



Department of Science and Technology



Human Sciences Research Council

SOUTH AFRICAN SURVEY OF RESEARCH & DEVELOPMENT INPUTS PRIVATE AND PUBLIC SECTOR BUSINESS ENTERPRISES: 2001/2002

↓ In correspondence, please quote your organisation ID number.

Please correct any
addressee errors.

PURPOSE OF SURVEY

The purpose of this survey is to collect information on the status of R&D effort and activities in South Africa. This information is invaluable for the development of policy and programmes in support of research and development activities in the country.

SURVEY ENDORSEMENT

This official survey is undertaken by the Human Sciences Research Council (HSRC) on behalf of the Department of Science and Technology (DST). We kindly request your assistance in completing and returning this form to us by the due date indicated below.

CONFIDENTIALITY

All information gathered by this survey will be held in the strictest confidence. Under no circumstances will either the HSRC or DST or any organisation associated with this survey publish, release, or disclose any information on, or identifiable with, individual companies, businesses or R&D units.

DUE DATE

Please complete and return this form in the Addressed Envelope to either a survey manager listed below or to: **The President, HSRC, Private Bag X41, Pretoria, 0001** no later than

HELP AVAILABLE

We have enclosed a user guide to assist you in providing necessary information. Please refer to it before and during the completion of the survey. If you require any further assistance please do not hesitate to contact the following survey managers:

Name	Contact Number	E-mail
Julien Rumbelow	082 806 5222 / 021 467 4486	JRumbelow@hsrc.ac.za
Call Centre	021 467 5200	RDSurvey@hsrc.ac.za

Dr. Michael Kahn

Executive Director: Knowledge Management
Human Sciences Research Council

Person completing this form and whom can be contacted if any queries arise regarding this form:

Name		
Designation		
Signature		Date

Tel:	()
Fax:	()
Cell:	
E-mail:	

WE THANK YOU FOR YOUR ASSISTANCE

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IMPORTANT NOTES (Please read before proceeding)

- This survey requires some degree of effort on your part. Kindly ensure all information provided is as accurate as possible. If exact figures are not available please provide carefully considered estimates.
- Survey data will enable benchmarking of R&D within South Africa and/or comparisons internationally. This is vital to ensuring that South Africa remains both competitive in the development of new products & services, and proficient in the advancement of knowledge.
- The consolidated information that you gather will be of value to your own organisation. At a later stage we will feedback aggregated information that should assist you in benchmarking your own company.
- Compulsory reporting and mandatory sample auditing of this information will soon be necessary given that this survey will become part of Official Statistics. We trust that you will consider the submission of this questionnaire as preparation for the regular submission of this information in the future.

WHAT IS IN THIS QUESTIONNAIRE?

- This survey follows the approach of the Organisation for Economic Co-operation and Development (OECD) and is a standardised survey to measure **INPUTS into the R&D system ONLY**. In no way does this survey attempt to measure the outputs/results/success of R&D.
- This survey asks for information on:

FINANCIAL INPUTS	i.e. expenditure on R&D (as defined).
HUMAN RESOURCE INPUTS	i.e. personnel headcount and time spent on R&D (as defined).
- The questionnaire is organised as follows:

PART 1:	General business information. Please complete whether or not your company does R&D.
PART 2:	In-house R&D expenditure.
PART 3:	R&D outsourced / contracted out <u>within</u> South Africa.
PART 4:	R&D outsourced / contracted out <u>outside</u> South Africa.
PART 5:	R&D Personnel (in-house only).
PART 6:	R&D Staff turnover.
PART 7:	Your comments.

KEY DEFINITIONS AND CONVENTIONS

- Please report all expenditure items in this survey **exclusive of Value Added Tax (excl. VAT)**.
- Please round all monetary values to **thousands of Rands (R'000)**.
- The financial year for this survey is defined as the year starting 1 March 2001 and ending on 28 February 2002. However, please report on the **most recent complete financial year** for which your company has data. Please indicate the start and end of your financial year in the appropriate section, and report figures for that year.
- Figures reported should relate to **expenditure incurred** during the financial year, whether paid or not, and to income earned during the year, whether received or not.
- This survey provides guides in text boxes to assist in defining important concepts and terms. The items listed under **Including** and **Excluding** in text boxes should not be taken as a complete list of items to be included or excluded. Please refer to the User Guide if necessary and/or contact a service manager.

WHAT IS R&D? (see User Guide also)

Definitions

This survey follows the approach of the Organisation for Economic Co-operation and Development (OECD), which defines Research and Experimental Development (R&D) as creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications.

The basic criterion for distinguishing R&D from related activities is the presence in R&D of an appreciable element of novelty and the resolution of scientific and/or technological uncertainty, i.e. when the solution to a problem is not readily apparent to someone familiar with the basic stock of commonly used knowledge and techniques in the area concerned.

What is business R&D?

- The R&D performed by businesses is generally investigative work that is of actual or potential use in the development of new or enhanced materials, products, devices, processes or services.
- R&D directed towards duplicating work already developed by others should only be included if the knowledge or technology required for development is not available to this business.

R&D includes – but is not limited to:

- 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 and development of new computer software or substantial modifications to existing computer software. This includes developments which lead to technological or scientific advances in:
 - theoretical computer sciences;
 - operating systems e.g. improvement in resource or interface management, a truly new operating system or the conversion of an operating system to a **significantly** different hardware environment;
 - programming languages e.g. new languages, **significant** extension of an existing language or a new or a **significantly** different language translator;
 - applications, if a **significant** technological step forward is achieved.
- “Feedback R&D” directed at solving problems occurring beyond the original R&D phase, for example technical problems arising during initial production runs.
- Research work in the biological, physical and social sciences, and the humanities.
- Social science research includes economic, cultural, educational, psychological and sociological research.

Where does R&D End?

R&D ends when the work is no longer experimental and pre-production begins.

If the primary objective is to make further technical improvements on the product or process, then the work falls 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 work is no longer considered R&D.

R&D excludes:

(except where used primarily for the support of, or as part of, R&D projects):

- Scientific and technical information services.
- Policy related studies, management studies, efficiency studies.
- Consumer surveys, advertising, market research.
- 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.
- General purpose or routine data collection.
- Routine computer programming, systems maintenance or software application.
- Operations 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, for example routine pathology services.

PART 1: GENERAL BUSINESS INFORMATION
(On all activities, not exclusively R&D)

1. Registered name of company

2. Trading as (if applicable)

3. Company registration number

4. Is your company wholly locally owned? (please tick)

Yes

No

If No, please indicate foreign equity and
specify country (e.g. US, Germany, etc.)

Country

%

Country	%

5. Name of parent company (if any)

6. Please describe the principal activities and/or Standard Industrial Classification (SIC) code (see user guide) from which your company derives its **main income** (e.g. manufacture of automotive components, computer programming services, etc.).

Activities	SIC	Company Income Obtained (%)

7. Please indicate the start and end dates for the financial year
(Day/Month/Year) for which you are reporting in this survey.

Start	End
/ /	/ /

8. Please indicate the total number of employees working for
your business for the financial year.

9. Please state the gross sales revenue of your business in the
financial year being surveyed (including sales generated
even if not yet paid for).

R'000 (excluding VAT)

PART 2: IN-HOUSE R&D EXPENDITURE

Note

- This part of the survey seeks details of R&D performed at this business on its own behalf or on behalf of others.

Including:

- R&D performed as a participant in any unincorporated joint venture.
- R&D projects performed on contract for other legal entities (such as other businesses).

Excluding:

- R&D projects funded by this business but carried out by other organisations/legal entities using their own premises.
- Provision of specialised services for the R&D projects of other organisations/legal entities.

10. Did this business perform any in-house R&D during the financial year for which you are reporting? (please tick)

Yes

☐

Please answer Question 11 and onwards

No

☐

Please proceed to Question 19 and onwards

11. Where in your business is R&D located?

In-house: (integrated into business activities)

☐

In-house: R&D department/office/division

☐

Affiliated research institute/company

☐

Other (please specify):

IMPORTANT NOTE:

In **PART 2**, we are interested only in R&D projects performed at your business in the financial year being reported on. You must therefore not record any R&D which was funded by your business but performed by others using their own facilities. This outsourced/contracted out R&D expenditure will be captured in **PART 3** and **PART 4** of the questionnaire.

A useful hint...

Use a pencil at first; when you are certain of your entries, confirm them in ink.

12. How much did your business spend on in-house R&D during the financial year according to the categories below?

CAPITAL EXPENDITURE ON IN-HOUSE R&D

- Capital expenses must be reported in full in the year of purchase (i.e. capital expenses should not be amortised or depreciated).
- If the asset has been/will be used for more than one activity, include only an estimate of the portion used for R&D.

Including:

- Expenditure on fixed assets used in the R&D projects of this business dept/unit.
- Acquisition of data bases and software (incl. fees) expected to be used for more than one year.

Excluding:

- Repairs and maintenance.
- Depreciation provisions.
- Proceeds from the sale of R&D assets.

		R'000 (excluding VAT)					
Vehicles, plant, machinery and equipment	A						
Land; buildings and other structures	B						

LABOUR COSTS ON IN-HOUSE R&D

- If the costs have been incurred for more than one activity, include only an estimate of the portion used for R&D.
- If you know your actual R&D labour cost, then it is *not* necessary to fill in the table at the bottom of this page. Instead the figure can be reported directly here.
- If your enterprise *does not* know actual labour costs spent on R&D during the financial year, please complete the table at the bottom of the page and report the total labour cost in the space provided here.

Labour Costs	C						
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OTHER CURRENT EXPENDITURE ON IN-HOUSE R&D

Including:

- Materials, fuels and other inputs.
- Rent, leasing and hiring expenses.
- Repair and maintenance expenses.
- Payments to outside organisations for use of specialised testing facilities.
- Payments to outside organisations for analytical work, engineering or other specialised services in support of R&D projects performed by this business.
- Commission/consultant expenses for research projects carried out by you.
- Other R&D expenses.

Excluding:

- Contract R&D expenses where the research project is performed elsewhere by others on behalf of this business.
- Payments for purchases of technical know-how.
- Payments for patent searches.
- Depreciation provisions.

Other Current Expenditure	D						
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TOTAL IN-HOUSE R&D EXPENDITURE (A + B + C + D)							
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Table to assist calculation of labour costs for R&D (if required):

- Please report for **all** R&D personnel, whether South African or non-South African, i.e. the totals below must correlate with the totals for Question 26 & Question 27 (South African & non-South African) combined.

Personnel Categories	Number of persons involved in R&D (A)	Average % time spent on R&D activities in the financial year (B)	Average labour cost per person in the financial year (C)	Calculated labour cost of R&D (AxBxC/100)
Researchers				
Technicians				
Other personnel				
TOTAL LABOUR COST OF R&D (Please report in Question 12 C)				

13. Please specify the percentage of total in-house R&D expenditure (reported in Question 12) that was directed towards the following types of R&D activities.

Pure Basic Research

- Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without a specific application in view.
- Work carried out without looking for long-term economic or social benefits other than the advancement of knowledge.
- The analysis of properties, structures, and relationships with a view to formulating and testing hypotheses, theories or laws.
- The results of basic research are not generally sold but are usually published in scientific journals or circulated amongst interested colleagues.
- Humanities R&D would normally involve this type of research.

Percentage

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Strategic Basic Research

- Basic research directed into specific broad areas in expectation of useful discoveries.
- Basic research providing the broad base of knowledge necessary for the solution of recognised practical problems

Percentage

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Applied Research

- Original investigation to acquire new knowledge with a specific aim or application in view.
- Research undertaken to determine: - possible uses for the findings of basic research.
- new methods of achieving specific & pre-determined objectives.
- The results of applied research are intended primarily to be valid for a single or limited number of products, operations, methods, or systems.
- Applied research develops ideas into operational form.
- The knowledge or information derived from it is often patented but may also be kept secret.

Percentage

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Experimental Development

- Systematic work using existing knowledge gained from research and/or practical experience for the purpose of creating new or improved materials, products, processes or services.

Percentage

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TOTAL %

1	0	0
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14. Please state the location where your business expenditure on R&D activities occurred for the financial year and the percentage of the total amount spent (the total amount being the figure reported in Question 12).

	%
TOTAL % INSIDE SOUTH AFRICA	
made up of...	
Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	
Mpumalanga	
Northern Cape	
North-West	
Western Cape	
	100 %

	%
TOTAL % INSIDE SOUTH AFRICA	
made up of...	
SADC Countries: <i>(please specify)</i>	
Other African Countries: <i>(please specify)</i>	
Elsewhere: <i>(please specify)</i>	
	100 %

15. Please provide a breakdown of in-house R&D expenditure for your financial year (reported in Question 12) according to the following **sources of funding**.

- Sources should be the original sources providing funds.
- Funds received from other intermediary sources which are funded from several sources should be reported under "Other South African sources".
- Funds received from intermediary sources which are funded from government sources should be reported under "Government".

Including:

- Funding from grants, contracts, commissions, donations, etc.

Excluding:

- The value of taxation concessions for R&D.

Business	R'000 (excluding VAT)					
Internal Resources (including equity, borrowings and retained earnings)						
External Resources: Locally based business						
External Resources: Foreign based business						
Government						
Incentive and Support Programmes (<i>SPIL, PII, THRIP, Innovation Fund, etc.</i>)						
Other Government funds						
Science Councils (CSIR, Mintek, MRC, ARC, CGS, SABS, HSRC, NRF, AISA)						
Universities/Technikons/Colleges						
Private non-profit organisations						
Donations and bequests from private individuals						
Other South African sources (please specify)						
Other Overseas sources (please specify)						
	R'000 (excluding VAT)					
TOTAL SOURCES OF FUNDING FOR IN-HOUSE R&D						

(to agree with Question 12)