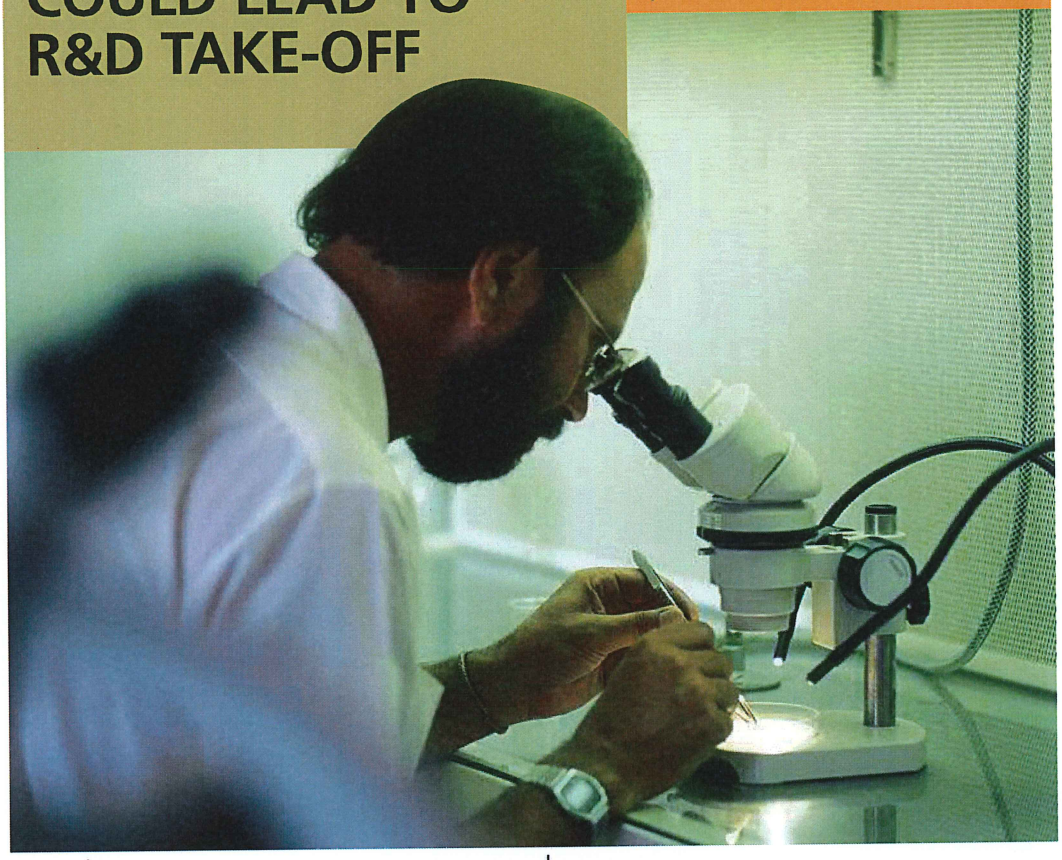
SIGNS OF GROWTH COULD LEAD TO R&D TAKE-OFF

By Michael Kahn



Governments know that there is a positive relationship between economic competitiveness and spending on research and development (R&D), yet some feel uneasy about committing R&D funds. Their advisers and constituencies rightly ask, 'What is the result of this spending?' and 'Where does the money go?'

The former is difficult to answer. The latter question, also complex, is a subject of study in all industrialised and newly industrialising economies. Indeed, a condition for membership of the Organisation for Economic Co-operation and Development (OECD) is the compilation of reliable R&D indicators.

R&D surveys follow the guidelines of the OECD Frascati Manual, which measures the inputs for R&D. Typical questions are How much is spent? Where do the funds originate? To what research areas are they attributed? What are the headcounts and qualifications, gender, group and age profiles? Even these items, while apparently simple, create confusion. Indeed, what counts as R&D?

Unlike some OECD countries there is no compliance mechanism to participate in the survey so that respondent buy-in is a major consideration. The survey is a highly labour-intensive activity that depends upon the deployment of senior fieldworkers. The survey was made yet more intricate by the inclusion of questions on the issue of staff mobility.

We covered all universities, technikons and science councils; the major players in government; captured data from the JSE Top 50 and the Technology Top 100; and interacted with firms performing R&D. The not-for-profit sector was also surveyed. A major lesson was that one could never communicate project intentions enough, and that understanding institutional power relationships is a key to accessing information.

And the findings? The most important indicator is that South Africa now spends 0.76% of GDP on R&D – a real gain on the 0.69% recorded in 1997, but short of the Department of Science and Technology target of 1% for 2005. The number of full-time equivalent researchers is up at 19 452 (18 073 in 1997/98). Spending on basic research has increased from 8% to 12%, but the business sector spend (mainly applied research) remains steady at 54%. One surprise, regarding the geographic spending, is that the Free State is now third after Gauteng and the Western Cape (because of Iscor).

Regarding group and gender, strong disparities remain, but the science councils have progressed since the 1994 study by HSRC Board member Enver Motala. Science councils' R&D staff from previously disadvantaged groups rose from 7% in 1994 to 45% in 2001.

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Last is the extent of concentration. The top twenty leading R&D performers account for two-thirds of total spending, and comprise science councils, defence industries, petrochemicals, mining houses, financial services, one ICT player and higher education. Ten of these entities are either state owned or state funded.

What is the overall message? Despite the losses through emigration of highly skilled professionals, the R&D system has remained relatively robust and is now showing signs of real growth. In addition, the innovation survey carried out by the University of Pretoria with Eindhoven University points to considerable willingness of manufacturing firms to introduce innovations. I would argue that even though the bulk of this reported innovation lies in imitation, this is nevertheless a positive finding. After all, the Asian Tigers have all moved through this phase. We may be but one step short of the 'creative imitation' (*'n boer maak 'n plan*) that has enabled South Korea to become a crucible of technological innovation.

The challenge for the country is to reach the target of investing 1% GDP on R&D, a level that is regarded as a precondition for sustained industrial take off. •

The high-level key results of the National Survey of Research and Experimental Development (R&D) report is available from media@hsrc.ac.za.

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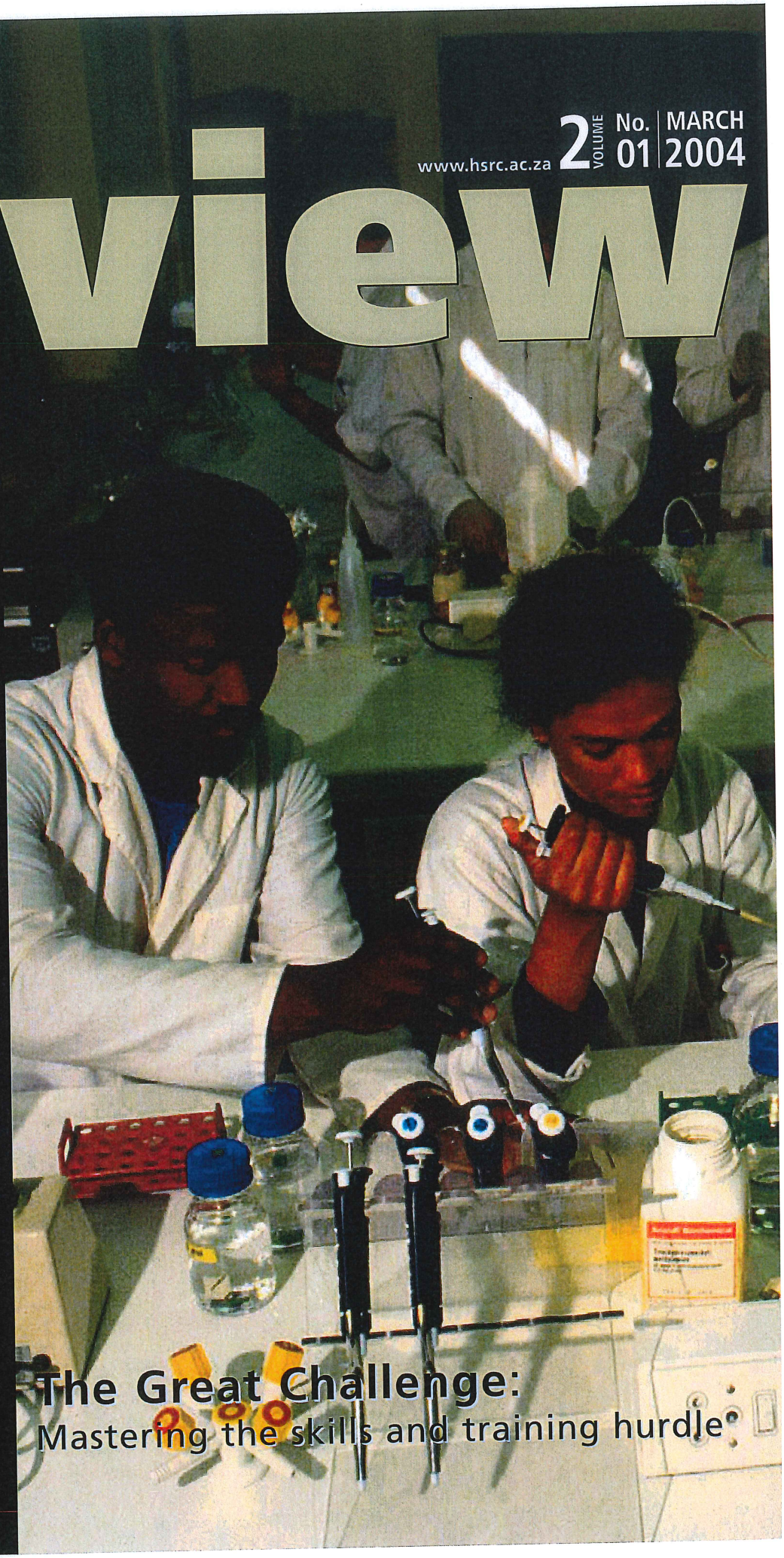

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