

Research and Development in Canadian Industry, 2009 Non-profit Organizations

Confidential when completed.

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

Please correct contact information as required.

Company name

Contact person

Title of contact person

Address (number and street)

City

Province / Territory

Postal code

GST No. (EIN No.)

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. 98-001-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 2009**. 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 1a) 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 certification.**

For further information, please see the **Guide** at the end of this questionnaire.

Please return the completed questionnaire within 30 days of receipt.

WHAT'S NEW?

To provide response relief, only the five most important locations of research and development (R&D) expenditures are asked. Also neither the nature of R&D activities, nor their technological purposes are asked.

Questions 3 to 5 will assist organizations without R&D expenditures to navigate the questionnaire. Question 11 on R&D expenditures by field of science will improve R&D data. Question 7 was modified to better illuminate the educational qualifications of R&D personnel. To improve regional coverage, R&D expenditures within the territories were added to question 8. Also, to highlight trade in technology, greater detail was added to question 13.

We hope that you find this revised questionnaire flows well. Please use the new general comments section to provide us with your feedback. A second comments section is now dedicated to explanation of changes in levels of R&D expenditures.

GENERAL CORPORATE DATA (QUESTIONS 1 AND 2)

1. FISCAL YEAR ENDING IN 2009

From: ²⁰¹ Year ²⁰² Month ²⁰³ Day To: ²⁰⁴ Year ²⁰⁵ Month ²⁰⁶ Day

2. TOTAL EXPENDITURES OF THIS ORGANIZATION IN 2009

(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 **2009** ³¹⁰ 1 Yes No

4. Plan to perform R&D in **2010** ³¹¹ 1 Yes No

5. Forecast to perform R&D in **2011** ³¹² 1 Yes No

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 2009 should equal total R&D expenditure of question 10).

| | Made in 2008 | Made in 2009 | Planned for 2010 | Forecast for 2011 |
|-----------------------------|-------------------|----------------|------------------|-------------------|
| | (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 | 553 \$,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 full-time equivalents)**

(use rounded numbers only).

***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 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.

****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 | |
| Total professionals: | 320 |
| Scientists and engineers | 321 |
| R&D administrators | 322 |
| Total technical and administrative support staff: | 323 |
| Technicians and technologists** | 324 |
| Administrative support staff*** | 325 |
| 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: | 329 |
| Bachelor | 330 |
| Masters | 331 |
| PhD | 332 |
| Total | 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: | 335 |
| Bachelor | 336 |
| Masters | 337 |
| PhD | 338 |
| Total | 338 |

8. **PROVINCIAL OR TERRITORIAL INFORMATION FOR R&D PERFORMED WITHIN THIS ORGANIZATION** (*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 | 705 \$,000 | 715 \$,000 | 725 | 735 |
| f) Ontario | 708 \$,000 | 718 \$,000 | 728 | 738 |
| 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 | 773 \$,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 2009 R&D expenditures reported in question 6 (cells 521 and 561) and 2009 R&D personnel reported in question 7.a) (cells 320 and 323) | 745 \$,000 | 755 \$,000 | 765 | 775 |

LOCATION OF R&D ACTIVITIES

9. **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 | 341 \$,000 | 342 |
| 2. | 989 | 990 \$,000 | 991 |
| 3. | 992 | 993 \$,000 | 994 |
| 4. | 995 | 996 \$,000 | 997 |
| 5. | 1077 | 1078 \$,000 | 1079 |

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.

10. SOURCES OF FUNDS FOR R&D PERFORMED WITHIN THIS ORGANIZATION IN 2009

| | Canadian | | Non-Canadian | |
|---|-------------------|-------------------|-----------------|--|
| | (CAN\$ thousands) | | | |
| a) Funds from this organization (incl. 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 | 807 | 803 \$,000 | 804 \$,000 | |
| 1080 | 1081 | 1082 \$,000 | 1083 \$,000 | |
| 1084 | 1085 | 1086 \$,000 | 1087 \$,000 | |
| Sub-total b) | | 810 \$,000 | 819 \$,000 | |

If more space is required, please use the comments section (page 12).

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 | 884 | \$,000 |
| | (please specify): 885 | 886 | \$,000 |
| 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 | 833 | \$,000 |
| Sub-total d) | | 830 | \$,000 |
| e) Funds from Provincial government: (grants and contracts) | | | |
| (please specify province): | 888 | 889 | \$,000 |
| (please specify province): | 891 | 892 | \$,000 |
| Sub-total e) | | 840 | \$,000 |

Question 10 continues on the next page >

(Question 10 – Continued)

| | | Canadian | Non-Canadian |
|---|------------------|---------------------------------------|----------------|
| | | (CAN\$ thousands) | |
| f) Funds from companies (R&D contract work) | | | |
| Names of companies (please print full legal name) | GST No. (BN No.) | (CAN\$ thousands) | |
| 863 | 873 | 864 \$,000 | 865 \$,000 |
| 969 | 970 | 971 \$,000 | 972 \$,000 |
| 973 | 974 | 975 \$,000 | 976 \$,000 |
| If more space is required, please use the comments section (page 12). | | 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 | 875 | 876 \$,000 | 877 \$,000 |
| | | \$,000 | \$,000 |
| | | \$,000 | \$,000 |
| If more space is required, please use the comments section (page 12). | | 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 2009 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 2009

* **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 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.

| | Total R&D Expenditures | R&D Personnel |
|--|------------------------|-------------------------|
| | (CAN\$ thousands) | (full-time equivalent)* |
| a) Natural and formal sciences (1**) | | |
| i) Mathematics (1.01**) | 905 \$,000 | 905 |
| ii) Computer and information sciences (1.02**) | 963 \$,000 | 964 |
| 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 |
| 1) Software engineering and technology (2.02.09) | 965 \$,000 | 966 |
| 2) All other Electrical engineering, electronic engineering & information technology (2.02.01, 2.02.02, 2.02.03, 2.02.04, 2.02.05, 2.02.06, 2.02.07 and 2.02.08) | 967 \$,000 | 968 |
| 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 | |
| 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 2009 R&D expenditures reported in question 6 (cell 571) and R&D personnel reported in question 7.a) (cell 325) | 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 2009 by other organizations | | | | |
| i) Companies | 1001 | \$,000 | 1011 | \$,000 |
| ii) Universities | 1002 | \$,000 | 1012 | \$,000 |
| iii) Other | 1003 | \$,000 | 1013 | \$,000 |
| Total of items 12.b) i) to iii) for 2009 | 1098 | \$,000 | 1099 | \$,000 |
| c) Total expenditures for R&D performed by other organizations planned for 2010 | 1025 | \$,000 | 1026 | \$,000 |
| d) Total expenditures for R&D performed by other organizations forecast for 2011 | 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 2009 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.

1301 minute(s)

CERTIFICATION

Name of person who completed this questionnaire (please print)

001

Official position

003

E-mail address

008

Telephone number

006 - -

Extension

007

Fax number

010 - -

Date (yyyy-mm-dd)

004 - -

DATA ON ENERGY R&D

15. IN 2009, DID THIS ORGANIZATION PERFORM OR FUND ANY ENERGY R&D?

- 1401 1 Yes ➤ Please complete the enclosed "Energy R&D expenditures by area of technology" questionnaire.
- 0 No ➤ Please complete the certification 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 (2008) 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.

1412

GENERAL COMMENTS

We invite your comments below.

1411

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GUIDE

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>

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