Purpose of this survey
The purpose of this survey is to collect data which will be used to produce summarised statistics of research and development activities for release to Government, business and other users in the community. The statistics will be used in the development of science policy areas.

Compulsory requirement
The taking of this survey has been approved by the Minister of Statistics and the return of this questionnaire, duly filled in and signed, is a compulsory requirement under the Statistics Act 1975.

Confidentiality of information supplied
Only people authorised by the Statistics Act 1975 are allowed to see your individual information, and they must use it only for statistical purposes. Your information will be combined with similar information to prepare summary statistics.

This is a joint collection by Statistics New Zealand and the Ministry of Research, Science & Technology under section 9 of the Statistics Act 1975. For detailed confidentiality information read page 16.

As Government Statistician I thank you for completing this survey. Your information contributes to statistics available for business decision-making. To find out how Statistics New Zealand can help your business grow, contact our information centre on 0508 525 525.

Geoff Bascand
Government Statistician
Instructions

1 How to answer:
   • This form will be scanned and recognised by electronic equipment. Therefore please:
     • mark answers like this ——
     • print answers in CAPITAL letters and
     • keep each letter or number within the spaces provided
     • for example J 0 N E S L T D or 1 2 3
   • Please use a blue or black pen.
   • Where actual figures are not available, please give careful estimates.
   • Where there is no response, leave blank unless instructed to write 0
   • Supply whole dollar values only.
   • Supply GST EXCLUSIVE values if possible.

2 Only include information for the organisation named on the front page.
   Do not provide consolidated data.
   Don’t include:
   • subsidiary or associated organisations
   • accounting divisions that operate entirely outside New Zealand

3 Please keep a record of the time it takes you to complete this questionnaire.
   You are asked to record this at the end of the questionnaire.
   Include:
   • the time spent reading the instructions, working on the questions and obtaining information
   • the time spent by all employees in collecting and providing this information
What is Research and Development?

Research and experimental development comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge. Any activity classified as R&D is characterised by originality. Investigation is a primary objective.

Business R&D:
Investigative work that has an actual or potential use for the business in the development of new or enhanced materials, products, devices, processes or services. R&D ends when work is no longer experimental and pre-production begins.

Don’t include:
- Research after the material, product etc. is substantially developed and the primary objective is to develop markets. For example: market research and marketing
- Pre-production planning or work to get production or control systems working smoothly

Further definitions of R&D are provided on page 15.

Did the organisation named on the front page carry out any R&D in 2007/2008?

Include:
- Subcontractors working on R&D projects carried out by this organisation

Don’t include:
- R&D projects funded by this organisation, but totally carried out by other organisations, or a subsidiary of this organisation

If possible, in the questions that follow, please provide information for the last financial year.

Note:
- if your balance date is between 1 Jan - 30 Sep, use financial data for the year ending 2008
- if your balance date is between 1 Oct - 31 Dec, use financial data for the year ending 2007

What is the balance date of the financial accounts which you will use for this questionnaire?

Day Month Year

Is the financial year information for a 12 month period?

1 yes → go to 6
2 no → the period covered is Day Month Year to Day Month Year

Please mark a reason why it is not a 12 month period.

- new business
- ceased during the year
- other → please specify:
Please show both how many personnel were working on R&D as at 30 June 2008, and show the number of full-time equivalents working on R&D during the year ended 30 June 2008.

**Include:**
- Contract staff on the payroll
- Full-time and part-time employees
- Permanent, temporary and casual employees

**Don’t include:**
- Postgraduate research students not on the payroll
- Self-employed persons, such as contractors, not on the payroll

### 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 hours worked, it is necessary to estimate FTEs of these people working part-time in R&D.

\[
FTE = \text{Number of persons who work solely on R&D projects} + \text{the estimate of time spent by persons working part-time on R&D.}
\]

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, the FTE equals \(1 + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 2\) scientists.

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Headcount as at 30 June 2008</th>
<th>Full-time equivalents during the year ended 30 June 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers</td>
<td><img src="#" alt="Table Content" /></td>
<td><img src="#" alt="Table Content" /></td>
</tr>
<tr>
<td>Technicians</td>
<td><img src="#" alt="Table Content" /></td>
<td><img src="#" alt="Table Content" /></td>
</tr>
<tr>
<td>Other supporting staff</td>
<td><img src="#" alt="Table Content" /></td>
<td><img src="#" alt="Table Content" /></td>
</tr>
</tbody>
</table>

| Total | ![Table Content](#) | ![Table Content](#) |

*This is total A*  *This is total B*
Please show both the highest qualification levels of personnel working on R&D as at 30 June 2008, and show the corresponding number of full-time equivalents working on R&D tasks during the year ended 30 June 2008.

**Note:** The total headcount should agree with total A. The total number of full-time equivalents should agree with total B.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Headcount as at 30 June 2008</th>
<th>Full-time equivalents during the year ended 30 June 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor degrees or equivalent, and post graduate qualifications other than PhD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For example:* Masters degrees and post graduate diplomas.

<table>
<thead>
<tr>
<th>Technical and Trade qualifications</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

*For example:* NZ Certificate of Engineering or Science and NZ Trade Certificate.

<table>
<thead>
<tr>
<th>Other qualifications</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

| Total                |                         |                                                        |

**Headcount to agree with total A**  
**FTE to agree with total B**
**Current and capital expenditure**

10 Please allocate the total expenditure on R&D carried out by this organisation during the financial year in questions 11 to 16.

**Don’t include:**
- R&D funded by this organisation, but carried out by other organisations. See 53.

**Note:**
- If the figures are not specified in your accounts please give a careful estimate.
- Subcontractors are included in 13.
- Include a proportion of all overheads in 13. If necessary, estimate from your total overheads in proportion to the full-time equivalents engaged in R&D.

11 **Wages and salaries for full-time equivalent personnel**

*Include:*
- Other employment related costs (eg overtime, ACC and fringe benefits)

*Don’t include:*
- Redundancy and severance payments (to be included in 12).
- Wages and salaries of personnel indirectly supporting R&D.

12 **Redundancy and severance payments**

13 **Other current R&D expenditure**

*Include:*
- All consumables and overheads incurred by direct and indirect support activities (eg materials, rent, and travel).
- Wages and salaries of personnel indirectly supporting R&D. Include only that part of their wages and salaries that is attributable to the indirect support of R&D (eg central finance, personnel services and cleaning).
- On site consultants and contact staff costs.
- Operating leasing.

*Don’t include:*
- Depreciation.
- Wages and salaries etc (included in 11 above).

14 **Capital expenditure - land and buildings**

*Note:* If the land and buildings purchased are also used for production, please include only the portion used for R&D.

15 **Capital expenditure - plant, equipment, machinery, vehicles, capitalised software and other assets**

*Note:* If the assets purchased are also used for production, please include only the portion used for R&D.

16 **Total expenditure on in-house R&D**

*This is total C*
### Source of funds for R&D

#### 17 What were the sources of funds for the R&D expenditure reported in total C?

**Note:**
- Sources should be the original sources providing funds
- Funds received as levies or subscription fees from member associations, or associated industry organisations should be treated as payments from other organisations, and not included in other categories.

#### 18 Own funds

**Include:**
- Equity, reserves, borrowing and retained earnings
- Funds from NZ organisations in the same group

#### 19 NZ private sector

**Include:**
- Private and publicly listed organisations
- State-owned enterprises
- Producer boards
- Research associations

#### 20 NZ government funding agencies

**Include:**
- Foundation for Research, Science and Technology (FRST)
  - For example: Tech NZ and Grants for private sector R&D (GPSRD)
- Royal Society of New Zealand (RSNZ)
- Health Research Council (HRC)

#### 21 Other NZ government departments, ministries, crown entities or crown-owned companies

**For example:** Ministry for the Environment and AgResearch.

**Don’t include:** State-owned enterprises (included in 19)

#### 22 NZ local government sector

**For example:** District councils, city councils and regional councils

#### 23 NZ tertiary education sector

**For example:** Universities and polytechnics

#### 24 Overseas funds

**Include:** Funds from overseas organisations in the same group.

#### 25 Other funding sources

**For example:** Lottery Board, Cancer society and charities

**Please specify:**

#### 26 Total R&D funds

To agree with total C
### Purpose of research

Which of the following sectors benefit from the R&D projects carried out? Please allocate to each of the following sectors the relevant percentage of R&D expenditure in the financial year.

**Note:** This should relate to the sector that will **ultimately** benefit from the results, not the nature of the R&D itself. For example, software specifically developed for a food processing factory, should be classified to manufacturing.

### Primary industries

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant production and plant primary products</td>
<td></td>
<td><strong>Includes:</strong> Forestry, horticultural and industrial crops; grains and oil seeds; harvesting and packaging of plant products; environmentally sustainable plant production</td>
</tr>
<tr>
<td>Animal production and animal primary products</td>
<td></td>
<td><strong>Includes:</strong> Fisheries (aquaculture and wild caught); livestock raising; pasture, browse and fodder crops; primary animal products (including raw wool and unprocessed or minimally processed fish and milk); environmentally sustainable animal production</td>
</tr>
<tr>
<td>Mineral resources (excluding energy)</td>
<td></td>
<td><strong>Includes:</strong> Mineral exploration; primary mining and extraction of minerals; first-stage treatment of ores and minerals; environmentally sustainable mineral-resource activities</td>
</tr>
</tbody>
</table>

### Industrial and infrastructure development

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td></td>
<td><strong>Includes:</strong> Energy exploration; mining and extraction of energy; preparation and production of energy; energy transformation; renewable energy; storage, distribution and supply; energy conservation and efficiency; environmentally sustainable energy activities</td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td><strong>Includes:</strong> Processed food products and beverages (incl. dairy products); wood and paper products; leather, fibre and textiles; chemical products; pharmaceuticals; ceramics, glass; metal products; machinery and equipment; electronic and communication equipment; environmentally sustainable manufacturing</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td><strong>Includes:</strong> Construction materials, planning, design and processes; building management and services; environmentally sustainable construction</td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td><strong>Includes:</strong> Land, water and aerospace transport; environmentally sustainable transport</td>
</tr>
<tr>
<td>Information and Communication Services</td>
<td></td>
<td><strong>Includes:</strong> Communication networks and services; computer software and services; information and media services; management of environmental impacts from information and communication services</td>
</tr>
<tr>
<td>Commercial Services and Tourism</td>
<td></td>
<td><strong>Includes:</strong> Financial services; property and business support services and trade; tourism, water and waste services; environmentally sustainable commercial services and tourism</td>
</tr>
<tr>
<td>37</td>
<td>Health</td>
<td>Includes: Clinical health (organs, diseases and abnormal conditions); health and support services; public health</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>38</td>
<td>Education and Training</td>
<td>Includes: Learner and learning; teaching and instruction; curriculum; school / institution; education and training systems</td>
</tr>
<tr>
<td>39</td>
<td>Law, Politics and Community Services</td>
<td>Includes: Community service; government and politics; international relations; justice and law; work and institutional development</td>
</tr>
<tr>
<td>40</td>
<td>Cultural Understanding</td>
<td>Includes: Arts and leisure; communication, heritage, religion and ethics, understanding past societies</td>
</tr>
</tbody>
</table>

### Other purposes

<table>
<thead>
<tr>
<th>41</th>
<th>Economic Framework</th>
<th>Includes: Macroeconomics and microeconomics; international trade; management and productivity, measurement standards and calibration services</th>
<th>4101</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>Environment</td>
<td>Includes: Air, atmosphere, weather, climate change; biosecurity; ecosystems; natural resource evaluation; policy, legislation and standards; biodiversity, land and water management; natural hazards; environmental rehabilitation; conservation areas; soils</td>
<td>4201</td>
</tr>
<tr>
<td>43</td>
<td>Defence</td>
<td>Includes: Navy or maritime; army or land, air force or aeronautics; logistics; intelligence; national security (non-military); emerging defence technologies</td>
<td>4301</td>
</tr>
<tr>
<td>44</td>
<td>Other</td>
<td></td>
<td>4401</td>
</tr>
</tbody>
</table>

### Total

| 45  | Total             |                                                                                                                                                    | 100  |

SAMPLE
Definition of biotechnology

What is biotechnology?

The OECD defines biotechnology as the application of science and technology to living organisms as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods or services.

The following is an OECD indicative guide to biotechnology:

- **DNA - the coding**: Geonomics, pharmaco-genetics, gene probes, DNA sequencing / synthesis / amplification, genetic modification

- **Proteins and Molecules - the functional blocks**: Protein / peptide sequencing / synthesis, lipid / protein glycoengineering, proteomics, hormones and growth factors, cell receptors / signalling / pheromones

- **Cell and tissue culture and engineering**: Cell / tissue culture, tissue engineering, hybridisation, cellular fusion, vaccine / immune stimulants, embryo manipulation

- **Process biotechnologies**: Bioreactors, fermentation, bioprocessing, bioleaching, bio-pulping, bio-bleaching, biodesulpherisation, bioremediation and biofiltration

- **Sub-cellular organisms**: Gene therapy, viral vectors

- **Other**: Bioinformatics, nanobiotechnology etc

Did the R&D reported in total C include any biotechnology?

1. yes → please provide an estimate of the share of R&D expenditure that is attributable to biotechnology. %

2. no
### Type of research carried out

48. Which of the following types of research were carried out? Please allocate to each type the relevant percentage of R&D expenditure in the financial year.

49. **Experimental development**
   - Systematic work undertaken using existing knowledge for the purpose of creating new or improved materials, products, processes and/or services.

50. **Applied research**
   - New work undertaken to acquire knowledge for a specific practical aim
   - Work to determine possible uses of basic research
   - Work to determine new ways of achieving a predetermined objective

51. **Basic research**
   - Pursue a planned search for knowledge with either a broad underpinning reference, or no reference to a likely application.

52. **Total**

#### R&D funded externally - in addition to in-house R&D

53. In addition to the R&D your organisation carried out in house, in the last financial year, did this organisation fund any R&D carried out at other organisations?

   - **Include:** Funding to a subsidiary of this organisation.
   - **Don’t include:** Subcontractors working on R&D projects carried out by this organisation

   - 1. yes → go to 55
   - 2. no → go to 64
<table>
<thead>
<tr>
<th>Question</th>
<th>Detailed Information</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External R&amp;D funded during the financial year</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **54** In the last financial year, did this organisation fund any R&D   | Include: Funding to a subsidiary of this organisation  
Don't include: Subcontractors working on R&D projects carried out by this organisation                                                                                                                        |        |
| carried out at other organisations?                                      | 1 yes ➔ go to **55**  
2 no ➔ go to **70**                                                                                                                                                                                            |        |
| **55** If this organisation paid for R&D but did not do the work itself | Where did this business spend the money?  
NZ private sector  
Include:  
- Private and publicly listed organisations  
- State-owned enterprises  
- Producer boards  
- Research associations and industry research co-operatives  
NZ central government sector  
For example: Departments, ministries and crown entities  
Don't include:  
- Crown research institutes  
- State-owned enterprises  
Crown research institutes  
For example: NIWA, Landcare Research, Crop & Food Research and AgResearch.  
NZ local government sector  
For example: District councils, city councils and regional councils.  
NZ tertiary education sector  
For example: Universities and polytechnics.  
Overseas organisations  
Include: Funds overseas organisations in the same group.  
Other (please specify)  
Total  
Do not include this amount in Total C  
This is total D |        |

### Reporting activities

Please give this organisation’s total expenditure on R&D and related activities:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house R&amp;D</td>
<td>$</td>
</tr>
<tr>
<td>External R&amp;D</td>
<td>$</td>
</tr>
<tr>
<td>Related activities (eg trials, commercialisation)</td>
<td>$</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$</td>
</tr>
</tbody>
</table>

This is total E

Of total E in question 64 (expenditure on in-house and external R&D and related activities), please estimate what percentage was spent on the following:

- Software development for internal use
- R&D performed overseas

Mark one oval. Which of the following best describes how this organisation documents the R&D activities it undertakes or funds?

1. Complete plans and documentation for each project stage
2. Partial project plans and documentation
3. No specific process for documenting R&D activity

Mark one oval. Which of the following best describes the systems this organisation currently has for reporting expenditure on in-house or external R&D?

1. Separate reporting of expenditure and costing methods at each R&D project stage
2. Separate reporting of R&D and non R&D-related expenditure
3. R&D and non-R&D related expenditure recorded together under common expense categories

Mark one oval. For external reporting, which of the following is the biggest difficulty for this organisation in accurately distinguishing the R&D activities it undertakes or funds?

1. Understanding what should or should not be included as ‘R&D’
2. Unsuitable documentation of R&D activities
3. Unsuitable systems for reporting of R&D-related expenditure
4. No difficulties reporting R&D activities

Mark one oval. What does this organisation expect to happen to the amount of R&D it undertakes or funds in the next financial year?

1. Decrease
2. Stay the same
3. Increase
4. Don’t know

Please give this organisation’s total expenditure on R&D and related activities:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house R&amp;D (copy any total C from page 6 here)</td>
<td>$</td>
</tr>
<tr>
<td>External R&amp;D (copy any total D from page 12 here)</td>
<td>$</td>
</tr>
<tr>
<td>Related activities (eg trials, commercialisation)</td>
<td>$</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$</td>
</tr>
</tbody>
</table>
Who should we contact if we have any queries about the information you have given? If necessary, please correct errors or provide details in the white boxes below each item.

Name

Position

Email

Phone

Fax

Cellphone

I declare that this questionnaire has been completed to the best of my knowledge.

Signature

Date

The main results of this survey are expected to be released in April 2009. If you would like a link to the results sent to the email address in question 74, please mark below.

yes, I would like to be emailed the main results of this survey

Comments

Please make any comments that would help Statistics New Zealand to interpret the information that you have given

The figures given in this questionnaire:

1. exclude GST
2. include GST

How long did it take you to complete this questionnaire?

Include:

- The time spent reading the instructions, working on the questions and obtaining information
- The time spent by all employees in collecting and providing this information

hrs  mins

Other Details

Office use: A B C

07/2008
Further definitions of R&D

R&D includes:
• Design, construction and operation of prototypes where the main objective is technical testing or to make further improvements
• Construction and operation of pilot plants not operated or intended to be operated as commercial units
• Research into, and original development (or substantial modification) of computer software such as new programming languages and new operating systems
• “Feedback R&D” directed at solving problems occurring beyond the R&D phase, for example technical problems arising during the initial production runs
• Research work in the biological, physical and social sciences, and the humanities
• Social science research includes economic, cultural, educational and sociological research

R&D excludes (except where used primarily for the support of, or as part of, R&D projects):
• General purpose or routine data collection
• Policy related studies, management studies, efficiency studies
• Routine quality control and testing
• Pre-production activities such as demonstration of commercial viability, tooling up and trial production runs
• Prospecting, exploring or drilling for minerals, petroleum or natural gas
• Cosmetic modifications or style changes to existing products
• Scientific and technical information services
• Routine computer programming, systems maintenance or software development and application
• Operational research and mathematical or statistical analysis
• Commercial, legal and administrative aspects of patenting, copyrighting or licensing activities
• Activities associated with standards compliance
• Specialised routine medical care, e.g. routine pathology services

Where does R&D end?
R&D ends when work is no longer experimental and pre-production begins.

If the primary objective is to make further technical improvements, then the work comes within the definition of R&D.

However, if the material, product etc. is substantially developed and the primary objective is to develop markets (i.e. market research), to do pre-production planning or to get production or control systems running smoothly, then the work is no longer R&D.

Borderline between research and studies
Research activities are usually performed in scientific units. Their aim is to produce innovative results which can be generalised or be generally utilised. The activities are often connected to other research, and financed from research funds; the results have a considerable novelty value and they are widely published.

Studies involve collecting, processing and analysing data for decision making and planning. The studies are often made by enterprises as an integral part of planning activities. The results are mainly descriptive, they are not widely published and they cannot easily be generalised or utilised for any other purpose. Income and expenditure on studies should not be included in this questionnaire.
Confidentiality of information supplied

This is a joint collection by Statistics New Zealand and the Ministry of Research, Science and Technology under section 9 of the Statistics Act 1975. You have the right to object in writing to the Government Statistician, to the release of your individual information to the Ministry of Research, Science and Technology. Any data release to the Ministry of Research, Science and Technology continues to be protected by the Statistics Act (section 37) and must only be used for statistical purposes. It must not be related in any way which identifies your individual information.

Thank you for your time and effort.

The main results of all our surveys are available at www.stats.govt.nz