CANADA'S EXPORT STRATEGY

The International Trade Business Plan

1995/96

An Integrated Plan for Trade, Investment and Technology Development

The International Trade Business Plan is made up of an **Overview** highlighting Canada's international business development priorities, and a series of **Industry Sector Strategies**, which include lists of planned international activities. The following documents are available:

Overview

1. Advanced Manufacturing Technologies
2. Agriculture and Food Products
3. Aircraft and Parts
4. Automotive
5. Biotechnologies
6. Business, Professional and Educational Services
7. Chemicals, Plastics and Advanced Materials
8. Construction Products
9. Consumer Products
   - Apparel and Fur
   - Textiles
   - Footwear
   - Sporting Goods (including recreational watercraft)
   - Tools, Hardware and Housewares
   - Residential Furniture
   - Business and Institutional Furniture
10. Cultural Industries
11. Defence Products
12. Environmental Equipment and Services
13. Fish and Sea Products
14. Forest Industries
15. Information Technologies and Telecommunications
    - Sector Overview
    - Computers and Peripheral Equipment
    - Electronic Components
    - Geomatics
    - Instrumentation
    - Software Products and Computer Services
    - Telecommunications
16. Medical and Health-Care Products and Services
    - Medical Devices
    - Pharmaceuticals
    - Health-Care Services
17. Minerals and Metals
18. Oil and Gas Products and Energy Equipment
19. Power Equipment
20. Primary/Secondary Industrial Machinery
    - Mining, Forestry, Pulp and Paper
    - Agricultural Technology, Machinery and Equipment
    - Ocean and Marine Shipboard Technology
21. Rail and Bus Equipment
22. Space
23. Tourism

For information on how to receive the Overview, or additional Industry Sector Strategies, please call: **1-800-267-8376**

All monetary figures in this document are expressed in Canadian dollars unless otherwise indicated.

Cat. No. C2-226/1-1995E
ISBN 0-662-22834-0

Aussi disponible en français sous le titre Technologies de fabrication de pointe.

Advanced Manufacturing Technologies

Advanced manufacturing technologies (AMT) are used in the design, scheduling, production, storage and distribution of manufactured products. They include "hard" technologies such as computer-aided design (CAD) software, robotics, machine vision and computer-controlled machine tools and "soft" technologies such as concurrent engineering and just-in-time production. AMT, which use both information and microprocessor technologies, are increasingly powerful methods to integrate islands of automation into computer-integrated manufacturing systems.

International Environment

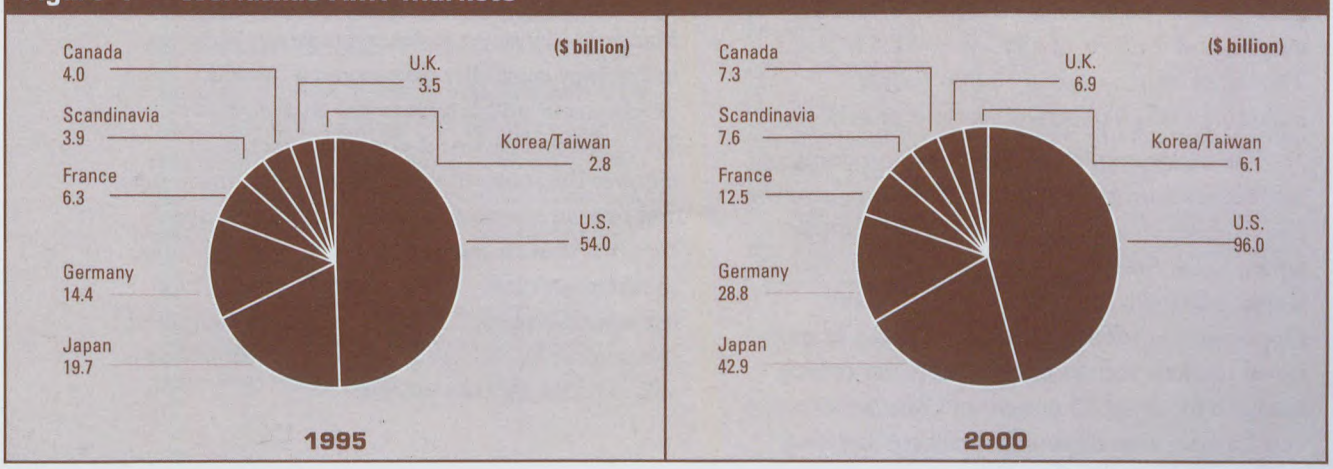
Technology innovation, trade liberalization and the globalization of business are transforming the nature of manufacturing, particularly in higher technology sectors such as electronics, aerospace and automotive. They rely heavily on AMT to maintain their competitive edge. Successful firms in all sectors are using AMT to introduce to global markets new, high-quality products. With AMT, they can be produced quickly, less expensively, in smaller lot sizes, and with more features.

In 1990 worldwide investment in AMT products, services and systems was $57 billion. Investment is increasing at a compound annual growth rate of 13 percent. By the year 2000 the market is expected to be $208 billion. North America represents 53 percent of the world market. As Asian and European investment continues to grow, however, their share is expected to increase to 52 percent by 2000.

The following figure projects AMT markets in major user countries to the year 2000.

Japan and Germany are leading exporters of AMT products. Japan is a leader in producing machining centres, industrial robots and flexible manufacturing systems, while Germany has established a lead in precision machining technologies and has built a strong export machine tool industry. Companies using and supplying AMT in these two countries have developed a lead over their competitors, through greater collaboration among firms and due to their ability to rapidly develop and apply new technologies. The United States dominates the factory systems market, primarily due to its strengths in the development of software and computer hardware.

Figure 1 — Worldwide AMT Markets



Source: Year 2000 Report

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.

Strategic Direction

The continued growth of the AMT sector depends on the development of leading-edge products, through research conducted individually and within domestic and international consortia. These must be coupled with market research and intelligence and aggressive sales efforts in existing and new market areas.

The goal in the AMT sector is to increase shipments by the year 2000 to $4 billion, through sales to existing markets in Canada and the United States, and through the development of new markets in Europe, Mexico and Asia.

To achieve this goal, the Government, in co-operation with industry, will:

- help companies identify and take advantage of opportunities, emerging markets, technology shifts and potential threats through market observation efforts in the United States, Mexico and Europe. Market opportunity analysis and identification will be supported through the Program for Export Market Development (PEMD), and through market studies funded under the AMT Initiative (IC, Department of Foreign Affairs and International Trade [DFAIT]);
- provide financial support to companies for technology core enhancement and product development, through the AMT Initiative, and through the Industrial Research Assistance Program (IRAP), which is administered by the National Research Council (IC, NRC);
- complete profiles of small- and medium-sized firms with leading-edge technologies that are seeking partnerships abroad. These will be used for technology events both in Canada and abroad, with particular emphasis on Mexico (IC, DFAIT);
- focus in the United States on value-added activities with small- and medium-sized technology-driven firms. This will include attendance at regional shows, missions of U.S. industrial representatives to Canada, and the development of a comprehensive capability guide for the Canadian AMT sector (IC, DFAIT);
- support AMT research projects by Canadian companies in conjunction with technology institutes and firms in Japan, through the Japan Science and Technology Fund. The fund also supports manufacturing engineer exchanges, and the objective is for five Canadian engineers to undertake work terms of 6 to 12 months in Japanese manufacturing firms (IC);
- promote involvement and provide financial support for pre-competitive research conducted by Canadian firms within international consortia, through the Intelligent Manufacturing System (IMS) program. This 10-year program will involve industry, academia, research institutions and governments. A Canadian regional office will be set up to co-ordinate Canadian participation in IMS projects. Canada's initial involvement will be in five research projects (IC);
- work toward the establishment of a productivity resource centre in Canada like the Fraunhoffer Institutes in Germany (IC, DFAIT).

Further Information

Industry Canada's Manufacturing and Processing Technologies (MPT) branch can supply material relevant to the sector analysis and the "Phase III Implementation Proposal" strategy, as well as a news release dated October 19, 1994, entitled "Canadian to Chair Steering Committee for International Program of R&D in Manufacturing Systems," and "The Year 2000 Report."

Specific information on program elements of the AMT Initiative is available through Industry Canada regional offices.

Contact

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Advanced Manufacturing Technologies

Activity	Date	Location	Dept.	Contact
Africa and the Middle East				
Industrial Machinery Mission to Middle East	Feb-96	Amman, Riyadh	DFAIT	613-944-6346
Central/Eastern Europe and the Commonwealth of Independent States				
Strategic Partnering Cold Ocean Seminar	Sep-95	Oslo	DFAIT	613-995-7941
Investment and Partnering Seminar	Nov-95	Dusseldorf	Ontario	416-325-6654
Latin America and the Caribbean				
Market Study for Mexico	Jan-95	Montréal	IC	514-283-7814
Brasilplast '95 National Stand/Mission	18-May-95	Argentina	DFAIT	613-996-5549
Canada Technology Month: Shows	Sep-95	Mexico City	DFAIT	613-995-8742
Advanced Technology Mission	Nov-95	Sao Paulo, Bogota	DFAIT	613-996-5548
Multiple Markets				
Sector Capability Directory	Apr-95	Ottawa	DFAIT	613-944-8821
Canadian Advanced Technology Conference: Incoming Missions	03-May-95	Toronto	DFAIT	613-996-1908
K '95: Plastics Show: National Stand	Oct-95	Dusseldorf	IC	613-996-1530
United States				
Packaging Material Sector Study	Apr-95	Buffalo	DFAIT	613-944-8821
U.S. Printing Sector Study	Apr-95	Ottawa, U.S. Missions	DFAIT	613-944-8821
National Industrial Fastener Show: National Stand	May-95	Cleveland	DFAIT	613-944-8821
Maintenance/Design Engineering Show: Visitors	May-95	Montréal	DFAIT	613-944-8821
Gutenburg Festival (Printing): Info Booth	May-95	Anaheim	DFAIT	613-944-8821
Subcon '95 (Defence/AMT): Incoming U.S. Missions	Jun-95	Toronto	DFAIT	613-944-8821
Rep. Locator Event: Outgoing Mission	Sep-95	Cleveland	DFAIT	613-944-8821
U.S. Market Opportunities Study for Plastics Processing Equipment	Sep-95	Ottawa	DFAIT	613-944-7486
Iron and Steel Expo: National Stand	25-Sep-95	Pittsburgh	DFAIT	613-944-8821
Job Solo Show	Oct-95	Boston	Ontario	416-325-6650
Graphexpo '95: National Stand	08-Oct-95	Chicago	DFAIT	613-944-8821
Westpack '95: National Stand	17-Oct-95	Anaheim	DFAIT	613-944-8821
Process Control Technologies and Software Mission	Nov-95	Boston	DFAIT	902-426-8454
Electronic Equipment: Trade Show/Mission	Nov-95	Boston	IC	902-426-8454
Mission of Mold & Dye Manufacturers	Dec-95	Akron	DFAIT	613-944-7486

Note: Dates and locations are subject to change.

Activity	Date	Location	Dept.	Contact
Promat '96: Info Booth	Feb-96	Detroit	DFAIT	613-944-8821
National Manufacturing Week: National Stand	Mar-96	Chicago	DFAIT	613-944-8821
National Design and Engineering Show: Ontario Stand	Mar-96	Chicago	Ontario	416-325-6650
Material Manufacturing Week: National Stand	Mar-96	Chicago	DFAIT	613-944-8821
International Manufacturing Technology Show: National Stand	Sep-96	Chicago	DFAIT	613-944-8821
Western Europe				
DRUPA Show: National Stand	05-May-95	Dusseldorf	DFAIT	613-995-1530

Acronyms and Initialisms Used in The International Trade Business Plan

(This list does not include sector-specific references)

ACOA	Atlantic Canada Opportunities Agency
AG Can	Agriculture and Agri-Food Canada
ASEAN	Association of Southeast Asian Nations
BBS	electronic bulletin board system
BOSS	Business Opportunities Sourcing System
CCC	Canadian Commercial Corporation
CIDA	Canadian International Development Agency
CIS	Commonwealth of Independent States
CSA	Canadian Standards Association
DFAIT	Department of Foreign Affairs and International Trade
DFO	Department of Fisheries and Oceans
DND	Department of National Defence
EC	Environment Canada
EDC	Export Development Corporation
EU	European Union
FITT	Forum for International Trade Training
FORDQ	Federal Office of Regional Development - Quebec
FSU	former Soviet Union
FTA	Canada-U.S. Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GNP	gross national product
HRDC	Human Resources Development Canada
IC	Industry Canada
IDRC	International Development Research Centre
IFI	international financial institution
ISO	International Standards Organization
ITBP	International Trade Business Plan
ITC	International Trade Centre
MAPAQ	Ministry of Agriculture, Fisheries and Food of Quebec
MDB	multilateral development bank
NAFTA	North American Free Trade Agreement
NATO	North Atlantic Treaty Organization
NRC	National Research Council
NRCan	Natural Resources Canada
NRCan-CFS	Natural Resources Canada - Canadian Forest Service
OECD	Organization for Economic Co-operation and Development
PEMD	Program for Export Marketing Development
R&D	research and development
SMEs	small- and medium-sized enterprises
UNEP	United Nations Environmental Program
WED	Western Economic Diversification
WTO	World Trade Organization