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## **Aerospace and Defence-Related Industries Statistical Survey Report - 1991**

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**Aerospace and Defence-Related Industries  
Statistical Survey Report - 1991**

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Aeronautics Branch  
Industry, Science and Technology Canada  
March 1992



## Introduction

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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 reaffirmed 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 that goes back many years. The Memorandum of Understanding was renewed for a further five years on April 15, 1991.

In April 1991, ISTC sent questionnaires to 83 companies with annual sales in excess of \$10 million. In total, 48 responses were received. ISTC has taken measures 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, also is included in the results.

As in previous years, companies have been assured that their individual returns will be held in the strictest confidence within the department, 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, better results are dependent upon a greater number of replies.

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. Although the response rate by this group of companies is improving, it is still not sufficient to allow further analysis. This aerospace and defence-related industries grouping is referred to subsequently as the composite sector.

## Summary

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The Canadian aerospace and defence-related industries continued to experience real growth in 1990. Further growth is projected for 1991 and for each year to 1995. However, the rate of growth is forecast to decrease in 1992 before increasing in 1993.

A positive outlook is shared by almost every firm reporting. Firms involved in commercial aircraft programs generally predict strong growth, however, defence-related firms are less optimistic.

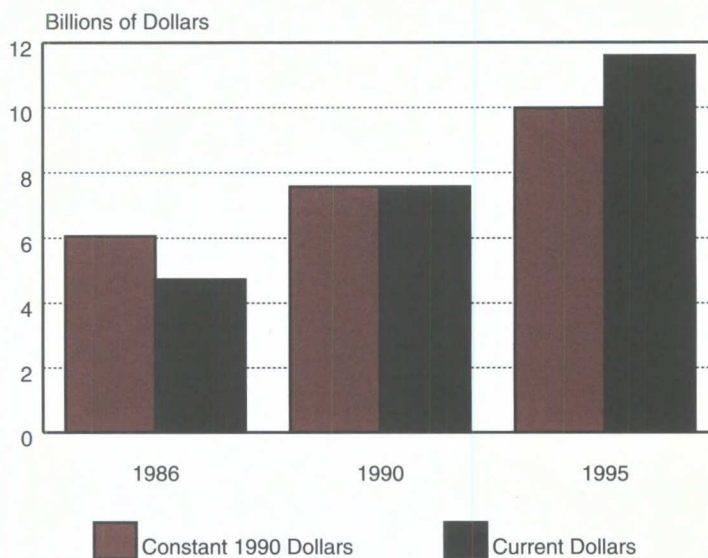
Apart from the degree of overall growth, projections for 1988 to 1993 do not indicate any abrupt trend changes. The sector is expected to remain predominantly civil, with output largely for export, with the U.S. as the largest single market area. While moderate changes are expected in the actual percentages for these primary characteristics, no profound

long-term shifting has been detected or is indicated as likely. Employment in 1990 was virtually the same level as in 1989 and is forecast to decline slightly in both 1991 and 1992. It is not until 1994 that employment will exceed the level of 1990. However, value added and sales per employee are forecast to continue to grow over the survey period, suggesting that productivity gains will continue.

**Note: many of the graphs include forecast data for the years 1991 through 1995.**

## Sales: 1986, 1990 and 1995 Constant 1990 Dollars vs. Current Dollars

In terms of current dollars, the composite sector is expected to grow from the 1986 level of \$4.7 billion to \$11.6 billion by 1995, an overall increase of 145 percent. Between 1986 and 1990, sales for the sector increased by 24 percent in constant dollars. Similar strong growth is projected for the years 1991 through 1995.



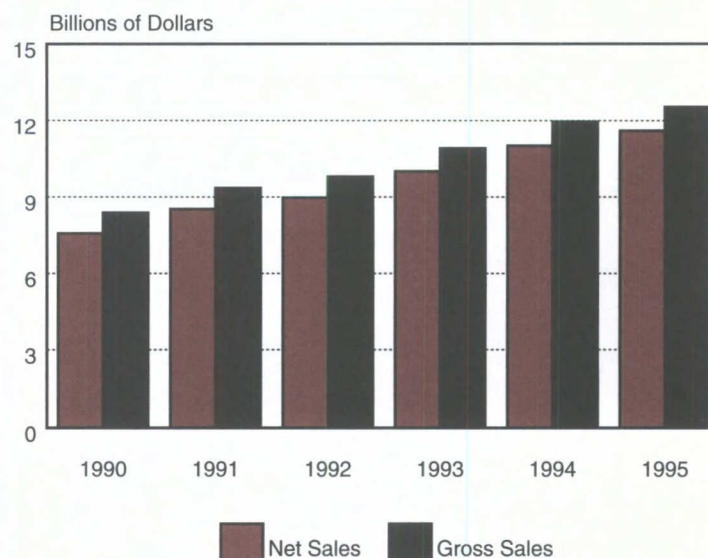
Millions of Dollars	1986	1990	1995
Constant 1990 Dollars	6 059	7 571	9 990
Current 1990 Dollars	4 726	7 571	11 588

## Sales: 1990 to 1995 Net Sales vs. Gross Sales (Current Dollars)

Net sales for the composite sector are forecast to grow for each year in the period under review. The actual net sales figure for 1990 was reported at \$7.6 billion, a 10-percent increase over 1989. The forecast growth rate for 1990 was 18 percent. The projection is \$8.5 billion for 1991, an increase of 12.6 percent. For 1992, however, forecast growth in net sales is expected to be only 5.3 percent.

By 1995, net sales are expected to be \$11.6 billion, or 150 percent of the 1990 level. Gross sales forecasts are not as optimistic as those made in last year's survey.

If an arbitrary inflation factor of 3 percent is applied, real growth of 5.9 percent annually is forecast over the next five years.



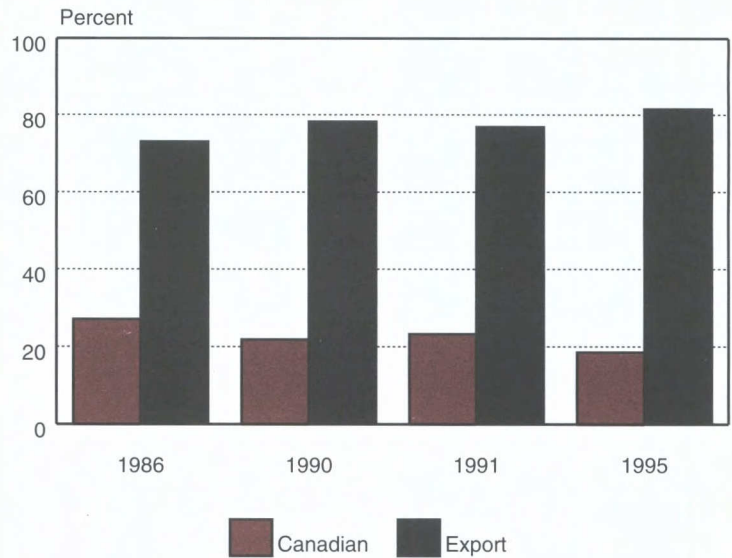
Millions of Dollars	1990	1991	1992	1993	1994	1995
Net Sales	7 571	8 521	8 972	10 009	11 005	11 588
Gross Sales	8 383	9 349	9 794	10 899	11 960	12 552

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 subcontractual in nature. Canadian supplier sales to other Canadian firms are deducted from the gross total.

## Sales: 1986, 1990, 1991 and 1995 Canadian vs. Export

International sales are projected to increase for each year in the period under review. In 1990, some 78.2 percent of net sales were exports, amounting to \$5.9 billion. The proportion is forecast to dip slightly in 1991, but increase thereafter to 81.5 percent by 1995, when \$9.4 billion in exports is predicted.

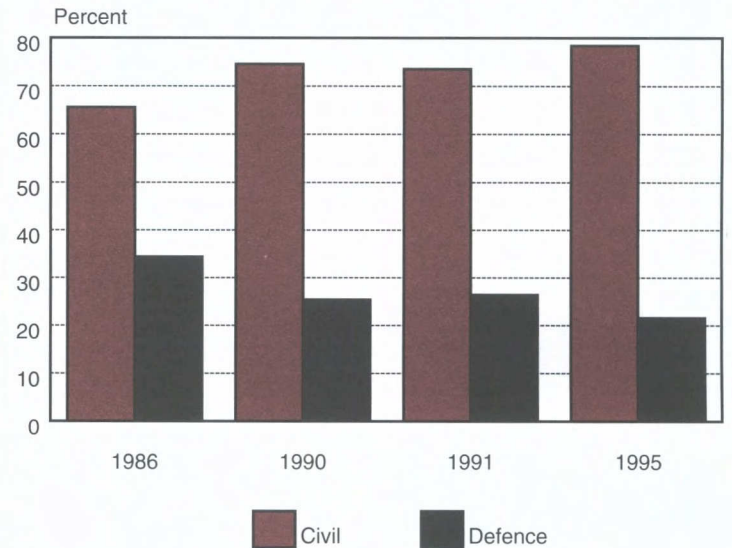
An 80-percent export figure was typical for the sector for many years but diminished in the last decade as a result of an increased level of domestic procurement. However, this period appears to have ended as exports will again represent about 80 percent of total net sales as 1995 draws closer.



Millions of Dollars	1986	1990	1991	1995
Canadian	1 278	1 653	1 980	2 141
Export	3 448	5 918	6 541	9 447
Total Net Sales	4 726	7 571	8 521	11 588

## Sales: 1986, 1990, 1991 and 1995 Civil vs. Defence

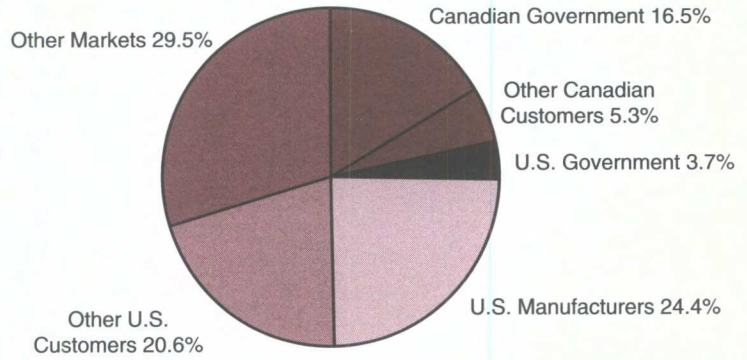
Although increasing in actual volume, defence sales are expected to continue to decline when expressed as a percentage of the overall total. In 1989, some 32.8 percent of net sales were defence sales, while in 1990 the percentage decreased to 25.4 percent. The forecast for 1991 is for a small increase in defence sales to 26.4 percent of total net sales, but percentage decreases are forecast for the following years to a 21.6-percent low in 1995. The survey indicates that the conversion of the composite sector from one based primarily on defence sales to one based on civilian markets is continuing.



Millions of Dollars	1986	1990	1991	1995
Civil	3 100	5 645	6 276	9 082
Defence	1 626	1 926	2 245	2 506
Total	4 726	7 571	8 521	11 588

## Sales by Customer: 1990

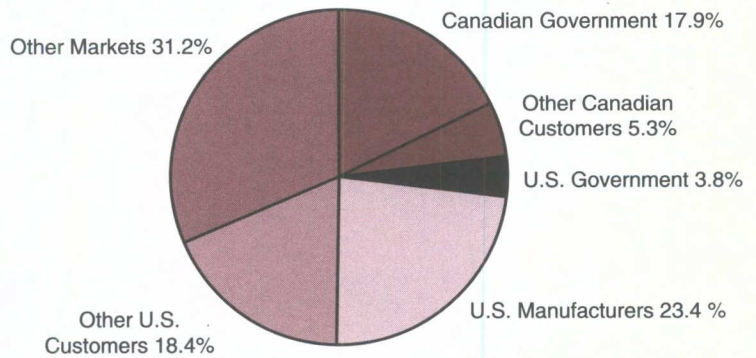
The market areas served by the industry showed a good degree of balance in that no single customer group accounted for more than 25 percent of the overall output. As in previous years, the U.S. (as a combined market area) remained in the principal position, buying nearly 50 percent of the overall sector output. As was forecast in last year's survey report, the market distribution shifted slightly, with sales to foreign and other markets increasing while those to Canadian markets decreased.



Millions of Dollars	1990
Canadian Government	1 251
Other Canadian Customers	402
U.S. Government	278
U.S. Manufacturers	1 847
Other U.S. Customers	1 559
Other Markets	2 234
Total	7 571

## Sales by Customer: 1991

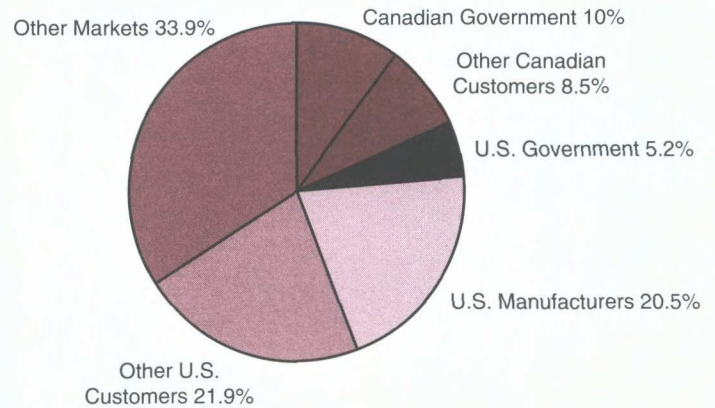
The market distribution for 1991 is expected to show a slight reduction in U.S. sales, with a corresponding increase in sales in domestic and other markets.



Millions of Dollars	1991
Canadian Government	1 525
Other Canadian Customers	455
U.S. Government	322
U.S. Manufacturers	1 996
Other U.S. Customers	1 565
Other Markets	2 658
Total	8 521

## Sales by Customer: 1995

Consistent with the trend toward increased exports, the U.S. market and other foreign markets are expected to show a fairly 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.



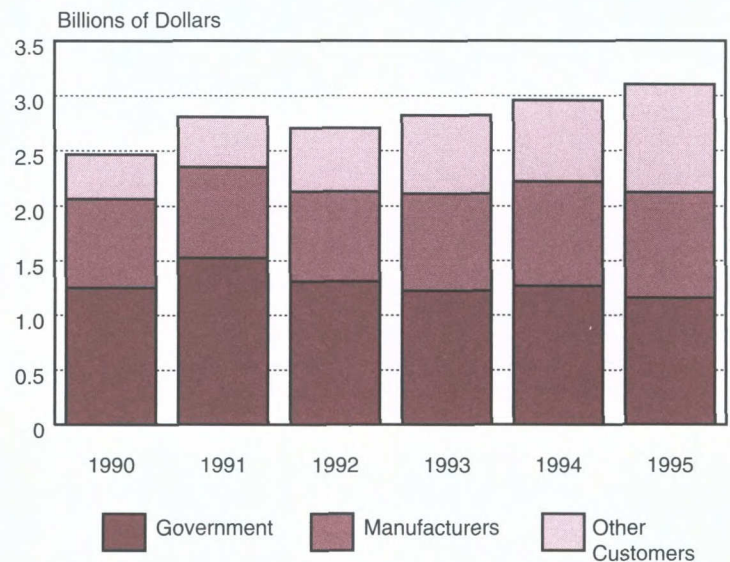
Millions of Dollars	1995
Canadian Government	1 159
Other Canadian Customers	981
U.S. Government	607
U.S. Manufacturers	2 371
Other U.S. Customers	2 543
Other Markets	3 927
<b>Total</b>	<b>11 588</b>

## Domestic Sales: 1990 to 1995

Growth in total domestic sales is forecast at almost 26 percent between 1991 and 1995. This is less than that for other market areas. It is similar in magnitude to the forecast growth rate of 23 percent for domestic sales as reported in the 1990 survey.

Inter-company sales are forecast to be relatively modest. While sales in the other customers grouping are expected to be almost double last year's figure, this is still the smallest domestic category.

Government procurement is predicted to shrink by 7 percent between 1991 and 1995, continuing a trend to lower sales in this area.

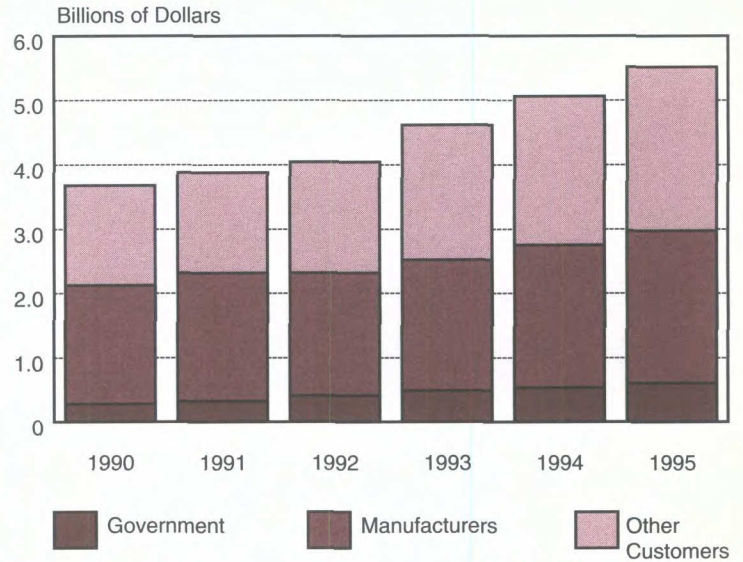


Millions of Dollars	1990	1991	1992	1993	1994	1995
Government	1 251	1 525	1 310	1 221	1 267	1 159
Manufacturers	813	827	821	890	955	964
Other Customers	402	455	577	712	738	981
<b>Total</b>	<b>2 466</b>	<b>2 807</b>	<b>2 708</b>	<b>2 823</b>	<b>2 961</b>	<b>3 104</b>



## U.S. Sales: 1990 to 1995

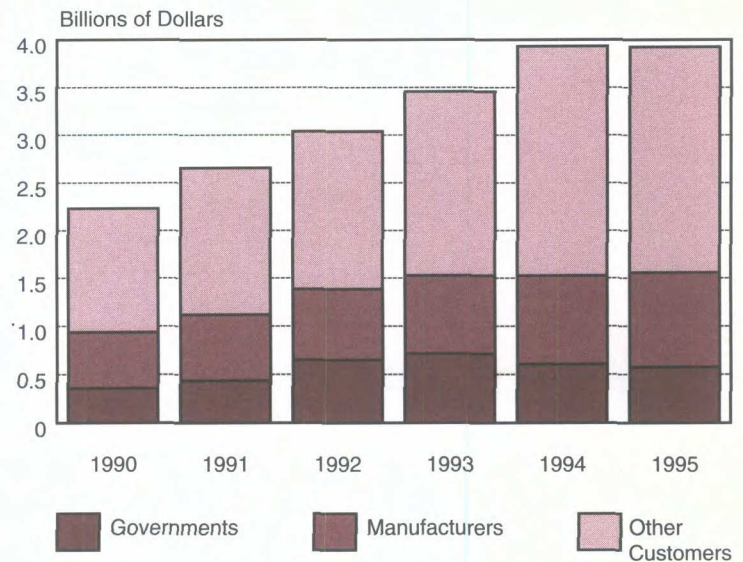
Sales to the U.S. are expected to increase by almost 50 percent between 1990 and 1995, principally due to growth in sales to the U.S. government, up 118 percent, and to other customers, up 63 percent. As stated elsewhere, the U.S. is expected to remain a principal market area, accounting for approximately 50 percent of entire Canadian output.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Government	278	322	411	491	537	607
Manufacturers	1 847	1 996	1 908	2 031	2 216	2 371
Other Customers	1 559	1 565	1 727	2 095	2 312	2 543
Total	3 684	3 883	4 046	4 617	5 065	5 521

## Foreign Sales: 1990 to 1995 Excluding the U.S.

Growth is expected in all three categories, however, the rates of increase are much more modest than those predicted in previous surveys, and more evenly distributed by customer category. For example, last year's survey projected sales to areas other than the U.S. and Canada to increase by 141 percent over the survey period; this year's forecast of 76 percent is much lower.

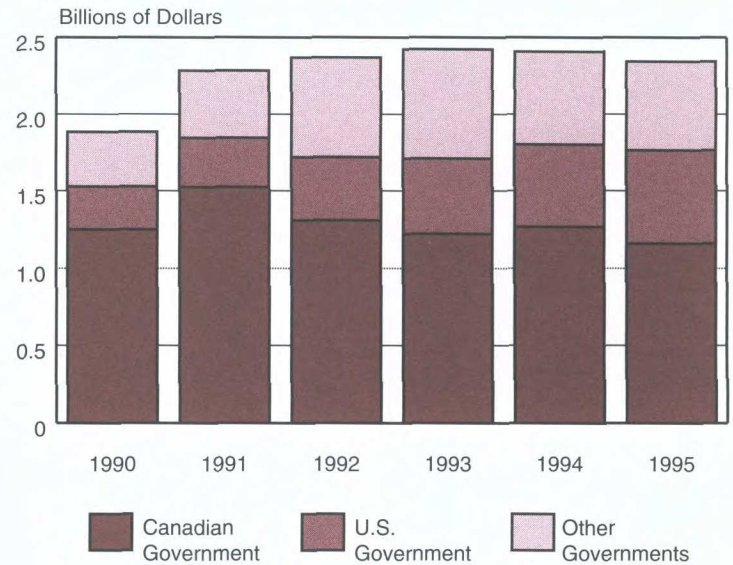


Millions of Dollars	1990	1991	1992	1993	1994	1995
Governments	357	435	648	712	605	576
Manufacturers	579	685	738	815	921	982
Other Customers	1 298	1 539	1 654	1 931	2 409	2 369
Total	2 234	2 659	3 040	3 459	3 935	3 927

## Sales to Governments: 1990 to 1995 Percentage of Total Net Sales

Combined sales to all governments decreased to 24.9 percent of net sales in 1990 from a level of 29.8 percent in 1989. Sales in this category are expected to increase slightly in 1991 and 1992, but a downward trend is forecast to continue thereafter, and sales are expected to fall to 20 percent of net sales by 1995.

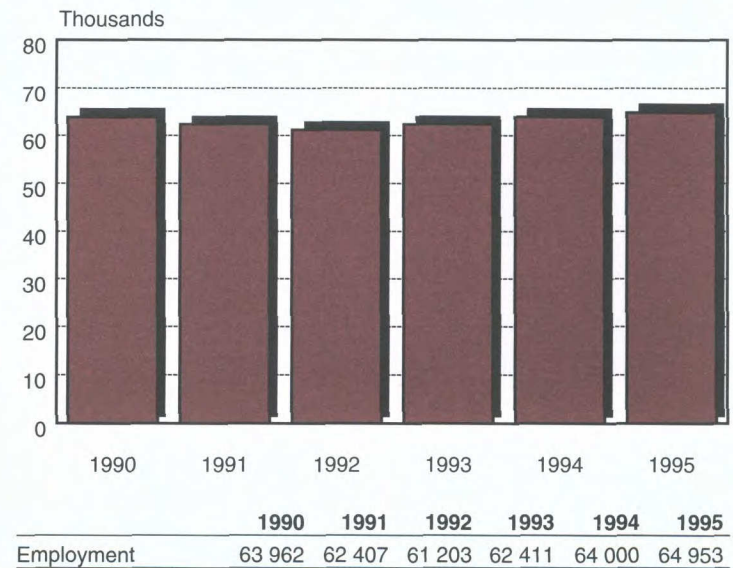
Canadian government procurement is expected to decrease from approximately 67 percent in 1990 to 49.5 percent in 1995. Other governments, as a group, has now replaced the U.S. government as the second most important area in this category. This trend is expected to reverse by the end of the forecast period when sales to the U.S. government will again exceed those to the other governments group.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Canadian Government	1 251	1 525	1 310	1 221	1 267	1 159
U.S. Government	278	322	411	491	536	607
Other Governments	357	435	648	713	605	576
Total	1 886	2 282	2 369	2 425	2 408	2 342
Percent of Net Sales	24.9	26.8	26.4	24.2	21.9	20.2

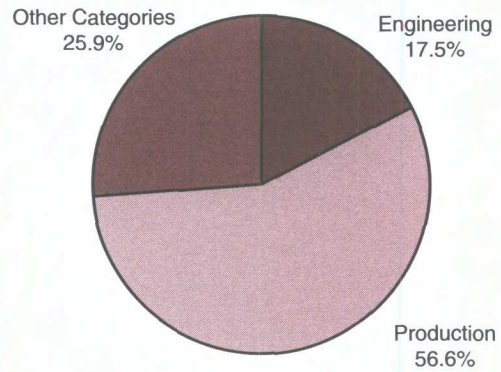
## Total Employment: 1990 to 1995

Total employment throughout the forecast period is very close to 1988 and 1989 levels. Unlike previous surveys, the 1991 survey predicts that employment will decline in both 1991 and 1992. It is not until 1994 that employment will exceed the 1990 level. Growth between 1991 and 1995 is forecast to be 1.5 percent, compared to last year's forecast of 15.4 percent. The higher forecast of growth in gross sales of almost 50 percent suggests that respondents anticipate that some productivity gains will be achieved during the forecast period.



## Employment by Category: 1990

More than half 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.

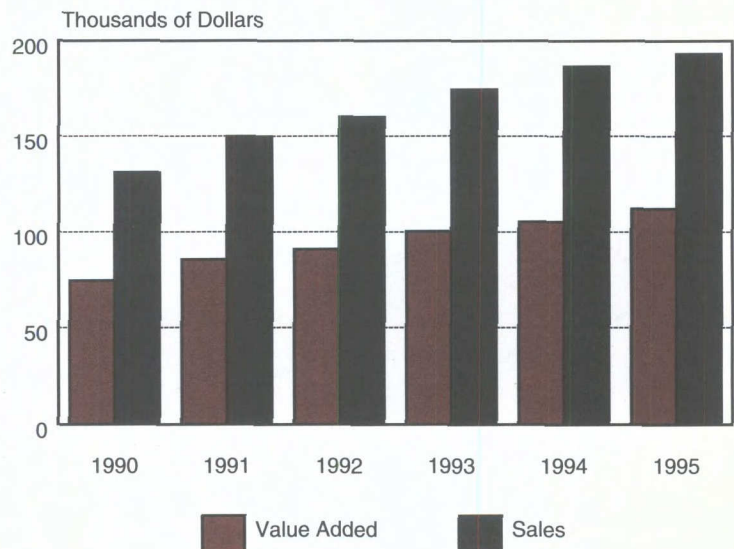


	1990
Engineering	11 210
Production	36 167
Other Categories	16 585
Total	63 962

## Sales and Value Added: 1990 to 1995 Per Employee

Sales per employee increased 8.6 percent over the 1989 level compared to a 9.1-percent increase in gross sales. Sales per employee is forecast to increase from the 1990 level of \$131 065 to \$193 242 by 1995.

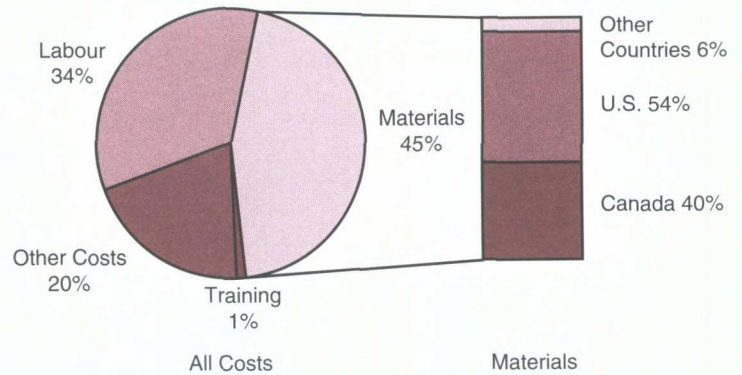
Value added per employee, which is derived by making an allowance for materials and supplies procurement, increased by 10.6 percent in 1990. Over the 1990 to 1995 period, the rate of growth in value added per employee is expected to be only slightly higher than that of sales per employee.



	1990	1991	1992	1993	1994	1995
Value Added	74 347	85 453	90 844	100 360	105 442	112 054
Sales	131 065	149 800	160 017	174 635	186 878	193 242

## Cost of Sales: 1990

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

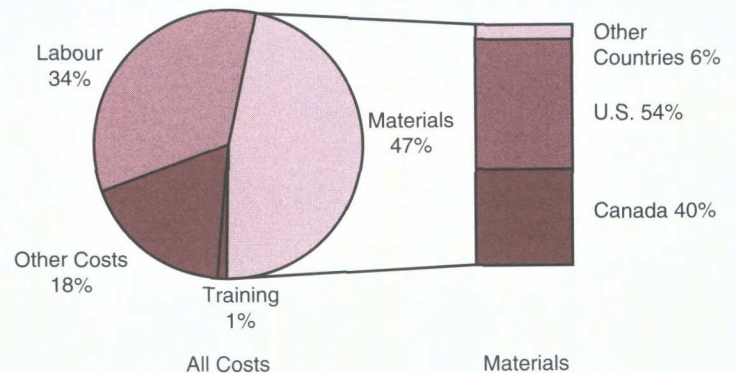


Millions of Dollars	1990
Labour	2 763
Materials	3 628
Training	33
Other Costs	1 658
Total	8 082

Millions of Dollars	1990
Canada	1 441
U.S.	1 978
Other Countries	209
Total	3 628

## Cost of Sales: 1991

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

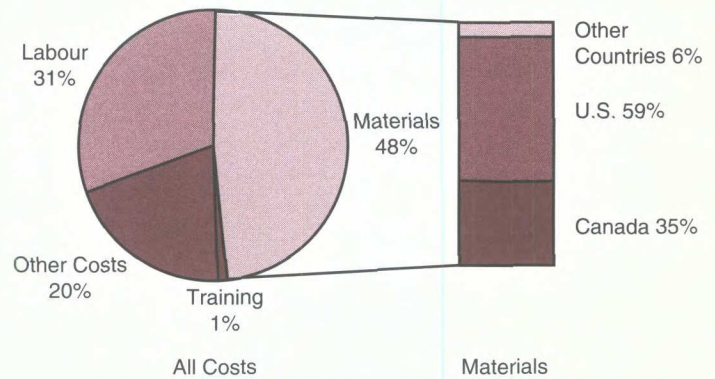


Millions of Dollars	1991
Labour	2 874
Materials	4 016
Training	32
Other Costs	1 525
Total	8 447

Millions of Dollars	1991
Canada	1 610
U.S.	2 149
Other Countries	257
Total	4 016

## Cost of Sales: 1995

A reduction in labour content to 31 percent of the total cost of sales and an increase to 48 percent in the cost of materials is expected. The U.S. share of total materials is expected to increase to 59 percent, with a corresponding decrease in the Canadian share.

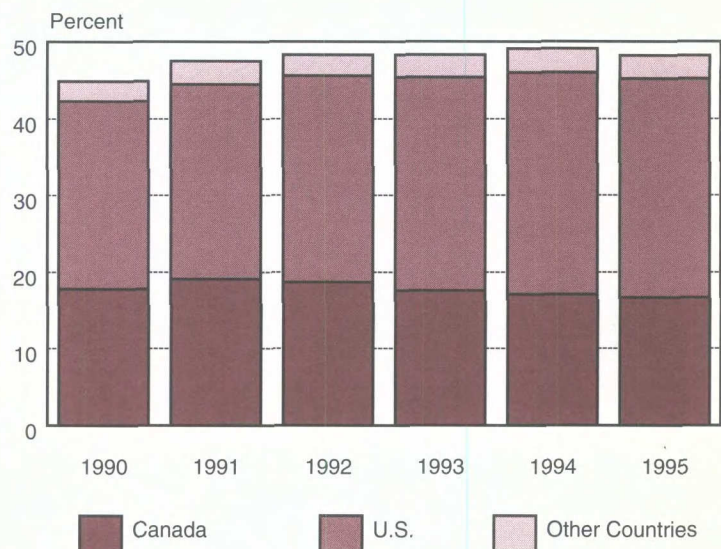


Millions of Dollars	1995
Labour	3 444
Materials	5 273
Training	49
Other Costs	2 162
Total	10 928

Millions of Dollars	1995
Canada	1 827
U.S.	3 115
Other Countries	331
Total	5 273

## Materials: 1990 to 1995 Percentage of Total Costs

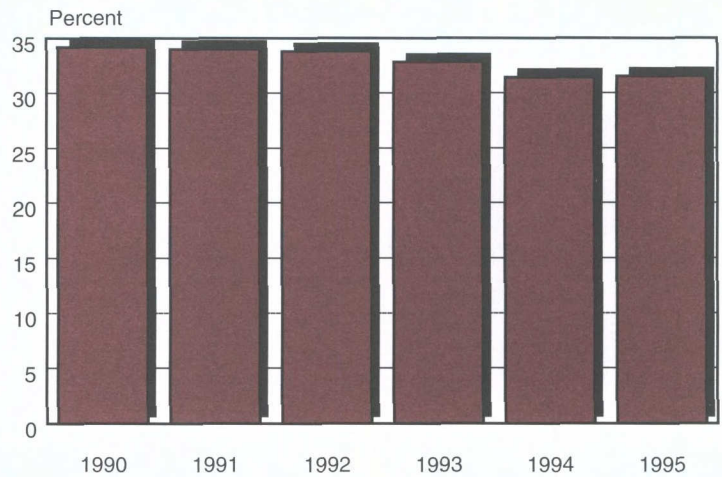
This further illustrates the anticipated increase in procured content in the total output of the composite sector on a year-by-year basis. The 1990 figure of 45 percent is forecast to increase to 48 percent by 1995. This trend is less severe than was forecast in previous years' surveys.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Canada	1 441	1 610	1 641	1 689	1 812	1 827
U.S.	1 978	2 149	2 357	2 670	3 067	3 115
Other Countries	209	257	235	276	333	331
Total Materials	3 628	4 016	4 233	4 635	5 212	5 273
Total Costs	8 082	8 447	8 753	9 600	10 612	10 928

## Labour Costs: 1990 to 1995 Percentage of Total Costs

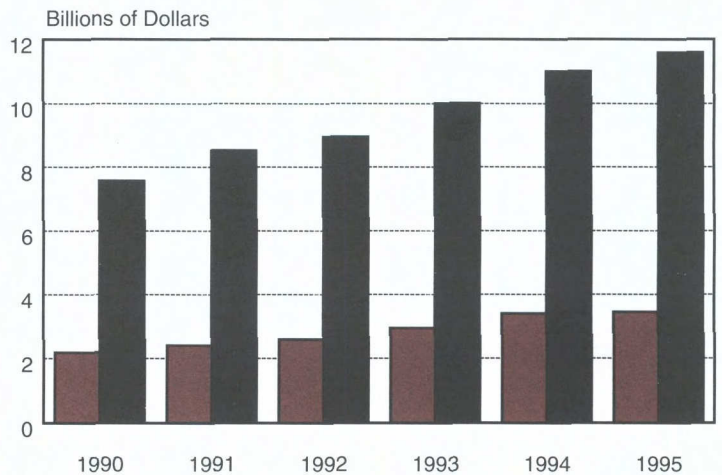
As already noted, labour costs are expected to account for progressively less of total costs, and the decline is expected to be steady for each year — from 34.2 percent in 1990 to 31.5 percent by the end of the period under review.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Labour	2 763	2 874	2 958	3 153	3 327	3 444
Total	8 082	8 447	8 753	9 600	10 612	10 928

## Sales and Purchases: 1990 to 1995 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 at 28.9 percent in 1990 and is expected to be 28.2 percent by 1995.

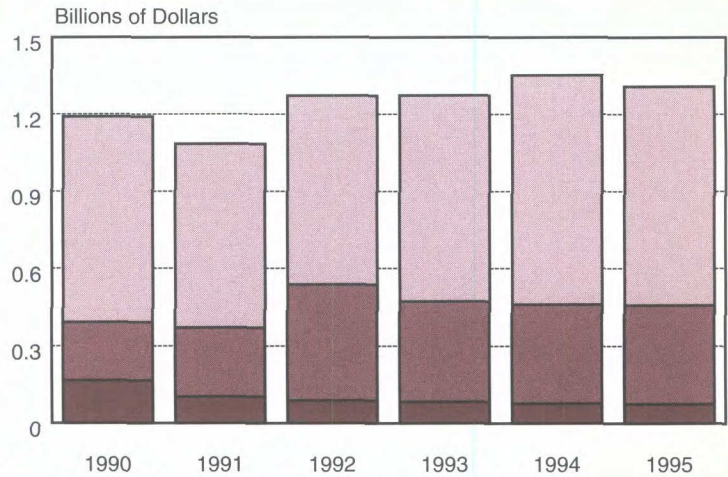


Millions of Dollars	1990	1991	1992	1993	1994	1995
Procurement	2 187	2 406	2 592	2 946	3 400	3 446
Net Sales	7 571	8 521	8 972	10 010	11 005	11 588

## New Investment: 1990 to 1995 Plant, Machinery, and Research and Development

Investment in plant, machinery and research and development (R&D) increased 5.4 percent over the 1989 level. A decrease in new investment is expected for 1991, however, subsequent years show a return to increased investment.

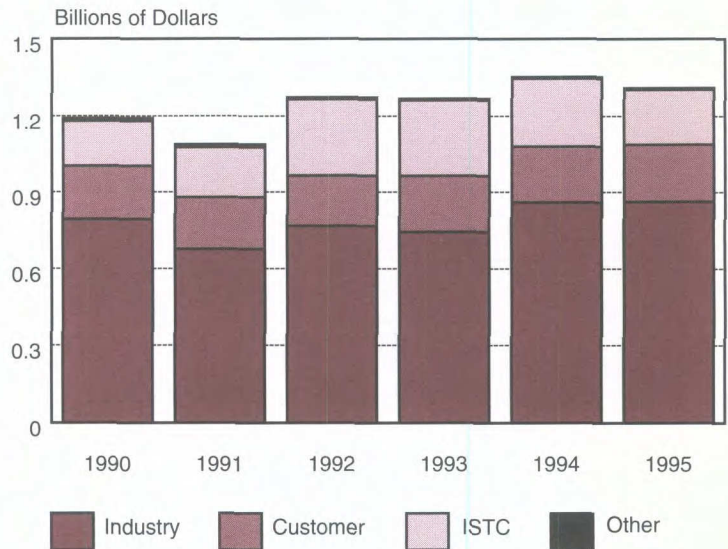
R&D is expected to remain the principal area for new investment, accounting for approximately 64 percent of the forecast totals. The remaining distribution of new investment is expected to change slightly, with machinery assuming a larger share of total investment while that in plant decreases.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Plant	167	104	88	84	77	75
Machinery	226	268	450	389	384	384
R&D	798	715	735	800	891	850
Total	1 191	1 087	1 272	1 273	1 352	1 309

## New Investment: 1990 to 1995 Sources of Funding

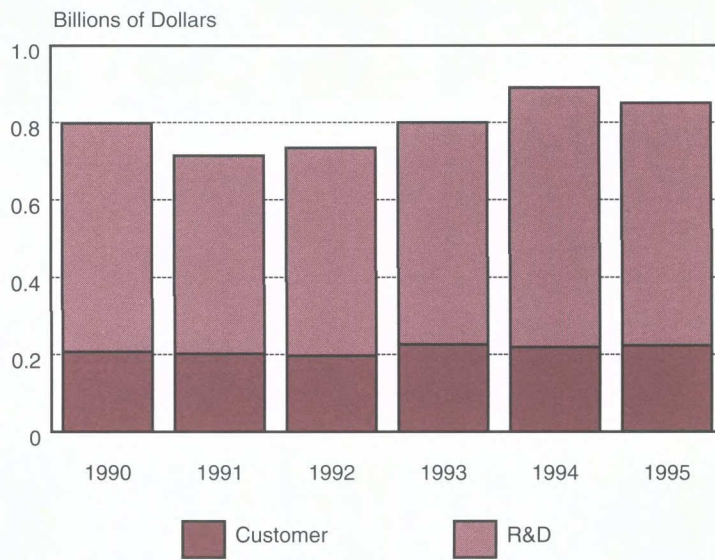
It is predicted that industry will continue as a leading investor, contributing over 60 percent of total new investment annually, while ISTC will account for some 20 percent as the next major contributor. Customers are now being looked to for a greater share of total investment.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Industry	794	677	768	744	860	863
Customer	208	203	197	226	219	224
ISTC	179	195	300	297	267	216
Other Government	10	12	7	6	6	6
Total	1 191	1 087	1 272	1 273	1 352	1 309

## Research and Development: 1990 to 1995 Funding by Customers

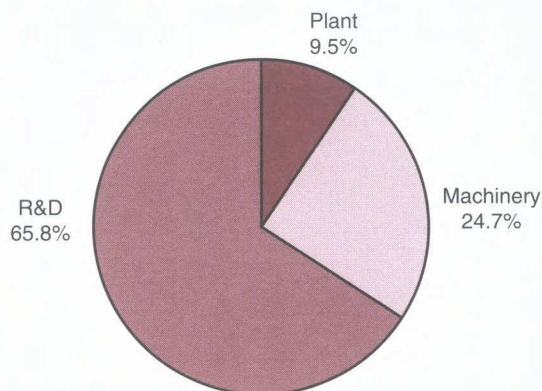
In 1990, some 26 percent of total R&D costs were borne by clients other than the federal government. The percentage reported in 1989 was 24 while in 1988 it was 17. This slightly increased level is expected to remain relatively stable over the forecast period.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Customer	208	203	198	226	220	224
Total R&D	799	715	735	800	891	851

## New Investment by Category: 1991

R&D is expected to be the principal area of new investment for 1991, accounting for nearly 66 percent of the total. This figure is approximately the same as previous years. New investment in 1991 is expected to total \$1.1 billion (including funds from ISTC's Defence Industry Productivity Program) or 12.8 percent of net sales.

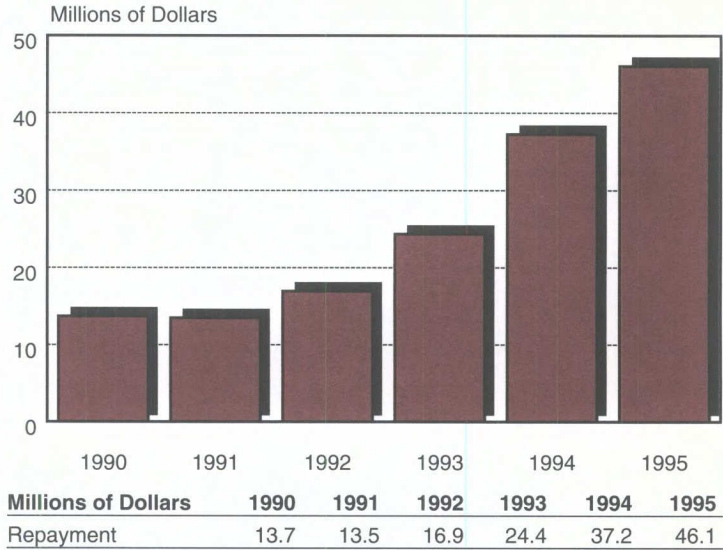


Millions of Dollars	1991
Plant	104
Machinery	268
R&D	715
Total New Investment	1 087



## Repayment: 1990 to 1995

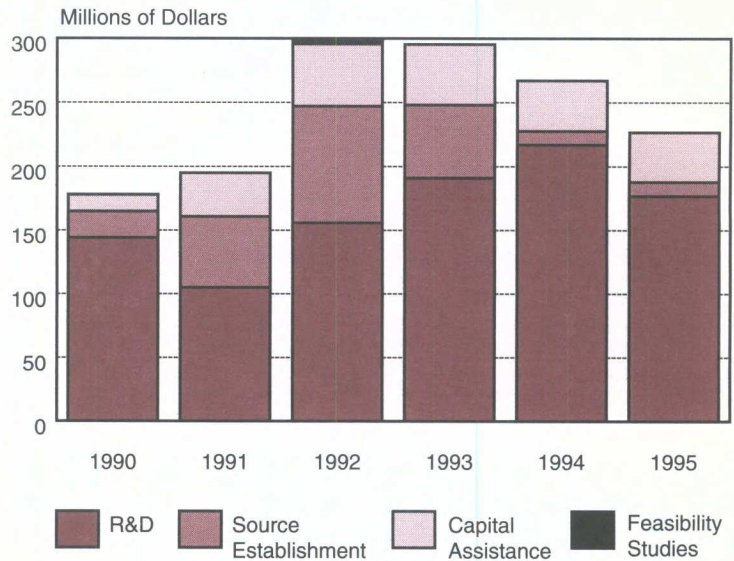
Repayment of federal government contributions is expected to grow in significance.



## ISTC Support: 1990 to 1995 Allocation of Defence Industry Productivity Program Funds

Requests for funding under the program are expected to increase significantly in 1992 and 1993, and then decrease somewhat.

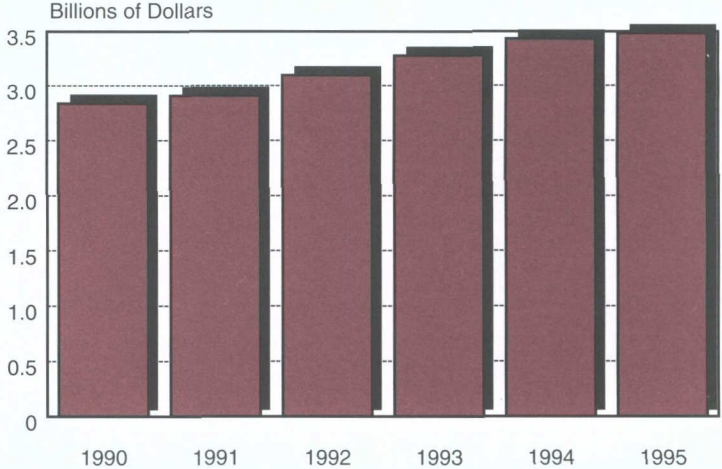
It appears that capital assistance and source establishment are understated over the 1991 to 1995 period. According to ISTC data on the program, these types of projects tend to account for a greater share of program spending than indicated by the forecast.



Millions of Dollars	1990	1991	1992	1993	1994	1995
R&D	144.0	105.3	156.8	191.9	217.2	177.1
Source Establishment	21.9	56.0	91.7	57.8	10.7	10.9
Capital Assistance	13.0	34.1	48.7	47.4	39.5	39.0
Feasibility Studies	0.2	0	2.7	0	0	0
Total	179.1	195.4	299.9	297.1	267.4	227.0

## Opening Inventory: 1990 to 1995

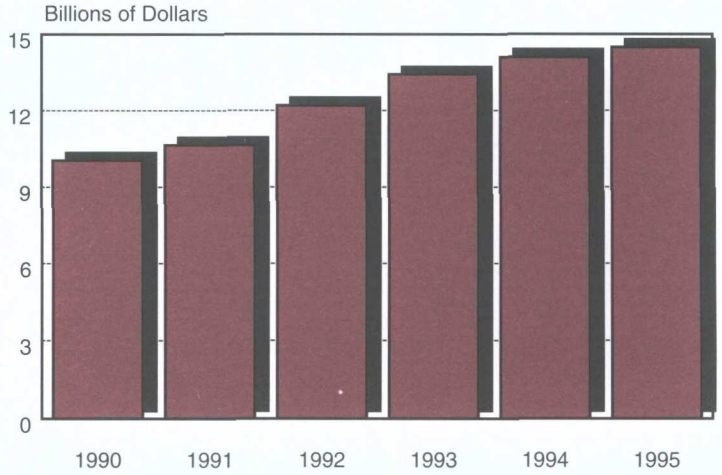
Opening inventory levels are expected to increase over the forecast period. The overall annual increase is expected to average 3.8 percent for a cumulative increase of 22.8 percent.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Inventory	2 838	2 908	3 100	3 278	3 433	3 484

## Year-end Backlog: 1990 to 1995

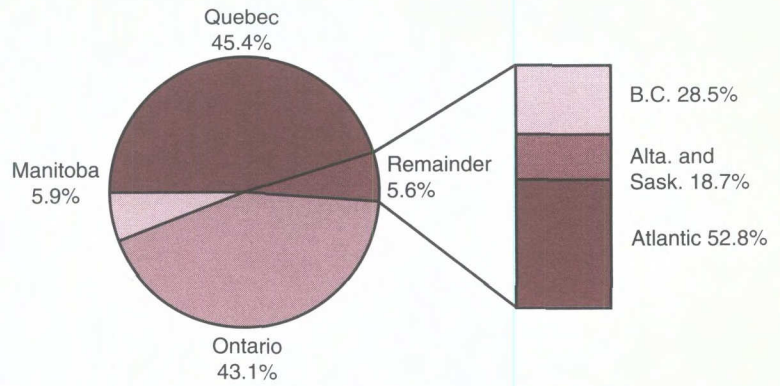
Year-end backlog increased 8.4 percent in 1990. It is expected to show a steady and substantial increase each subsequent year, averaging 7.7 percent for a cumulative increase of 44.3 percent over the survey period.



Millions of Dollars	1990	1991	1992	1993	1994	1995
Backlog	10 048	10 643	12 200	13 425	14 115	14 495

## Geographic Distribution of Sales: 1990

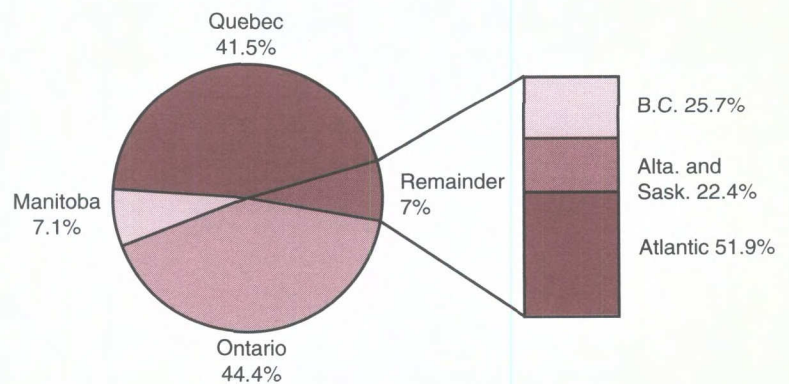
Sales were divided almost equally between Ontario and Quebec, which accounted for close to 90 percent of sales in the entire sector. While this is consistent with previous years, the share of sales earned by Quebec is increasing.



Millions of Dollars	1990
Atlantic	249
Quebec	3 804
Ontario	3 616
Manitoba	492
Alta. and Sask.	88
B.C.	135
<b>Total Gross Sales</b>	<b>8 384</b>

## Geographic Distribution of Employment: 1990

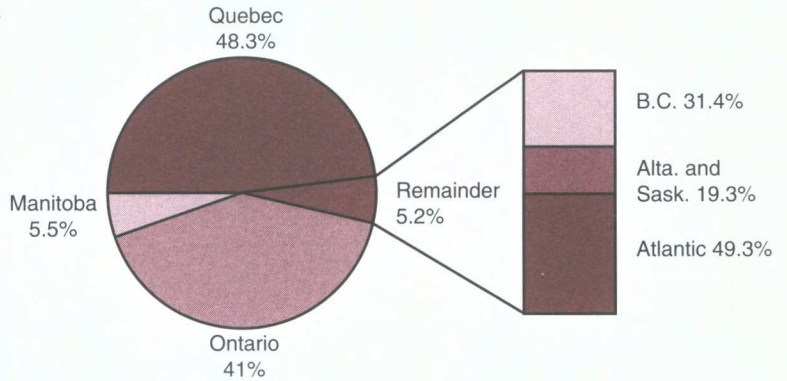
If employment is used as the unit of measurement for regional distribution, then the gap between Ontario and Quebec is more pronounced. Ontario has a larger share of total employment, which is attributable, at least in part, to a higher level of imported content in certain major end-products in Quebec.



	1990
Atlantic	2 318
Quebec	26 559
Ontario	28 374
Manitoba	4 562
Alta. and Sask.	1 001
B.C.	1 148
<b>Total</b>	<b>63 962</b>

## Geographic Distribution of Sales: 1991

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

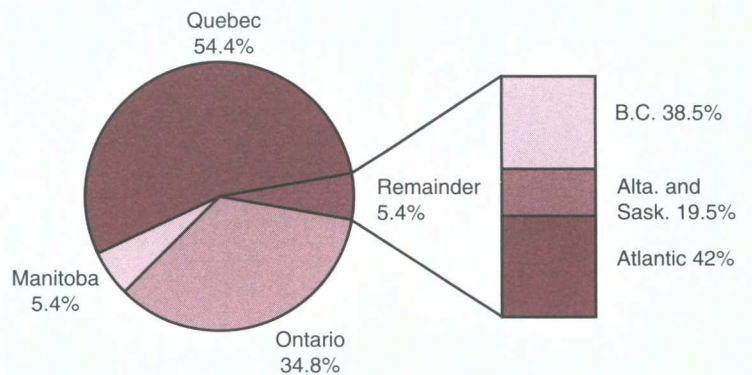


Millions of Dollars	1991
Atlantic	240
Quebec	4 514
Ontario	3 839
Manitoba	510
Alta. and Sask.	94
B.C.	152
Total Gross Sales	9 349

## Geographic Distribution of Sales: 1995

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 gap than has ever been in evidence. This contrast is partly attributable to very high growth forecasts for some of the major systems produced in Quebec. If employment were used as the unit of comparison, then the gap would be somewhat diminished.

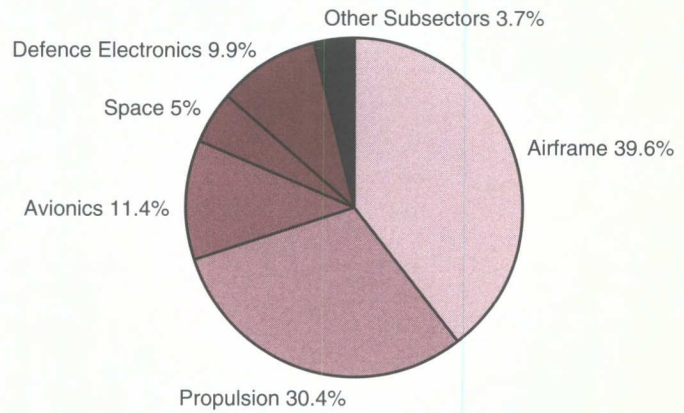
While larger in terms of actual size, the relative representation of the remainder of Canada is expected to diminish slightly.



Millions of Dollars	1995
Atlantic	284
Quebec	6 825
Ontario	4 371
Manitoba	680
Alta. and Sask.	131
B.C.	261
Total Gross Sales	12 552

## Sales by Subsector: 1990

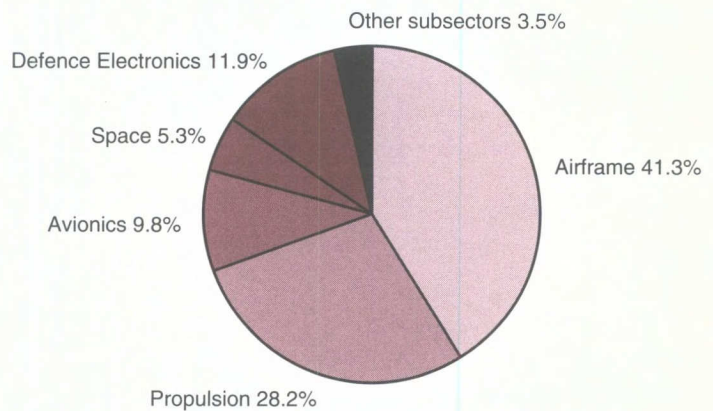
Based upon the distribution of sales, airframe is again the largest subsector. This is attributable to the very strong world market in civil transport. The share of sales held by this subsector has grown for the last two years.



Millions of Dollars	1990
Airframe	3 001
Propulsion	2 299
Avionics	864
Space	380
Defence Electronics	749
Other Subsectors	278
<b>Total Net Sales</b>	<b>7 571</b>

## Sales by Subsector: 1991

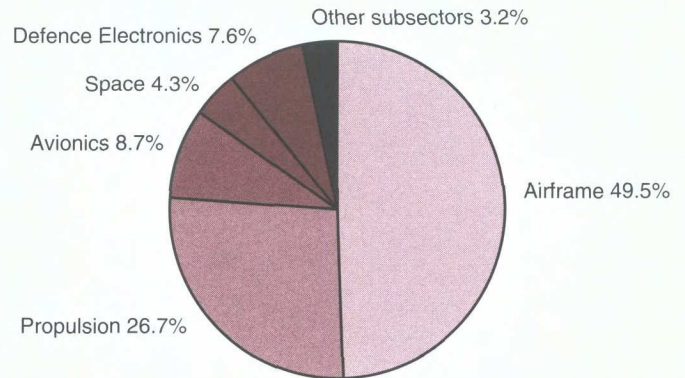
The projection for 1991 shows a further widening of the gap between the airframe and propulsion subsectors, as well as an increase in the defence electronics subsector.



Millions of Dollars	1991
Airframe	3 515
Propulsion	2 407
Avionics	837
Space	455
Defence Electronics	1 013
Other Subsectors	294
<b>Total Net Sales</b>	<b>8 521</b>

## Sales by Subsector: 1995

The end of the forecast period shows the airframe subsector in an even more dominant position, largely at the expense of the propulsion and defence electronics subsectors.

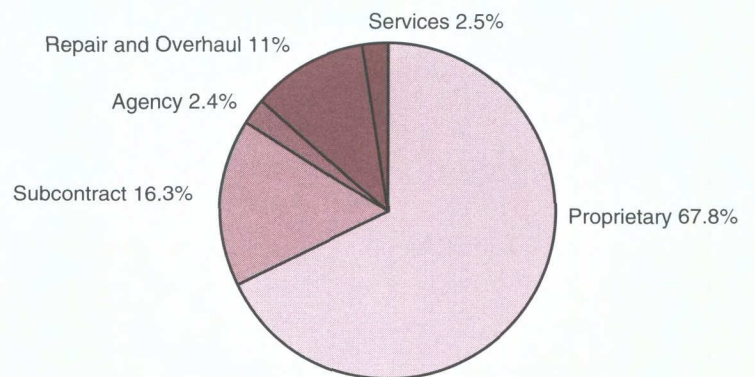


Millions of Dollars	1995
Airframe	5 735
Propulsion	3 095
Avionics	1 013
Space	493
Defence Electronics	883
Other Subsectors	369
Total Net Sales	11 588

## Sales by Product Category: 1990

Approximately 67 percent of overall output in 1990 was categorized as proprietary. This is in keeping with the general strategy of the composite sector, namely, specialization in highly select areas.

Spares constituted 19 percent of the total.

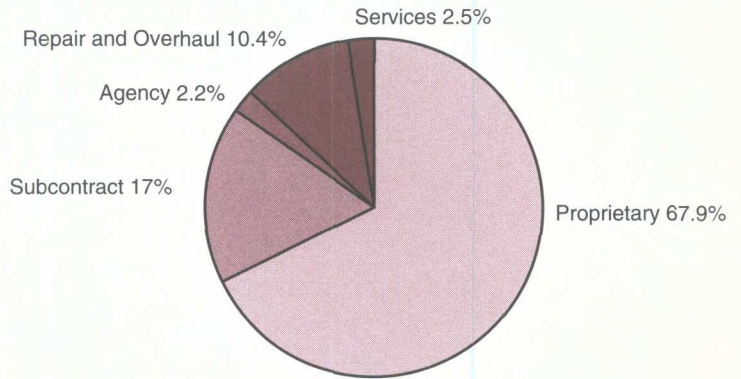


Millions of Dollars	1990
Proprietary	5 135
Subcontract	1 231
Agency	179
Repair and Overhaul	832
Services	194
Total Net Sales	7 571

## Sales by Product Category: 1991

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 subcontract category.

Spares are expected to constitute 18 percent of the total.



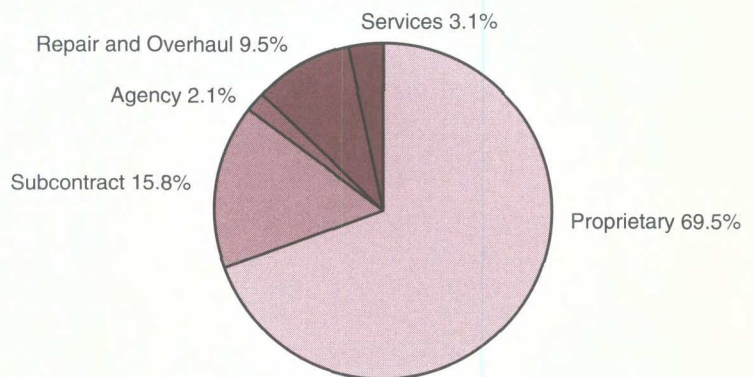
Millions of Dollars	1991
Proprietary	5 782
Subcontract	1 451
Agency	187
Repair and Overhaul	888
Services	213
Total Net Sales	8 521

## Sales by Product Category: 1995

The trend is expected to continue to 1995, with proprietary products commanding an even 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 18 percent of the total.



Millions of Dollars	1995
Proprietary	8 055
Subcontract	1 830
Agency	239
Repair and Overhaul	1 099
Services	365
Total Net Sales	11 588

## Survey Responses: 1991

### Responses Received

Aircraft Appliances & Equipment Limited  
 Amherst Aerospace Inc.  
 Andrew Canada Inc.  
 Bell Helicopter Textron Canada  
 Boeing Canada, de Havilland Division  
 Boeing of Canada Technology Ltd. (Winnipeg)  
 Boeing of Canada Technology Ltd. (Amprior)  
 CAE Electronics Ltd.  
 CAL Corporation  
 Canadair — Bombardier Inc.  
 Canadian Marconi Company  
 Cercast, a division of Howmet  
 Cercast (Canada), Inc.  
 Champion Road Machinery Limited  
 Chicopee Manufacturing Limited  
 Computing Devices Company  
 Dowty Aerospace Montreal  
 Dowty Aerospace Toronto  
 DY-4 Systems Inc.  
 Ebc Industries Limited  
 Field Aviation Company Inc.  
 Fleet Industries  
 Garrett Canada, a division  
 of Allied-Signal Canada Inc.  
 General Electric Canada Inc.  
 General Motors of Canada Ltd. — Diesel Division  
 Haley Industries Limited  
 Hawker Siddeley Canada Inc. — Orenda Division  
 Héroux Inc.

IMP Group Ltd.— Aerospace Division  
 Indal Technologies Inc.  
 Innotech Aviation Limited  
 Inventronics Limited  
 Irvin Industries Canada Limited  
 Litton Systems Canada Limited  
 Lucas Aerospace Inc.  
 MacDonald Dettwiler and Associates Ltd.  
 McDonnell Douglas Canada Ltd.  
 Menasco Aerospace Ltd.  
 MPR Teltech Ltd.  
 Northwest Industries Limited  
 Oerlikon Aerospace Inc.  
 Paramax Electronics Inc.  
 Pratt & Whitney Canada Inc.  
 Raytheon Canada Limited  
 Robert Mitchell Inc.  
 Spar Aerospace Limited  
 Standard Aero Limited  
 Unisys Canada Inc.  
 Walbar of Canada Inc.

### Non-Responsive

Amtech Corporation  
 ATS Automation Tooling Systems Inc.  
 Avcorp Industries  
 Bendix Avelex  
 Bristol Aerospace Limited  
 Calian Technology  
 Canada Foremost Ltd.

Canada Forgings Inc.  
 Com Dev Ltd.  
 Conair Aviation Ltd.  
 Devtek Corporation  
 Ernst Leitz Canada Limited  
 Fag Bearings Ltd.  
 Gabriel of Canada  
 General Kinetics Engineering Corp.  
 Godfrey Aerospace Inc.  
 Havlik Technologies Inc.  
 John T. Hepburn Limited  
 Linamar Machine Limited  
 LNS Systems Inc.  
 MBB Helicopter Canada Limited  
 M.E.L. Defence Systems Ltd.  
 MPB Technologies Inc.  
 Rolls-Royce (Canada) Limited  
 SED Systems Inc.  
 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, 1989, 1990 and 1995

This table ranks the first 20 firms in order of 1990 corporate sales.

The pronounced stability of the sector is underlined by the fact that only three of these are newcomers since 1985.

Similarly, the forecast indicates that only two will not make the 1995 list.

The top 20 firms now account for almost 85 percent of total sector sales.

### Leading Aerospace/Defence Companies

Ranked By Sales	1985	1989	1990	1995
Pratt & Whitney Canada Inc.	1	1	1	2
Boeing of Canada Ltd.	3	3	2	7*
Canadair — Bombardier Inc.	2	2	3	1*
McDonnell Douglas Canada Ltd.	4	5	4	3
Litton Systems Canada Limited	5	4	5	11
CAE Electronics Ltd.	7	6	6	5
Spar Aerospace Limited	6	8	7	6
Bell Helicopter Textron Canada	-	13	8	4
Rolls-Royce Industries Canada Inc.	9	10	9	8
Canadian Marconi Company	11	7	10	10
Bristol Aerospace Limited	10	11	11	19
General Electric Canada Inc.	-	9	12	9
Standard Aero Limited	18	14	13	12
Garrett Canada	12	16	14	15
Raytheon Canada Limited	8	12	15	-
Computing Devices Company	13	15	16	16
Menasco Aerospace Ltd.	16	17	17	13
Bendix Avelex	14	19	18	18
Devtek Corporation	-	18	19	20
Walbar of Canada Inc.	15	20	20	-

\* reflects purchase of de Havilland by Bombardier Inc.





