

The next generation of manufacturing, known as "agile manufacturing," brings design, production and inventory control into integrated systems. These can quickly and economically change from one product to another, both within a production facility and between facilities. Manufacturing processes are becoming more sophisticated, and new automated equipment is being developed. The use of new materials is accelerating, and advanced processing machinery is required. Following completion of a two-year feasibility phase, Australia, Canada, Europe, Japan and the United States are expected to co-operate in a 10-year technology development project, known as the Intelligent Manufacturing Systems (IMS) Program. IMS aims to develop new manufacturing and processing technologies, and establish international standards for the next generation of industrial technologies, while sharing the costs and risks among consortium members.

## Canadian Position

Canadian AMT companies include systems integrators and producers of machine tools, robots, machine vision, automated manufacturing systems, plastic processing machines, instrumentation and manufacturing software.

There are approximately 500 AMT producers in Canada, with shipments of approximately \$2.2 billion. Exports are about 60 percent of output, and imports in 1992 were \$1.4 billion. The sector employs some 18 000 people, including many skilled workers and professionals.

The major markets for Canadian products and services are countries with a modern manufacturing base. These include the United States, Europe, Japan, Latin America (primarily Mexico), Taiwan, Korea, Malaysia, Hong Kong and Thailand. Opportunities for increased exports exist in traditional markets such as the United States (which accounts for about 75 percent of Canadian exports) and Europe, where manufacturers are investing

heavily to upgrade facilities. Good prospects also exist in the fast-growing market of Southeast Asia, where industry is gearing up for large increases in production, and in Mexico, where the recently signed North American Free Trade Agreement (NAFTA) is spurring investment.

Canadian manufacturers of AMT products are generally much smaller than their competitors in other countries. The largest Canadian firms report annual sales of \$300 to \$350 million. Competitor firms such as Allen-Bradley, Mitsubishi and Siemens have sales many times greater, and have established international marketing channels.

Successful, fast-growing Canadian firms generally sell the bulk of their products in overseas markets. The majority of them have developed proprietary technologies and pursued niche marketing strategies. An example is ATS Automation Tooling Systems Inc., of Cambridge, Ontario, which builds high-precision automation systems for the manufacture and assembly of products. Its systems are being used in a variety of industries, including automotive, computers, electronics, medical appliances, telecommunications, semiconductors and aerospace. This firm's revenues were \$51 million in 1991, and they are expected to reach \$120 million in 1994.

Industry Canada (IC) has established the AMT Initiative with the objective of developing a strong, technically advanced, export-oriented AMT sector. This initiative, which ends on March 31, 1996, provides financial support for technology capability development, product development and international market studies. Recognizing that world-class manufacturing requires the integration of information, machinery and human resources, the AMT Initiative also supports human resource studies, mini-networks, industry/university research projects and senior manager exchanges. Approximately \$5 million of the original budget for grants and contributions is still available for new projects.