

Research and Development in Canadian Industry, 2010 Non-profit Organizations

Confidential when completed.

*Si vous préférez ce questionnaire en français,
veuillez nous appeler au 1-877-992-3999.*

Please correct company information if needed.

0001 Legal name

0008 First name of contact

0028 Last name of contact

0021 Title of contact

0004 Address (number and street)

0005 City

0006 Province/territory

0007 Postal code

INFORMATION FOR RESPONDENTS

This information is collected under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S-19.
COMPLETION OF THIS QUESTIONNAIRE IS A LEGAL REQUIREMENT UNDER THIS ACT.

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 to plan and evaluate research and development (R&D) incentive programs 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-X) and "**Science Statistics**" (Cat. No. 88-001-X).

Confidentiality

The *Statistics Act* protects the confidentiality of information collected by Statistics Canada.

Data-sharing agreements

To reduce respondent burden, Statistics Canada has entered into data sharing agreements with provincial and territorial statistical agencies and other government organizations, which must keep the data confidential and use them only for statistical purposes.

Information on confidentiality, data-sharing agreements and record linkages can be found at the end of this questionnaire.

Reporting period and coverage

This questionnaire should be completed for the **fiscal year ending in 2010**. This report should exclude foreign operations. Please report all currency amounts in thousands of **Canadian dollars**.

Data linkage

To enhance the data from this survey, Statistics Canada may combine it with information from other surveys or from administrative sources.

Fax or other electronic transmission disclosure

Statistics Canada advises you that there could be a risk of disclosure during facsimile or other electronic transmission. However, upon receipt, Statistics Canada will provide the guaranteed level of protection afforded all information collected under the authority of the *Statistics Act*.

Please complete a separate questionnaire for each company performing research and development (R&D) activities in Canada.

- If your records do not permit separate reporting please refer to question 1b) for more instructions.
- If your company performs R&D activities, **all questions should be completed.**
- If your company does not perform but funds R&D activities, **complete questions 2 to 8, 12 to 15 and Contact information section.**

For further information, please see the **Information and definitions** section at the end of this questionnaire.

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

WHAT'S NEW?

Employment data: you may now report Full-Time Equivalents (FTE) in decimals.
Example: Three people spending one quarter of their time on R&D would be reported as 0.75 FTE.

Avoid call backs: To avoid call backs for verification purposes indicate "0" (zero) in the total line for those questions which do not apply to your firm's activities. Also, if your firm reports a major change in R&D spending or funding, please indicate the reason for the change in the "Reasons for Major Change" section.

Use of the data: The data from this survey are now used to help calculate Canada's gross domestic product (GDP). Canada's System of National Accounts, using internationally adopted standards, is now capitalizing research and development expenditures.

GENERAL CORPORATE DATA (QUESTIONS 1 AND 2)

1. a) FISCAL YEAR ENDING IN 2010

	Year	Month	Day		Year	Month	Day				
From: ²⁰¹	2	0			To: ²⁰⁴	2	0	1	0		

b) Please provide the GST number (business number) for the business reporting R&D expenditures and/or technology payments in this questionnaire.

⁰⁰⁰⁹

2. TOTAL EXPENDITURES OF THIS ORGANIZATION IN 2010

(CAN\$ thousands)
500 \$,000

R&D DEFINITION

Research and development (R&D) 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 patentable.

3. Performed R&D in 2010 ³¹⁰ 1 Yes No ³
4. Plan to perform R&D in 2011 ³¹¹ 1 Yes No ³
5. Forecast to perform R&D in 2012 ³¹² 1 Yes No ³

If you have answered **YES** to any of these questions please go to **question 6**.
If you have answered **NO** to all of these questions please go to **question 12**.

DATA ON R&D PERFORMED – SPENDING, PERSONNEL

6. **EXPENDITURES IN CANADA FOR R&D PERFORMED WITHIN THIS REPORTING ORGANIZATION** (Total R&D expenditures made in 2010 should equal total R&D expenditure of questions 8, 9, 10 and 11).

	Made in 2009	Made in 2010	Planned for 2011	Forecast for 2012
	(CAN\$ thousands)			
Current expenditures				
Wages and salaries*	504 \$,000	501 \$,000	502 \$,000	503 \$,000
Other current costs**	514 \$,000	511 \$,000	512 \$,000	513 \$,000
Total current	524 \$,000	521 \$,000	522 \$,000	523 \$,000
Capital expenditures				
Land	534 \$,000	531 \$,000	532 \$,000	533 \$,000
Buildings	544 \$,000	541 \$,000	542 \$,000	543 \$,000
Equipment & other	554 \$,000	551 \$,000	552 \$,000	553 \$,000
Total capital	564 \$,000	561 \$,000	562 \$,000	563 \$,000
Total	574 \$,000	571 \$,000	572 \$,000	573 \$,000

* 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 12. Exclude capital depreciation.

7. **PERSONNEL ENGAGED IN R&D IN CANADA FOR THIS ORGANIZATION IN 2010 (in full-time equivalents).**

***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 personnel, 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 and the estimate of time of persons working only part of their time on R&D.

Example calculation: If out of four scientists engaged in R&D work, one works solely on R&D projects and the remaining three devote only one quarter of their working time to R&D, then: $FTE = 1 + 1/4 + 1/4 + 1/4 = 1.75$ scientists.

****Technicians and technologists** – Technically trained personnel who assist scientists 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.

*****Administrative support staff** – 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 companies.

	Full-time equivalent*
a) Total R&D personnel by occupation	
Scientists and engineers	321
R&D administrators	322
Total professionals:	320
Technicians and technologists**	324
Administrative support staff***	325
Total technical and administrative support staff:	323
Total (cells 320 + 323)	326
b) Professional R&D personnel by level of education	
Without college or university diploma	327
With college diploma	328
With university degree: Bachelor	329
Masters	330
PhD	331
Total (should equal cell 320)	332
c) Technical and administrative support R&D personnel by level of education	
Without college or university diploma	333
With college diploma	334
With university degree: Bachelor	335
Masters	336
PhD	337
Total (should equal cell 323)	338

8. **PROVINCIAL OR TERRITORIAL INFORMATION FOR R&D PERFORMED WITHIN THIS ORGANIZATION IN 2010** (Expenditures should be reported in thousands of Canadian dollars).

* For work done on federal lands, please include in the closest province or territory.

** Full-time equivalent (FTE) – See definition in question 7.

Province or territory where R&D was performed*	R&D expenditures		R&D personnel	
	Current	Capital	Professionals	Technical and administrative support staff
	(CAN\$ thousands)		(full-time equivalent)**	
a) Newfoundland and Labrador	701 \$,000	711 \$,000	721	731
b) Prince Edward Island	702 \$,000	712 \$,000	722	732
c) Nova Scotia	703 \$,000	713 \$,000	723	733
d) New Brunswick	704 \$,000	714 \$,000	724	734
e) Quebec	792 \$,000	793 \$,000	794	795
f) Ontario	796 \$,000	797 \$,000	798	799
g) Manitoba	709 \$,000	719 \$,000	729	739
h) Saskatchewan	741 \$,000	751 \$,000	761	771
i) Alberta	742 \$,000	752 \$,000	762	772
j) British Columbia	743 \$,000	753 \$,000	763	773
k) Yukon	780 \$,000	781 \$,000	782	783
l) Northwest Territories	784 \$,000	785 \$,000	786	787
m) Nunavut	788 \$,000	789 \$,000	790	791
Total (equal to 2010 R&D expenditures reported in question 6 (cells 521 and 561) and 2010 R&D personnel reported in question 7.a) (cells 320 and 323)	745 \$,000	755 \$,000	765	775

LOCATION OF R&D ACTIVITIES

9. **FOR YEAR 2010, PLEASE COMPLETE THE FOLLOWING QUESTION FOR EACH POSTAL CODE LOCATION WHERE R&D IS PERFORMED**, provide the postal code, value (in thousands of Canadian dollars) of total internal R&D expenditures (equal to question 6, cell 571) and the number of full-time equivalent R&D personnel (equal to question 7, cell 326).

If you have more than 5 (five) postal code locations, please complete the grid for the postal code locations with the four highest levels of R&D performance and report the residual R&D expenditures and personnel in the fifth row.

** **Full-time equivalent (FTE)** – See definitions in question 7.

	Postal code	Total R&D expenditures (CAN\$ thousands)	Total full-time equivalent*
1.	340_1	341_1 \$,000	342_1
2.	340_2	341_2 \$,000	342_2
3.	340_3	341_3 \$,000	342_3
4.	340_4	341_4 \$,000	342_4
5.	340_5	341_5 \$,000	342_5

Count R&D projects once in the primary postal code location where R&D is performed in multiple locations. For work done on federal lands, please include in the closest province or territory.

SOURCES OF FUNDS

10. **SOURCES OF FUNDS FOR R&D PERFORMED WITHIN THIS ORGANIZATION IN 2010**

	Canadian		Non-Canadian	
	(CAN\$ thousands)			
a) Funds from this organization (i.e. interest and other income)	801 \$,000		811 \$,000	
b) Funds from member companies (annual fees, sustaining grants)				
Names of companies (please print full legal name)	GST No. (BN No.)		(CAN\$ thousands)	
802_1	807_1	803_1 \$,000	804_1 \$,000	
802_2	807_2	803_2 \$,000	804_2 \$,000	
802_3	807_3	803_3 \$,000	804_3 \$,000	
<i>If more space is required, please use the comments section (page 13).</i>	Sub-total b)	810 \$,000	819 \$,000	

Question 10 continues on the next page >

(Question 10 – Continued)

Questions 10.c), 10.d) and 10.e) – Do not include any funds or tax credits from tax incentives; these should be considered part of your internal funding reported in question 10.a).

		Canadian
		(CAN\$ thousands)
c) Funds from Canadian federal government R&D grants and the R&D portion only of any other grants		
Industry Canada: Technology Partnership Program / Strategic Aerospace & Defence Initiative	821	\$,000
National Research Council: Industrial Research Assistance Program	822	\$,000
Atlantic Canada Opportunities Agency	823	\$,000
Canada Economic Development (Quebec Regions)	824	\$,000
Western Economic Diversification Office	825	\$,000
Other grant programs (please specify):	883_1	884_1 \$,000
(please specify):	883_2	884_2 \$,000
<i>If more space is required, please use the comments section (page 13).</i>	Sub-total c)	820 \$,000
d) Funds from R&D contracts and the R&D portion only of any other federal government contracts		
Contracting departments: (Payments are often made through Public Works and Government Services Canada for other departments; please specify contracting department)		
Canadian Space Agency	831	\$,000
National Defence	832	\$,000
Environment Canada	839	\$,000
Other contracts (please specify):	887_1	883_1 \$,000
<i>If more space is required, please use the comments section (page 13).</i>	Sub-total d)	830 \$,000
e) Funds from Provincial government: (grants and contracts)		
(please specify province):	888_1	889_1 \$,000
(please specify province):	888_2	889_2 \$,000
<i>If more space is required, please use the comments section (page 13).</i>	Sub-total e)	840 \$,000

Question 10 continues on the next page >

(Question 10 – Continued)

		Canadian	Non-Canadian
f) Funds from companies (R&D contract work)			
Names of companies (please print full legal name)	GST No. (BN No.)	(CAN\$ thousands)	
863_1	873_1	864_1 \$,000	865_1 \$,000
863_2	873_2	864_2 \$,000	865_2 \$,000
863_3	873_3	864_3 \$,000	865_3 \$,000
If more space is required, please use the comments section (page 13).		Sub-total f) 850 \$,000	860 \$,000

g) Funds from private non-profit organizations R&D contracts			
Names of companies (please print full legal name)	GST No. (BN No.)	(CAN\$ thousands)	
874_1	875_1	876_1 \$,000	877_1 \$,000
874_2	875_2	876_2 \$,000	877_2 \$,000
874_3	875_3	876_3 \$,000	877_3 \$,000
If more space is required, please use the comments section (page 13).		Sub-total g) 878 \$,000	879 \$,000
h) Funds from other organizations (i.e., universities, foreign government, etc.)		Sub-total h) 872 \$,000	882 \$,000

		Canadian	Non-Canadian
(CAN\$ thousands)			
Sub-totals (a to h)		890 \$,000	895 \$,000
Total (equal to total 2010 R&D expenditures of question 6 (cell 571))		800 \$,000

FIELD OF SCIENCE OR TECHNOLOGY

11. PLEASE INDICATE IN WHICH FIELD OF SCIENCE OR TECHNOLOGY YOU PERFORMED R&D IN 2010

* **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 personnel, 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 four scientists engaged in R&D work, one works solely on R&D projects and the remaining three devote only one quarter of their working time to R&D, then: FTE = 1 + 1/4 + 1/4 + 1/4 = 1.75 scientists.

	Total R&D expenditures	R&D personnel
	(CAN\$ thousands)	(full-time equivalent)*
a) Natural and formal sciences (1**)		
i) Mathematics (1.01**)	905 \$,000	906
ii) Computer and information sciences (1.02**)	963 \$,000	964
1) Software (1.02.03)	965 \$,000	966
2) All other computer and information sciences (1.02.01 and 1.02.02)	998 \$,000	999
iii) Physical sciences (1.03**)	911 \$,000	912
iv) Chemical sciences (1.04**)	913 \$,000	914
v) Earth and related environmental sciences (1.05**)	915 \$,000	916
vi) Biological sciences (1.06**)	917 \$,000	918
vii) Other natural sciences (1.07**)	919 \$,000	920
b) Engineering and technology (2**)		
i) Civil engineering (2.01**)	921 \$,000	922
ii) Electrical engineering, electronic engineering & information technology (2.02**)	923 \$,000	924
iii) Mechanical engineering (2.03**)	925 \$,000	926
iv) Chemical engineering (2.04**)	927 \$,000	928
v) Materials engineering (2.05**)	929 \$,000	930
vi) Medical engineering (2.06**)	931 \$,000	932
vii) Environmental engineering (2.07**)	933 \$,000	934
viii) Environmental biotechnology (2.08**)	935 \$,000	936
ix) Industrial biotechnology (2.09**)	937 \$,000	938
x) Nano-technology (2.10**)	939 \$,000	940
xi) Other engineering and technologies (2.11**)	941 \$,000	942

Question 11 continues on the next page >

(Question 11 – Continued)

	Total R&D expenditures		R&D personnel	
	(CAN\$ thousands)		(full-time equivalent)*	
c) Medical and health sciences (3**)				
i) Basic medicine (3.01**)	943	\$,000	944	
ii) Clinical medicine (3.02**)	945	\$,000	946	
iii) Health sciences (3.03**)	947	\$,000	948	
iv) Medical biotechnology (3.04**)	949	\$,000	950	
v) Other medical sciences (3.05**)	1103	\$,000	1104	
d) Agricultural sciences (4**)				
i) Agriculture, forestry, and fisheries (4.01**)	951	\$,000	952	
ii) Animal and dairy science (4.02**)	953	\$,000	954	
iii) Veterinary science (4.03**)	955	\$,000	956	
iv) Agricultural biotechnology (4.04**)	957	\$,000	958	
v) Other agricultural sciences (4.05**)	959	\$,000	960	
Total (equal to 2010 R&D expenditures reported in question 6 (cell 571) and R&D personnel reported in question 7.a) (cell 326)	961	\$,000	962	

** These numbers represent the Canada Revenue Agency's codes, in the Guide to Form T661 (Appendix 1), T4088 (E) Rev. 08. For full definitions please refer to Canada Revenue Agency's website www.cra-arg.gc.ca/E/pub/tg/t4088/README.html.

R&D EXPENDITURES CONTRACTED TO OTHER ORGANIZATIONS

12. R&D CONTRACTED EXPENDITURES MADE TO OTHER ORGANIZATIONS

	In Canada		Outside Canada	
	(CAN\$ thousands)			
a) Total expenditures for R&D performed by other organizations made in 2009	1023	\$,000	1024	\$,000
b) Total expenditures for R&D performed in 2010 by other organizations				
i) Companies	1002	\$,000	1012	\$,000
ii) Universities	1006	\$,000	1016	\$,000
iii) Other	1008	\$,000	1018	\$,000
Total of items 12.b) i) to iii) for 2010	1098	\$,000	1099	\$,000
c) Total expenditures for R&D performed by other organizations planned for 2011	1025	\$,000	1026	\$,000
d) Total expenditures for R&D performed by other organizations forecast for 2012	1027	\$,000	1028	\$,000

OTHER EXPENDITURES OR PAYMENTS FOR TECHNOLOGY

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 for 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.

13. EXPENDITURES MADE OR PAYMENTS RECEIVED IN 2010 BY THIS ORGANIZATION.

	Expenditure made		Payments received	
	Within Canada	Outside Canada	Within Canada	Outside Canada
(CAN\$ thousands)				
a) Parent, affiliated or subsidiary companies				
i) Patents	1029 \$,000	1030 \$,000	1031 \$,000	1032 \$,000
ii) Copyrights	1033 \$,000	1034 \$,000	1035 \$,000	1036 \$,000
iii) Trademarks	1037 \$,000	1038 \$,000	1039 \$,000	1040 \$,000
iv) Industrial design and integrated circuit topography designs	1041 \$,000	1042 \$,000	1043 \$,000	1044 \$,000
v) Other (includes technical assistance, industrial processes and know-how, etc.)	1045 \$,000	1046 \$,000	1047 \$,000	1048 \$,000
Total	1049 \$,000	1050 \$,000	1051 \$,000	1052 \$,000
b) Other organizations or individuals				
i) Patents	1053 \$,000	1054 \$,000	1055 \$,000	1056 \$,000
ii) Copyrights	1057 \$,000	1058 \$,000	1059 \$,000	1060 \$,000
iii) Trademarks	1061 \$,000	1062 \$,000	1063 \$,000	1064 \$,000
iv) Industrial design and integrated circuit topography designs	1065 \$,000	1066 \$,000	1067 \$,000	1068 \$,000
v) Other (includes technical assistance, industrial processes and know-how, etc.)	1069 \$,000	1070 \$,000	1071 \$,000	1072 \$,000
Total	1073 \$,000	1074 \$,000	1075 \$,000	1076 \$,000

Definitions

(equivalent to the Canadian Intellectual Property Office <http://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/wr00143.html>)

Patent: A government grant giving the right to exclude others from making, using or selling an invention.

Copyright: Provides protection for literary, artistic, dramatic or musical works (including computer programs), and three other subject matter known as: performance, sound recording, and communication signal.

Trademark: A word, symbol or design (or any combination of these features) used to distinguish the wares and services of one person or organization from those of others in the marketplace.

Industrial design: The visual features of shape, configuration, pattern or ornament (or any combination of these features), applied to a finished article of manufacture.

Integrated circuit topography: The three-dimensional arrangement of the electronic circuits in integrated circuit products or layout designs.

Intellectual property: A form of creative endeavour that can be protected through a patent, trademark, copyright, industrial design or integrated circuit topography.

SURVEY COMPLETION TIME

14. PLEASE INDICATE THE TOTAL TIME IT TOOK YOU TO COMPLETE THIS QUESTIONNAIRE, INCLUDING THE TIME IT TOOK TO GATHER THE INFORMATION.

9909 minute(s)

CONTACT INFORMATION

First name of person who completed this report (please print)

0013

Last name of person who completed this report (please print)

0054

Official position

0014

Telephone No.

0017

Extension

0027

Fax No.

0016

E-mail address

0018

Date

0015

DATA ON ENERGY R&D

15. IN 2010, DID THIS REPORTING COMPANY PERFORM OR FUND ANY ENERGY R&D?

1401 Yes ➤ Please complete the enclosed "Energy R&D expenditures by area of technology" questionnaire.

³ No ➤ Please complete the **Contact information** section on page 4 of the enclosed "Energy R&D expenditures by area of technology" questionnaire and return with this questionnaire.

REASONS FOR MAJOR CHANGES IF APPLICABLE

Reasons for major changes in reporting R&D expenditures and personnel – In order to eliminate the necessity to verify discrepancies between this report and your last return (2009) please explain any significant changes which might be misconstrued as an error in reporting.

If company or reporting company name has changed please give explanation.

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GENERAL COMMENTS

We invite your comments below.

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INFORMATION AND DEFINITIONS

Confidentiality

Your answers are confidential.

Statistics Canada is prohibited by law from releasing any information it collects which would identify a person, business, or organization, unless consent has been given by the respondent or as permitted by the *Statistics Act*. The confidentiality provisions of the *Statistics Act* are not affected by either the *Access to Information Act* or any other legislation. Therefore, for example, the Canada Revenue Agency cannot access identifiable survey records from Statistics Canada.

Information from this survey will be used for statistical purposes only and will be published in an aggregate form only.

Data-sharing agreements

To reduce respondent burden, Statistics Canada has entered into data sharing agreements with provincial and territorial statistical agencies and other government organizations, who must keep the data confidential and use them only for statistical purposes. Statistics Canada will only share data from this survey with those organizations that have demonstrated a requirement to use the data.

Section 11 of the *Statistics Act* provides for the sharing of information with provincial and territorial statistical agencies that meet certain conditions. These agencies must have the legislative authority to collect the same information, on a mandatory basis, and the legislation must provide substantially the same provisions for confidentiality and penalties for disclosure of confidential information as the *Statistics Act*. Because these agencies have the legal authority to compel businesses to provide the same information, consent is not requested and businesses may not object to the sharing of the data.

For this survey, there are **Section 11** agreements with the provincial and territorial statistical agencies of Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and the Yukon.

The shared data will be limited to business establishments located within the jurisdiction of the respective province or territory.

Section 12 of the *Statistics Act* provides for the sharing of information with federal, provincial or territorial government organizations. Under **Section 12**, you may refuse to share your information with any of these organizations by writing a letter of objection to the Chief Statistician and returning it with the completed questionnaire. Please specify the organizations with which you do not want to share your data.

For this survey, there are **Section 12** agreements with statistical agencies of Prince Edward Island, the Northwest Territories and Nunavut.

For agreements with provincial and territorial government organizations, the shared data will be limited to information pertaining to business establishments located within the jurisdiction of the respective province or territory.

Record linkages

To enhance the data from this survey, Statistics Canada may combine it with information from other surveys or from administrative sources.

1. This survey has been carried out since 1955; you may have file copies of your returns for earlier years which will help you now. If you are filling a consolidated return for two or more related companies please ensure that consolidated figures are used for all questions (e.g. revenues, employment, R&D expenditures and technology payments). "This reporting company", as used in the questionnaire, covers groups of related companies when a consolidated return is filed.
2. Please answer all questions. Your best estimates are satisfactory when precise figures are not available. Your estimates will be better than ours.

3. 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 business, 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:

Statistics Canada
150 Tunney's Pasture Driveway
Ottawa, Ontario
K1A 0T6
Tel: 1-877-992-3999
Fax: 1-888-883-7999

R&D definition

Research and development (R&D) 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 patentable.

Research and development should be considered to be "Scientific Research and Experimental Development" in the natural sciences and engineering only, therefore excluding:

- i. market research, sales promotion,
- ii. quality control or routine analysis and testing of materials, devices or products,
- iii. research in the social sciences or the humanities,
- iv. prospecting, exploring or drilling for or producing minerals, petroleum or natural gas,
- v. the commercial production of a new or improved material, device or product or the commercial use of a new or improved process,
- vi. style changes, or routine data collection.

Examples:

The investigation of electrical conduction in crystals was research. The application of this knowledge to the creation of a new amplifying device – the transistor – was development. The application of the device to the construction of new electrical circuits for television receivers was development. The formulation of new plastic cases for a television receiver is design, not development.

Research and development may be carried out either by a permanent R&D company (e.g., R&D division) or by a company

generally engaged in any non R&D activity such as engineering or production. In the first case, the R&D company may spend part of its time on routine testing or trouble shooting or on some other activities which should not be included in R&D. In the second, only the R&D portion of such company's total activity should be considered.

For more information, see section 37, Reg 2900 of the *Income Tax Act* and paragraph 63 of the *Frascati Manual, Proposed standard practice for surveys on research and experimental development* (OECD, 2002).

Note:

All expenditures attributable to R&D activities should be reported including expenditures for land and buildings specifically intended to support R&D. This inclusion differs to the treatment of research and development expenditures eligible for the Scientific Research & Experimental Development Tax Incentive Program.

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 companies, 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.

ITEM	TREATMENT	REMARKS
Prototypes, pilot plants	Include	As long as the primary objective is to make further improvements.
Contracts (questions 10.d) and 10.f))	Include	All contracts which require R&D. For contracts which include other work, report only the R&D costs.
Economic research, market research, management studies	Exclude	All activities in the social sciences.
Quality control, routine testing, style changes, minor adaptation of a product to meet a customer's specific requirement	Exclude	Even if carried out by staff normally engaged in R&D.
Prospecting, exploratory drilling, development of mines, oil or gas wells	Exclude	Except for R&D projects concerned with new equipment or techniques in these activities, such as in-situ and tertiary recovery research.
Engineering	Exclude	Engineering unless it is in direct support of R&D.
Design and drawing	Exclude	Design and drawing unless it is in direct support of R&D.
Tooling up, trial production, trouble shooting	Exclude	Although R&D may be required as a result of these steps.
Patent and licence work	Exclude	All administrative and legal work connected with patents and licences.

The results of this survey will be published in "Industrial Research and Development" (Cat. No. 88-202-X) and "Science Statistics" (Cat. No. 88-001-X).

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

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

FOR INFORMATION ONLY

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 business, 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:

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150 Tunney's Pasture Driveway
Ottawa, On K1A 0T6
Tel: 1-877-992-3999
Fax: 1-888-883-7999

**Thank you for completing this questionnaire.
Please retain a copy for your records.**