



# Research and Development in Canadian Industry, 2007 Industrial Non-profit Organizations

Reporting unit name and address

Si vous préférez ce questionnaire en  
français, veuillez cocher 

Please correct any mistakes in name or address.

**Note:** This form has been designed for use by industrial research institutes, industrial associations and similar organizations performing or funding R&D on behalf of Canadian industry.

## INFORMATION FOR RESPONDENTS

### Survey Objective

This survey collects data which are essential to assure the availability of pertinent statistical information to monitor science and technology related activities in Canada and to support the development of science and technology policy. Your data will be used, for instance, to plan and evaluate research and development (R&D) incentive programs, to provide indicators on the state of industrial innovation, and to complete national totals for scientific R&D expenditures and personnel. The results of this survey will be published in "Industrial Research and Development" (Cat. No. 88-202-XIE) and "Science Statistics" (Cat. 88-001-XIE).

### Authority

This survey is conducted under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S19.

### Legal requirement

Completion of this questionnaire is a legal requirement under the *Statistics Act*.

### Confidentiality

Statistics Canada is prohibited from publishing any statistics that would divulge information relating to any identifiable organization without the previous written consent of that organization. The data reported on this questionnaire will be treated in strict confidence, used for statistical purposes and published in aggregate form only. The *Access to Information Act* or any other legislation does not affect the confidentiality provisions of the *Statistics Act*.

### Federal / Provincial Agreement

In order to avoid duplication of enquiry, to reduce the cost of data collection and to provide consistent statistics, Statistics Canada has entered into an agreement with the Institut de la statistique du Québec, under Section 11 of the *Statistics Act*, to share data from organizations located or having R&D activities in Québec. The Act respecting the Institut de la statistique du Québec includes the same provisions for confidentiality and penalties for disclosure of information as the federal *Statistics Act*.

### Reporting period and coverage

This questionnaire should be completed for the **fiscal year ending in 2007**.

### Planned Data Linkage

In order to enhance the analytic possibilities of this survey, Statistics Canada intends to combine the information from the Research and Development in Canadian Industry Survey with the information your organization provided on the Energy R&D Expenditures by Area of Technology Survey, if applicable, and with information from other surveys or from administrative records.

### Reporting procedure

If the organization is principally devoted to R&D then consider the entire budget, including administration, and exclude only clearly distinguished non-R&D activities. Examples of such non-R&D activities might be the collection and dissemination of market and other economic information to members, the organization of conferences and training courses, grants to support trade fairs, or the operation of laboratories used only for testing and quality control. If R&D is only a minor part of the activities of this organization, then report only those expenditures and personnel associated with the R&D activity.

**Please return the completed questionnaire within 30 days of receipt.**

Please see **Instruction Guide** for definitions starting on page 7.

## CERTIFICATION

Name of person who completed this report ( <i>please print</i> )		0001	Business address			0002			
Official position	0003	Date	0004	Postal Code	0005	Telephone No.	0006	Extension	0007
Email address:	0008	GST No. (BN No.)			0009	Fax No.	0010		

5-5300-404.1 2007-08-15 STC/SAT - 465-60041

**GENERAL DATA (questions 1 and 2)**

1. a) FISCAL YEAR ENDING IN 2007 ► FROM 

2	0		
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0201 year 

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0202 month 

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0203 day TO 

2	0	0	7
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0204 year 

--	--

0205 month 

--	--

0206 day

b) In the fiscal year ending in 2007, did your organization engage in R&D alliances with other organization or firms ..... ► Yes  or No

2. TOTAL EXPENDITURES OF THIS ORGANIZATION IN 2007 ► (CAN\$ thousands)  
0301

**DATA ON R&D PERFORMED (questions 3 to 6)**

**3. EXPENDITURES FOR R&D PERFORMED WITHIN THIS ORGANIZATION IN CANADA (in thousands of Canadian dollars)**

	Current expenditures			Capital expenditures				Total	
	Wages and salaries*	Other current costs**	Total current	Land	Buildings	Equipment & other	Total capital		
<b>(CAN\$ thousands)</b>									
a) Made in 2006	0504	0514	0524	0534	0544	0554	0564	0574	
<b>b) Made in 2007</b>	0501	0511	0521	0531	0541	0551	0561	0571	
c) Planned for 2008	0502	0512	0522	0532	0542	0552	0562	0572	
d) Forecast for 2009	0503	0513	0523	0533	0543	0553	0563	0573	
e) If applicable, please estimate the percentage of total R&D expenditures (reported above for 2007) attributable to software development***								0580	%
f) If applicable, please estimate the percentage of total R&D expenditures (reported above for 2007) attributable to biotechnology***								0581	%
g) If applicable, please estimate the percentage of total R&D expenditures (reported above for 2007) attributable to prevention, treatment and reuse of pollutants and wastes, and reduction of material and energy use***								0582	%
h) Are there important potential environmental benefits related to the R&D reported for 2007 (apart from any R&D reported in question 3g)?***								Yes <input type="radio"/> or No <input type="radio"/>	
							0583	0584	
i) If applicable, please estimate the percentage of total R&D expenditures (reported above for 2007) attributable to advanced materials***								0585	%
j) If applicable, please estimate the percentage of total R&D expenditures (reported above for 2007) attributable to nanotechnology***								0586	%

\* Include fringe benefits of persons engaged in R&D.  
 \*\* Include contracts for services required to carry out R&D (e.g. contracts awarded for drilling needed for heavy oil R&D). Exclude contracts for R&D work itself which should be reported in question 8. **Exclude capital depreciation.**  
 \*\*\* See **Instruction Guide**, page 7

**4. PERSONNEL OF THIS ORGANIZATION ENGAGED IN R&D (FULL-TIME EQUIVALENT\*) (use rounded numbers only)**

	Professionals								Supporting staff*		Total R&D personnel
	Scientists and engineers				Senior R&D administrators				Technicians and technologists	Other	
	Bachelors	Masters	Doctorates	Total	Bachelors	Masters	Doctorates	Total			
a) In 2007 (number of FTE)	0601	0611	0621	0631	0641	0651	0661	0671	0681	0691	0694
b) Planned for 2008 (number of FTE)	0602	0612	0622	0632	0642	0652	0662	0672	0682	0692	0693

\* See **Instruction Guide**, page 7  
 \*\* Divide wages and salaries for 2007 (Question 3b) by total R&D personnel.

**If the average R&D wages and salaries does not seem reasonable, please review the data**

Average R&D wages and salaries\*\*  
 (CAN\$ thousands)  
 0699

**5. REGIONAL INFORMATION ON R&D IN 2007 (Report expenditures in thousands of Canadian dollars)**

Establishment name and region where R&D was performed	R&D expenditures		R&D personnel	
	Current	Capital	Professionals	Supporting staff
	(CAN\$ thousands)		(full-time equivalent**)	
Specify province:	0781	0785	0789	0793
Specify province:	0782	0786	0790	0794
Specify province:	0783	0787	0791	0795
<b>Total (equal to 2007 expenditures and personnel reported in questions 4b) and 3a)</b>	0784	0788	0792	0796

\* Please complete Question 10 for each establishment identified above.

**6. SOURCES OF FUNDS FOR R&D PERFORMED WITHIN THIS ORGANIZATION IN 2007**

	Canadian sources	Non-Canadian
	(CAN\$ thousands)	
a) Funds from this organization (i.e. interest and other income)	0801	0811
b) Funds from member companies (annual fees, sustaining grants)	(CAN\$ thousands)	
<b>Name of companies</b> (please print full legal name and attach additional sheet if necessary)	0802	0812
	0803	0813
	0804	0814
	0805	0815
	0806	0816
	0807	0817
	0808	0818
<b>Sub-total (b)</b>	0810	0819
c) Funds from companies (R&D contract work)	(CAN\$ thousands)	
<b>Name of companies</b> (please print full legal name and attach additional sheet if necessary)	0851	0861
	0852	0862
	0853	0863
	0854	0864
	0855	0865
	0856	0866
	0857	0867
<b>Sub-total (c)</b>	0850	0860

d) Funds from Canadian Federal Government:		
(i) <b>R&amp;D grants</b> and the R&D portion <b>only</b> of any other grants	(CAN\$ thousands)	
<b>Industry Canada:</b> (Specify)	0821	
<b>National Research Council:</b> Industrial Research Assistance Program	0822	
<b>Atlantic Canada Opportunities Agency</b>	0823	
<b>Canada Economic Development (Quebec Regions)</b>	0824	
<b>Western Economic Diversification Office</b>	0825	
<b>Other grant programs</b> (specify):	0826	
(specify):	0827	
(specify):	0828	
<b>Sub-total (d (i))</b>	0820	
(ii) <b>R&amp;D contracts</b> and the R&D portion <b>only</b> of any other contracts.		
<b>Contracting departments:</b> (Payments are often made through Public Works and Government Services Canada for other departments; please specify contracting department)		
Specify:	0833	
Specify:	0834	
Specify:	0835	
<b>Sub-total (d (ii))</b>	0830	
e) Funds from Provincial governments (i.e. grants and contracts.) Attach additional sheet if necessary).		
Specify province:	0841	
Specify province:	0842	
Specify province:	0843	
<b>Sub-total (e)</b>	0840	
f) Other (i.e. universities, foreign government)		
	0870	0880
<b>Sub-totals (a to f)</b>	0890	0895
<b>Total (equal to the 2007 grand total expenditures of question 3b) .....</b>	0800	

**DATA ON PAYMENTS FOR R&D (questions 7 and 8)**

<b>7. PAYMENTS FOR R&amp;D PERFORMED BY OTHER ORGANIZATIONS</b>		(CAN\$ thousands)
a) Made in 2006		0904
<b>b) Made in 2007</b>		0901
c) Planned in 2008		0902
d) Forecast in 2009		0903

<b>8. RECIPIENTS OF PAYMENTS FOR R&amp;D PERFORMED IN 2007 BY OTHER ORGANIZATIONS</b>		<b>In Canada</b>	<b>Outside Canada</b>
		(CAN\$ thousands)	
<b>a) Companies</b>		1001	1011
<b>b) Universities</b>		1002	1012
<b>c) Other</b>		1003	1013
<b>Sub-totals a) to c)</b>		1004	1014
<b>Total (equal to figure entered in question 7b)</b>		1000	

**DATA ON OTHER PAYMENTS MADE OR RECEIVED FOR TECHNOLOGY (question 9)**

A company can acquire information based on R&D performed in the past by other companies, organizations or individuals. Similarly, it can sell information based on R&D it has performed in the past. In the preceding section, payments are reported in the support of R&D while this R&D is being done. In this section, consider only payments for information and rights derived from R&D performed in the past.

**9. PAYMENTS MADE OR RECEIVED IN 2007 BY THIS ORGANIZATION FOR PATENTS (SALE/PURCHASE, LICENSING) KNOW-HOW (UNPATENTED) INVENTIONS, TRADEMARKS (INCLUDING FRANCHISING), PATTERNS, DESIGN, AND R&D TECHNICAL ASSISTANCE**

	In Canada	Outside Canada
	(CAN\$ thousands)	
a) Payments	1101	1111
b) Receipts	1102	1112

**NATURE OF R&D ACTIVITIES – 2007 (question 10)**

Please complete for each R&D establishment. If you have more than one R&D establishment, please photocopy this section and complete for each R&D establishment.

**10. R&D Establishment No.**  **(i.e. 1, 2, 3, etc)**

Name of R&D establishment:

Address of R&D establishment:

Street  City

Province  Postal code

Contact:

Name   ( )

Position title  Telephone no.

a) What were the current (non-capital) R&D expenditures of this R&D establishment in 2007? (the total amounts reported for all R&D establishments should equal to **Total Current** in question 3) (CAN\$ thousands)

b) How many scientists and engineers (full-time equivalent) were employed in this R&D establishment in 2007? (the total amounts reported for all R&D establishments should equal **Total Scientists and engineers** in question 4) (full time equivalent)

c) Please estimate, in terms of the percentage of the current R&D expenditures, the approximate distribution of your R&D effort in 2007:

A. Basic research (no specific practical application in view)	<input type="text" value="1231"/>	%
B. Applied research (with a specific practical application in view)	<input type="text" value="1232"/>	%
C. New * product development	<input type="text" value="1233"/>	%
D. Existing ** product improvement	<input type="text" value="1234"/>	%
E. New * process development	<input type="text" value="1235"/>	%
F. Existing **process improvement	<input type="text" value="1236"/>	%
G. New * technical services development	<input type="text" value="1237"/>	%
H. Existing ** technical services improvement	<input type="text" value="1238"/>	%
		<b>100%</b>

\* Please consider new to mean totally or essentially new/unknown to the personnel of your R&D establishment. The product, process or service may exist elsewhere in the world but your R&D is not aided by this fact since your personnel do not have access to the information necessary to avoid any of the normal risks of development.

\*\* Please consider existing to mean that your staff would be improving a product/process/service about which they have the basic information. The product/process/service need not already be provided by your company.

**SURVEY COMPLETION TIME (question 11)**

11. PLEASE INDICATE HOW LONG IT TOOK YOU TO COMPLETE THIS QUESTIONNAIRE.

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 minutes  
1301

**DATA ON ENERGY R&D (question 12)**

12. IN 2007, DID THIS REPORTING UNIT PERFORM OR FUND ANY ENERGY R&D?

**Yes** ▶ Please complete the enclosed "Energy R&D expenditures by area of technology" (green) questionnaire.  
1401

**No** ▶ Please complete the certification on page 2 of the enclosed "Energy R&D expenditures by area of technology" (green) questionnaire and return with this questionnaire.  
1402

**COMMENTS**

**Reasons for Major Changes in Reporting Expenditures and Personnel** – In order to eliminate the necessity to verify discrepancies between this report and your last return (2006) please explain any significant changes which might be misconstrued as an error in reporting.

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# INSTRUCTION GUIDE

**Please return the completed questionnaire within 30 days of receipt.**

If you are unable to do so, please inform us of the expected completion date. If you receive more than one copy of this survey questionnaire for the same organization, please complete one and attach and return the duplicate(s). If you require assistance in the completion of this questionnaire or have any questions regarding the survey please address all enquiries to:

Science and Technology Surveys Section  
Science, Innovation and Electronic Information Division  
Statistics Canada  
150 Tunney's Pasture Driveway  
Ottawa, Ontario  
K1A 0T6  
Tel: 1-866-824-5893  
Email: [sieidinfo@statcan.ca](mailto:sieidinfo@statcan.ca)  
FAX: (613) 951-9920

## **R&D Definition (equivalent to Canada Revenue Agency – see information Circular 86-4R3)**

Research and development is systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis to achieve a scientific or technological advance.

Research is original investigation undertaken on a systematic basis to gain new knowledge.

Development is the application of research findings or other scientific knowledge for the creation of new or significantly improved products or processes. If successful, development will usually result in devices or processes which represent an improvement in the "state of the art" and are likely to be patented

### **Note**

Although the definition of "Scientific Research and Experimental Development" is considered to be the same as R&D, certain expenditures for scientific research and experimental development cannot be claimed for income tax purposes (e.g., land and buildings). All expenditures attributable to R&D are included in this report.

### **Interpretation**

Generally speaking, industrial R&D is intended to result in an invention which may subsequently become a technological innovation. An essential requirement is that the outcome of the work is uncertain, i.e., that the possibility of obtaining a given technical objective cannot be known in advance on the basis of current knowledge or experience. Hence much of the work done by scientists and engineers is not R&D, since they are primarily engaged in "routine" production, engineering, quality control or testing. Although they apply scientific or engineering principles their work is not directed towards the discovery of new knowledge or the development of new products and processes. However, work elements which are not considered R&D by themselves but which directly support R&D projects, should be included with R&D in these cases. Examples of such work elements are design and engineering, shop work, computer programming, and secretarial work.

If the primary objective is to make further technical improvements to the product or process, then the work comes within the definition of R&D. If however, the product, process or approach is substantially set and the primary objective is to develop markets, to do pre-production planning or to get a production, or control system working smoothly, then the activity can no longer be considered as part of R&D even though it could be regarded as an important part of the total innovation process. Thus, the design, construction and testing of prototypes, models and pilot plants are part of R&D. But when necessary modifications have been made and testing has been satisfactorily completed, the boundary of R&D has been reached. Hence, the costs of tooling (design and try-out), construction drawings and manufacturing blueprints, and production start-up are not included in development costs.

Pilot plants may be included in development only if the main purpose is to acquire experience and compile data. As soon as they begin operating as normal production units, their costs can no longer be attributed to R&D. Similarly, once the original prototype has been found satisfactory, the costs of other "prototypes" built to meet a special need or fill a very small order are not to be considered as part of R&D.

**R&D Alliance** – Agreement where two or more firms or organizations engage in a joint R&D project.

**Full-time Equivalent (FTE)** – R&D may be carried out by persons who work solely on R&D projects or by persons who devote only part of their time to R&D, and the balance to other activities such as testing, quality control and production engineering. To arrive at the total effort devoted to R&D in terms of manpower, it is necessary to estimate the full-time equivalent of these persons working only part-time in R&D.

FTE = Number of persons who work solely on R&D projects + the estimate of time of persons working only part of their time on R&D.

Example calculation: If out of five scientists engaged in R&D work, one works solely on R&D projects and the remaining four devote only one quarter of their working time to R&D, then:  $FTE = 1 + 1/4 + 1/4 + 1/4 + 1/4 = 2$  scientists.

### **Supporting Staff**

**Technicians and technologists** – Technically trained personnel who assist scientist and engineers in R&D, e.g. chemical technicians, draftspersons. They may be certified by either provincial educational authorities or by provincial or national scientific or engineering associations.

**Other** – Personnel directly engaged in the R&D program, e.g. machinists and electricians in construction of prototypes, or clerks, typists, accountants and storekeepers engaged in the administration or clerical support of R&D units.

**Software Development** – Software refers to the encoded instructions executed by electronic devices including computers for performing operations and functions. See **Revenue Canada's Information Circular 97-1 "Administration Guidelines for Software Development"**.

**Biotechnology** – Biotechnology is defined as the application of science and engineering in the direct or indirect use of living organisms in their natural or modified forms in an innovative manner in the production of goods and services or to improve existing processes. Biotechnologies can be grouped in the following types of biotechnology: DNA (the coding), Proteins and Molecules (the functional blocks), Cell and Tissue Culture and Engineering, Process Biotechnologies, Sub-Cellular Organisms, Other (Bioinformatics, Environmental biotechnology). Please report Nanobiotechnologies in Question 3(j).

**Environmental Protection** – Environmental protection is defined as the field of work devoted to the reduction or elimination of pollutants and wastes (including prevention, treatment and reuse of pollutants and wastes, and reduction of material and energy use). Expenditures made in order to improve employee health and workplace safety are excluded.

**Environmental benefits** – Environmental benefits include potential energy savings and the reduction in raw materials use or waste generation either from increased efficiency, recycling or closed-loop systems. They can also include design changes resulting in products that are less damaging to the environment in their use or disposal.

**R&D in advanced materials** – R&D in advanced materials is defined as the systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis in order to gain new knowledge and create new or significantly improved products or processes which use advanced materials such as metals (including superalloys or high purity metals), ceramics and carbon (including optoelectronics such as optical fibres and carbon and graphite products) and polymers (including high performance reinforced plastics and other high performance polymers).

**Nanotechnology** – Nanotechnology is the manufacturing of devices and products from molecular or nano-scale components with extraordinary properties. Examples of nanotechnology include: nanoparticles, nanomaterials, nanostructures, nanosystems, nanophotonics, nanoelectronics, nanomedicine, nanobiotechnology.

The results of this survey will be published in

“**Industrial Research and Development**” (Cat. No. 88-202-XIE) and “**Science Statistics**” (Cat. No. 88-001-XIE).

<http://www.statcan.ca/cgi-bin/downpub/freepub.cgi?subject=193#193>

Please make a copy of the completed questionnaire for your records.

THANK YOU FOR YOUR CO-OPERATION

**Questions:**

Science and Technology Survey Section  
Science, Innovation and Electronic Information Division  
Statistics Canada  
Tel: 1-866-824-5893  
Email: [sieidinfo@statcan.ca](mailto:sieidinfo@statcan.ca)