

BYLAE A

Alphabetical list of firms that participated in the Innovation Survey

Abakor Ltd	Campbell & Gardwell (Pty) Ltd
ABB Powertech (Pty) Ltd	Cape Gate Fence and Wire Works (Pty) Ltd
Aberdare Cables Africa Ltd	Cape of Good Hope Wool Combers (Pty) Ltd
<u>Adcock Ingram Consumer Healthcare</u>	Carlin Medical Extrusions (Pty) Ltd
Aero Duct cc	Carlton Paper of SA (Pty) Ltd
Agriplas (Pty) Ltd	Cason Engineering (Pty) Ltd
AIM Holdings Ltd	Ceramic & Industrial Minerals
Alex White & Co (Pty) Ltd	Chemplast Marc Etter (Pty) Ltd
Alfred Teves Technologies SA (Pty) Ltd	Chermserve Systems (Pty) Ltd
All Joy Foods (Pty) Ltd	Chicory SA Ltd
<u>Allied Electronics Corporation Ltd (Altron)</u>	Chico's Ice Cream
Allmay Tooling (Pty) Ltd	Citation Leather Industries cc
Alloy Magnetic Cores (Pty) Ltd	Colman Foods
Alnet (Pty) Ltd	Consani Engineering (Pty) Ltd
Alpine Lounge (Pty) Ltd	<u>Consol Ltd</u>
Alpull (Pty) Ltd	Consol Ltd Plastics Division
Amalgamated Appliances (Pty) Ltd	Consultancy in Advanced Technology (Pty) Ltd
Ampaglas SA (Pty) Ltd	Control Logic (Pty) Ltd
Analysis Management & Systems (Pty) Ltd	Copalcor
André Carl Clothing cc	Cullinan Brick
Anglo Allied Bricks (Anglo Allied Corporation)	CX (Spoomet)
Apex Components (Pty) Ltd	D le Roux and Associates (Pty) Ltd
Applied Products	Daka Technology (Pty) Ltd
Arcangeli Pottery cc	Dando & Van Wyk Print (Pty) Ltd
Argen Precious Metal Industries (Pty) Ltd	Darbel (Pty) Ltd
Aris Box Manufacturers (Pty) Ltd	David Brown Gear Industries (Pty) Ltd
Ash Resources (Pty) Ltd	David Whitehead & Sons (SA) (Pty) Ltd
Associated Power & Light (Pty) Ltd	Davies Trevor Engineering (Pty) Ltd
Automatic Systems Manufacturing (Pty) Ltd	De Nim Textiles (Pty) Ltd
Autoplastic (Pty) Ltd	Deltrix cc (Systems & Power Engineering)
Bambi Shoe Industries (Pty) Ltd	Denel (Pty) Ltd
Barak Products cc	Dental Components Manufacturing cc
Bartons Precision Tube	Desiree Quilted Products
<u>Bell Equipment Ltd</u>	Diamond Winter SA (Pty) Ltd
Berg Metal Industries (Pty) Ltd	Donaldson Filtration Systems (Pty) Ltd
Beruc Equipment (Pty) Ltd	DPI Plastics (Pty) Ltd
Be-Tabs Pharmaceuticals (Pty) Ltd	East Cape Tanning Ltd
Bino Instrumentation cc	EGO SA (Pty) Ltd
Blanes Instruments cc	EL Bateman Engineering Ltd
BM Thermo Services cc	Electronic Consultants and Manufacturers
BMM Processes (Pty) Ltd	Electronic Impact cc
Boart Longyear Seco	Elida Ponds (Pty) Ltd
Boland Pulp	Eloptro
Bonchem (Pty) Ltd	Emelpree (Pty) Ltd
Bonnita (Pty) Ltd	Engineering Plastics Manufacturing cc (EPM)
Boots Pharmaceuticals (Pty) Ltd	Fedmech Farm Machinery cc
Booyco Engineering (Pty) Ltd	Fermel Hydraulics & Engineering (Pty) Ltd
<u>Boumat Ltd</u>	Fibretek Developments (Pty) Ltd
Bristol-Myers Squibb (Pty) Ltd	Fosroc (Pty) Ltd
Broom Engineering cc	Furtech (Pty) Ltd
Brubin Engineering (Pty) Ltd	Galison Manufacturing (Pty) Ltd
Buckeye Poultry Equipment (Pty) Ltd	Gammatec Engineering (Pty) Ltd
Caltex Oil (SA) (Pty) Ltd	Gasket Manufacturing Corp cc

GB Leather Products cc
 Gelvenor Textiles (A division of Avtex Ltd)
 Genwest Industries (Pty) Ltd
 Geotron Systems (Pty) Ltd
 Glenvalve (A division of Dorbyl Ltd)
 Goldring Manufacturers Jewellers
 Gordon Fraser (Pty) Ltd
 Graham Susan Ellett Trust (Reef Engineering Manufacturing)
 Grinaker Avitronics
 Grinel
 Guymark (Pty) Ltd (Hydrostatic Transmission Engineering)
 Hanni Leathers
 Hansen Transmissions (Pty) Ltd (Brook Hansen)
 Hartland Ingenieurs (Pty) Ltd
 Hatacap (Pty) Ltd (SA Cap Manufacturers)
 Highveld Biological (Pty) Ltd
Highveld Steel & Vanadium Corp Ltd
 Hi-Vac (Pty) Ltd
 Hulett Refineries Ltd
 Hydrex (Pty) Ltd
 Hyson-Cells
Illovo Sugar Ltd
 Impro Technologies (Pty) Ltd
 IMS Holdings (Pty) Ltd
 Insamcor (Pty) Ltd
 Interpak Cape
 Irvin & Johnson Ltd
 JE Orlik & Associates (Pty) Ltd
 J Pak (Pty) Ltd
 John Deere
 Johnson Matthey (Pty) Ltd
 Kanhym Fresh Meat
 Karbochem
 Kentron (A division of Denel (Pty) Ltd)
 KIC Manufacturing (Pty) Ltd
 Kinetics Technology International BV
 Kiwi Brands (Pty) Ltd
 Kohler Flexible Packaging
 Koolmaster Manufacturing (Pty) Ltd
 Krohne (Pty) Ltd
 Kynoch Feeds (Pty) Ltd
 Laeveldse Koöp Bpk
Langeberg Foods
 Lederle Laboratories
 Lennon Ltd (Pharmacare)
 Lloyd's Brickworks
 Lockers Engineers SA (Pty) Ltd
 Logos Pharmaceuticals (Pty) Ltd
 Louis Moller cc
 LTA Food Engineering (Pty) Ltd
 Lyttleton Engineering Works
 Mallies Centre (Pty) Ltd
 Mardon Construction (Pty) Ltd
 Meissner Power Systems
 Micoles Engineering cc
 Mining and Ventilation Equipment cc
 MOH-9 (Pty) Ltd
 Mossgas (Pty) Ltd
 Mouldings & Frames International (Pty) Ltd
 Multiplex Rubber Rollers (Pty) Ltd
Nampak Group R&D
 Natal Luggage Manufacturers (Pty) Ltd
 Ngodwana Mill Ltd
 NITK
 Olympic Metal Products (Pty) Ltd
 Osborn MMD
Otis Elevator Co. Ltd (Wadeville)
 Outspan International
 PFG Building Glass (Pty) Ltd
 PFK Electronics (Pty) Ltd
 PG Bison
 Pilot Crushtec cc
 Pirie Appleton & Co Africa (Pty) Ltd
 Plastelle Plastics cc
 Portland Cement Institute
 Powder-Lak (Pty) Ltd
 Pretoria Metal Pressings
 Prof's Plastic Manufacturers
 Protarp Manufacturing cc
 Quick Brick International
 Quiltco cc
 Reutech Systems
 Revertex Chemicals (Pty) Ltd
 Ringrollers of SA (Pty) Ltd
 Robertsons (Pty) Ltd
 Robinson Engineering (Pty) Ltd
 Rock Drill Tools
 Rolfes Ltd
 SA Block (Pty) Ltd
SA Breweries (Beer Division)
SA Dried Fruit Co-operative Ltd
SA Druggists Ltd
 Salchain (A division of Dorbyl Ltd)
 Samcor (Pty) Ltd
 Santini Engineering (Pty) Ltd
Sasol Ltd
 Scala Foundations Distributors (Pty) Ltd
 Scherag (Pty) Ltd
Sentrachem Ltd
 Shell SA (Pty) Ltd Minerals Division
 Siemens Telecommunications (Pty) Ltd
 Simera (also trading as Atlas Aviation)
 Sinesonics (Pty) Ltd
 Sintered Metal Components (Pty) Ltd
 Smith Capital Equipment
 SMX (A division of Sasol Chemical Industries (Pty) Ltd)
 Sondor Industries Ltd
 South African Wood Preservers Association
 Stotko Engineering (Pty) Ltd

Swartklip Products	Trevor Davies Engineering (Pty) Ltd
Switching Systems (Pty) Ltd	Tube Products (Pty) Ltd
Tacholog (Pty) Ltd	UEC Projects (Pty) Ltd
Technifin (Pty) Ltd	Ultrasonic Manufacturing cc
Techni-flex cc	Van De Wetering Engineering (Pty) Ltd
Telbit cc	Veringa's Aero Engines cc
Termo 2000 (Pty) Ltd	Vetsak (Co-operative) Ltd
Textile Clothing Manufacturers cc	Warman Research & Development (Pty) Ltd
Thales Advanced Engineering (Pty) Ltd	Warner Lambert (SA) Pty Ltd
Thistledown Knitwear Corp (Pty) Ltd	Western Litho
Tioxide Southern Africa (Pty) Ltd	Western Platinum Refinery (Pty) Ltd
Tongaat Foods Ltd	Wispeco (Pty) Ltd
<u>Tongaat-Hulett Sugar</u>	WP Yarn Dyers (Pty) Ltd
<u>Trans-Tele (Pty) Ltd</u>	Zeneca Pharmaceuticals

BYLAE B

INDIVIDUAL COMPANY INFORMATION WILL BE KEPT CONFIDENTIAL

Survey on the innovative activity of South African manufacturing firms

Questionnaire

This questionnaire is concerned with innovation undertaken by manufacturing firms in South Africa.

Definitions:

Innovation is the introduction to the market of a new or changed product - product innovation - or a new or changed production process - process innovation. Innovation entails a combination of scientific, technological, organisational, financial and commercial activities.

A Product is a saleable good produced by your firm and includes any subcomponents manufactured by another party but assembled into the final product by your firm.

Product Innovation occurs when your firm introduces a new or significantly modified product to the market place. A product innovation is a newly-marketed product whose intended use, performance characteristics, technical construction, design or use of materials and components is new or substantially changed or an existing product whose technical characteristics have been enhanced or improved. Product changes which are purely aesthetic (such as changes in colour or decoration), or which simply involve product differentiation (minor design or presentation changes which differentiate the product but leave it unchanged in construction and performance) are not considered as innovations.

A Process Innovation is the adoption of a new or significantly improved production method. Changes may involve new equipment or production organisation or both. Process innovations may be introduced in order to make new products, or to increase efficiency with which existing products are made. Process innovation can include changes in use of inputs, such as labour, materials, energy or information, and/or organisation of inputs such as JIT, TQM, flexible manufacturing, etc.

In this survey we are concerned with products and processes which are *new to your enterprise*.

Please modify the address label if necessary:

.....
.....
.....
.....
.....
.....

Name of respondent:

Tel no: Fax no:

Please complete this questionnaire for your enterprise only and return it in the enclosed envelope before 29 February 1996 to:

William Blankley
FRD
PO Box 2600
Pretoria
0001

Telephonic enquiries:
(012) 841-4273
Fax number:
(012) 349 1179
E-Mail: Blank@frd.ac.za

GUIDE TO QUESTIONNAIRE

*NB: Please complete this page and page 8, even if your enterprise is not actively involved in innovation
Tick only the correct answers*

1. GENERAL INFORMATION

1.1 ENTERPRISE STRUCTURE

Is your enterprise:	YES	NO
* independent?
* part of a group?
If part of a group:		
* are you a wholly owned subsidiary?
* Name of holding company/head office	
* Country/city of head office	
Other: (Please specify)	

1.2 TURNOVER AND EMPLOYMENT

Please provide the following information (rough estimates will suffice)

Enterprise's main field of industrial activity
Main SIC code(s) - see enclosed list
Main products
Turnover in 1994 (in Rands)	R.....
Export sales as % of turnover in 1994
Total number of employees at the end of 1994 (in full-time equivalents):
Number of employees involved in innovation at the end of 1994 (in full-time equivalents):

1.3 INNOVATION ACTIVITY

	YES	NO
Did your enterprise engage in innovation in the period 1992-1994?
If yes, - was this product innovation?
- was this process innovation?
Does your enterprise intend to engage in either product or process innovation in the next two years?
In your firm, - is innovation a formal activity
- is innovation an informal activity

4. COSTS OF INNOVATION

We are interested to know more about the expenditures you have incurred in innovation

- 4.1 Please estimate the total current expenditure on innovation activity in 1994: R
- 4.2 Please estimate the percentage share of total innovation expenditures attributable to the following activities:
- | | | |
|-----|--|--------|
| (a) | R&D |% |
| (b) | Acquisition of patents and licences |% |
| (c) | Product design |% |
| (d) | Trial production, training, tooling up |% |
| (e) | Market analysis (excluding launch costs) |% |
| (f) | Other (Please specify)..... |% |
| | | 100% |
- 4.3 Please estimate the percentage of innovation expenditures spent on information or specialist services obtained from *outside* your enterprise (e.g. for R&D, patents, licenses, training, consultants, universities and science councils etc.)%
- 4.4 Please estimate the total capital expenditure spent on investment in plant, machinery and equipment in 1994, linked to new product and process innovation R
- 4.5 Please estimate the number of scientists and engineers involved in innovation activities in 1994 (in full-time equivalents)

5. RECENT INNOVATIONS

Please list the most significant examples of innovations in your enterprise in the last three years (Use an additional page if necessary):

7. R&D ACTIVITY

We are also interested in your research and/or development (R&D) activities. We realise that R&D and innovation activities do not always overlap, but please concentrate on the R&D component here.

R&D is a term covering three activities: basic research, applied research, experimental development.

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge without any particular application or use in view.

Applied research is also original investigation undertaken in order to acquire new knowledge. It is however, directed primarily towards a specific practical aim or purpose.

Development is systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed towards producing materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed.

- 7.1 a) Did your enterprise itself engage in R&D in 1994? YES NO
.....
- If yes, b) Does the enterprise perform R&D on a continuous (as opposed to occasional) basis? YES NO
.....
- (c) Did the enterprise do more development than research? YES NO
.....
- 7.2 a) What percentage of 1994 R&D was related to product innovations?%
b) What percentage of 1994 R&D was related to process innovations?%
c) Percentage difficult to group into either category%
100%
- 7.3 Did your enterprise have any co-operation arrangements on R&D activities with: YES NO
- (a) Educational establishments
(b) Government laboratories/departments
(c) Science councils
(c) Other enterprises
- 7.4 How satisfactory, in terms of results/outcome would you regard any co-operation arrangements on R&D
Scale: 1=very unsatisfactory 2=unsatisfactory 3=satisfactory 4=very satisfactory

CO-OPERATION	1	2	3	4
With educational establishments				
With government laboratories				
With science councils				
With other enterprises				

- 7.5 What was the total approximate 1994 R&D expenditure for your enterprise? R.....