Industry Canada Industrie Canada

Technology Partnerships Canada

Annual Report 1997-1998

Investing in Innovation

Canada

"The revolution in the knowledge and information economy is transforming all sectors of the economy from primary resources to service industries. Canada is well positioned to be a world leader in the global knowledge-based economy of the 21st century. We have the talent, we have the resources, we have the technology and we have the institutions.

"By rising to the challenge of mobilizing our resources well, we can enable our citizens to succeed in the global knowledge-based economy. This is how we will spur continuing job creation and sustained growth in our standard of living for the 21st century. The Government is determined to do more to support innovation and risk taking in Canada. We will build creative partnerships between the private and public sectors to accelerate the adoption of innovative technologies in all sectors of the economy.

"With targeted growth strategies, we will build those knowledge-intensive sectors where we are strong and where the opportunities for growth and global leadership are highest. Examples are aerospace; biopharmaceuticals; biotechnology in agriculture and fisheries; and the environmental, information and telecommunications technologies. . . ."

Speech from the Throne
September 23, 1997

TECHNOLOGY PARTNERSHIPS CANADA: Annual Report 1997-1998: Investing in Innovation is available electronically on the Technology Partnerships Canada web site at:
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Message from the Minister

Canada is well positioned to be a world leader in the global knowledge-based economy of the 21st century. We have the people and resources, and we are creating the technology and infrastructure.

In all of this, the driver is innovation through science and technology. Innovation is key to achieving increases in productivity, which in turn is the foundation for economic growth and job creation.

One of the most important links in the innovation chain is the process of product development and commercialization that takes the concept for a new product or process and makes it ready for the marketplace. Without investment at this stage, brilliant ideas and innovative products that have been created in laboratories and research facilities will not get to market – we would miss out on opportunities to generate economic growth and job creation. This phase is particularly crucial for technologies that must compete internationally in an environment that evolves quickly and where products brought to market today help influence technology trends for tomorrow.

Technology Partnerships Canada has become an effective government tool for closing the innovation and productivity gaps while improving investment and trade.

This phase of innovation is both crucial and expensive, and affects the availability of research and development (R&D) investment across the innovation continuum. Availability of investment at this stage increases confidence that investment in pure and applied research will eventually bear fruit.

Since 1996, innovation at the near-market end of the R&D spectrum has been supported by Technology Partnerships Canada (TPC). The program is a key element of the government's Science and Technology Strategy and its Jobs and Growth Agenda.

In partnership with the private sector, TPC invests in research, development, demonstration and market development projects of aerospace and defence industries as well as environmental and enabling technologies. The program supports the private sector through investment rather than subsidy, sharing both risks and rewards. Within two years, Technology Partnerships Canada has become an effective government tool for closing the innovation and productivity gaps, while improving investment and trade.

In its second year of operation, Technology Partnerships Canada has built upon its early momentum by investing in new partnerships and working with companies to capture new opportunities. The 1997-1998 Annual Report highlights some of last year's investments that have progressed to new stages in this fiscal year, and also outlines new investments that push ahead the frontiers of technological excellence in Canada.

It has been a very successful year, and the results underscore the critical role that government support for near-market R&D has on economic growth. They also demonstrate the effectiveness of this new investment approach based on partnership between government and the private sector.

The Honourable John Manley, P.C., M.P.
Minister of Industry

Message from the Executive Director

Technology Partnerships Canada (TPC) is driven by a strategic vision – to contribute to increased productivity and to help Canadian industry create jobs and growth in an economy where innovation is critical to international competitiveness.

In advancing this vision, TPC helps leverage increased investment in R&D from Canadian companies, and attracts new foreign direct investment to Canada. We are providing a vital tool for sharing in risk and reward, to ensure that more new products with high-growth potential reach the marketplace, and to help level the playing field for Canadian firms competing internationally. TPC also contributes to broader national priorities, in areas such as sustainable development.

Heading into our second year, our objective was to build on the successes and consolidate the gains made during Year One of the program. In 1996-1997, we established TPC operationally, building an agency from the ground up. At the same time, we approved a series of strategic investments to stimulate job creation and economic growth.

Our second year was marked by several milestones and accomplishments. TPC concluded 1997-1998 with a more broadly diversified portfolio. We increased our investments in the enabling and environmental technologies, across all regions, and with small and medium-sized enterprises (SMEs). On the operational front, the foundation we established is evolving as a model for innovative program delivery.

Perhaps the most rewarding aspect of TPC's performance is the continuity of our strategic vision – a continuity that can be traced across our investments.

In our second year, TPC investments leveraged over a half a billion dollars in new, private sector investments in R&D. We helped to secure investments with multinational enterprises that give Canada its first full avionics integration capability and that position the country as a world leader in cancer vaccine research.

New investments supported innovative companies across Canada in developing new products and processes in the environmental technologies. We have also built on our accomplishments in the aerospace industry, helping to position more companies to participate in major Canadian-based projects, including turboprop aircraft, regional jets, gas turbine engines and next-generation flight simulation.

Over two years, TPC investments have helped secure over $2.4 billion in new investments for the knowledge-based economy.

Another significant milestone relates to improving the effectiveness of our support for SMEs. TPC has entered into a partnership with the Industrial Research Assistance Program (IRAP) of the National Research Council of Canada. Through the partnership, IRAP's Industrial Technology Advisors will improve delivery of TPC assistance to innovative SMEs across Canada. The initiative brings together two complementary services to SMEs, and closes a gap in the process of getting innovative technologies from research, through development, to commercialization.

Partnerships are essential to TPC and have contributed to the agency's progress during the past two years. TPC was structured to draw upon existing expertise, across Industry Canada and in other government departments, in identifying and assessing investments. The quality of the investment decisions that we have made to date is a direct reflection of the commitment of our colleagues to a new way of doing business.

TPC's partnership with IRAP will improve delivery of assistance to innovative small and medium-sized businesses across Canada.

I would like to thank the Interdepartmental Advisory Committee and the Industry Canada Programs and Services Board for their input on the implications of policy, programming and investment issues. The members of the Minister's Advisory Board gave TPC the benefit of their expertise over the past year, providing invaluable private sector advice on the vision and goals of the program.

Technology Partnerships Canada has moved very quickly since its inception to become a key player in promoting innovation and increased productivity in Canada's knowledge-based economy. The dedication and skill of its staff, and the contributions of its partners, have made this possible. These are invaluable assets that will provide a solid foundation for the future.

Bruce L. Deacon
Executive Director

Highlights

- **During 1997-1998, TPC contracted 35 projects for a multi-year investment of $154 million.**
- **These projects leveraged an additional $567 million in private sector investment, or $3.70 from industry for every dollar invested by TPC.**
- **Over their span, these projects, if successful, are estimated to generate $34 billion in sales and create or maintain 3 600 jobs.**
- **The investments were made in companies across Canada, with 15 projects in Ontario, nine projects in western Canada, eight projects in Quebec and three projects in Atlantic Canada.**
- **TPC has concluded a partnership with IRAP to provide local, simplified and quicker delivery to SMEs – IRAP-TPC will be funded at $30 million annually (50 percent from TPC/50 percent from IRAP).**
- **The size of the Environmental and Enabling Technologies portfolio as a proportion of total TPC investment increased from 13 percent in 1996-1997 to 28 percent in 1997-1998, on track to reaching the target of 33 percent by 1998-1999.**

Building Momentum

In its first two years of operation, TPC has contracted 62 projects for a total multi-year investment of $563 million.

These projects, if successful:

- **will leverage $2.4 billion of new private sector spending on innovation.**
- **are expected to create or maintain 13 300 jobs – average cost per job is just over $42 000.**
- **are forecast to generate sales of $63 billion – sales of $115 per dollar of TPC contribution.**
- **involve 42 SMEs across Canada (20 percent of investments).**

A Solid Portfolio

When the federal government launched Technology Partnerships Canada in March 1996, it embarked upon a new and innovative approach to supporting near-market research and development. The approach was built around the concept of government funding used as investments in projects whose future success would help finance more investments.

TPC's investments include projects with some of the most innovative companies in the country. In the 1997-1998 fiscal year, these companies made announcements that underscore the viability of their technology, mark new levels of business achievement and help to ensure that TPC will earn a return on its investments. Among the most notable announcements:

- In December 1997, Ballard Generation Systems (BGS) of Burnaby, British Columbia, announced a partnership with Alsthom of France that includes an investment of US$39 million in BGS by Alsthom to assist in the establishment of an initial production facility in Canada to manufacture its 250 kW fuel cell stationary power plant. The following February, Ballard also received a purchase order from Cinergy Technology in the amount of US$1.6 million for the first of the field trial power plants. Ballard has established Canada as a global player in the stationary fuel cell power plant business. In November 1996, TPC invested $29.4 million in Ballard's power plant technology.

- Maratek Environmental Technologies of Bolton, Ontario, received *The Financial Post* Bronze Environmental Technology Award in November 1997 for a recycling process for the printing industry that reduces inorganic and organic pollutants by 95 percent and cuts water consumption by 90 percent. Maratek developed the process with the assistance of a $485 000 investment from TPC, approved in November 1996.

- GFI Control Systems Inc. of Kitchener, Ontario, signed a three-year agreement in August 1997 with Ford Motor Company to produce bi-fuel natural gas and bi-fuel propane powered vehicles. The contract is valued at more than $100 million, and is the single largest alternative fuel vehicle contract ever awarded by a Big Three automaker. TPC invested $4.3 million in GFI Control Systems to develop the next generation of fuel control systems that enable a car to use propane, natural gas or gasoline in a standard internal combustion engine.

- When Magna International Inc. purchased TRIAM Automotive Inc. in May 1998, the move was seen by industry analysts as a significant development in positioning TRIAM's subsidiary, Powerlasers Limited of Concord, Ontario, to pursue larger market opportunities for its laser-welding technologies. Powerlasers' first laser-welding system, used to produce lighter-weight vehicle doors, was supported with a $1.2-million TPC investment.

■ De Havilland Inc. of Toronto, Ontario, has already received advance orders and options for 85 of its new Dash 8-400 regional aircraft. The aircraft flew for the first time in January 1998, and certification is expected next year. In addition to its investment of $56.4 million with de Havilland, TPC is supporting the involvement of Pratt & Whitney Canada, AlliedSignal Aerospace Canada, and Sextant Avionique Canada in this major, world-class project.

■ Two Kanata, Ontario-based TPC partners, Cambrian Systems Corporation and TimeStep Corporation received "1998 Hot Product of the Year" awards from *Data Communications* magazine. The awards recognize products that provide superior solutions to customer needs. TPC invested $2.3 million with Cambrian and $974 000 with TimeStep.

■ In April 1998, CAL Corporation of Ottawa, Ontario, was selected by Lockheed Martin Astronautics to supply its CALTRAC™ Star Tracker for the NASA Mars 2001 and Genesis missions, a contract valued at $5 million. The CALTRAC™ Star Tracker tracks the position in space of all types of spacecraft from space stations to satellites. It has been developed with the support of a $1.8-million TPC investment, and support from the Canadian Space Agency.

■ Pratt & Whitney Canada of Longueuil, Quebec, received certification for its new PW 150 turboprop engine in July 1998. Supported by a $100-million TPC investment, the early introduction of this next-generation engine will help Pratt maintain its dominant world market position.

■ Orenda Aerospace's new high-performance reciprocating engine, designed to fill a gap in the market between existing piston engines and small gas turbines, has received certification from Transport Canada and the U.S. Federal Aviation Administration. As well, official opening of the company's engine installation and aircraft manufacturing facility, at the former Canadian Forces base in Debert, Nova Scotia, took place in September 1998. TPC is supporting Orenda through an $8.4-million investment.

The TPC Portfolio

Environmental Technologies

The strategic importance of environmental technologies is twofold: first, they represent a fast-growing, worldwide market for companies; second, they improve the competitiveness of other industries that must seek more sustainable ways of doing business. Nations and businesses around the world are racing to capture the economic potential that these technologies provide. Canada, while fast off the mark in developing new solutions for environmental problems, must keep pace with developments and provide solutions for problems such as global warming, for which there is a growing demand in Canada and around the world.

TPC's objective for environmental technologies has been to help develop the environment industry and apply its benefits to Canadian industry as a whole. The worldwide environment industry has matured in the 1990s, and growth will likely accelerate in coming years as governments and industry respond to major environmental challenges.

TPC investments have been targeted at three key environmental issues for which there is a strong global demand: climate change, pollution prevention and sustainable development. In 1996, the Canadian environmental technology market was estimated at $24.5 billion. Most of the 4 000 environmental companies in Canada are SMEs, for whom obtaining capital for research, development, demonstration and market development is problematic. TPC has helped finance the commercial-scale demonstration of products and processes required to introduce new environmental technologies, and will continue to support demonstration projects, pilot projects and prototypes. Moreover, the program helps these companies grow in size, strength and competitiveness through joint ventures, alliances and partnerships.

In the first two years of operation, TPC has invested in projects with several environmental companies that have gone on to win major contracts with international partners and investors. The program continues to invest in projects that show particular promise in developing technologies that will promote sustainable development across Canadian industry.

"The financial challenges faced by small businesses mean that many good ideas or promising new technologies never make it off the drawing board. At Future SEA Technologies Inc., we knew we had an innovative system with solid potential for improvements in aquaculture and in the environment. TPC made the difference in helping us to realize this potential."

Craig Williams,
President and CEO,
Future SEA Technologies Inc.

Future SEA Technologies Inc.

Zenon Environmental Systems Inc.

DynaMotive Technologies Corporation

1997-1998 Investments

New Environmental Technology Investments, 1997-1998

- **AlliedSignal Aerospace Canada** of Mississauga, Ontario: $4 425 300 to develop wing de-icing technologies that mitigate the problem of toxic chemicals entering the groundwater around airports by minimizing the use of hazardous fluids for de-icing.
- **DynaMotive Technologies Corporation** of Vancouver, British Columbia: $8 235 795 to develop and commercialize a clean fuel technology that recycles organic waste, thus addressing the global demands for clean energy technologies to combat global warming and also increasing the economic viability of lower grades of coal.
- **Environmental Acoustic Systems Limited** of St. John's, Newfoundland: $101 397 to develop radio frequency and acoustic energy technologies that control the spread of zebra mussels, which are infesting the Great Lakes water system.
- **Future SEA Technologies Inc.** of Nanaimo, British Columbia: $1.7 million to develop an innovative aquaculture technology that solves the global problem of fish farm pollution while producing high-volume, high-quality fish at a lower cost.
- **Northstar Energy** of Calgary, Alberta: $1.3 million to develop new tarsands technologies to treat and recycle water co-produced with heavy oil, which solves the problem of water usage and disposal, a key factor in Canada's ability to extract oil from the world's largest oil deposit in Alberta.
- **Zenon Environmental Systems Inc.** of Burlington, Ontario: $591 634 to develop and demonstrate a shipboard wastewater membrane treatment system, which addresses the need to conform to more stringent discharge regulations being implemented worldwide to protect the world's oceans.

Enabling Technologies

Enabling technologies are those that change entire industries and transform the way they do business. They therefore have the potential to make Canadian industries world leaders, as well as to develop lucrative global markets for the technologies themselves. Four such technologies have been targeted for TPC investments: applications of information technologies, biotechnology, advanced manufacturing and advanced materials.

Technological change in some of these sectors takes place so fast that the window of opportunity for new products is very small. Product life cycles are often very short, and TPC helps companies update their current lines or develop new generations of products.

Many of the most innovative companies are SMEs, a large number of which are able to make alliances with larger players as a result of TPC support that makes their products or processes particularly viable for their partners. A number of these companies face problems typical for SMEs in the knowledge-based economy, including difficulty in acquiring financing. TPC investments provide them not only with a financial boost, but also with a degree of quality assurance that enables them to pursue additional financing with the vote of confidence reflected in support from a recognized funding program like TPC.

The SMEs are high risk but have large potential for sales if their technology takes off. They must keep abreast of or lead technological change, and try to use their products to influence future directions. Often, new innovations in technology are driven by the need to find custom-made solutions for particular problems, and TPC's near-market support helps firms find ways to apply these innovations to wider needs. TPC helps them move their innovations from R&D through to commercialization very quickly so that they can move to their next level of development and competitiveness.

Other TPC investment partners are transnational firms who search the world for appropriate locations to conduct research and product development. TPC helps their Canadian subsidiaries, who bring with them their world-class expertise and access to global markets. In these instances, the transnational companies also foster the growth of many SME Canadian affiliates and suppliers who also contribute to the growth of the knowledge-based economy in Canada.

TPC's approach to enabling technologies has been to focus on those that have maximum potential to improve the competitiveness of Canadian industry and to enhance existing industries as well as those that create new capabilities. The program encourages strategic alliances among suppliers, developers, producers and end users.

"TPC helps Canadian high-tech companies to compete more effectively in emerging markets. TPC's investment in Research In Motion is helping us to lead the market for wearable wireless communication devices. As a result, we're creating jobs and contributing to the development of a world-class wireless communications industry in Canada."

Mike Lazaridis,
President and CEO,
Research In Motion Limited

Research In Motion Limited

Pasteur Mérieux Connaught Canada

New Enabling Technologies Investments, 1997-1998

- **Baultar Composite Inc.** of Windsor, Quebec: $446 480 to develop high-quality, high-durability floor panels, principally for subway cars, which outperform any competing product.
- **Cambrian Systems Corporation** of Kanata, Ontario: $2 287 500 to design and manufacture devices that will radically improve capacity and performance of fibre-optic communications networks for businesses.
- **Doyle Argosy Innovators Ltd.** of Victoria, British Columbia: $393 942 to incorporate advanced features into cards used for electronic commerce transactions, including public transportation access.
- **Formal System Inc.** of Fredericton, New Brunswick: $495 288 to complete development of a suite of software tools to provide more powerful solutions to assist companies in resolving their Year 2000 computer-related problems.
- **Jazz Media Network Inc.** of Montreal, Quebec: $4 959 900 to develop an online service for ultra-high-speed connection among movie producers, shoot locations, editors and graphic enhancers. The product makes Canada a leader in using information highway technology to increase productivity of the entertainment industry.
- **Larcan Inc.** of Mississauga, Ontario: $3.5 million to convert its product line of television transmission systems from analog to digital modes, thus enabling Canada's only supplier of such equipment to maintain its competitive edge.
- **MethylGene Inc.** of Montreal, Quebec: $4.77 million to build on successful university research in antisense RNA technology to develop therapeutic agents for different forms of cancer.
- **Pasteur Mérieux Connaught Canada** of Toronto, Ontario: $60 million to secure for Canada the world mandate to develop, produce and export therapeutic cancer vaccines that trigger an immune system response. The company will enhance its own vaccine expertise by partnering with over 60 other Canadian organizations to create a critical mass and leadership for Canada in this area of R&D.
- **Research In Motion Limited** of Kitchener, Ontario: $5 716 500 to develop an innovative two-way interactive pager. This palm-sized device represents a communications breakthrough, enabling users to access the Internet at any time from anywhere.
- **Technology 2000 Inc.** of Winnipeg, Manitoba: $50 000 TPC support for a market study into a new surgical system for stereotactic neurosurgery, which will allow surgeons to remove deep-seated brain tumours with greater accuracy and less damage to healthy tissue.
- **Televitesse Systems Inc.** of Hull, Quebec: $345 691 to advance its AccesTV™ system for monitoring television newscasts and other information streams in real time, providing Internet and intranet-based video delivery and management, which will enable users to modify video signals to meet the requirements of individual corporate networks.
- **Vistar Telecommunications Inc.** of Ottawa, Ontario: $941 462 for developments in satellite-based wireless communications to provide enhancements to direct-to-home broadcasting services for countries with less advanced telephone systems and to provide roadside diagnostics and guidance for stranded motorists.

Aerospace and Defence

The aerospace and defence sector (A&D) has provided a continuing success story for Canadian industry for decades. The aerospace industry is on the verge of a new era of achievement, moving from sixth to fourth place worldwide in sales. Defence companies have been adapting to civilian and dual-purpose (civilian and military) applications, thus opening potential new markets. The sector comprises some 500 firms, which employ over 60 000 people, many in highly paid, highly qualified positions. The sector is very technology intensive, includes some of Canada's most important R&D players, and accounts for 15 percent of all R&D performed in Canada. Canada has been making the transition to commercial applications since the 1960s and has been very successful at it. A&D exports nearly 80 percent of its production to a highly competitive global economy on the strength of its ability to fill key niche demands. In fact, A&D is the only high-tech sector in which Canada enjoys a positive trade balance.

The worldwide industry is undergoing a period of major transformation and restructuring. Cuts to military budgets around the world have led companies to switch applications from military to civilian and dual-purpose functions. Many new suppliers in Asia and Latin America have entered the market, often with significant support from their governments. Canada's competitors around the world obtain support from their governments through military preferential procurement policies, launch aid, R&D subsidies, export sales financing and direct ownership.

TPC helps maintain the viability and competitiveness of Canada's A&D sector, and builds on its strength as a leading performer in the knowledge-based economy. The program helps maintain and increase the number of highly skilled jobs in the sector, and makes Canada a country of choice for investment by the international A&D industry. Companies use TPC investments to help make the strategic moves necessary for their longer-term viability. They develop the next generation of existing technologies and thereby sustain their competitiveness in major subcomponent areas as well as in flight simulators and satellite communications. They develop new products for the global marketplace, including turboprop aircraft, regional jets, gas turbine engines and next-generation flight simulators.

TPC fills gaps that have existed in Canadian A&D, including support for new world-class capabilities in the aerospace electronics industry such as military simulation, satellite communications and new niche avionics products.

Through TPC investments, the private sector is encouraged to invest more in R&D in Canada. The program has created an environment in which transnational companies in Canada, such as AlliedSignal and Pratt and Whitney, have secured world product mandates from their parent companies. TPC investments enable Canadian companies to build on their existing strengths in niche global markets. Investments have gone toward maintaining Canada's leadership in the expanding markets for regional and business aircraft, civil helicopters, flight simulation, small gas turbines and landing gear. TPC has also invested in projects that have enabled companies to increase Canada's market share of aerostructures and components for civil aircraft.

"Magellan Aerospace competes globally and is dedicated to creating technology, new products and jobs in its operations. TPC has provided the support Magellan Aerospace required, to allow this to happen, with three major projects in Manitoba, Ontario and Nova Scotia. From the taxpayers' viewpoint, it is a worthwhile program, since the investment is repayable and generates a reasonable return."

Richard A. Neill,
President and
Chief Operating Officer,
Magellan Aerospace Corporation
(Bristol Aerospace Inc.)

DRS Flight Safety and Communications

Gallium Software Inc.

Spar Aerospace Limited

New Aerospace and Defence Investments, 1997-1998

- **Aar-Kel Moulds Limited** of Wallaceburg, Ontario: $221 100 to manufacture specialized prototype dies and moulds for the squeeze casting manufacturing process targeted at automotive, aerospace and military tracked vehicle applications. The project is a cooperative development initiative under the Canada-United States Defence Development Sharing Agreement (DDSA), which helps Canadian companies gain access to cutting-edge R&D projects and develop their competitiveness for possible future production contracts.

- **AlliedSignal Aerospace Canada** of Etobicoke, Ontario: $6.55 million to upgrade and further develop its integrated electronic controls and power conversion and distribution product lines, which are critical in positioning AlliedSignal to secure new product mandates.

- **Avcorp Industries Inc.** of Richmond, British Columbia: $4 397 000 to design and manufacture aircraft tail components for the Canadair CRJ-700 aircraft. A new "Design for Manufacturing" approach, featuring a smart robotics system, will make the company more competitive in the regional aircraft market.

- **Bristol Aerospace Limited** of Winnipeg, Manitoba: $2 074 000 to develop new capabilities in the production of composite structures for aircraft, expected to generate hundreds of high-tech manufacturing jobs. New, state-of-the-art facilities have also been established.

- **Cametoid Advanced Technologies Inc.** of Whitby, Ontario: $450 111 to meet a growing market demand with modified aluminum coatings for aerospace and other applications, such as the protection of gas turbine engine components, fuel cells and catalytic converters.

- **DRS Flight Safety and Communications** of Kanata, Ontario: $897 600 to improve and commercialize deployable flight data/cockpit voice recorders and an emergency locater beacon system used primarily for helicopters. The technology provides improved information on the location of crash sites for early rescue of survivors and recovery of flight and voice data.

- **Gallium Software Inc.** of Nepean, Ontario: $2 242 500 to develop software tools for creating display applications for air traffic, military command and control products, which position Gallium to expand into new software markets, including communications network management and emergency vehicle dispatching.

- **Héroux Inc.** of Longueuil, Quebec: $1.6 million in partnership with Messier-Dowty Inc. to design, develop and manufacture the landing gear for the Bell/Boeing 609 civil tilt rotor aircraft. This defence conversion investment enhances the company's engineering capabilities and broadens its commercial customer base.

- **Industrial Rubber Company Limited** of Bathurst, New Brunswick: $476 000 to develop a new track system for current and future tracked vehicles, which will increase track pad life and reduce maintenance costs. This project also is under the Canada-United States Defence Development Sharing Agreement (DDSA).

- **International Water-Guard Industries Inc.** of Vancouver, British Columbia: $235 845 to develop and manufacture a new drinking water treatment for civilian aircraft. The investment helps the company to gain entry into the commercial airline market with a product that is lighter, smaller and reduces the amount of water needed to be carried on board.

- **MDS Aero Support Corporation** of Ottawa, Ontario: $2.8 million to develop the EDAS 9500 enhanced data acquisition system, which positions MDS as the prime supplier of engine test cells for the Rolls Royce family of gas turbine engines.

- **Messier-Dowty Inc.** of Ajax, Ontario: $3.48 million to design, develop, qualify and manufacture the landing gear system for the Raytheon Hawker 4000 business jet. The investment gives the company an opportunity to demonstrate its ability to supply complete landing gear systems to major airframe manufacturers.

- **Raytheon Canada Limited** of Waterloo, Ontario: $3.3 million to design a new primary radar, a development that will enhance the company's position as a world leader in this field.

- **Sextant Avionique Canada Inc.** of Saint-Laurent, Quebec: $9.9 million to support a substantial foreign investment from France, which will lead to the establishment of Canada's first full avionics integration capability.

- **Spar Aerospace Limited** of Sainte-Anne-de-Bellevue, Quebec: $4.8 million to develop new satellite communications products, ensuring that Spar is positioned to respond to changing global markets.

- **Virtual Prototypes Inc.** of Montreal, Quebec: $1 179 000 to build a new-generation software tool for creating component-based military and flight simulation products, enabling the company to meet the High Level Architecture standard set by potential customers and to move quickly to capture significant international niche markets.

- **Western Star Trucks Inc.** of Kelowna, British Columbia: $8.92 million to develop the M1500, a dual-purpose, four-wheel-drive, 2.5-tonne utility vehicle, which will provide opportunities to expand and diversify into new markets including forestry, mining, and oil and gas, while still meeting a military need.

Sextant Avionique Canada Inc.

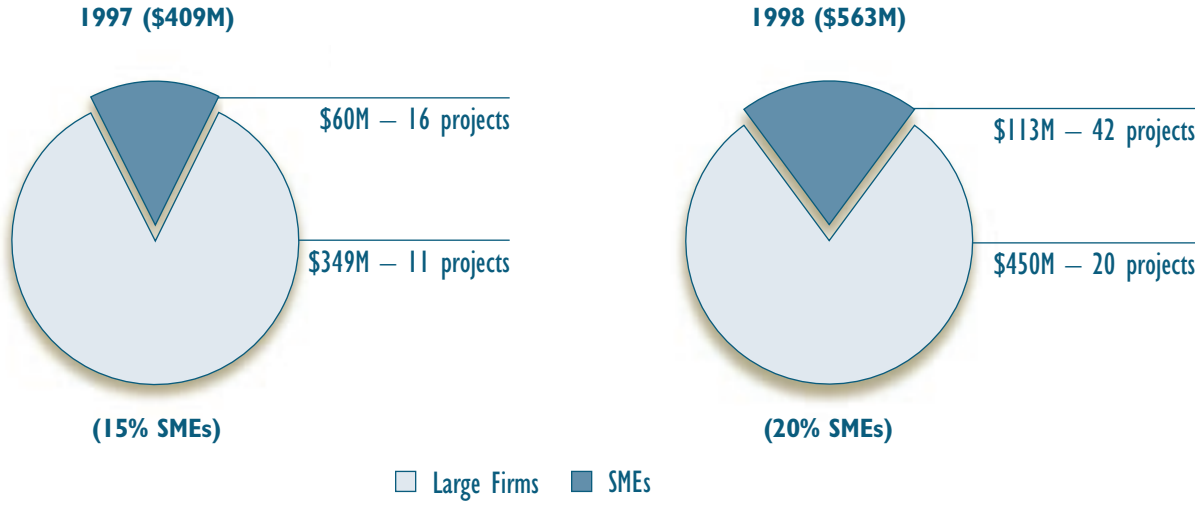
MDS Aero Support Corporation

Bristol Aerospace Limited

Summary of 1997-1998 Investments

Progress on SME Delivery – SMEs/Large Firms

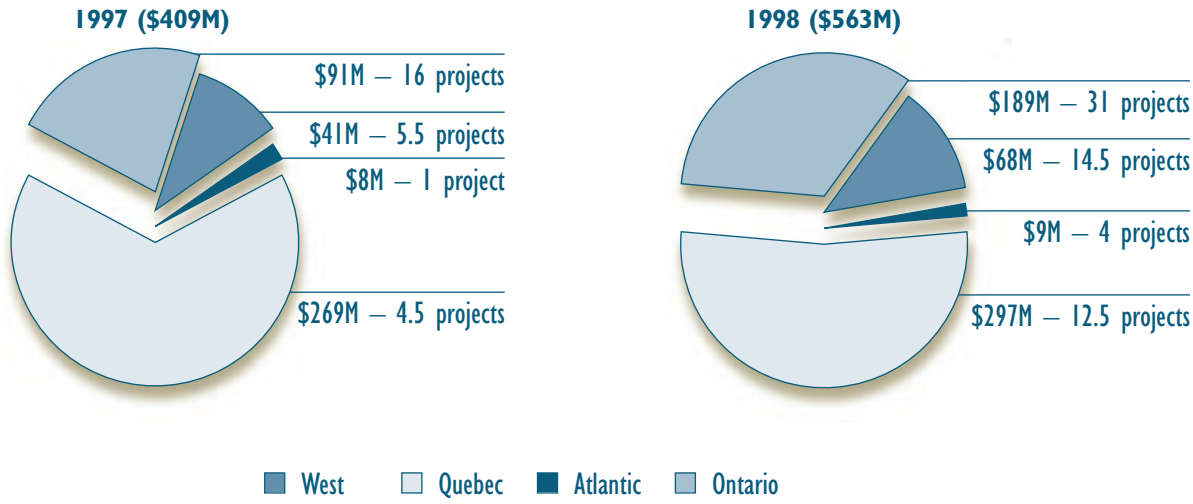
(Portfolio as at March 31)



- TPC's outreach to smaller firms will continue to increase in the future.
- IRAP-TPC partnership will provide local, simplified and quicker delivery – $30 million has been earmarked per year.

TPC's Regional Balance Is Improving

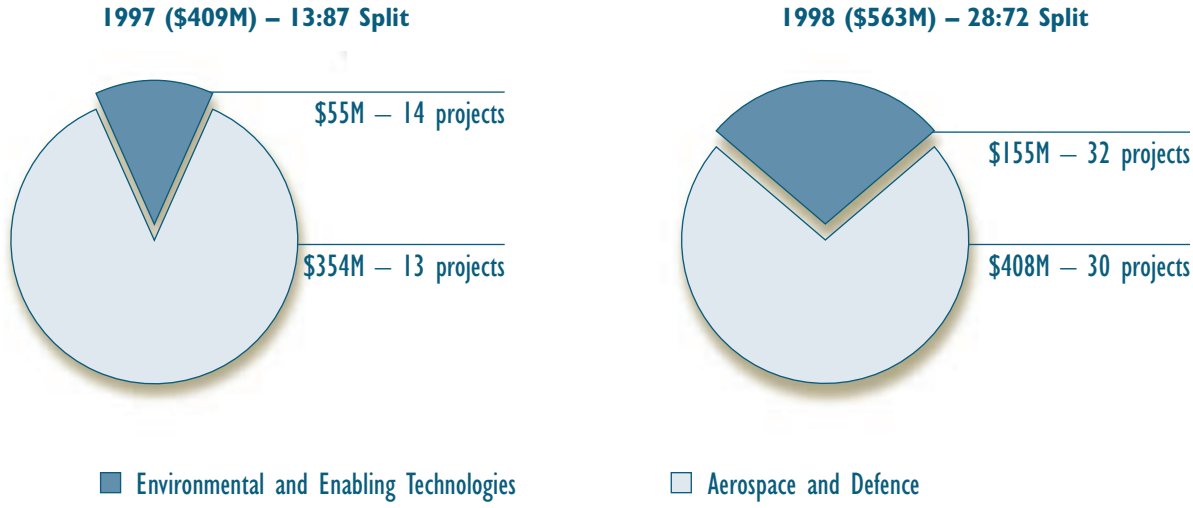
(Portfolio as at March 31)



- TPC invests throughout Canada.
- Major projects create opportunities for suppliers across the country:
  - PMCC – 60 research partners across Canada.
  - Bombardier – 51 component suppliers across Canada.

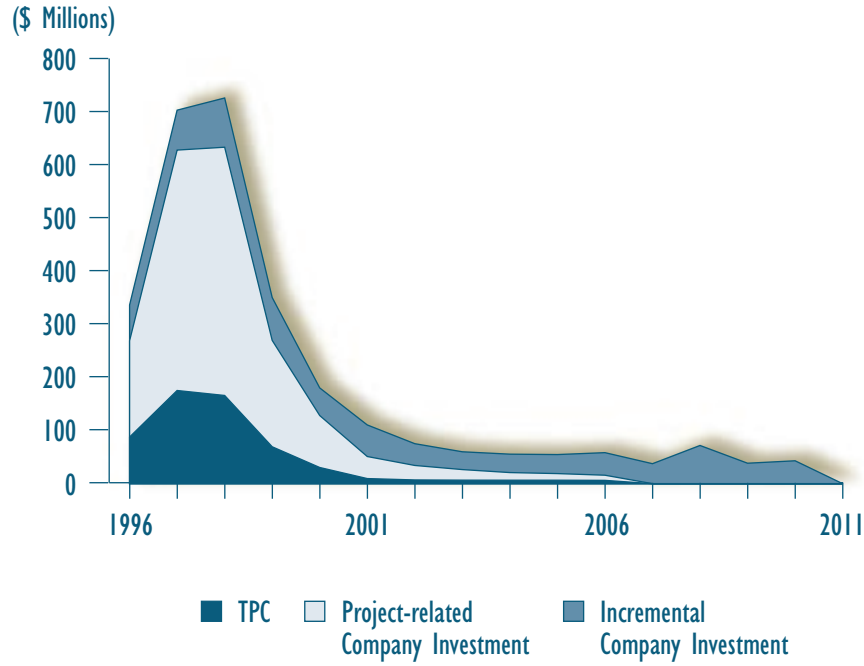
On Target for a 1/3 (E&E) – 2/3 (A&D) Split by 1998-1999

(Portfolio as at March 31)



- E&E investments to date are wide-ranging:
  - information technologies
  - climate change
  - advanced manufacturing
  - advanced materials
  - environmental technologies
  - biotechnology.

Projected Investment Leverage –
on the 62 projects contracted
as at March 31, 1998



$563 million of TPC investment will leverage $2.4 billion in private sector investment in innovation.

Every dollar of TPC investment will leverage $4.19.

Average sharing ratio is 27%, well below that of previous programs.

The Way Ahead

There has been, and there will remain, a need for government support for high-risk, high-technology development. With its new and innovative investment approach, TPC mitigates the downside risks and shares in the upside rewards.

TPC's investments provide the tools for increased productivity, economic growth and job creation in the sectors that will position Canada for leadership in the global, knowledge-based economy of the 21st century. They attract further investment and, in several noteworthy examples, provide Canadian firms with world product mandates.

TPC will carefully prioritize projects and make funding decisions based upon the strategic impact on Canada's economy.

- The strong growth in areas targeted by TPC has resulted in a situation where supply of available funding falls far short of the demand by innovative companies across Canada for TPC investments. As a result, the program must carefully prioritize projects and make funding decisions based upon the strategic impact on Canada's economy of the investment options available. TPC will target knowledge-intensive, high-growth sectors and technologies.

- The effectiveness of TPC's investment approach will be measured by criteria that assess its impact on Canada's strengths in the knowledge-based economy and the efficiency and effectiveness by which it is delivered. The program will develop appropriate criteria for assessing results as well as operational performance.

- TPC will focus on improved operational effectiveness and quality program delivery. In consultation with clients, the program will finalize policies and guidelines to ensure consistency in assessing cases, negotiating investment terms and setting priorities. It will develop client-driven service standards and embed monitoring, reporting and enhancement of service delivery into the corporate culture.

- TPC will continue to improve access to information by clients. A new web site will be launched in the fall of 1998, providing a user-friendly platform for clients and other TPC stakeholders. TPC will engage clients in information workshops and special committees to ensure that companies fully understand TPC's policies and procedures and to provide an opportunity for companies' input on improving this wherever possible.

TPC Partners

Partnerships are essential to TPC's success and have contributed invaluably to the agency's progress during the past two years. TPC has worked hard to deliberately create open and transparent relations with its partners in both the public and private sectors. A willingness of industry and other government departments and agencies to work within the new investment methodology adopted by TPC, and to share the success of its partnership approach, attests to a winning approach for the future.

TPC Advisory Board

The Honourable John Manley, P.C., M.P.
Minister of Industry
Chair of the Advisory Board

The Honourable Ronald Duhamel, P.C., M.P.
Secretary of State
(Science, Research and Development)
Co-chair of the Advisory Board

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SCC Environmental Group Inc.
St. John's, Newfoundland

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Marconi Company of Canada
Ville Saint-Laurent, Quebec

Deborah A. Turnbull
Director, Trade Development
The Alliance of Manufacturers and
Exporters Canada
Toronto, Ontario

Participating Ministers

The Honourable Arthur Eggleton, P.C., M.P.
Minister of National Defence

The Honourable Christine Stewart, P.C., M.P.
Minister of the Environment

TPC Interdepartmental Advisory Committee

Atlantic Canada Opportunities Agency

Canadian Space Agency

Department of Foreign Affairs and International Trade

Department of National Defence

Environment Canada

Canada Economic Development (Quebec)

National Research Council of Canada

Natural Resources Canada

Public Works and Government Services Canada

Western Economic Diversification

Government Partners

Industry Canada

Comptroller's Branch

Programs and Services Board

Communications Branch

Communications Research Centre

Industry Sector

Operations Sector

Spectrum, Information Technology and Telecommunications Sector

Other Government Departments and Agencies

Agriculture and Agri-Food Canada

Department of Justice

Health Canada

Financial Statements

Statement of Operations ($000)

For the 12-month period ended March 31, 1998

	1997-1998	1996-1997
Salary:		
Regular salaries	2 477	2 252
Employee benefits	495	447
Total salary	2 972	2 699
Non-salary:		
Professional services	1 489	750
Communications	404	282
Travel and hospitality	252	270
Equipment	110	346
Other	1 124	609
Total non-salary	**3 379**	**2 257**
Total operations	**6 351**	**4 956**

Statement of Contribution Funding ($000)

As at March 31, 1998

	1997-1998	1996-1997
Contribution disbursements under TPC:		
Environmental Technologies	18 104	5 307
Enabling Technologies	14 930	2 130
Aerospace and Defence	141 215	65 712
Total contributions under TPC	**174 249**	**73 149**
Contribution disbursements under sunsetted programs:		
Defence Industry Productivity Program (DIPP)	23 742	50 763
Environmental Technology Commercialization Program (ETCP)	145	249
Total contributions under sunsetted programs	**23 887**	**51 012**
Total contribution disbursements during fiscal year	198 136	124 161
Funds carried forward to future years	13 170	20 839
Total contribution funds available	**211 306**	**145 000**

Status of Contribution Portfolio ($000)

	ACTUAL	FORECASTS			
	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
TOTAL PROGRAM FUNDING: [1]	200 000	265 000	265 000	265 000	265 000
Allocation for program operations	(7 500)	(9 000)	(9 000)	(9 000)	(9 000)
Funds lapsed in 1996-1997 and carried forward to 1997-1998	20 839				
Funds reprofiled to future years	(2 033)	(1 210)	(5 232)	8 745	0
Funds lapsed in 1997-1998 to be carried forward to 1998-1999	(13 170)	13 170	0	0	0
AVAILABLE CONTRIBUTION FUNDING	**198 136**	**267 960**	**250 768**	**264 475**	**256 000**
COMMITMENTS UNDER SUNSETTED PROGRAMS:					
Defence Industry Productivity Program (DIPP)	23 742	1 217	125	1 103	0
Environmental Technology Commercialization Program (ETCP)	145	226	0	0	0
TOTAL COMMITMENTS UNDER SUNSETTED PROGRAMS	**23 887**	**1 443**	**125**	**1 103**	**0**
COMMITMENTS UNDER TPC:					
Environmental Technologies	18 104	18 334	15 974	1 742	651
Enabling Technologies	14 930	18 515	9 465	10 418	7 100
Aerospace and Defence Industries	141 215	138 510	52 910	9 418	0
TOTAL COMMITMENTS UNDER TPC	**174 249**	**175 359**	**78 349**	**21 578**	**7 751**
TOTAL PORTFOLIO COMMITMENTS	**198 136**	**176 802**	**78 474**	**22 681**	**7 751**
TOTAL FUNDS AVAILABLE FOR NEW CONTRIBUTIONS IN FUTURE YEARS	**0**	**91 158**	**172 294**	**241 794**	**248 249**
FUNDS AVAILABLE FOR NEW					
IRAP-TPC CONTRIBUTIONS		**28 000**	**28 000**	**28 000**	**28 000**
FUNDS AVAILABLE FOR NEW DIRECT					
TPC CONTRIBUTIONS		**63 158**	**144 294**	**213 794**	**220 249**
		91 158	**172 294**	**241 794**	**248 249**

Note (1) Subsequent to the 1997-1998 year end, Cabinet and Treasury Board approved additional funding for the National Research Council's (NRC) Industrial Research Assistance Program (IRAP). As part of a joint IRAP-TPC initiative to provide increased service to the SME community, $15 million of this additional funding will be transferred annually from NRC to augment TPC's total program funding.

Contacts

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Electronic copies of this document can also be obtained at our web site.