This poses a considerable challenge for most Japanese companies. Most of their manufacturing systems are basically "hard" tooling that requires considerable resources to allow it to accommodate product variations. In fact, one electronics company (Futaba Corporation) has recognized this fact and now has a large and very profitable re-tooling operation and claims to be prominent in this field in Japan.

There is also confimation of this new direction and demand in microelectronics for smaller, more varied production when we look at the telecommunication product situation. Typically, 50 to 150 different PCB sub-assemblies must be produced in small lots to assemble a complete telecommunications exchange unit. Such a requirement doesn't fit with the present Japanese manufacturing environment and industrial psychology which refuses to accept re-tooling (set-up) downtime of any consequence. Re-tooling is now seen as being in the same category as machine breakdown.

The only way around this structural dilemma is to introduce software-bound flexibility - an area now a prime target of Japan's advanced thinkers. A good deal of the hard-wired, integrated machinery, however, will have to be proclaimed as obsolete since it doesn't fit in with the demands for greater flexibility. The structural problem is an enormous one, and as yet is not well-recognized as such by business leaders in Japan. However, it is only a matter of time before attitudes will change in Japan to respond to hard financial realities and come to recognize that the restructuring cannot be avoided. Canada could be well served by situating itself in the area of flexible manufacturing systems.

In the software field, mission members noted that there is a huge potential market, although it may be a difficult one for Canadian companies to reach. At present, only ten per cent of Japanese software needs are met through packaged software. Ninety per cent is met through custom software. This compares with a fifty-fifty split in most other markets. Very little software is imported because of language difficulties and the need to convert it to Japanese character sets. As well, the market is made more difficult since no single system dominates in Japan as the IBM PC does in the U.S. Further, the Japanese build their own software to enforce their strict quality control standards. Finally, Japan's employment practices emphasize internal development before use of outside vendors. This may not be efficient, but it does much to preserve the social fabric of Japan, not to mention jobs for many.