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Title: South African Innovation Survey 2005: Highlights

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Main disciplinary area: (e.g. education or psychology) Innovation

Keywords: Innovation Survey, summary results, highlights, international comparisons

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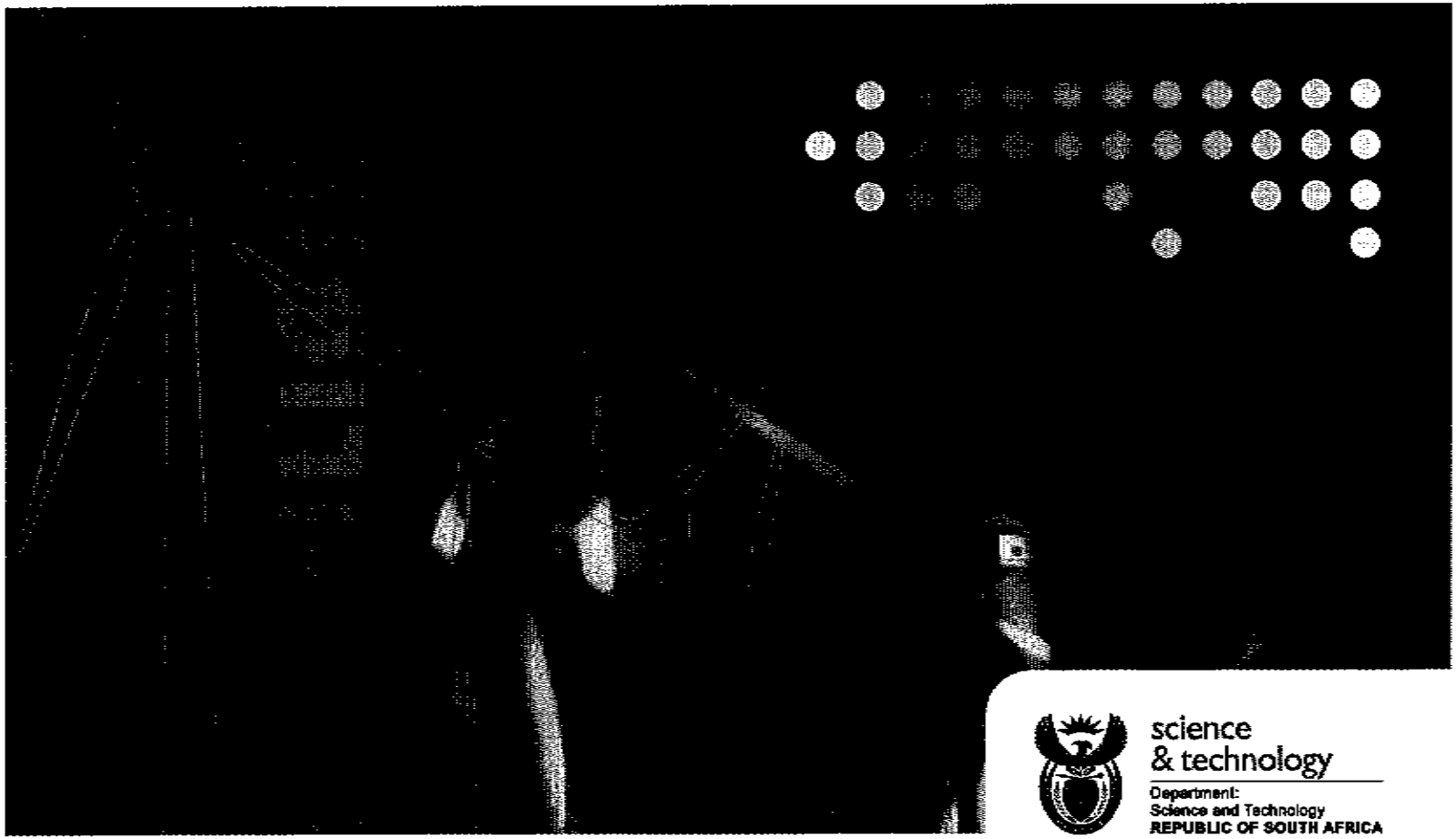
Abstract (add a descriptive paragraph of Output):

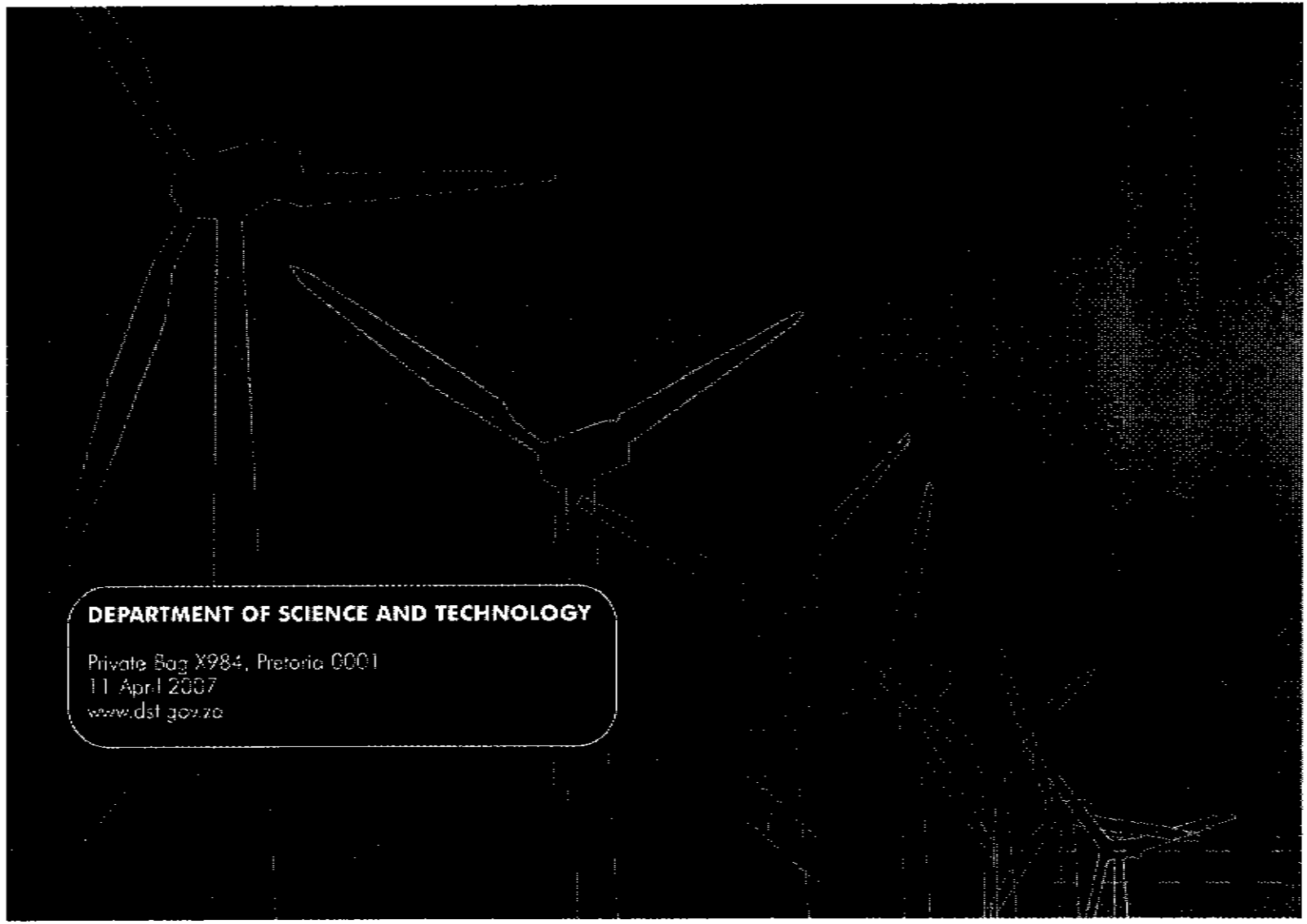
The booklet contains the main highlight results of South Africa's first official innovation survey undertaken by CeSTII on behalf of the Department of Science and Technology. The survey coves the period 2002-2004 with quantitative data for 2004. The South African Innovation Survey 2005 is comparable to the fourth round of the European Community Innovation Survey (CIS4) and is based on a random stratified sample of enterprises supplied by Statistics South Africa. The survey recorded that 52% of South African enterprises recorded innovation activities comprising both product (goods and services) and process innovations. The results of the survey compare well with those produced by EU and other countries.



science
& technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

SOUTH AFRICAN **INNOVATION** SURVEY **2005**

HIGHLIGHTS



DEPARTMENT OF SCIENCE AND TECHNOLOGY

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11 April 2007
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CONTENTS

PREFACE

Innovation activities comprise the generation, use and diffusion of new knowledge, methods, processes and products within organisations and in the market. These activities are fundamental to economic growth and development, and for the general improvement of the quality of life of our citizens. The transformation of new ideas into commercial success requires equal attention to be paid, on the one hand, to the research and experimental development (R&D) and the technological factors of innovation, and on the other, to the social, institutional and market factors that play an important role in innovation.

Policy makers need quantitative and qualitative data to understand the nature of innovation and how it changes over time. Innovation Surveys collect a variety of information such as the sources of information for innovation, costs of innovation, cooperation in innovation, as well as factors hampering innovation from private sector enterprises. The South African Innovation Survey 2005 is the first official innovation survey to be conducted in the country.

The Survey covers the period 2002-2004 and reports on financial and other quantitative data for the reference year 2004. It is directly comparable to round four of the European Union (EU) Community Innovation Survey (CIS4) undertaken in all EU countries and several others including Australia, Japan and China. India is likely to follow in 2007.

The Department and its partners provide support for innovation activities in both the public and private sectors of the National System of Innovation (NSI). The Department accordingly established the Innovation Fund in 1998, which joined a suite of various funding instruments for innovation run by the Departments of Science and Technology and Trade and Industry, whose Support Programme for Industrial Innovation (SPII) is well known.

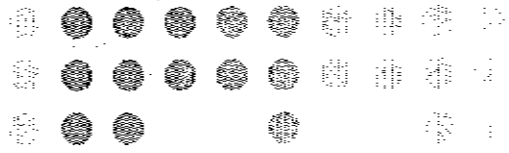
An encouraging finding from the Innovation survey was that product innovators comprised the majority of innovating

enterprises in the survey. Just over 10% of the turnover of product innovators in 2004 was generated by innovations that were new to the market, representing a turnover of about R67,8 billion. A further R79,2 billion was generated by the sale of products that were new to the firms concerned, but not necessarily new to the market. This clearly demonstrates how important innovations are for growth in the economy.

Even better news for government is that the Innovation Survey indicates that about 10% of successful innovators in industry received public funding for their innovation activities. The majority of these support funds came from national funding agencies or government departments. This shows that the funding programmes of government are having a penetrating effect in the private sector, and are demonstrably contributing to the bottom line performance of South African business.

The South African Innovation Survey joins the National R&D Surveys to provide information and data to establish a baseline set of indicators for the Department to monitor progress in achieving NSI and R&D Strategy goals. The Centre for Science, Technology and Innovation Indicators (CeSTII) of the Human Sciences Research Council carries out these surveys on behalf of the Department with the aim of building national databases of R&D and Innovation compliant with best international practice for the preparation of indicators and reports.

We extend our appreciation to the CeSTII project team. A special word of thanks goes to all the survey respondents from the business sector, many of whom are senior executives with extremely busy schedules. Thank you for giving your time and attention to the Innovation Survey and providing information and data for the analysis.



Mosibudi Mangena
Minister of Science and Technology
Johannesburg, 11 April 2007

A BRIEF INTRODUCTION TO INNOVATION SURVEYS

Innovation is vital for boosting economic growth and enhancing quality of life. National Innovation Surveys of the business sector are currently the main statistical instruments for measuring the level of innovation activity in countries. The survey results provide a basis for the better understanding of innovation processes and insights into the effects of innovation on the economy.

A NOTE ON METHODOLOGY

The South African Innovation Survey 2005 is comparable with the fourth round of the European Community Innovation Survey (CIS4). CeSTII has worked closely with the Department of Science and Technology (DST), the Organisation for Economic Co-operation and Development (OECD), Eurostat, and Statistics South Africa in developing this survey. The survey design was informed by the OECD/Eurostat Oslo Manual 2005, Eurostat guidelines for CIS4 and the structure of the Statistics South Africa business register. A random stratified sample of enterprises (by sector and size of enterprise) was drawn from the business registry database of Statistics South Africa. Fieldwork entailed a postal survey with at least two telephonic and two written follow-ups and a non-response survey. The final results were extrapolated to the target population based on the weighted cleaned sample, representing both the industry and the service sectors.

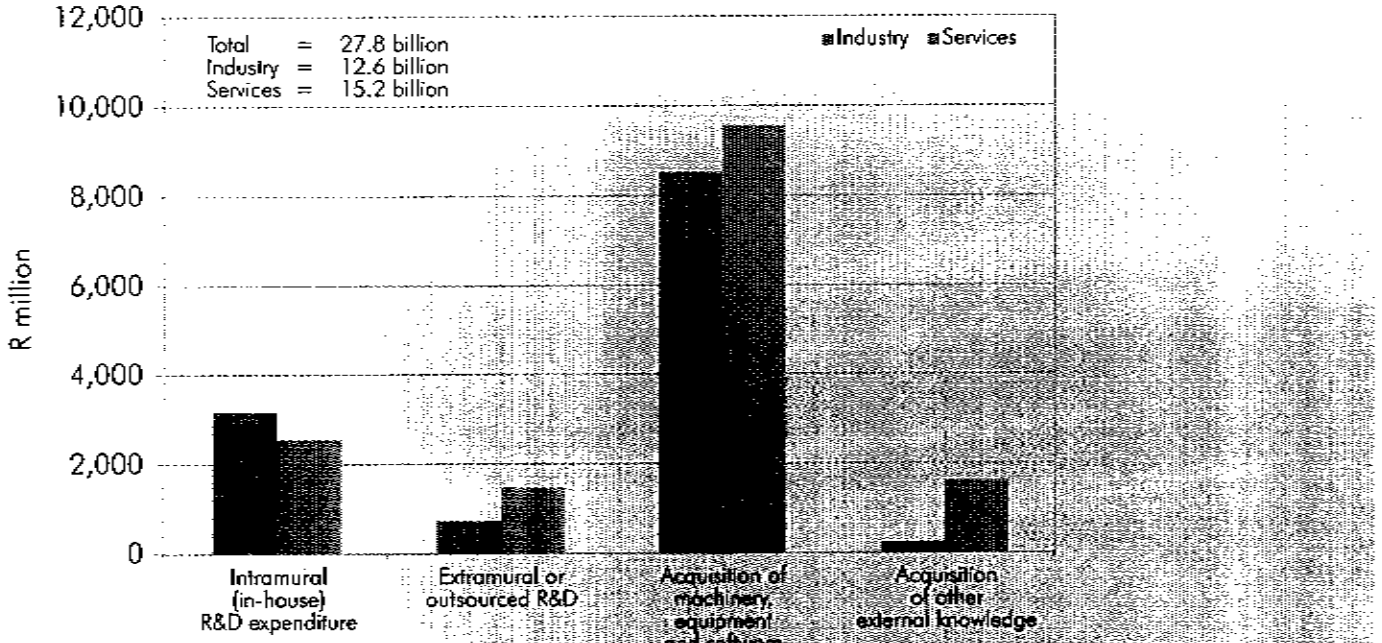
Nearly 52% of South African enterprises had technological innovation activities, comprising both product (goods and services) and process innovations. A further 11% of enterprises recorded only marketing or organisational innovations. South African levels of innovation compare favourably with other countries such as Sweden, the United Kingdom and Portugal. In a previous Innovation Survey in South Africa (University of Pretoria/Eindhoven University , 2003) 44% of the firms were recorded as innovative for the survey period 1998-2000 which compared well with EU countries at the time.

FIGURE 1:
Share of enterprises with innovation activities (%), 2002-2004

Enterprises spent a total of R27.8 billion on innovation activities in 2004. This represents about 2.4% of the total turnover of all surveyed enterprises in both the industrial and service sectors.* About 20% of expenditure on innovation was devoted to intramural R&D and a further 7.8% was spent on outsourced R&D. The R5.7 billion spent on intramural R&D in 2004 accords well with the amount of R5.9 billion recorded for the equivalent sectors in the 2004/05 R&D Survey. The bulk of innovation expenditure (65%) was devoted to the acquisition of new machinery, equipment and software. Acquisition of other external knowledge accounted for about 6.5% of innovation expenditure.

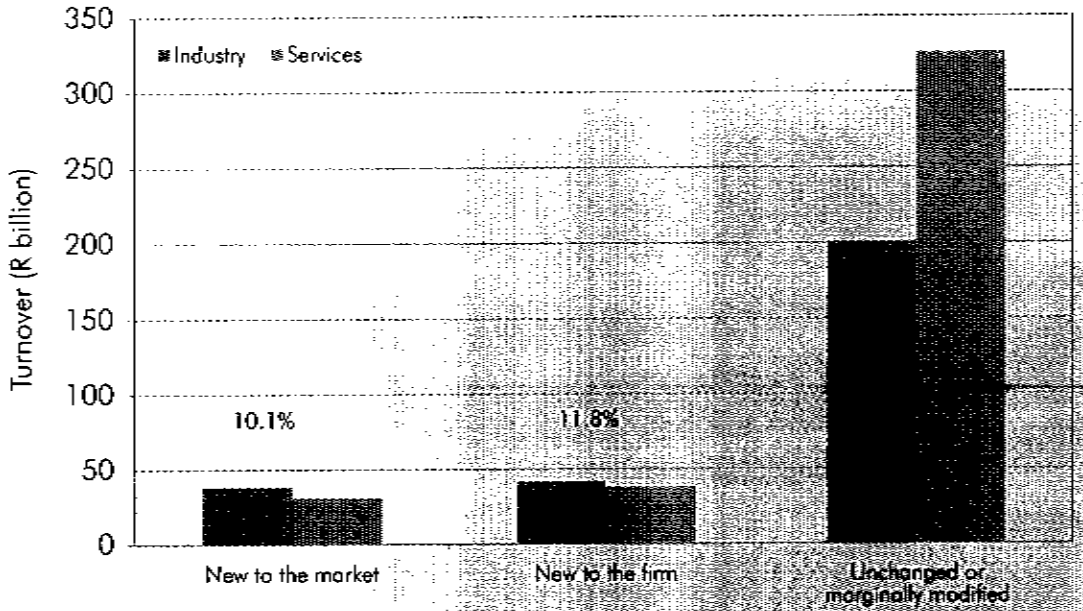
* **Industry** = Mining and Quarrying; Manufacturing; Electricity, Gas and Water Supply
Services = Wholesale and Retail Trade; Transport, Storage and Communication; Financial Intermediation; Architectural, Engineering and other Technical Activities

FIGURE 2:
Expenditure of enterprises on innovation activities, 2004



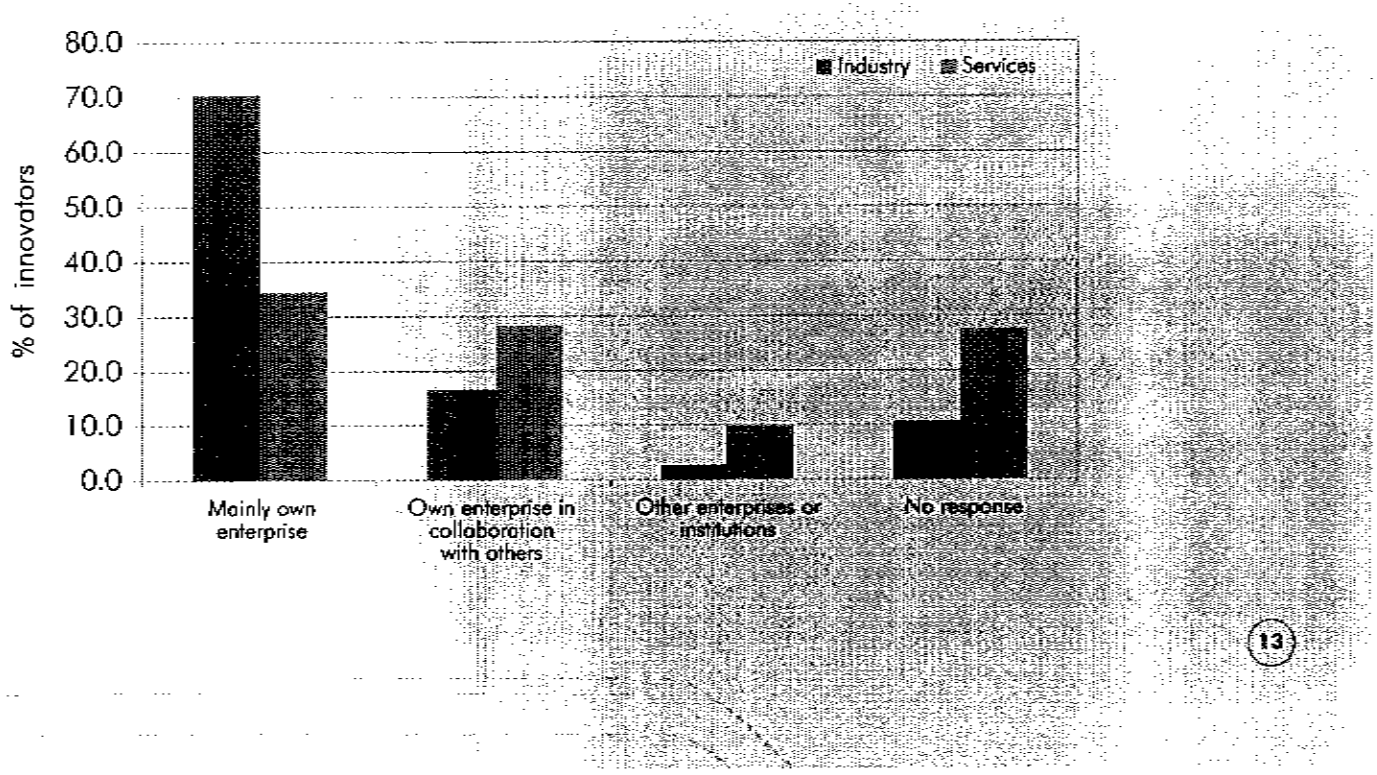
Enterprises that had product innovations (comprising innovations in either goods or services produced) accounted for the majority of innovators in the survey. Just over 10% of the turnover of product innovators in 2004 was generated by innovations that were new to the market, representing turnover of about R67.8 billion. A further 11.8% of turnover (or R79.2 billion) was generated by the sale of products that were new to the firms concerned, but not necessarily new to the market.

FIGURE 3:
Product (goods and services) innovators –
breakdown of turnover by product type, 2004



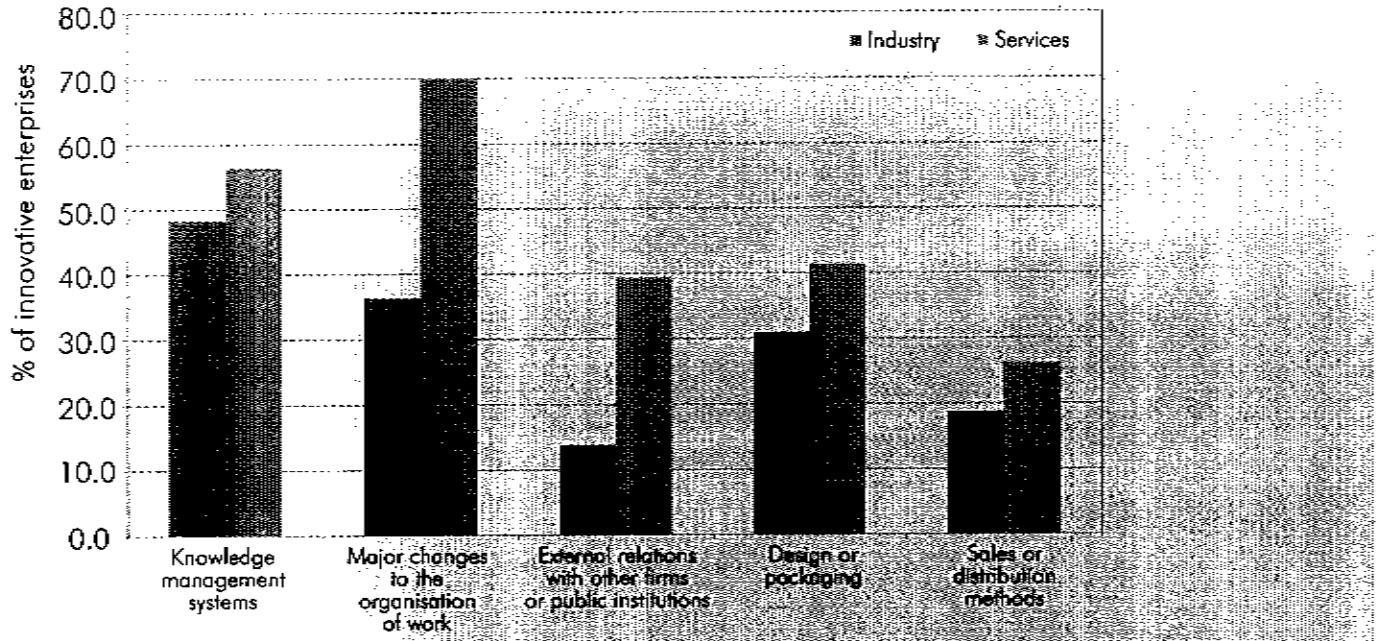
The majority (51%) of innovations were produced within enterprises themselves but this was more common in the industrial enterprises (70%) than in the services-oriented enterprises (35%). About 28% of innovations in the services sector were produced by enterprises in collaboration with other enterprises. Some 55% of innovations were developed mainly within South Africa while another 25% originated mainly from foreign sources (the remaining 20% of innovative enterprises did not provide the geographical origin of innovations).

FIGURE 4:
Innovative enterprises – responsibility for the development of innovations, 2002-2004



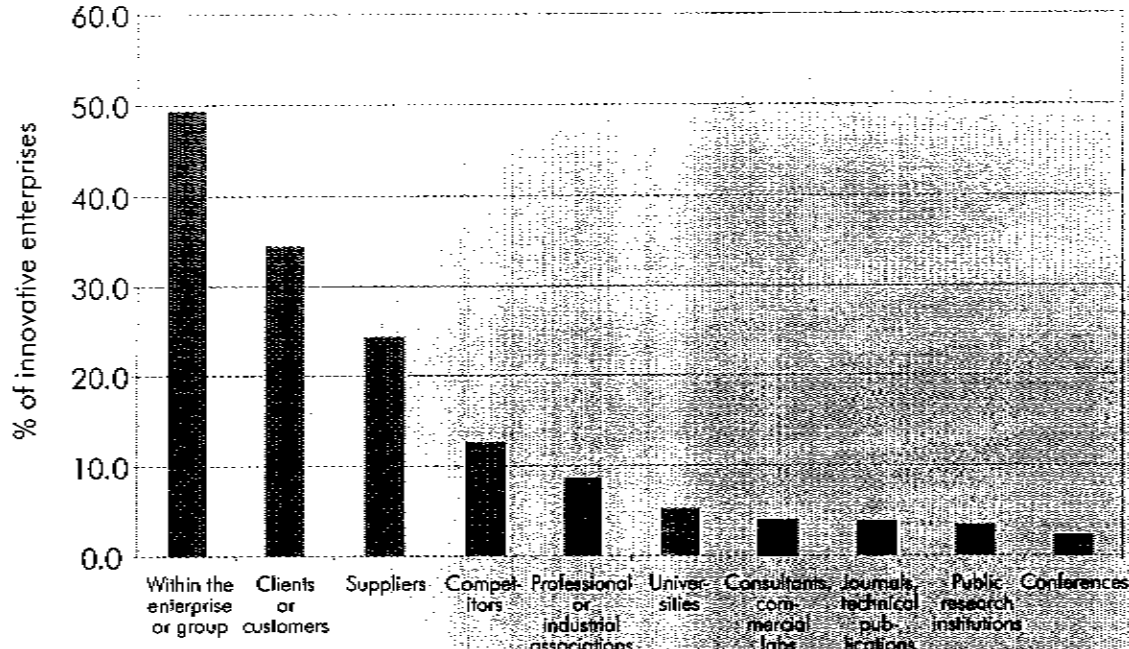
Although organisational and marketing innovations were common in enterprises with product innovations, it appears that businesses in the service sector were more likely to engage in such innovations. Nearly 70% of enterprises in the service sector undertook major changes to the organisation of work during 2002-2004 while about 56% adopted new knowledge management systems.

FIGURE 5:
Proportion of innovative enterprises that introduced organisational or marketing innovations, 2002-2004



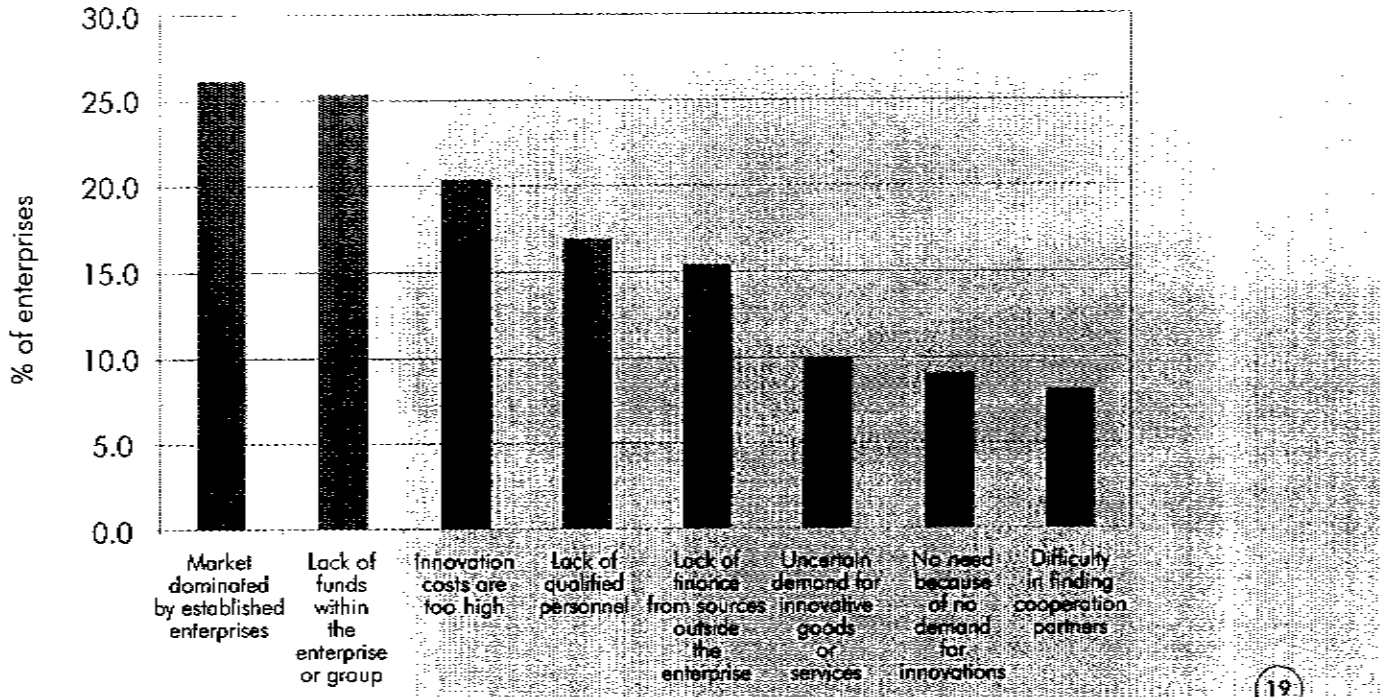
Nearly half of all innovative enterprises (49%) rated sources of information within the enterprise (or enterprise group) as highly important for innovation activities. Clients or customers provided highly important sources of information for 35% of innovative enterprises, followed by suppliers (24%) and competitors (13%). Universities and technikons were rated as highly important by 5% of enterprises and public research institutions, including science councils, were acknowledged as highly important sources of information by just over 3% of innovative enterprises.

FIGURE 6:
Sources of information for innovation rated as highly important by innovative enterprises, 2002-2004



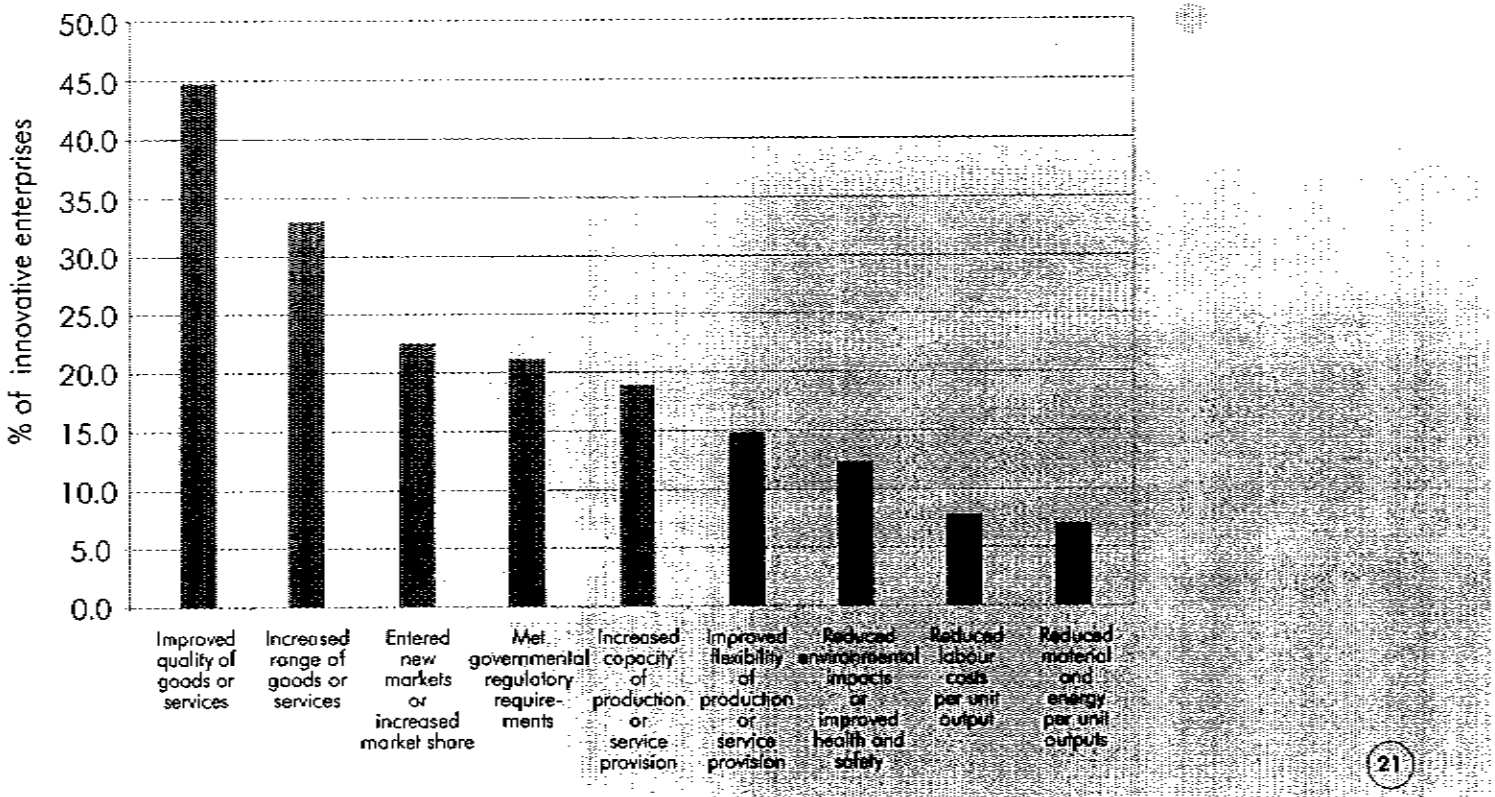
More than a quarter (26%) of all enterprises indicoted that the development of innovative activities within their enterprises were hampered or restrained because the market was already dominated by established enterprises. A lack of funds within the enterprise or enterprise group and innovation costs being too high were cited as highly important in hampering innovation activities by 25% and 20% of enterprises, respectively. Lack of qualified personnel was seen as a highly important factor by 17 % of enterprises.

FIGURE 7:
Highly important factors that hampered innovation activities, 2002-2004



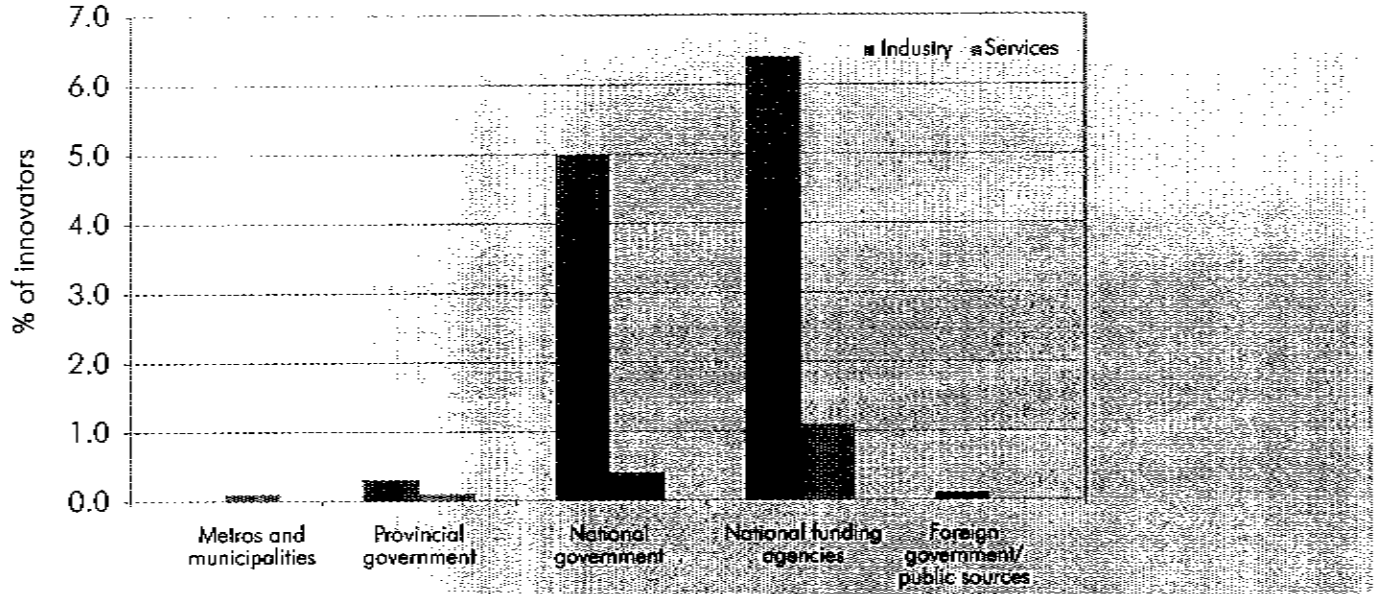
The most often cited highly important effect of innovation was improved quality of goods or services (45% of innovative enterprises). The majority of EU countries also cited this effect as the most highly important in response to this question. It was also important for innovative enterprises in South Africa to increase the range of goods or services (33%) and to enter new markets or increase market share (23%). About 21% of innovative enterprises cited the meeting of government regulatory requirements as a highly important effect of innovation. Reducing labour costs and reducing resources per unit output appeared to be relatively unimportant for the majority of innovative enterprises.

FIGURE 8:
Highly important effects of innovation on outcomes for enterprises, 2002-2004



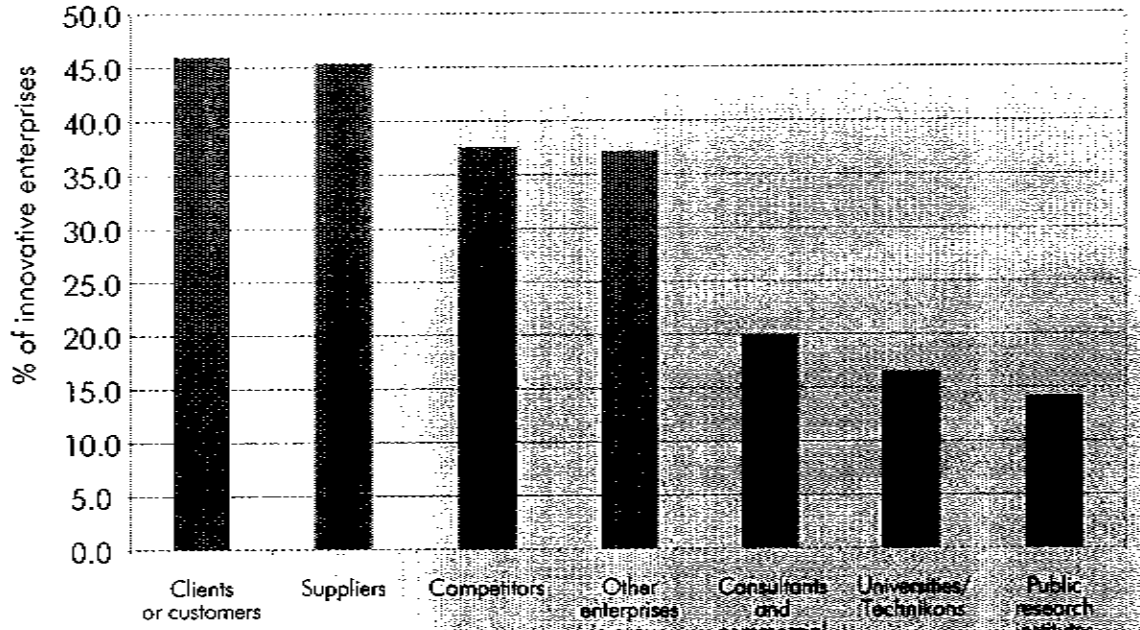
An encouraging finding from the survey was that the national funding agencies (such as the National Research Foundation) appear to be having a stimulatory effect on innovation activities. About 6% of innovators in industry had received funding for innovation activities from these national funders while 1% of innovating enterprises in the services sector also received funding. National government provided 5% of industrial innovators with funding and a further 0.4 % of innovators in the services sector received funding from this source. Altogether about 10% of successful innovators in industry received public funding for their activities between 2002-2004.

FIGURE 9:
Innovative enterprises that received financial support for innovation activities from government sources, 2002-2004



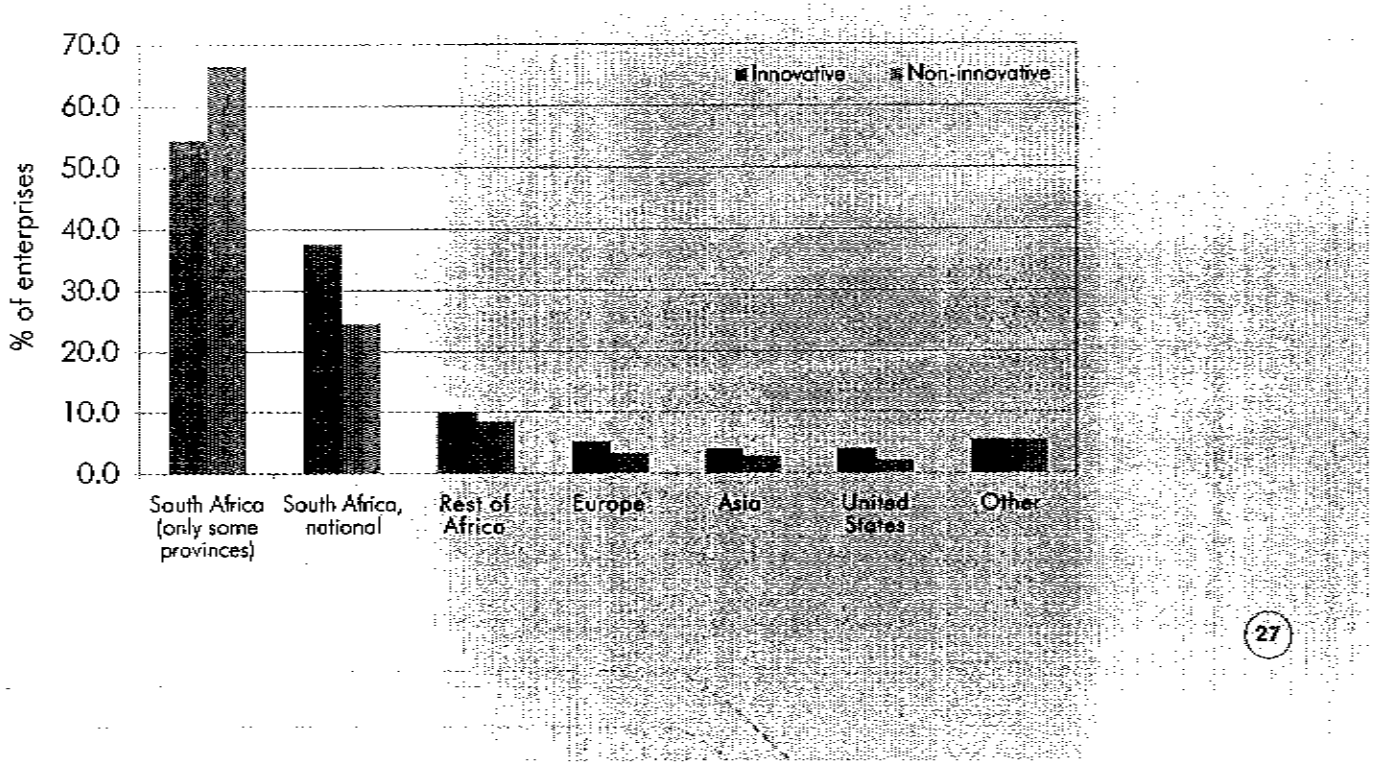
The most important collaborative partnerships for innovation were between enterprises and their clients or customers and these comprised 46% of innovative collaborations. This was closely followed by collaboration with suppliers (45%) indicating that innovative South African enterprises are well attuned to both the demand and supply aspects of the market. Competitors (or enterprises operating in the same sector) were important collaboration partners for innovation for 38% of innovators. Universities and technikons and public research institutes were rated as highly important partners for collaboration in innovation activities by 17% and 14% of innovative enterprises respectively.

FIGURE 10:
Collaborative partnerships for innovation activities by type of partner, 2002-2004



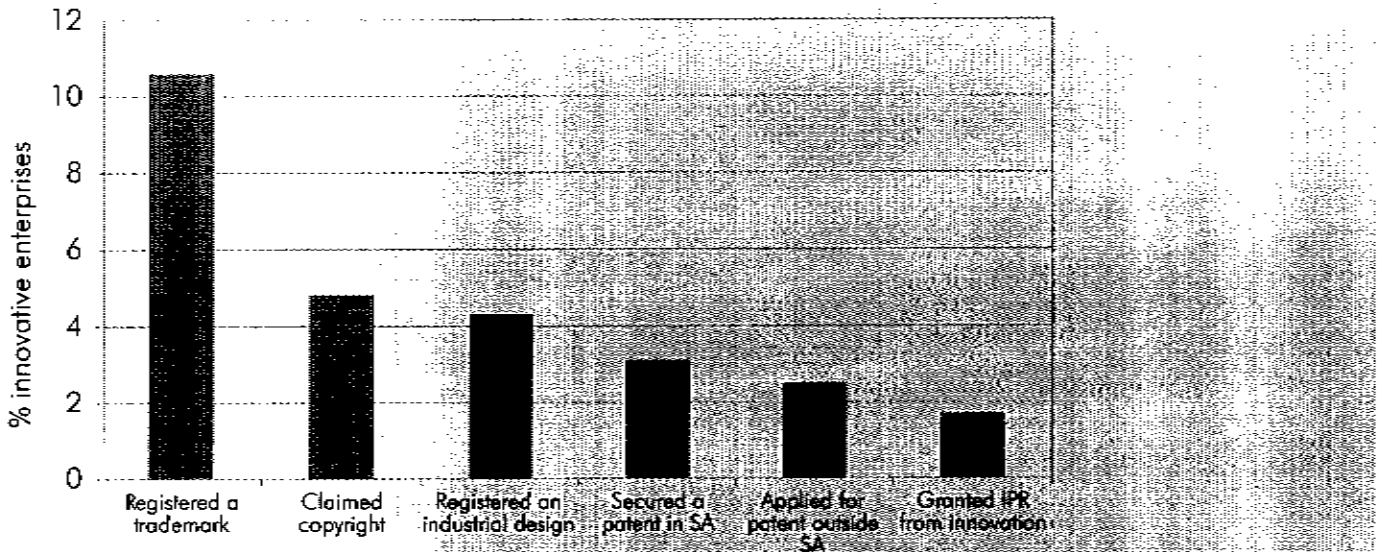
Innovative enterprises appear to be more export-orientated than non-innovative enterprises. About 67% of non-innovative enterprises sold goods and services in only some provinces of South Africa compared to 54% of innovative enterprises. Other countries in Africa are an important destination for goods and services produced by innovative enterprises (10%) followed by Europe (5%) and Asia (4%).

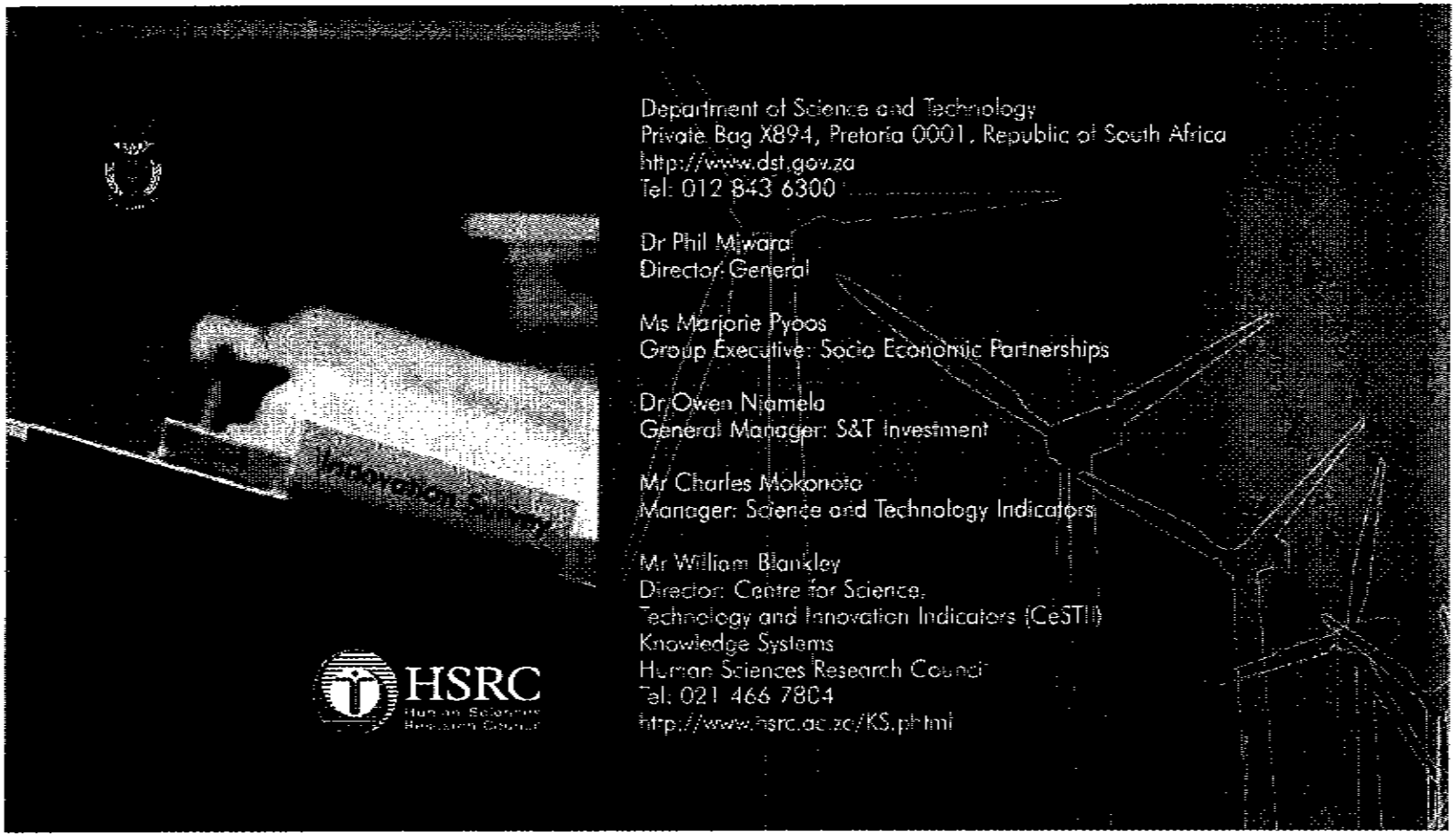
FIGURE 11:
Geographic distribution of goods and services sold by innovative and non-innovative enterprises, 2002-2004



Nearly 11% of innovative enterprises registered a trademark between 2002 and 2004 while about 5% claimed a copyright. A total of 3.1% of innovative enterprises secured a patent in South Africa while 2.5% applied for a patent outside South Africa. About 1.7% of innovative enterprises granted intellectual property rights originating from their own innovation activities to third parties.

FIGURE 12:
Enterprises with innovation activity that made use of intellectual property rights, 2002-2004





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