

## Alberta's High-Tech Industry

### Background

The OECD identifies high-tech industries based upon the intensity of R&D within each industry. Using this method, the OECD considers the following six industries as high-tech:

- |                                   |                           |
|-----------------------------------|---------------------------|
| 1) Aircraft/Aerospace             | 4) Drugs and Medicines    |
| 2) Office and Computing Equipment | 5) Scientific Instruments |
| 3) Communications Equipment       | 6) Electrical Machinery   |

Using the North American Industrial Classification System (NAICS), these six industries can be grouped into four categories.

- Aerospace Products and Parts
- Pharmaceutical and Medicine
- Electrical Equipment
- Computer and Electronic (includes communications equipment and scientific instruments)

NAICS data is examined below to review Alberta's high-tech sector within Canadian context.

### Summary

- Alberta's high-tech manufacturing has increased from 3.7% of Canada's total high-tech manufacturing shipments in 1995 to 4.5% in 2001.
- Between 1995 and 2001, Alberta's Communications, Office and Computing, and Electrical Equipment industries increased as a share of Canada's total high-tech sector. Alberta's Aircraft/Aerospace and Drugs and Medicines categories experienced slow growth compared to other provinces, resulting in slight decreases in their shares of Canada's total.
- Alberta's Computer and Electronics manufacturing industry made up 77.9% of Alberta's total high-tech sector in 2001, down from 84.7% in 1985, Electrical Equipment made up most of the difference, increasing from 6.4% in 1995 to 11.8% in 2001
- Alberta's Business Services sector, which includes software products development, professional and processing computer services, and computer lease and rentals, has experienced strong growth in the last decade, increasing from 4.0% of GDP in 1991 to 6.0% in 2000.

## High-Tech Manufacturing

Below is a table showing Alberta and Ontario's share of total Canadian high-tech manufacturing for each NIACS category.

Source: Statistics Canada

Manufacturing Categories (NAICS codes)	Province	% of Cdn Total <b>1995</b>	% of Cdn Total <b>1998</b>	% of Cdn Total <b>2001</b>
<b>Aerospace Products and Parts (336410)</b>	Alberta	1.6	1.8	1.5
	Ontario	25.8	29.9	24.0
<b>Pharmaceutical and Medicine (3254)</b>	Alberta	0.7*	0.7	0.6
	Ontario	51.5	47.2	42.9
<b>Electrical Equipment (335)</b>	Alberta	1.3	2.2	3.0
	Ontario	62.3	60.7	58.7
<b>Computer and Electronic (334)</b>	Alberta	5.9	8.8	7.8
	Ontario	64.0	51.4	54.3
<b>Total High-Tech</b>	Alberta	3.7	5.5	4.5
	Ontario	56.1	48.4	45.9

\*Due to data limitations, 1997 data is used

The largest growth for Alberta, in both dollars and as a share of Canada's total, came from Electrical Equipment manufacturing. The nominal value of Electrical Equipment manufacturing tripled, increasing from 100 million dollars in 1995 to 300 million dollars in 2001. As a share of Canada's total, Alberta's Electrical Equipment manufacturing industry increased from 1.3% in 1995 to 3.0% in 2001. Alberta's share of total Canadian Computer and Electronics manufacturing also showed strong growth, increasing from 5.9% in 1995 to 7.8% in 2001. Alberta's share of Canada's total high-tech sector increased from 3.7% in 1995 to 4.5% in 2001.

The table below shows how the composition of Alberta's high-tech industry has changed between 1995 and 2001.

Source: Statistics Canada

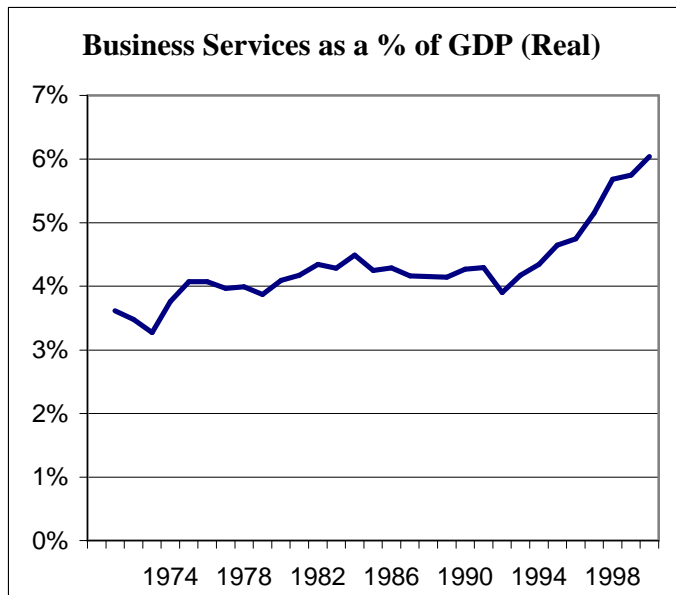
Manufacturing Categories (NAICS codes)	% Of Alberta's Total <b>1995</b>	% Of Alberta's Total <b>1998</b>	% Of Alberta's Total <b>2001</b>
<b>Aerospace Products and Parts</b>	6.8	6.6	8.8
<b>Pharmaceutical and Medicine</b>	2.1*	1.2	1.5
<b>Electrical Equipment</b>	6.4	7.1	11.8
<b>Computer and Electronic</b>	84.7	85.1	77.9

\* Due to data limitations, 1997 data is used.

Computer and Electronics manufacturing is by far the largest component of Alberta's high-tech industry. However, since 1995 it has decreased as a share of the total. Electrical equipment has steadily increased its share of Alberta's total since 1995. Aerospace Products and Parts manufacturing has seen only moderate increases in its share of Alberta's total high-tech sector over the same period.

### Alberta's Business Services Industry

Between 1971 and 2000 Alberta's real business services increased from 3.6% to 6.0% of GDP. Business services include Software products development, professional and processing computer services, and computer lease and rentals<sup>1</sup>. The majority of growth in this sector has occurred in the last 10 years with an increase from 4.0% of GDP in 1991 to 6.0% in 2000. Alberta's emergence as a world leader in software development for the oil and gas industry has contributed to this growth along with growth in the multimedia and educational software industries.



Source: Alberta Economic Accounts

### Conclusion

Alberta's high-tech manufacturing sector increased from 3.7% of Canada's total high-tech manufacturing in 1995 to 4.5% in 2001. Strong computer and electronic, and electrical industries are the main factors making Alberta's high-tech sector one of the fastest growing non-energy components of provincial GDP. High-tech services have also experienced strong growth, in large part, due to the booming oil and gas industry.

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<sup>1</sup> Business services also include architect, engineering, & scientific, accounting & legal, advertising, and courier services which are not considered high-tech.