

Decade in Review **INDUSTRIAL RESEARCH IN CANADA**

ROLLERCOASTER DECADE

What a rollercoaster decade it has been for industrial research in Canada. The decade spanned the heady days of the tech boom and the depths of the recession. Brand-name companies – many of them stalwarts on the industrial research scene – have disappeared due to mergers, acquisitions and bankruptcies. Other firms have risen to take their place.

Take the case of Nortel Networks Corporation. In Fiscal 1999, Nortel was by far Canada's largest R&D spender, dedicating over \$4.55 billion to worldwide research. In other words, this one company accounted for a substantial portion of all spending on research by all firms. In Fiscal 2009 – probably Nortel's final year on the *Top 100 Corporate R&D Spenders List* – this disappearing firm posted \$864.5 million of R&D spending. Meanwhile, Research In Motion has stepped up to the plate, boosting its own R&D spending from only \$18.2 million in Fiscal 1999 to \$1.1 billion today, therefore occupying the top position among the leading R&D companies.

In Fiscal 1999, the total of Nortel and RIM's R&D spending was \$4.57 billion. In Fiscal 2009, the total was \$1.97 billion. In other words, all the other performers

needed to make up nearly \$2.6 billion of "lost" research in order for Canada's total spending to stay even (with no accounting for inflation); a tough chore indeed, when the average company spending is running at about \$0.8 million today.

But the bottom line is that at the end of the decade total research spending by all companies in Canada (including the Top 100 Corporate R&D Spenders) is not appreciably higher than it was ten years ago, even though many more firms (over 20,000 today compared with fewer than 10,000 ten years ago) appear to be engaged in research. Corporate revenues were generally rising throughout the period.

A RAY OF SUNSHINE

There have been some positive developments over the decade. One is that for Fiscal 1999 RESEARCH Infosource reported only 11 Top 100 companies with R&D spending with \$100 million or more. In Fiscal 2009, that number has doubled to 22 companies. However, the 11 companies spent a total of \$6.25 billion on research in Fiscal 1999, compared with the total R&D spending of \$7.42 billion by the Fiscal 2009 *\$100 Million Club* members. A number of firms – Pratt and Whitney Canada is a good

example – continue to spend at high levels year after year.

NEW LEADERS EMERGE

Many firms have made admirable progress in boosting their investments in research over the decade. Take TELUS Corporation as an example. In Fiscal 1999, this telecommunication services company reported spending only \$2.5 million on research compared with \$653 million in Fiscal 2009 – an increase of 26,020%. Not far behind was Research In Motion, which boosted its R&D spending during this period by 5,964.1% largely on internal growth, and Suncor Energy, which increased its spending by 5,132.9%, partly on the strength of acquisitions.

Research is far less concentrated today among the largest performers than 10 years ago, meaning the country is not as dependent on the performance of a single large company. According to Statistics Canada, which tracks all R&D performers – in 1999 the 100 largest Canadian performers accounted for 63% of total R&D spending, compared with only 53% in 2009.

REST-IN-PEACE

Many household names on the Canadian technology scene at the beginning of the

decade are no longer with us. Most were acquired by foreign or Canadian companies. Many of these continue to operate in Canada under different corporate ownership. Others went (or are going) bankrupt. In some instances, acquirers maintained the Canadian R&D operations at their former level. In others, R&D was reduced, and in some instances it ceased altogether. Capitalism is an inherently messy system, but it is always troubling when technology stars leave the scene.

WITHER INDUSTRIAL RESEARCH?

The federal government has announced plans to review the industrial research scene, including incentives provided to companies for research. Policymakers will need to sift through considerable data in order to understand the underlying dynamics and future possibilities. Whereas industrial research used to be the preserve of large manufacturing firms (and to some extent resource companies) with in-house laboratories, the changing composition of the economy means almost half of all 20,000 industrial R&D performers are now in the services

sector. R&D means different things to this sector and incentive programs have been slow to adjust to this reality.

They will also need to balance the bad news – no overall growth in research spending – against the good news – more companies apparently engaged in research. A particular issue is to review Canada's aging and fragmented system of research incentives, and most importantly, figure out how to change the balance of incentives from indirect support through the tax system to direct support through managed funding programs such as IRAP. A further challenge is to activate the potential of research in the social sciences and humanities, which is currently excluded from government commercialization support.

A strong base of industrial research (or university research for that matter) is a necessary condition for economic and social progress. It is not, however, a sufficient condition. The bottom line is ... the bottom line: Producing high quality made-in-Canada commodities, goods and services that the world wants at prices it is willing to pay. That's our real long-term challenge

The \$100 Million Club

2009 Rank	Company	R&D Expenditures \$000	1999 Rank	Company	R&D Expenditures \$000
1	Research In Motion ⁺⁺⁺	\$1,101,848	1	Nortel Networks*	\$4,548,034
2	Nortel Networks*	\$864,494	2	Pratt & Whitney Canada (fs)	\$335,000
3	BCE	\$806,000	3	Atomic Energy of Canada	\$203,568
4	TELUS	\$653,000	4	Ericsson Canada (fs)	\$200,552
5	IBM Canada (fs)	\$556,500	5	ATI Technologies ⁺⁺	\$171,149
6	Magna International*	\$553,870	6	Magna International*	\$167,895
7	Pratt & Whitney Canada (fs)	\$398,000	7	Mitel	\$149,800
8	Atomic Energy of Canada	\$393,051	8	CAE	\$128,273
9	Alcatel-Lucent (fs)	\$224,000	9	Bombardier ⁺⁺	\$132,200
10	Ericsson Canada (fs)	\$197,000	10	Hydro-Québec	\$110,072
11	Apotex	\$188,773	11	Geac Computer Corporation ⁺	\$102,240
12	sanofi-aventis Group (fs) ⁽¹⁾	\$181,621			
13	Suncor Energy	\$172,687			
14	Bombardier ⁺⁺⁺	\$161,022			
15	GlaxoSmithKline Canada (fs)	\$110,000			
16	Biovail ⁺⁺	\$137,935			
17	Open Text*	\$132,659			
18	CAE	\$121,647			
19	Ontario Power Generation	\$112,000			
20	Novartis Pharmaceuticals Canada (fs)	\$110,000			
21	Pfizer Canada (fs)	\$109,378			
22	Hydro-Québec	\$100,000			
	Total	\$7,423,298		Total	\$6,248,783

Notes: *Converted to CDN\$ at annual average 2009 = \$1.1420, 1999 = \$1.4858 (Bank of Canada)
 +Not current name ++Fiscal 2010/Fiscal 2000 results were used for year ended January or February
 fs = Foreign subsidiary (includes R&D expenditures for Canadian operations only)
 (1) Includes sanofi-aventis Canada Inc. and Sanofi Pasteur Limited.

RIP... A Small Selection of Canadian Corporate R&D Heroes

Company	Merger/Acquisition
724 Solutions	Foreign
Alcan	Foreign
Allelix Biopharmaceuticals	Foreign
ATI Technologies	Foreign
BioChem Pharma	Foreign
Biovail	Foreign
Cognicase	Canadian
Cognos	Foreign
Creo	Foreign
Dofasco	Foreign
Emergis	Canadian
Falconbridge/Noranda	Foreign
Geac Computer Corporation	Foreign
Genpharm	Foreign
Hummingbird	Canadian
Husky Injection Molding Systems	Canadian
Inco	Foreign
JDS Fitel	Foreign
JetForm	Foreign
Leitch Technology	Foreign
Microcell Telecommunications	Canadian
Moore Corporation	Foreign
Newbridge Networks	Foreign
Novopharm	Foreign
Petro-Canada	Canadian
Skyjack	Canadian
Tundra Semiconductor	Foreign
Wescam	Foreign

The \$100 Million Club Ranked by R&D Expenditures Growth

2009 Rank R&D Growth		R&D Expenditures			
Overall	Company	FY2009 \$000	FY1999 \$000	% Change 1999-2009	
1	4 TELUS	\$653,000	\$2,500	26,020.0	
2	1 Research In Motion ⁺⁺⁺	\$1,101,848	\$18,170	5,964.1	
3	13 Suncor Energy	\$172,687	\$3,300	5,132.9	
4	3 BCE (1)	\$806,000	\$32,205	2,402.7	
5	17 Open Text*	\$132,659	\$16,898	685.1	
6	6 Magna International*	\$553,870	\$167,895	229.9	
7	19 Ontario Power Generation	\$112,000	\$36,000	211.1	
8	20 Novartis Pharmaceuticals Canada (fs)	\$110,000	\$36,720	199.6	
9	21 Pfizer Canada (fs)	\$109,378	\$37,570	191.1	
10	16 Biovail ⁺⁺	\$137,935	\$49,225	180.2	
11	5 IBM Canada (fs) ⁽²⁾	\$556,500	\$220,000	153.0	
12	11 Apotex	\$188,773	\$85,200	121.6	
13	8 Atomic Energy of Canada	\$393,051	\$203,568	93.1	
14	15 GlaxoSmithKline (fs) ⁽³⁾	\$147,813	\$100,643	46.9	
15	14 Bombardier ⁺⁺⁺	\$161,022	\$132,200	21.8	
16	7 Pratt & Whitney Canada (fs)	\$398,000	\$335,000	18.8	
17	10 Ericsson Canada (fs)	\$197,000	\$200,552	-1.8	
18	18 CAE	\$121,647	\$128,273	-5.2	
19	22 Hydro-Québec	\$100,000	\$110,072	-9.2	
20	2 Nortel Networks*	\$864,494	\$4,548,034	-81.0	
---	9 Alcatel-Lucent (fs)	\$224,000	na		
---	12 sanofi-aventis Group (fs) ⁽⁴⁾	\$181,621	na		

Notes: *Converted to CDN\$ at annual average 2009 = \$1.1420, 1999 = \$1.4858 (Bank of Canada)
 +Not current name ++Fiscal 2010/Fiscal 2000 results were used for year ended January or February
 na = not available ---Unable to rank
 fs = Foreign subsidiary (includes R&D expenditures for Canadian operations only)
 (1) Fiscal 1999 R&D expenditures includes results for Bell Canada and BCE Emergis Inc. only.
 (2) Fiscal 1999 R&D expenditures is the result for Fiscal 2000; Fiscal 1999 was unavailable.
 (3) Fiscal 1999 R&D expenditures includes results for Glaxo Wellcome Inc. and SmithKline Beecham Pharma combined prior to the merger.
 (4) Includes sanofi-aventis Canada Inc. and Sanofi Pasteur Limited.