can be provided to Cummins distributors. In our example of the construction site in Brazil with a mixture of Komatsu-sold and Cummins-sold engines, neither the Cummins nor the Komatsu distributor will have the parts list for the KCEC engines sold by the other company. This will be an inconvenience, but does not mean that the Cummins distributor cannot repair Komatsu-sold Cummins engines, for the parts manager should be able to recognize a Cummins part when he sees it.

The Cummins Komatsu Engine Company (CKEC)

The 30-liter engine production by CKEC will take place in the existing Cummins plant in Seymour, Indiana. The existing Cummins systems and Cummins part numbers will be used, and Cummins has some of the problems facing Komatsu in the KCEC venture. First, when Cummins procures parts from Komatsu, the Komatsu part numbers must be used to order them and Cummins purchase orders must conform to the requirements of the Komatsu EDI system. And for Komatsu-sold engines produced by CKEC, Cummins must provide Komatsu with the build data and a cross-reference list to translate from Cummins to Komatsu part numbers. Also, Cummins must provide cost data to Komatsu for any CKEC engines that Komatsu sells. At the beginning, however, it is expected that all the CKEC output will be sold by Cummins.

Finally, for any parts purchased by CKEC the Komatsu invoice will be in yen, and Komatsu expects to be paid in yen, which will be a challenge for the Cummins accounts payable system.

Current Status

Lankford and the Joint Ventures Support Group have accomplished a great deal during the past year. They have defined the crucial systems interfaces that must exist between Cummins and any joint venture. They have also developed a standard responsibility chart that can be used to determine who should be responsible for each of the seventy business functions that are required for a joint venture to produce Cummins engines. In addition to the Komatsu and TELCO joint ventures, Cummins is involved in the development of several other similar ventures throughout the world, and these accomplishments will make the implementation of future joint ventures much easier.

Through this experience Lankford has also recognized how important flexible systems have become to a modern business:

Today most business functions are supported by a systems function, and a business function can only be as flexible and responsive as the system that is supporting it. In today’s environment, a business must be able to change its business rules to react to competition, and it is a lot easier to change the business rules than it is to change the systems that support those business rules. That is why many of our systems need to be rearchitected so that they are easier to change.

Current Issues

The Joint Ventures Support Group has identified and resolved many issues, but a number remain. One such issue is data security. According to Lankford:

We need to come to a consensus on what we want to do about data security. The contracts have nondisclosure provisions that apply to both companies, and that may be perfectly adequate, but we need to address this issue and make sure we get closure on it.

Komatsu has not responded to Lankford’s responsibility chart suggesting who is responsible for the systems supporting each business function. Also, Lankford’s recommendation that Cummins systems be used is still under discussion. A meeting between systems and business people from Komatsu and Cummins to come to some conclusions about what systems to use for KCEC has been postponed from May to June, and now
to August, as the Komatsu people rethink what the needs might be. The Komatsu people have been very impressed with the functionality of the Cummins systems, and there are rumors that they may want to use some Cummins systems, not just for the B-series line, but throughout the Oyama plant. According to Lankford, this would raise some touchy issues:

Our systems really define our culture and our processes for doing business, and Cummins management is not sure how much of that we are willing to share.

Another issue yet to be faced is that Cummins is going to have to have some sort of regional order management system for Japan. Lankford notes:

Our existing Japanese regional office is going to have to accept orders for B-series engines, and, rather than forwarding those orders to Columbus or Darlington, they will have to send some of them to the Oyama plant. There is no agreement yet on roles and responsibilities on that, but it puts Japan in a new role in the Cummins organization.

In late 1994 the Cummins/Komatsu joint ventures were far from being completely implemented. According to Lankford:

We have resolved a number of issues. But as we settle one issue a new one arises, so we continue to face plenty of challenges.