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**Aerospace and
Defence-Related Industries**

Statistical Survey Report 1990

**Aerospace and Defence-Related Industries
Statistical Survey Report — 1990**

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Introduction

Following the Ministerial Consultative Committee activity of 1983, the Aerospace Industries Association of Canada (AIAC) and the former Department of Industry, Trade and Commerce jointly re-affirmed their commitment to the annual statistical survey process. The survey assumed increased importance with the signing of the May 29, 1985 Memorandum of Understanding between the AIAC and the former Department of Regional Industrial Expansion, now Industry, Science and Technology Canada (ISTC), thereby continuing a joint activity which goes back many years.

For the 1990 survey, questionnaires were sent by ISTC's Aerospace, Defence and Industrial Benefits Branch to 87 companies with annual sales in excess of \$10 million. In total, 43 complete and two partial responses were received. Measures have been taken within ISTC to compensate for the missing entries to the extent made possible by using other data sources. An estimate for the small-business element, which was not captured by the survey, has also been included in the results.

As in previous years, companies have been assured that their individual returns will be held in the strictest confidence and that the data will be employed and released in aggregate form only.

It should be noted that the compilation of statistics that accurately portray the industry is becoming progressively more difficult. This is attributable to such factors as product line diversification, corporate diversification (through domestic and international acquisitions) and the general trend toward globalization of the industry. Furthermore, it is becoming increasingly difficult to compensate for data from companies that do not respond to the survey without compromising the integrity of the total effort. While the response rate is still very good, satisfactory results are dependent on a greater number of responses.

This year, the scope of the survey was broadened again to develop a more comprehensive definition of defence-related industries, particularly where export trade interests and use of the Defence Industry Productivity Program are in evidence. An extremely poor response rate by defence-related companies this year, however, has limited further analysis of this subsector. This aerospace and defence-related industries grouping is subsequently referred to as the composite sector.

Summary

The Canadian aerospace and defence-related industries continued to grow in 1989. Further growth is projected for 1990 and for each year to 1994, however, the rate of increase is forecast to slow beginning in 1991.

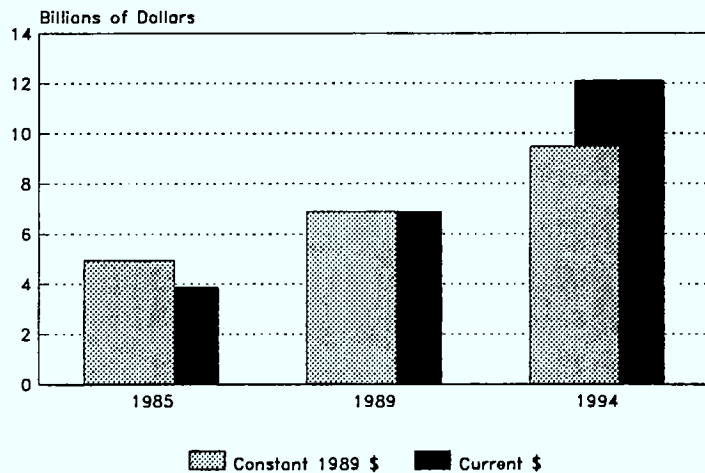
A favourable outlook is shared by almost every firm reporting; firms involved in commercial aircraft programs generally have a more optimistic outlook on growth than defence-related firms.

Apart from the degree of overall growth, projections for 1988-93 do not indicate any abrupt trend changes. The sector is expected to remain predominantly civil, with the majority of output intended for export with the U.S. as the largest single market area. While moderate changes are expected in the actual percentages for these primary characteristics, no profound long-term shifting is detected or indicated as likely. Employment is forecast to grow at a slightly slower pace than indicated in last year's survey. Companies forecasted a reduction in their inventories for 1990, perhaps in anticipation of an economic slowdown.

Note: Many of the graphs include forecast data for the years 1990-94.

Sales: 1985, 1989 and 1994 Constant 1989 \$ vs. Current \$

Between 1985 and 1989, sales for the composite sector increased by 39 percent in constant dollars. The years 1990 to 1994 are projected to be a period of similar strong growth. In terms of current dollars, the composite sector is expected to grow from its 1985 level of \$3.9 billion to \$12.1 billion by 1994, an overall increase of 212 percent.



Millions of Dollars	1985	1989	1994
Constant 1989 \$	4 949	6 887	9 472
Current \$	3 878	6 887	12 090

Sales: 1989-94 Net Sales vs. Gross Sales (Current \$)

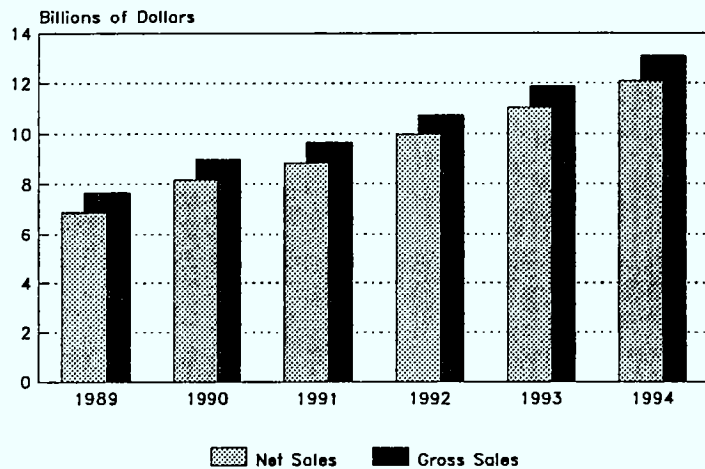
Net sales for the composite sector are forecast to grow at an impressive rate for each year of the period under review.

The actual net sales figure for 1989 was reported at \$6.9 billion, a 15 percent increase over 1988. The projection is \$8.2 billion for 1990, an increase of 18.5 percent. The increase for 1991, however, is expected to be only 8.2 percent.

By 1994, sales are expected to be \$12.1 billion, or nearly double the 1989 level.

If an inflation factor of 5 percent is applied, real growth of 6.9 percent annually is forecast over the next five years.

Note: Net sales are derived from the overall corporate aggregate or gross sales figure by making allowance for inter-firm transactions, which are typically sub-system and sub-contractual in nature. Canadian supplier sales to other Canadian firms are deducted from the gross total.

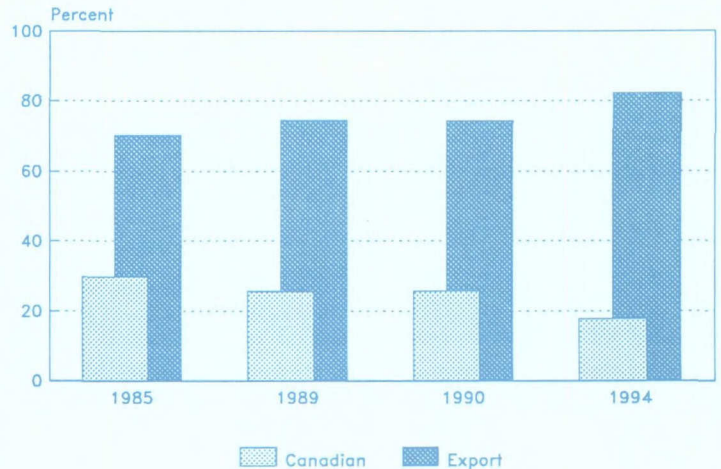


Millions of Dollars	1989	1990	1991	1992	1993	1994
Net Sales	6 887	8 160	8 827	9 962	11 027	12 090
Gross Sales	7 682	8 998	9 665	10 752	11 877	13 080

Sales: 1985, 1989, 1990 and 1994 Canadian vs. Export

International sales are projected to increase not only as a total but also as a percentage of overall output for each year of the period under review. In 1989, 74.4 percent of net sales were exported, amounting to \$5.1 billion. The proportion is forecast to increase steadily to 82.2 percent by 1994 when \$9.9 billion in exports is predicted.

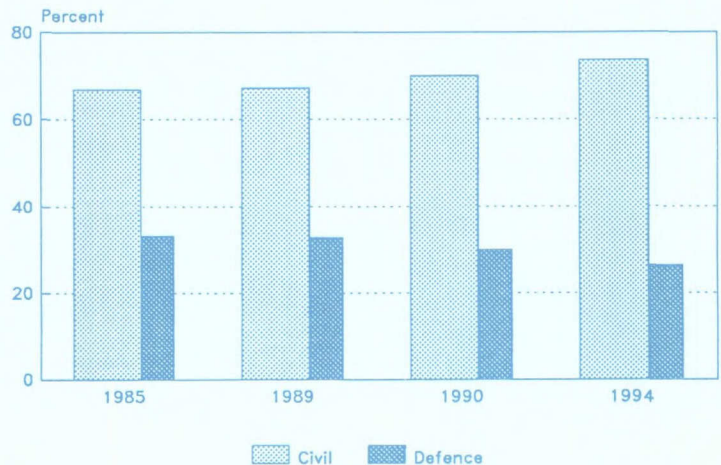
An 80 percent export figure was typical for the sector for many years but has diminished recently as a result of increased levels of domestic procurement. Now it appears that this period is approaching to an end and exports will again represent about 80 percent of total net sales.



Millions of Dollars	1985	1989	1990	1994
Canadian	1 154.6	1 766.2	2 100.8	2 156.8
Export	2 723.3	5 120.5	6 059.4	9 932.7

Sales: 1985, 1989, 1990 and 1994 Civil vs. Defence

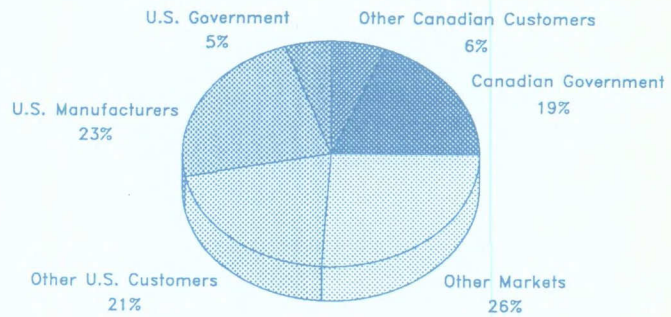
Although increasing in actual volume, defence sales are expected to continue to decline when expressed as a percentage of the overall total. In 1989, some 32.8 percent of net sales were defence sales while the forecast for 1990 is 30 percent. It is worth noting that the survey was conducted before the recent socio-political changes in Eastern Europe and the hostilities in the Persian Gulf, but after the Canadian and American 1989 defence budget cuts were announced.



Millions of Dollars	1985	1989	1990	1994
Civil	2 590.4	4 631.1	5 708.3	8 899.8
Defence	1 287.5	2 255.6	2 451.9	3 189.7
Total	3 877.9	6 886.7	8 160.2	12 089.5

Sales by Customer: 1989

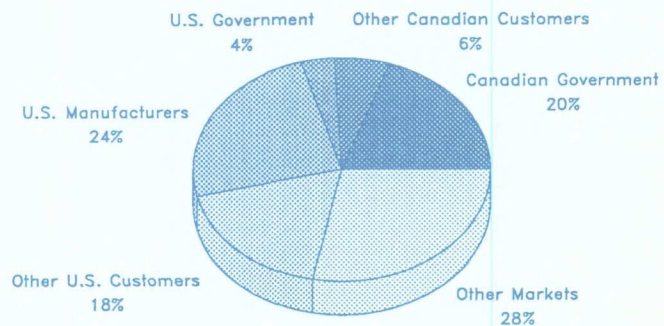
The market areas served by the industry showed a good degree of balance in that no single customer group accounted for more than 25 percent of the overall output. As in previous years, the U.S., as a combined market area, remained in the principal position, buying nearly 50 percent of the overall sector output.



<i>Millions of Dollars</i>	1989
Canadian Government	1 305.7
Other Canadian Customers	460.5
U.S. Government	337.6
U.S. Manufacturers	1 583.2
Other U.S. Customers	1 428.2
Other Markets	1 771.5

Sales by Customer: 1990

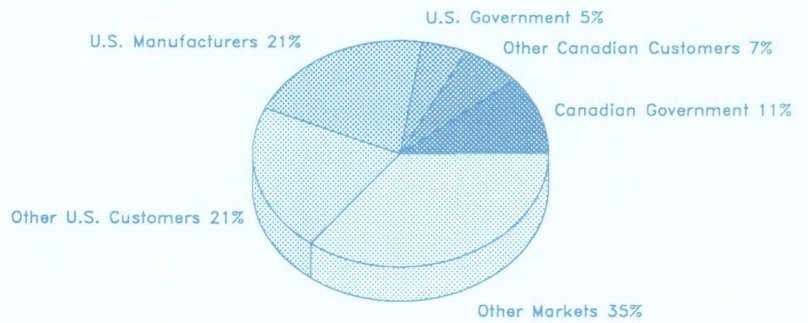
Market distribution for 1990 was expected to show a slight reduction in domestic and U.S. sales, with a corresponding increase in other markets.



<i>Millions of Dollars</i>	1990
Canadian Government	1 608.4
Other Canadian Customers	492.4
U.S. Government	299.1
U.S. Manufacturers	1 986.2
Other U.S. Customers	1 474.8
Other Markets	2 299.3

Sales by Customer: 1994

Consistent with the trend toward increased exports, the U.S. market and other foreign markets are expected to show a steady increase each year to the totals shown. The corresponding decline is expected to be borne for the most part by a decrease in sales to the Government of Canada.

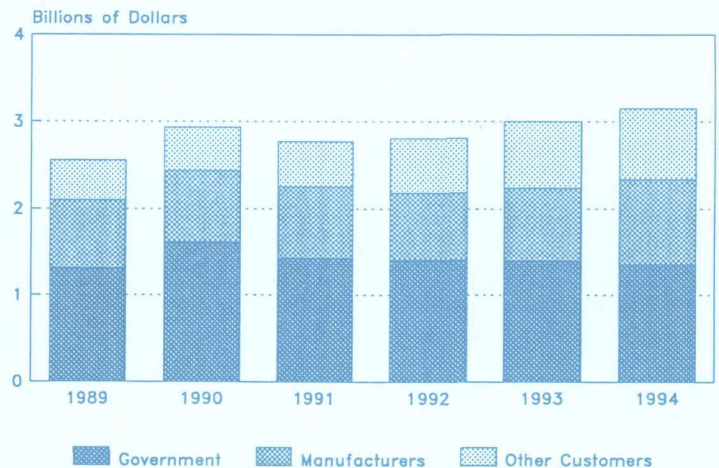


Millions of Dollars	1994
Canadian Government	1 356.1
Other Canadian Customers	800.7
U.S. Government	589.1
U.S. Manufacturers	2 508.1
Other U.S. Customers	2 568.5
Other Markets	4 267.0

Domestic Sales: 1989-94

Growth in total domestic sales is forecast at just under 23 percent over the five-year period. This is less than that for other market areas. It is also considerably less than the forecast growth rate of 50 percent for domestic sales as reported in the 1989 survey.

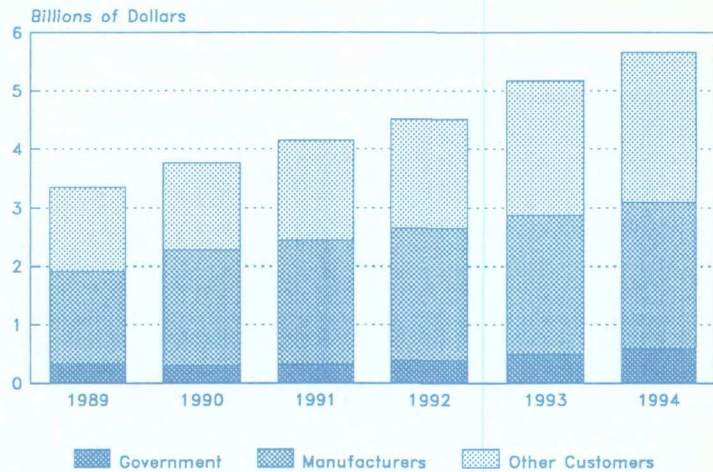
Inter-company sales are forecast to be relatively modest. Sales in the "other" grouping are expected to remain constant, however, this is the smallest domestic category. Government procurement is predicted to grow at only 4 percent over the five-year period.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Government	1 305.7	1 608.4	1 427.1	1 404.8	1 400.1	1 356.1
Manufacturers	795.3	837.6	837.5	790.6	849.8	990.6
Other Customers	460.5	492.4	509.2	613.6	753.2	800.7

U.S. Sales: 1989-94

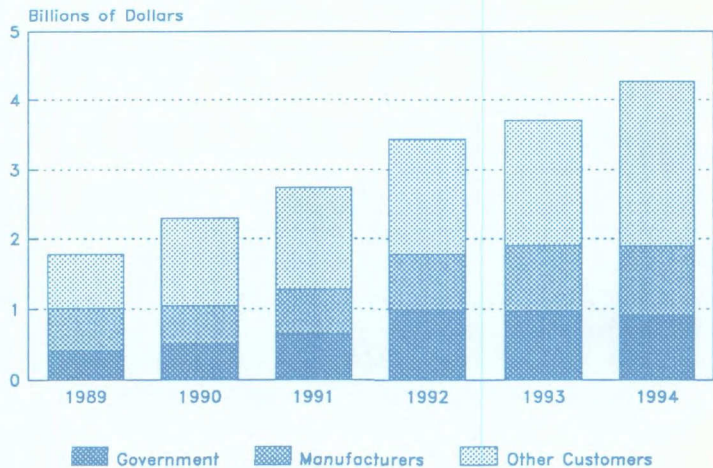
Sales to the U.S. are expected to increase by almost 70 percent over the next five years, principally due to growth in sales to the U.S. government, up 75 percent, and to other American customers, up 80 percent. As stated elsewhere, the U.S. is expected to remain a principal market area, accounting for 50 percent of the entire Canadian output.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Government	337.6	299.1	320.1	392.3	502.6	589.1
Manufacturers	1 583.2	1 986.2	2 127.8	2 266.9	2 371.1	2 508.1
Other Customers	1 428.2	1 474.8	1 702.5	1 848.2	2 296.6	2 568.4

Foreign Sales: 1989-94 Excluding the U.S.

Consistent with the results of last year's survey, the most notable change from previous years comes in projected sales to areas other than the U.S. and Canada, which are expected to increase 141 percent over the next five years, representing a 9-percent-gain in total market significance. Growth is anticipated in all three categories, but especially in sales to foreign governments and other buyers.

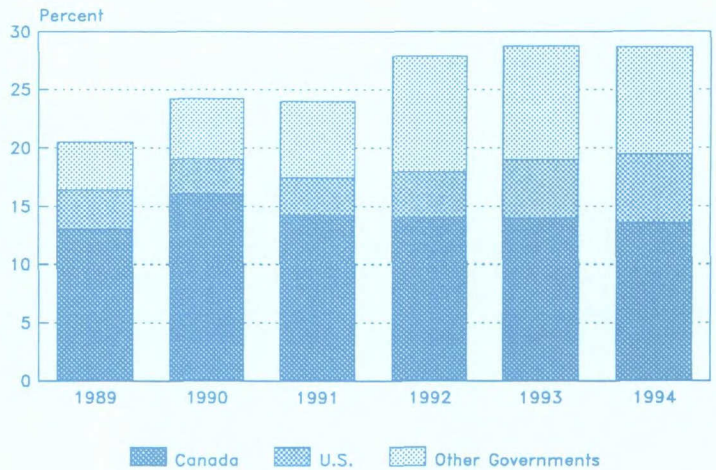


Millions of Dollars	1989	1990	1991	1992	1993	1994
Government	408.6	512.5	651.0	989.5	973.3	917.9
Manufacturers	602.6	538.7	626.0	781.1	931.1	977.0
Other Customers	760.3	1 248.1	1 463.8	1 665.4	1 799.4	2 372.1

Sales to Governments: 1989-94 Percentage of Total Net Sales

Combined sales to all governments is forecast to decrease slightly from the current level of 29.8 percent to just below 23.7 percent in 1994.

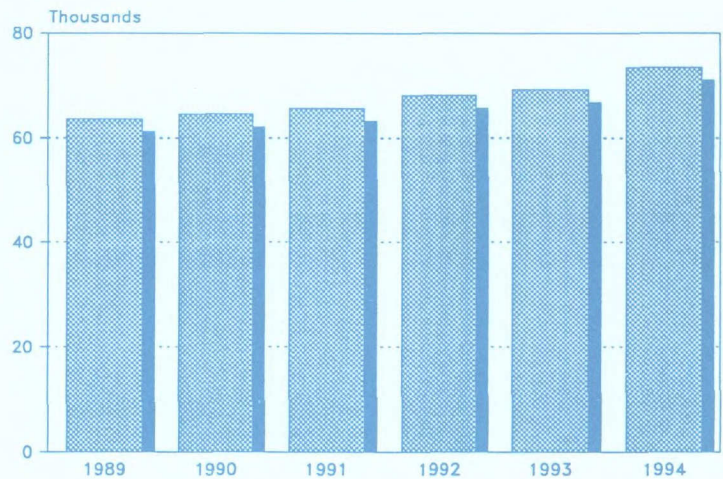
Canadian government procurement is expected to decrease from approximately 64 percent in 1989 to 47 percent in 1994. Foreign governments, as a group, are expected to replace the U.S. government as the second most important area in this category by the end of the forecast period.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Canada	1 305.7	1 608.4	1 427.1	1 404.8	1 400.1	1 356.1
U.S.	337.6	299.1	320.1	392.3	502.6	589.1
Other Governments	408.6	512.5	651.0	989.5	973.3	917.9
% of Net Sales	29.8	29.7	27.2	28	26.1	23.7

Total Employment: 1989-94

Total employment is virtually identical to the 1988 level. It is projected to grow steadily from the 1989 total of 63 632 to more than 73 453 by 1994, or 15.4 percent. Actual growth is expected to be less than 2 percent in each year except 1992 and 1994. This trend is similar to, but less pronounced, than that for sales — as is to be expected given the overall decline in labour intensity that characterizes the international industry.

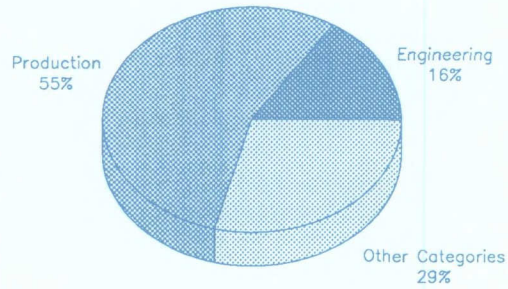


	1989	1990	1991	1992	1993	1994
Employment	63 632	64 553	65 616	68 121	69 187	73 453

Employment by Category: 1989*

Approximately 55 percent of the employment in the sector is concentrated in the production or hourly rated classification. Hardly any change in this proportion is expected over the period under review.

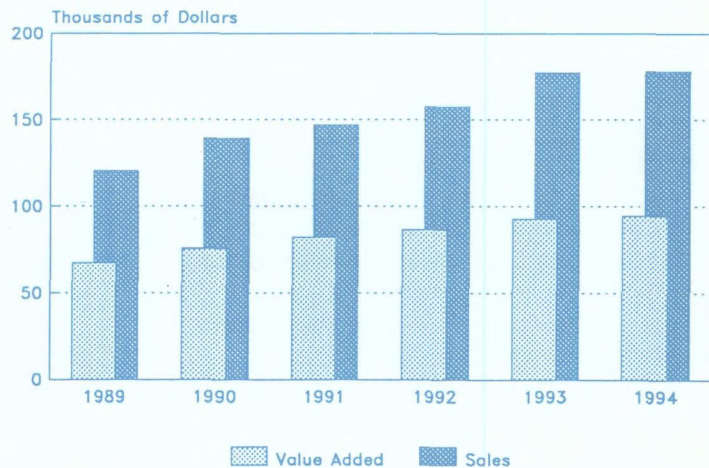
* Total employment in 1989 was 63 632.



	1989
Engineering	10 318
Production	34 720
Other Categories	18 594

Sales and Value Added: 1989-94 Per Employee

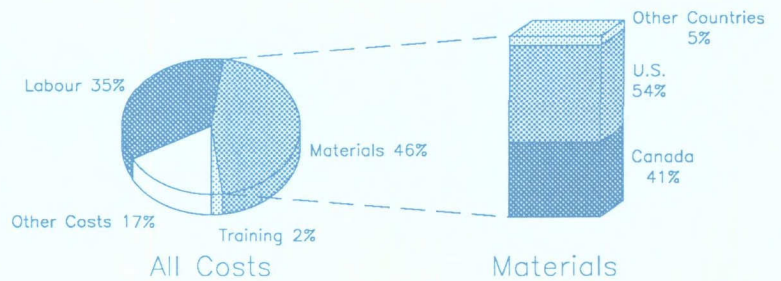
Sales-per-employee is forecast to increase from the 1989 level of \$120 700 to \$178 100 by 1994. If allowance is made for the general increase in materials and supplies procurement, a more moderate trend for value added is expected.



	1989	1990	1991	1992	1993	1994
Value Added	67 200	75 600	82 000	86 300	92 800	94 600
Sales	120 700	139 400	147 300	157 800	177 300	178 100

Cost of Sales: 1989

Materials remains the largest single cost category, and the U.S. was the principal source of supply. This continued the pattern evident over previous years when U.S. content was found to account for over 25 percent of Canadian end products, in terms of cost of sales.



Millions of Dollars

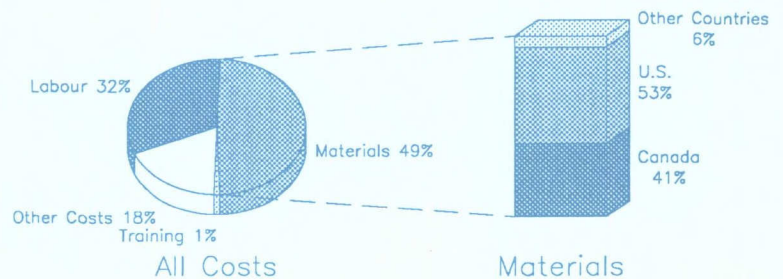
All Costs	1989
Labour	2 547.8
Materials	3 404.4
Training	109.4
Other Costs	1 277.7

Millions of Dollars

Materials	1989
Canada	1 401.9
U.S.	1 835.8
Other Countries	166.7

Cost of Sales: 1990

The general breakdown of costs was expected to follow essentially the same pattern as that reported for previous years. Some proportional increase in the cost of materials is expected, with a corresponding reduction in the labour cost.



Millions of Dollars

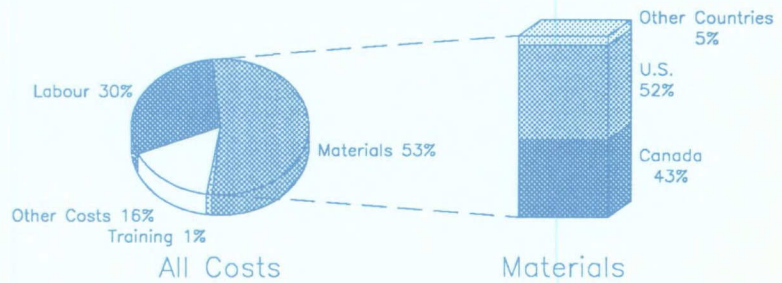
All Costs	1990
Labour	2 693.9
Materials	4 114.5
Training	42.4
Other Costs	1 465.6

Millions of Dollars

Materials	1990
Canada	1 694.3
U.S.	2 176.3
Other Countries	243.9

Cost of Sales: 1994

A move toward more materials and supplies procurement will bring about a further reduction in labour costs to 30 percent of the total cost of sales, and therefore, a corresponding increase in the cost of materials.



Millions of Dollars

All Costs	1994
Labour	3 492.4
Materials	6 132.2
Training	50.0
Other Costs	1 879.3

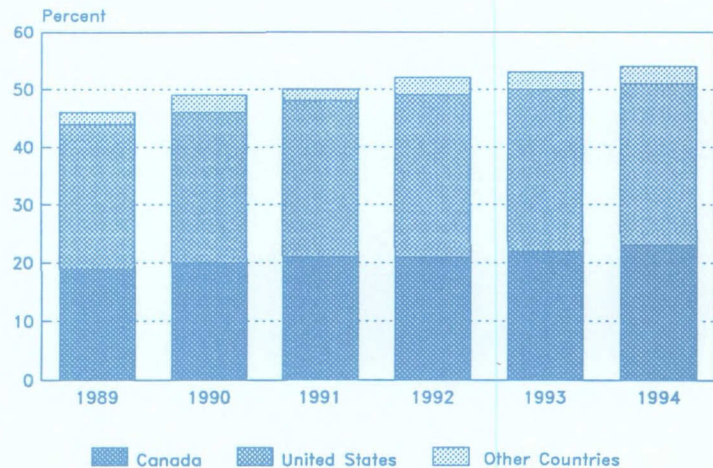
Millions of Dollars

Materials	1994
Canada	2 624.9
U.S.	3 192.4
Other Countries	314.9

Procured Content: 1989-94 Percentage of Total Costs

This further illustrates the anticipated increase in procured or bought-out content in the total output of the composite sector on a year-by-year basis. The 1989 figure of 46 percent is forecast to increase to 53 percent by 1994.

The corresponding reduction in labour content is illustrated in the first graph on page 11. Other costs are expected to remain fairly constant when expressed as a percentage of all costs.

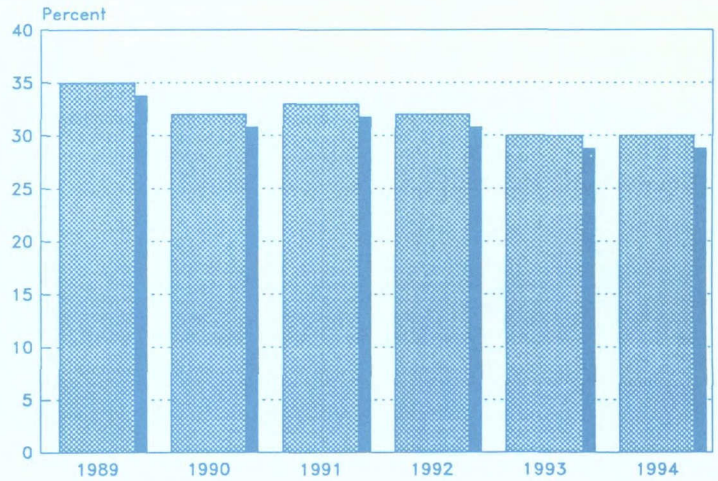


Millions of Dollars

	1989	1990	1991	1992	1993	1994
Canada	1 401.9	1 694.3	1 762.4	2 024.5	2 268.1	2 624.9
United States	1 835.8	2 176.3	2 329.0	2 610.6	2 903.0	3 192.4
Other Countries	166.7	243.9	191.9	239.4	285.3	314.9
Total Costs	7 339.2	8 316.4	8 542.9	9 470.0	10 468.6	11 553.9

Labour Costs: 1989-94 As a Percentage of Total Costs

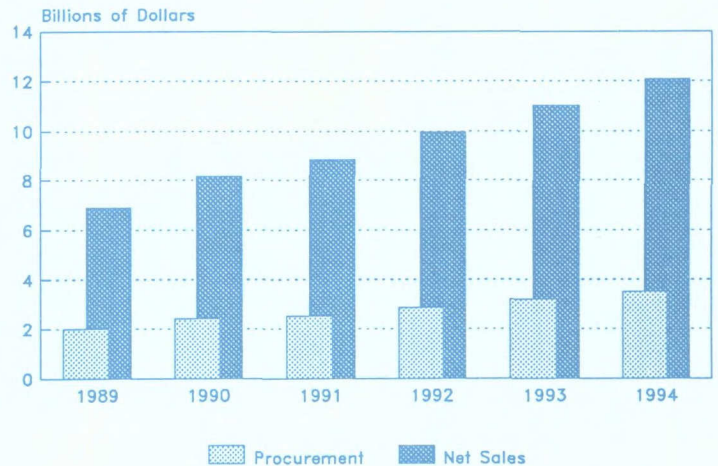
As already noted, labour costs are expected to account for progressively less of total costs, and the decline is expected to be consistent for each year — from 35 percent in 1989 to 30 percent by the end of the period.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Labour	2 547.8	2 693.9	2 815.8	3 031.9	3 127.7	3 492.4

Sales and Purchases: 1989-94 Imported Content

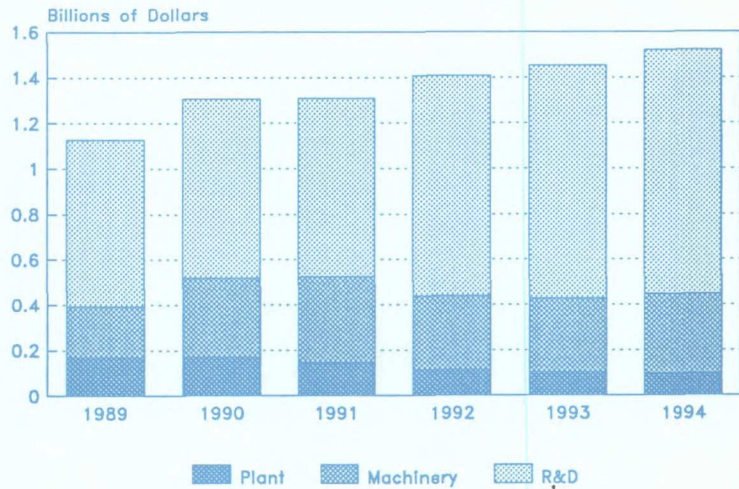
The imported content of the sector's output is forecast to increase in line with the forecast sales growth but remain constant as a percentage of those sales. Imported content was reported as 29.1 percent in 1989 and is expected to be 29 percent by 1994.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Procurement	2 003	2 420	2 521	2 850	3 188	3 507
Net Sales	6 887	8 160	8 827	9 962	11 027	12 090

New Investment: 1989-94 Plant, Machinery, and Research and Development

Research and development is expected to remain the principal area for new investment, accounting for almost 65 percent of the forecast totals. The distribution of new investment is expected to remain unchanged over the forecast period.



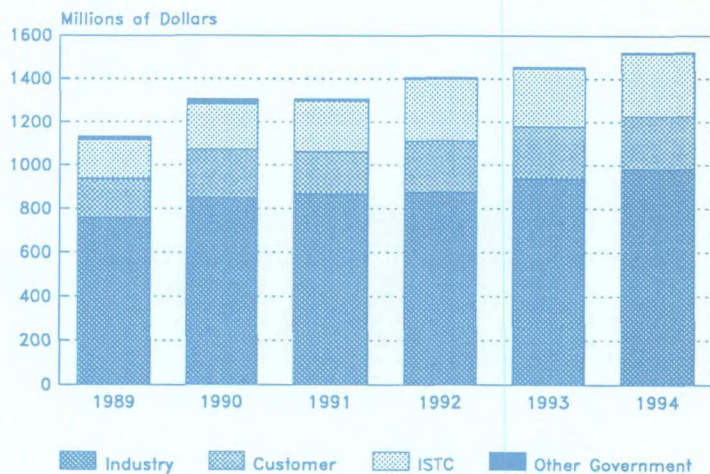
Millions of Dollars	1989	1990	1991	1992	1993	1994
Plant	171.4	170.9	145.2	113.3	102.1	96.5
Machinery	222.7	347.4	378.8	326.7	326.1	352.4
R&D	732.8	788.0	783.9	966.6	1 025.4	1 072.7

New Investment: 1989-94 Sources of Funding

The company responses predicted the level of new investment in 1989 to be higher than ever. An increase in investment is also expected for 1990 with no further increase predicted for 1991. Subsequent years show a return to increased investment.

These results differ from those of previous years' surveys which showed reduced investment toward the end of the forecast period. This year's results are more in line with what would be expected in actual practice, that is, constant or increasing investment over time. Participating firms may have paid more attention to this section of the survey this year.

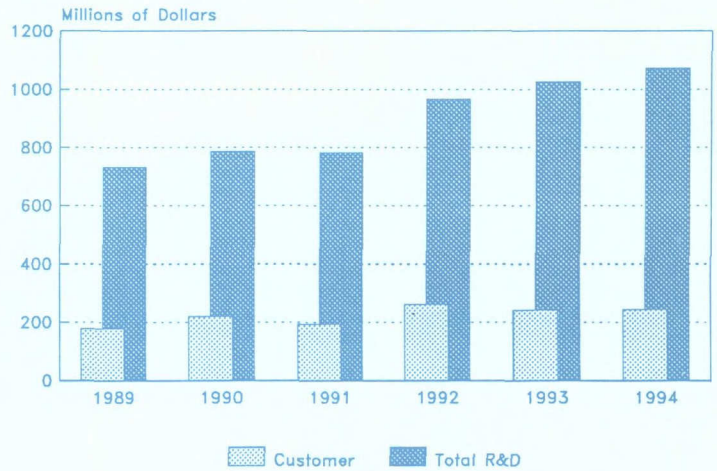
The industry expects to continue as a leading investor, contributing close to 65 percent of total annual investment while Industry, Science and Technology Canada will account for some 18 percent as the next major contributor.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Industry	760.0	851.0	868.8	876.5	937.4	983.5
Customer	177.5	219.3	192.5	235.3	241.7	244.1
ISTC	171.4	209.9	233.9	288.0	265.8	285.9
Other Government	18.0	26.1	12.7	6.8	8.7	8.1

Research and Development: 1989-94 Funding by Customers

In 1989, some 24 percent of total research and development costs were borne by clients other than the government. The percentage reported in 1988 was 17. This level is expected to remain stable over the forecast period.

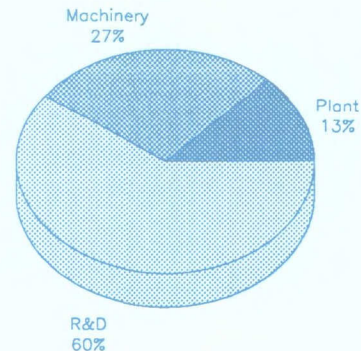


Millions of Dollars	1989	1990	1991	1992	1993	1994
Customer	177.5	219.3	192.5	261.1	241.7	244.1
Total R&D	732.8	788.0	783.9	966.6	1 025.4	1 072.7

New Investment* by Category: 1990

Research and development was expected to be the principal area for new investment for 1990, accounting for nearly 60 percent of the total. This figure is approximately the same as those for previous years.

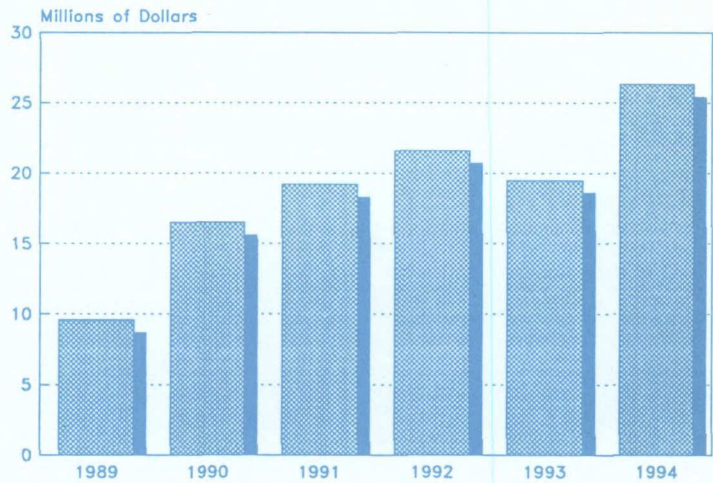
* New investment in 1990 was expected to amount to \$1.3 billion (including funds obtained from ISTC's Defence Industry Productivity Program) or 16 percent of sales.



Millions of Dollars	1990
Plant	170.9
Machinery	347.4
R&D	788.0
Total New Investment	1 306.3

Repayment: 1989-94

Repayment of federal government contributions is expected to grow in significance.

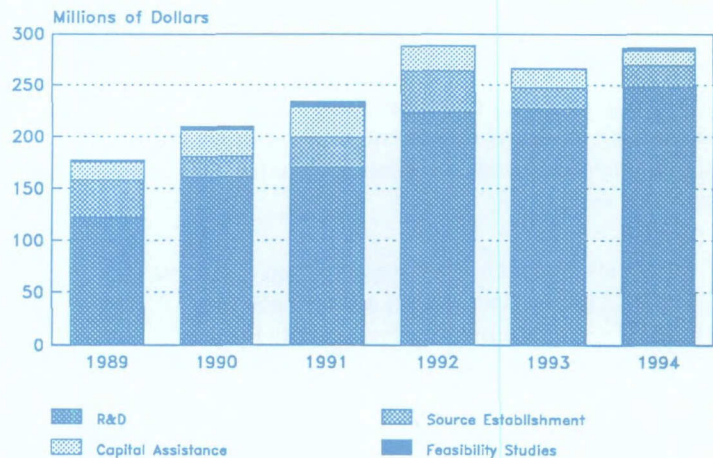


Millions of Dollars	1989	1990	1991	1992	1993	1994
Repayment	9.6	16.5	19.2	21.6	19.5	26.3

ISTC Support: 1989-94 Allocation of Defence Industry Productivity Program Funds

Requests for funding under the program are expected to increase until 1993 and then decrease somewhat.

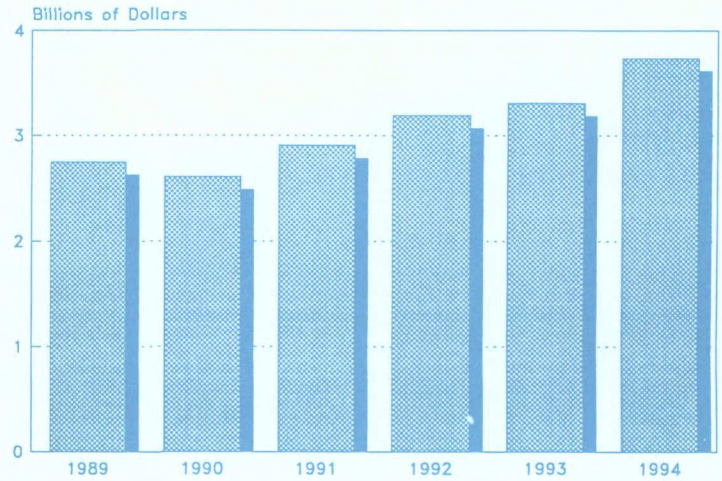
It appears that capital assistance and source establishment are understated over the 1990 to 1994 period. According to ISTC data on the program, these types of projects tend to account for a greater share of program spending than indicated by the forecast.



Millions of Dollars	1989	1990	1991	1992	1993	1994
R&D	122.3	160.8	170.4	223.7	227.1	248.2
Source Establishment	36.0	20.3	28.7	39.8	20.0	20.4
Capital Assistance	17.2	25.2	29.1	24.2	18.3	13.7
Feasibility Studies	1.9	3.6	5.7	0.3	0.4	3.6

Opening Inventory: 1989-94

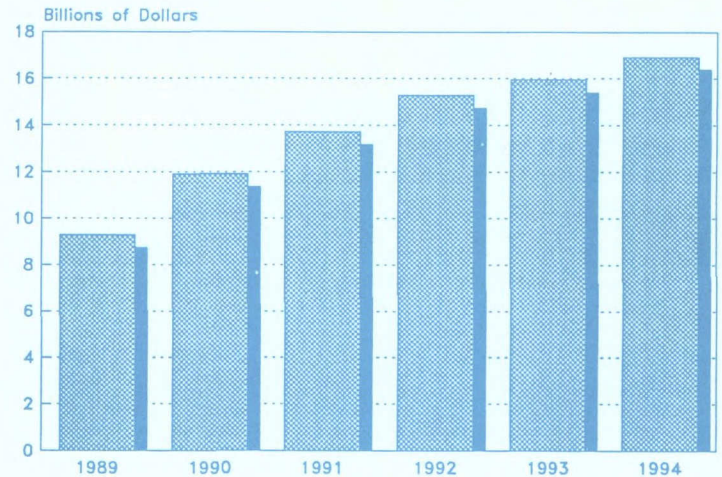
Opening inventory levels are expected to increase over the forecast period. The overall annual increase is expected to be 35.7 percent. In 1990, however, inventory levels were expected to be reduced, with a buildup occurring in 1991.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Inventory	2 751	2 609	2 907	3 191	3 305	3 734

Year-end Backlog: 1989-94

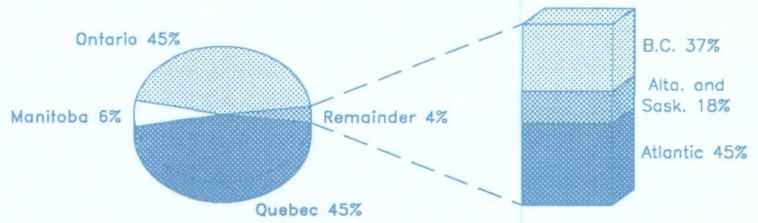
Year-end backlog is expected to show a steady and substantial increase each year, averaging 16.5 percent for an overall increase of 82.5 percent over the period under review.



Millions of Dollars	1989	1990	1991	1992	1993	1994
Backlog	9 273	11 907	13 718	15 283	15 958	16 922

Geographic Distribution of Sales: 1989

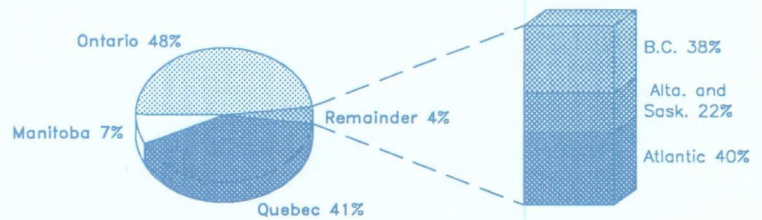
Sales were divided almost equally between Ontario and Quebec, which accounted for 90 percent of sales in the entire sector. This distribution is consistent with previous years.



<i>Millions of Dollars</i>	1989
Atlantic	135
Quebec	3 460
Ontario	3 449
Manitoba	474
Alberta and Saskatchewan	54
British Columbia	110

Geographic Distribution of Employment: 1989

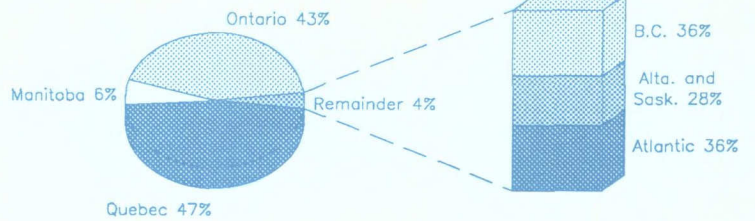
If employment is used as the unit of measurement for regional distribution, then the gap between Ontario and Quebec was pronounced. This is attributable, at least in part, to a higher level of imported content in certain major end-products in Quebec.



<i>Millions of Dollars</i>	1989
Atlantic	1 133
Quebec	25 792
Ontario	30 310
Manitoba	4 727
Alberta and Saskatchewan	621
British Columbia	1 049

Geographic Distribution of Sales: 1990

The forecast indicates a trend toward a shift in sales from Ontario to Quebec.

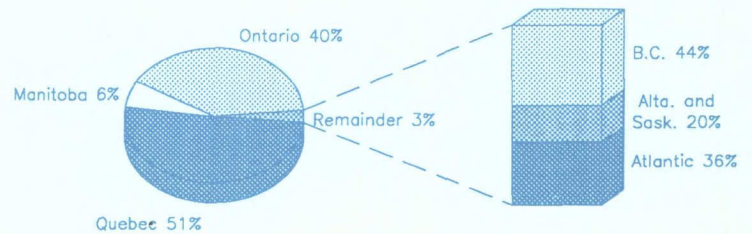


Millions of Dollars	1990
Atlantic	125
Quebec	4 261
Ontario	3 906
Manitoba	486
Alberta and Saskatchewan	95
British Columbia	125

Geographic Distribution of Sales: 1994

At the end of the forecast period, the relative positions of Ontario and Quebec are expected to be reversed from years prior to 1989, with a larger margin than has ever been in evidence in prior years. This contrast is partly attributable to very high growth forecasts for some of the major systems produced in Quebec. If employment was used as the unit of comparison, then the margin would be somewhat diminished.

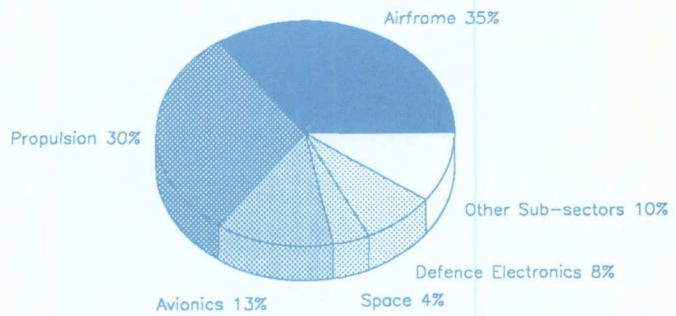
While larger in terms of actual size, the relative representation of the remainder of Canada is expected to diminish slightly.



Millions of Dollars	1994
Atlantic	135
Quebec	6 648
Ontario	5 228
Manitoba	823
Alberta and Saskatchewan	78
British Columbia	168

Sales by Sub-sector: 1989

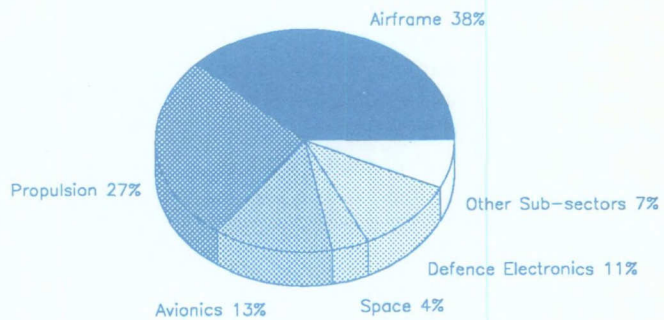
Based upon the distribution of sales, airframe emerged as the largest sub-sector, attributable to the very strong world market in civil transport. In previous years, the airframe and propulsion sub-sectors were much more evenly balanced.



<i>Millions of Dollars</i>	1989
Airframe	2 388
Propulsion	2 099
Avionics	890
Space	269
Defence Electronics	581
Other Sub-sectors	659

Sales by Sub-sector: 1990

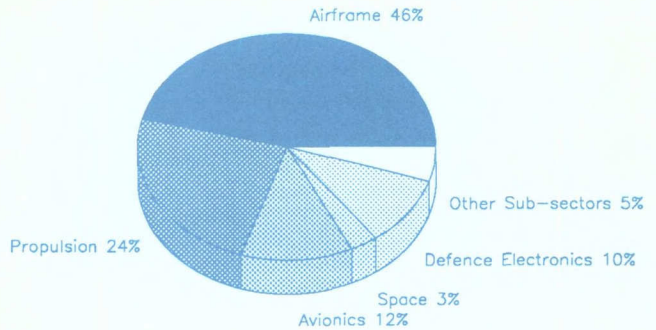
The projection for 1990 shows a further widening of the gap between the airframe and propulsion sub-sectors as well as an increase in the defence-electronics sector.



<i>Millions of Dollars</i>	1990
Airframe	3 080
Propulsion	2 168
Avionics	1 060
Space	353
Defence Electronics	925
Other Sub-sectors	573

Sales by Sub-sector: 1994

The end of the forecast period shows the airframe sub-sector in an even more dominant position, largely at the expense of the propulsion and non-aerospace sectors. The decrease in the non-aerospace sector suggests further specialization by the industry.

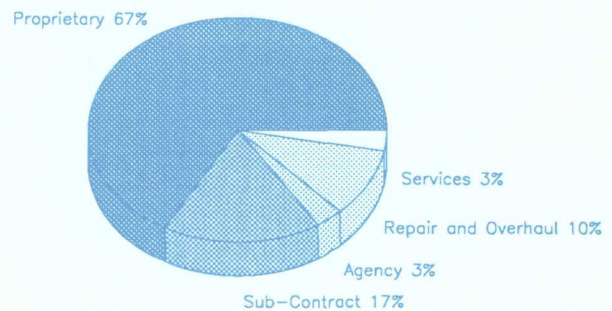


Millions of Dollars	1994
Airframe	5 485
Propulsion	2 873
Avionics	1 504
Space	358
Defence Electronics	1 243
Other Sub-sectors	626

Sales by Product Category: 1989

Approximately 67 percent of overall output in 1989 was categorized as proprietary. This is in keeping with the general strategy of the sector, namely, specialization in highly select areas.

Spares constituted 17 percent of the total.

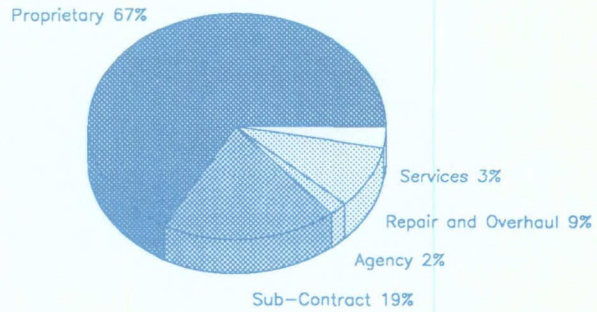


Millions of Dollars	1989
Proprietary	4 635
Sub-Contract	1 193
Agency	179
Repair and Overhaul	679
Services	202

Sales by Product Category: 1990

The proprietary category is expected to remain stable. The repair and overhaul, and agency categories are expected to decline slightly in percentage terms in favour of the sub-contract category.

Spares are expected to constitute 15 percent of the total.



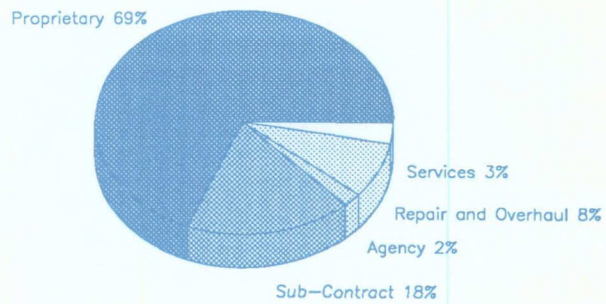
Millions of Dollars	1990
Proprietary	5 462
Sub-Contract	1 512
Agency	204
Repair and Overhaul	759
Services	222

Sales by Product Category: 1994

The trend is expected to continue to 1993, with proprietary products commanding the largest-ever share. Repair and overhaul is expected to fall a further 1 percent.

The trend in the relative decline of repair and overhaul, while not conclusive, might be explained by the increase in use of modular construction and the substantial increase in mean time between failure figures.

Spares are expected to constitute 15 percent of the total.



Millions of Dollars	1994
Proprietary	8 298
Sub-Contract	2 194
Agency	261
Repair and Overhaul	993
Services	343

Survey Responses: 1990

Responses Received

Aircraft Appliances & Equipment Limited
 Amherst Aerospace Inc.
 Andrew Canada Inc.
 ATS Automotive Tooling Systems Inc.
 Bell Helicopter Textron Canada
 Bendix Avelex Inc.
 Boeing Canada, de Havilland Division
 Boeing of Canada Ltd. (Amprior)
 Boeing of Canada Ltd. (Winnipeg)
 Bristol Aerospace Limited
 CAE Electronics Ltd.
 Canadair — Bombardier Inc.
 Canadian Marconi Company
 Chicopee Manufacturing Limited
 Com Dev Ltd.
 Computing Devices Company
 Devtek Corporation
 Diemaster Tool Inc.
 Dowty Canada Limited
 DY-4 Systems Inc.
 Fag Bearings Ltd.
 Field Aviation Company Limited
 Fleet Industries
 Garrett Canada
 General Electric Canada Inc.
 General Motors of Canada Ltd.
 Haley Industries Limited
 Hawker Siddeley Canada Inc. —
 Orenda Division

Héroux Inc.
 Indal Technologies Inc.
 Litton Systems Canada Limited
 McDonald Dettwiler and Associates
 McDonnell Douglas Canada Ltd.
 Menasco Aerospace Ltd.
 MPR (Microtel Pacific Research Limited)
 Oerlikon Aerospace Inc.
 Pratt & Whitney Canada Inc.
 Raytheon Canada Limited
 Rolls-Royce Industries Canada Limited
 SED Systems Inc.
 Spar Aerospace Limited
 Standard Aero Limited
 Unisys Canada Inc.
 Walbar of Canada Inc.

Non-Responsive

Amtech Corporation
 Avcorp Industries
 Calian Technology
 Canada Forgings Inc.
 Canadian Astronautics Limited
 Canadian Foremost
 Cercast Industries
 Champion Road Machinery
 Conair Aviation Ltd.
 Ebco Aerospace
 Ernst Leitz Canada Limited
 Gabriel of Canada

General Kinetics Engineering Corp.
 Godfrey Aerospace
 Havlik Technologies Inc.
 Honeywell Limited
 John T. Hepburn Limited
 I.M.P. Group Ltd.
 Innotech Aviation Ltd.
 Inventronics Limited
 Irwin Industries Canada Limited
 Linamar Machine Limited
 LNS Systems Inc.
 Lucas Industries Canada Ltd.
 MBB Helicopter Canada Limited
 M.E.L. Defence Systems Ltd.
 MPB Technologies Inc.
 Northwest Industries Limited
 Paramax Electronics Inc.
 Price & Knott Manufacturing Company Limited
 Rockwell International of Canada Ltd.
 Shellcast Foundries Inc.
 SNC Defence Products Ltd.
 Standen's Limited
 Tenneco Canada Inc.
 U.D.T. Industries Inc.
 Ulstein Maritime Ltd.
 UTDC Inc.
 Valcom Ltd.
 Varian Canada Microwave Division
 Windsor Aerospace Limited

Top 20: 1985, 1988, 1989 and 1994

This table ranks the first 20 firms in order of 1989 corporate sales.

The pronounced stability of the sector is underlined by the fact that only three of these were not in the top 20 before 1985.

Similarly, the forecast indicates that only two will not make the 1994 list.

The top 20 firms typically account for about 80 percent of total sector sales.

Leading Aerospace/Defence Companies

Ranked By Sales	1985	1988	1989	1994
Pratt & Whitney Canada Inc.	1	1	1	2
Canadair — Bombardier Inc.	2	2	2	1
Boeing of Canada Ltd.	3	3	3	3
Litton Systems Canada Limited	5	4	4	9
McDonnell Douglas Canada Ltd.	4	5	5	4
CAE Electronics Ltd.	7	7	6	6
Canadian Marconi Company	11	13	7	10
Spar Aerospace Limited	6	6	8	7
General Electric Canada Inc.	—	8	9	12
Rolls-Royce Industries Canada Inc.	9	10	10	11
Bristol Aerospace Limited	10	14	11	18
Raytheon Canada Limited	8	11	12	—
Bell Helicopter Textron Canada	—	19	13	8
Standard Aero Limited	18	9	14	13
Computing Devices Company	13	12	15	17
Garrett Canada	12	15	16	14
Menasco Aerospace Ltd.	16	16	17	15
Devtek Corporation	—	18	18	20
Bendix Avelex Inc.	14	17	19	16
Walbar of Canada Inc.	15	—	20	—

