

The future of South African universities: What role for business?

Part Two

The Centre for Development and Enterprise recently hosted a round table discussion on the role of business in the future of South African universities, shortly before the Council on Higher Education released its report on reconfiguring the shape and size of the higher education system.

Participants included business and professional people, university leaders, public policy makers, and other experts, including Dr. Ramesh Mashelkar FRS, Director General of the CSIR in India, and Richard Brown, chief executive of the Council for Industry and Higher Education in the United Kingdom.

This was CDE's second round table on the topic. The first round table, which took place in 1998, broke new ground and raised

critical issues now at the heart of policy debates about the higher education system.

The second round table focused on business's interests and concerns in this context. Key questions addressed in the course of the day were:

- What does South Africa need from its universities in the new millennium?
- What does business need from higher education in the context of globalisation?
- What will help businesses develop a coherent strategy to pursue its interests in relation to the higher education system?

This is an edited version of the day's discussion. A number of experts had been asked to make lead-in presentations, and these are summarised in the main text.

‘South African business – despite an overloaded agenda – must urgently think through its collective needs and address its own interests in influencing the future of higher education.’

Summary of key points

Higher education and national economic success

- Globalisation and the development of knowledge-based economies are making higher education increasingly important to the economic viability of nations. Applied knowledge will be the primary source of comparative economic advantage for companies and countries in the 21st century.
- Many countries have recognised that higher education institutions are major *economic* resources and are actively promoting partnerships for national development between government, business and higher education.
- Higher education has a vital role in helping South Africa to develop an internationally competitive economy, a more prosperous and equitable society, and a stable democracy. Better education, better learning, better research, better products and better economic growth are the prerequisites for a better quality of life for all South Africans.

Crisis in higher education

- A major reconfiguration of South African higher education is now on the table for discussion. This reappraisal has been precipitated by a multi-dimensional crisis extending from the schools into the tertiary sector, and the need – in the national interest – to reshape an institutional terrain distorted by apartheid planning. There are too many institutions, many of them in the wrong places, and they are of very uneven quality.
- The national participation rate in higher education is falling. At present it is only 15% in the relevant age group, and is dropping towards levels found in the least developed countries. This must ring alarm-bells for South Africa’s future competitiveness. By contrast, the average participation rate in OECD countries is 51% (over 70% in the USA), and 21% in middle-income countries. A well-educated population is crucial to South Africa’s future. Increasing the participation rate must become a major policy-driver.
- Expectations of significant growth in higher education in the post-apartheid era have

Participants in the round table

Francis Antonie, senior economist, Standard Bank of SA

Susan Bedil, managing director, Midrand University Campus

Ann Bernstein, executive director, CDE

Julia Boltar, partner, Webber Wentzel Bowens

Richard Brown, chief executive officer, Council for Industry and Higher Education, UK

Prof. Ian Bunting, consultant: Department of Education; head: Institutional Information Unit, UCT

Ahmed Essop, chief director: Planning & Management, Department of Education

Dr Geoff Garrett, president & chief executive officer, CSIR

Janice Gobey, recruitment manager, Investec Bank Ltd

Prof. Douglas Irvine, senior associate, CDE

Andrew Johnson, manager: HR Development, Anglovaal Mining Ltd

Margie Keeton, executive director, Tshikululu Social Investments

Derek Keys, former Minister of Finance; director, Billiton

Piyushi Kotecha, chief executive officer, SAUVCA

Dr Robin Lee, Robin H Lee & Associates

Prof. Chabani Manganyi, adviser to the Vice-Chancellor, University of Pretoria; formerly director general, Department of Education

Dr Ramesh Mashelkar FRS, director general, CSIR, India

Views expressed by the participants are not necessarily those of CDE

evaporated. There are fewer students now than in 1995. Contrary to the NCHE's prediction that the number of school-leavers with matric exemption would rise from 89 000 in 1994 to over 130 000 in 1999, there were only 63 000 in 1999 – less than half the projected figure.

- Higher education has become a cut-throat business as institutions compete for a limited pool of matriculants, especially those with maths results good enough to enter science, engineering, technology and business programmes.
- The historically black universities (HBUs) are in crisis. Their student inflows have dropped dramatically, and they are in severe financial difficulties. Problems of governance and management are so profound at many of these institutions that even if there were sufficient funds it is questionable whether they could pull themselves through.
- Political correctness seems to insist on talking about the crisis in general terms to avoid focusing on HBUs, as this is a

sensitive issue. But the higher education system is not dysfunctional in all its parts – some institutions are well managed, reasonably strong financially and academically efficient. Nevertheless, there is a worrying shortage of skills in even the most reputable universities and in academic departments critical to the economy.

Rationalising higher education

- South Africans are hesitant to talk about merit and the need for excellence. If we want to be globally competitive we have to face up to reality. How many world-class centres of excellence can South Africa realistically aim to have? Probably not a single university in this country can currently assemble critical mass at international levels in its key departments and research centres.
- The current re-appraisal of the shape, size and functions of the higher education system is long overdue. Hard choices are postponed at the nation's peril. South

Ken Maxwell, non-executive chairman, Anglovaal Mining Ltd

Dr Khotso Mokhele, president, National Research Foundation

Enver Motala, consultant, Council on Higher Education

Ivan Mzimela, head: Group HR Development, Nedcor Ltd

Dr Pat Ngwenya, executive director, Acumen Holdings Ltd

Andrea Parkerson, manager, Standard Bank Foundation

Prof. Lawrence Schlemmer, consultant

Prof. Nick Segal, director: Graduate School of Business, UCT

Dr Paul Shongwe, manager: Public Affairs, Standard Bank Foundation

Prof. Sibusiso Sibisi, deputy Vice-Chancellor: Research, UCT

Dr Dhiru Soni, deputy Vice-Chancellor, University of Durban-Westville

Michael Spicer, executive director: Corporate Affairs, Anglo American Corporation of SA

Prof. Ian Steadman, director: Wits Foundation, University of the Witwatersrand

Dr Errol Tyobeka, chief director: Public Science and Liaison, Dept. of Arts, Culture, Science & Technology

Prof. Charles van Onselen, research professor, University of Pretoria

Dr Bruce Young, manager: Technology & Concept Development, SASOL Technology (Pty) Ltd

Africa has to nurture and strengthen centres of excellence – institutions, departments, and programmes.

- A coherent, co-ordinated and integrated system is not synonymous with a uniform system. Institutions must define their missions realistically to meet different needs, playing complementary roles in the national system of higher education. Each must aim for excellence in delivering its own particular mission.
- Private institutions are often viewed as a threat to the public universities. This sector has grown anarchically and needs better regulation; but it enriches the range of choices in methods of instruction, curricula and qualifications. However, it cannot replace comprehensive programmes of teaching and research undertaken by public institutions in high-cost fields.

What business needs from higher education

- Higher education in the 21st century must be responsive to broad changes in the economy and to business's needs. However, it is important to distinguish between the specific short-term training needs of business and industry, and the role of higher education in developing critical thought and the generic skills that make graduates flexible and adaptable.
- South Africa needs more and better-educated people in all walks of life. In particular, business needs:
 - more graduates to support the development of a knowledge-based economy, both in organisations and as entrepreneurs
 - a system of higher and further education geared to lifelong learning, to ensure that workforce skills can be continuously upgraded in changing circumstance
 - world-class research, with a conscious emphasis on commercial applications
 - a growing pool of well-educated people

who can participate creatively in policy debates and respond successfully to the country's challenges.

- South Africa's universities have by and large not adapted to the economic challenges facing South Africa, and are not sufficiently responsive to business's needs. They have old-fashioned curricula, ageing equipment, dilapidated campuses, and pay structures that don't attract competent young people into their employ.
- The fundamental question is how South Africa can best use limited resources to get value for money and organise the system as a whole to meet national goals.

Business and its interests

- There is a lack of effective communication between business, higher education and government in South Africa. Currently there is no meeting ground where business and higher education can begin to influence and impact on one another in constructive ways.
- Business has failed to lodge itself as an effective stakeholder in higher education in the eyes of both the universities and government. For example, the Council on Higher Education which advises the Minister of Education has only one employer voice among its twenty members – and according to the CHE this is not through lack of trying to attract high-level business participation.
- CDE's research shows that many senior business people in South Africa have a limited understanding of the information age and its implications for the future of business. Nor are they aware that business could play an active role in influencing education to meet the challenges of globalisation.
- In many countries, industrial innovation is becoming as important in their universities' range of activities as teaching, research, and community service. A national innovation system hinges on collaborative interactions among tertiary institutions, government and industry. While research links of this kind are

growing in South Africa, they are still very underdeveloped, and must be expanded vigorously.

Business needs a strategy

- CDE's research into international experience in business-university co-operation shows that business now has unprecedented opportunities to influence universities in a series of mutually beneficial relationships. South Africa can gain significantly from practices pioneered and developed in other parts of the world.
- At the public policy level, partnerships between business and higher education have been set up in many countries to meet the challenges of the knowledge-based economy. Such partnerships can be highly influential – for example, the Council for Industry and Higher Education in the UK is not just a pressure group for business, but promotes a vision of the role of higher education in society in a creative partnership with business.
- The report of the Council on Higher Education's task team on reconfiguring the shape and size of higher education presents business with an opportunity and a threat. It recommends that the Minister should begin a process of consultation with key national stakeholders; and it argues that funds – including private sector funding – will have to be mobilised for strategic interventions in the system.
- The key conclusion from the round table is that South African business – despite an overloaded agenda – must urgently think through its collective needs and address its own interests in influencing the future of higher education, if it is not to be co-opted on to other people's agendas at this time of change.

CDE's recommendations

- The CDE round table provides pointers for how and why business leaders should

respond to the new circumstances facing their companies and the country's system of higher education.

- Business should:
 - urgently initiate an appropriate collective process to study the 'shape and size' report from a business interests perspective in order to engage productively with government and higher education institutions and make a considered contribution to this debate
 - develop a well-researched position on the way in which the interests of government, the higher education sector, and business – and therefore the interests of the nation – link to and coincide in respect of higher education
 - exercise a greater influence on universities by more co-ordinated and vigorous use of voluntary membership of internal university decision-making, advisory or consulting bodies
 - use financial donations and grants to universities much more strategically
 - sharply increase its collaboration with universities, science councils and other such bodies in carrying out research programmes, actively co-operating with universities in the commercialisation of research results as a key element in South Africa's strategy for economic development
 - take the initiative to establish a high-level business-higher education forum for the exchange and development of views as a continuing base for influencing public policy on higher education in South Africa.
- The government needs business as an active partner in the difficult task of rethinking the higher education system. The stakes are high. Effective and strategic business participation in the debate about the future of South Africa's system of higher education could make all the difference between success and failure.

‘The key issue in higher education must be how the system can best contribute to achieving the goals of economic and social development and democracy in a society committed to innovation, competitiveness and excellence... Hard choices must be made. Government will need clear vision, real courage and effective strategic management skills in reshaping higher education. It will need help in putting such a package together.’

Acronyms and Abbreviations

CHE	Council on Higher Education
CIHE	Council for Industry and Higher Education (UK)
CSIR	Council for Scientific and Industrial Research
HBU	Historically black university
HEIs	Higher education institutions
NCHE	National Commission on Higher Education
SAQA	South African Qualifications Authority
SAUVCA	South African University Vice-Chancellors' Association
THRIP	Technology and Human Resources for Industry Programme
UDW	University of Durban-Westville
UCT	University of Cape Town
Unisa	University of South Africa
UWC	University of the Western Cape
White Paper	Education White Paper 3 of 1997
Wits	University of the Witwatersrand

The round table discussion

What does business need from higher education in the 21st century? Globally, business-university collaboration has become a vital element in knowledge-based economic development. How is South Africa shaping up?

The day began with an overview of critical problems and challenges in the higher education sector. This led into a discussion of the role of public and private higher education in a developing country, drawing on India's experience in particular.

The next session took a closer look at how large universities currently work with business, the professions and government; and how South African business views its relations with universities. Opening up a wider perspective, two speakers reviewed international practice in strategic co-operation between business and higher education institutions. South Africa lags far behind many of its competitors in this regard. The concluding session focused on ways to address the issue.

Introduction

Introducing the discussion, **Ann Bernstein** said that CDE was particularly pleased that Dr Ramesh Mashelkar and Richard Brown had accepted the invitation to participate in the round table. South Africa can learn a great deal from international experience in this context.

CDE has done extensive work on the role of business as a social actor¹, but does not lay claim to any special expertise in the complex world of higher education policy, apart from the round tables it has organised on this topic. However, important background research had been commissioned as a resource for this discussion.

South African education is in crisis at every level, as Professor Kader Asmal stated unequivocally and courageously when he

took up his appointment as Minister of Education in 1999². The higher education system, he has said, is irrational, fragmented, wasteful and unfocused – a conclusion already arrived at by the CDE round table in 1998³.

The last ten years in higher education show above all the power of a wrong idea and the extremely harmful consequences of no-one wanting to identify and take the hard choices required. We have never had 21 'universities' and we certainly do not have anything like this today. And we should all be ashamed that we ever pretended otherwise at such great cost.

Political orthodoxy has maintained that the 'historically disadvantaged institutions' were entitled to massive financial redress and that the country's 21 'universities'

South African education is in crisis at every level. The reappraisal now taking place is long overdue. It is imperative that this new approach should not fail.

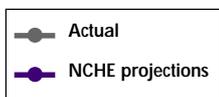
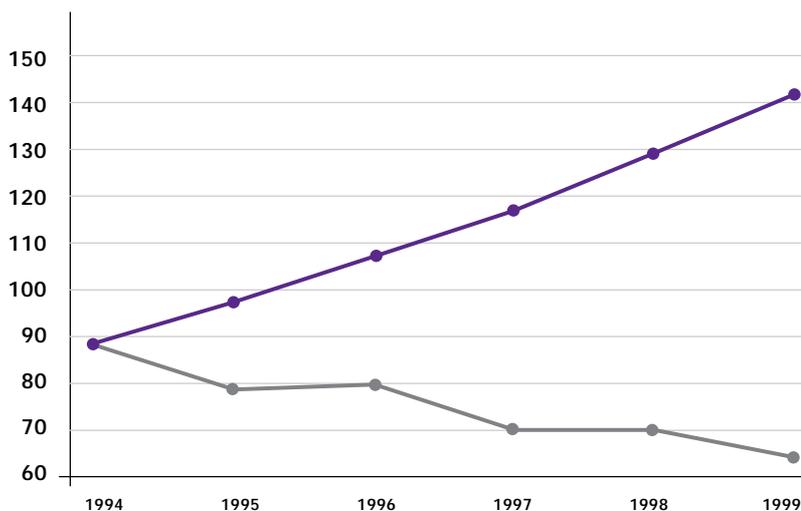
¹ CDE Focus no 4, *Corporate business in a wider role: Brief results of two CDE surveys on resource flows from business to society in South Africa*, June 1999; CDE Role of Business Series: *Business and democracy: Cohabitation or contradiction?* May 1996; *Perspectives on business, economic growth and civil society*, July 1996; *Business and government in South Africa*, November 1996; Peter Berger and Ann Bernstein (eds), *Business and democracy: Cohabitation or contradiction?* London: Printer Press, 1998.

² Minister of Education Kader Asmal's policy statement, *Call to action: Mobilising citizens to build a South African education and training system for the 21st century*, 27 July, 1999.

³ CDE Round Table no 2, *The future of South African universities: What role for business?* (Part One), July 1998.

SCHOOL LEAVERS OBTAINING MATRIC EXEMPTION

(thousands)



Source:

Department of Education

could and should all do the same kinds of things and achieve the same degree of excellence. It ignored the fact that what used to be called ‘the bush colleges’ were created by the apartheid government to serve its own political ends rather than educational requirements, the needs of students or any other national interests. A great deal of precious money, time and effort has been wasted over the past decade. The costs of this failed approach are being borne by thousands of individuals and their families and can be seen too in the country’s growing skills crisis.

The reappraisal now taking place is long overdue. It is imperative that this new approach should not fail. All stakeholders in the future of South Africa’s universities and the wider higher education system must put aside their own narrow interests and apply their minds to the national interest. In this area neither the constitution nor the Freedom Charter and its principles tell one what to do. What is required is a clear philosophy concerning education, development, limitations and future possibilities in a developing country such as South Africa.

The problems in higher education highlight broader dilemmas facing both government and business. Government

must open up new opportunities for millions of citizens in many different fields to deal effectively with poverty and inequality. It must modernise a country caught in a time warp by apartheid and international isolation, with an economy in bad shape, and make South Africa a globally competitive nation. In this context the key issue in higher education must be how the system can best contribute to achieving the goals of economic and social development and democracy in a society committed to innovation, competitiveness and excellence. What does this mean for the future of universities? Hard choices must be made. Government will need clear vision, real courage and effective strategic management skills in reshaping higher education. It will need help in putting such a package together.

Business it must be said immediately is a highly competitive, individualistic and fragmented sector. It is much easier for corporations to try to meet their short-term needs for skilled staff on the assumption – increasingly faulty – that there is a healthy, productive and modernising higher education system in place, than to tackle the larger systemic issues head-on. Business, like government, is confronted with very many new demands in a highly competitive world that is causing a dramatic shake-up in the composition of the South African corporate sector. Those companies and business leaders who do think seriously about larger national issues are swamped with too many demands and hampered by their extremely limited capacity for strategic policy analysis, not to mention policy intervention. And even where companies share long-term interests it is often the case that they do not see these clearly or alternatively do not know how to make an effective impact on national policy change.

This round table discussion should not assume a healthy functioning higher education system in South Africa, nor that business is an organised entity that either

knows its own interests or currently has the capacity or leadership to promote them.

Business has a real interest in the future of higher education in South Africa. The key question is what role South African business can play in this area of national

policy, demanding hard choices and institutional development to ensure its own regional and global competitiveness – an outcome that is in business’s own interests and *the* prerequisite for South Africa to achieve all its national goals.

Overview and trends

Optimistic expectations of significant growth in higher education in the post-apartheid era have evaporated. Reviewing current trends, **Ian Bunting** noted that enrolments have in fact declined in public universities and technikons.

There is a lack of data on enrolments in private sector institutions, but it is extremely unlikely that large numbers of students in higher education are unaccounted for. Public sector statistics cover most students in higher education programmes at private institutions because public institutions generally register them for degree purposes.

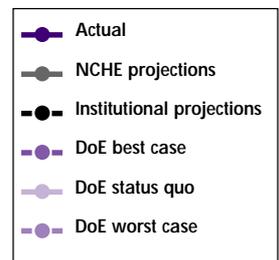
There are now fewer students in the system than in 1995, when there were 570 000 students in South Africa’s universities and technikons. On a projected growth rate of 4%, the National Commission on Higher Education (NCHE) had expected total enrolments to reach 770 000 by 2002. The three-year rolling plans for 1999 – 2001 submitted by higher education institutions (HEIs) were likewise based on assumptions of significant growth. However, not only has growth been slower than expected, but from 1998 onwards enrolments actually dropped, falling to 564 000 in 1999.

The Department of Education’s best case scenario currently is that with luck numbers might reach 610 000 by 2002 – but enrolments most likely will continue to drop to 520 000, and could go down to 440 000 if things get really bad.

What’s going on? The growth up to 1998

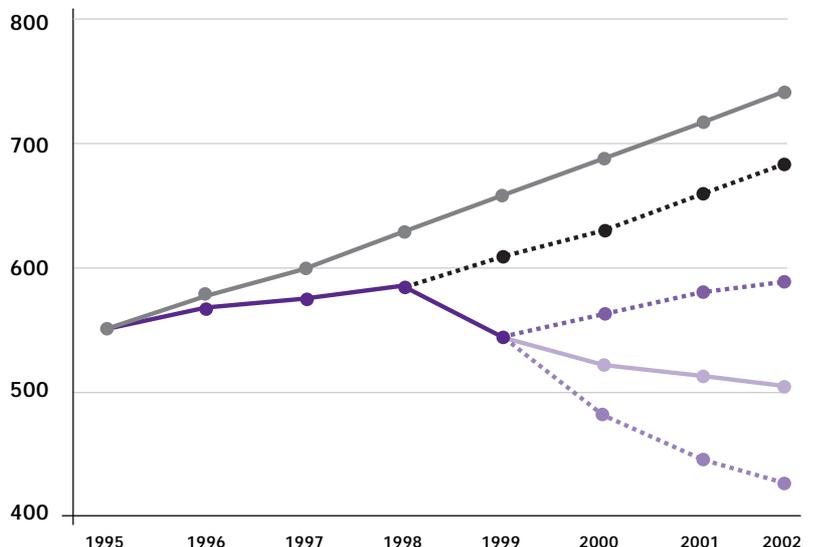
was not brought about by large numbers of new entrants, but reflected the fact that too many students who were unlikely to succeed were staying in the system for too long. Then, in the face of financial constraints HEIs began to insist that outstanding debts had to be settled and fees paid in advance. Academic exclusion rules were enforced more strictly as well. Suddenly fewer students were re-registering, and more students were dropping out without completing a degree. Between 1998 and 1999 retention rates fell dramatically in the historically black universities (HBUs), and at Unisa and Technikon SA.

The enrolment rate of new entrants has also declined. In the mid-1990’s the NCHE predicted a 10% growth in school-leavers with matriculation exemption – expecting the number to rise from some 89 000 in



Source: Department of Education

UNIVERSITY AND TECHNIKON ENROLMENTS (thousands)



The fundamental question is how South Africa can best use its limited resources to get value for money and organise the system as a whole to meet our national goals.

1994 to over 130 000 in 1999. In reality there were only 69 000 matric exemptions in 1998, and 63 000 in 1999 – less than half of the projected figure. And not all go into the universities. Combined with shifts in retention rates, this accounts for the current decline in student numbers.

Higher education has become a cut-throat business, with institutions competing for a limited pool of matriculants, especially those with maths results good enough for them to move into science, engineering, technology, business and commerce.

At the same time, through-put is inefficient. Between 15% and 20% of students should be graduating annually – but from a base of some 600 000 enrolled students in 1998 (350 000 in contact programmes and 250 000 in distance programmes) there were only 76 000 graduates and diplomates, just over 12%. At reasonable throughput rates of 20% for contact programmes and 12% for distance programmes, there should have been at least 100 000 graduates and diplomates, or 25 000 more than were actually produced.

Roughly 22 000 of these graduates and diplomates were in science, engineering and technology; 18 000 in business and commerce, and 36 000 in the humanities. It is worth noting that the technikons produced only 9 000 graduates in science, engineering and technology. These institutions are not really focused on technical education but increasingly offer vocational training in commerce and the humanities.

Changing enrolment patterns in higher education have far-reaching implications. There's been an overall loss of white students. Many seem to be going

elsewhere, leaving the country, doing other things. It is estimated that in the system as a whole there were only 160 000 white students in 1999 – 100 000 less than in 1993 – with technikon registrations showing the biggest decline.

The only growth points are historically black technikons and historically white Afrikaans universities, where new distance education programmes are attracting large numbers of black students. Enrolments at the so-called 'historically white' English universities are stable⁴. The HBUs are in crisis. Their students inflows have dropped dramatically from over 110 000 to 79 000, and are expected to fall even further to 60 000. At its peak, UWC with more than 14 000 students was the same size as UCT and Stellenbosch; it now has just over 9 000 students – and if current flows continue it could fall to below 6 000. The other HBUs show similar patterns, with North West as the one exception.

Declining enrolments are likely to have crippling effects on the ability of several institutions to continue to fund their activities. HBUs confront huge financial problems and even starker prospects. As enrolments drop, the enrolment-driven state subsidy declines, and there are fewer students to pay tuition fees. Funding problems are compounded by the inability of many institutions to collect student fees effectively.

On the research front, available data indicate that the higher education system's research outputs have declined since 1994, compromising South Africa's research and development agenda. In 1998, about 65% of all publications recognised for subsidy purposes were produced by only six of the 21 universities. These six institutions also produce close to 70% of the country's masters and doctoral graduates.

⁴ At 'historically white' universities, black students now comprise close on 50% or more of the student body at every institution, with the sole exception of Stellenbosch (25%). In 1999 black students were in the majority at Natal (76%), Wits (54%), UPE (79%) and Pretoria (62%). By contrast, some HBUs do not have a single white student, and others have very few – constituting no more than 1% of the HBUs total overall (CHE, *Annual Report 1998/99*).

Re-thinking shape and size

The Council on Higher Education (CHE) – the statutory body set up to advise the Minister of Education – has been charged with the task of urgently developing a framework and strategy for reconfiguring the higher education system so as to promote national goals more effectively. The Minister made it clear that he wanted detailed, practical proposals.

Reporting on the ‘shape and size’ task team’s work in progress, **Enver Motala** said that it was resisting pressures to be driven by the current crisis. The fundamental impulse in reshaping higher education comes from the 1997 White Paper and the principles it established, leading to a higher education system which is planned, governed and funded as a co-ordinated whole. The system must serve local, regional and national needs for economic, social and cultural development, and is expected to play a central role in meeting the challenge of international competition in an environment of rapid technological change.

The Minister has stressed that the size and shape of the system must not be decided only on the basis of institutions’ research capabilities, and that the contribution of HBUs will have to be borne in mind. The relationship between science, technology and the humanities must be considered carefully, balancing the intellectual functions of universities against the requirements of technical and practical education; and any proposed mergers will have to take institutional values into account.

A coherent, co-ordinated and integrated system is not synonymous with a uniform system. The fact that historically the most significant differentiation in South Africa has been along socially unacceptable lines does not rule out other forms of differentiation that will:

- Enable institutions to find different niches so as to meet national needs and compete in the higher education environment.
 - Increase overall participation levels in higher education.
 - Provide greater access, with different admission criteria for different institutions.
 - Provide for diverse programmes, with different methods of teaching, learning and assessment.
 - Produce a flexible, innovative system with outcomes qualitatively higher than at present.
- Stringent procedures will have to be developed to evaluate the work of different types of institutions.⁵

Discussion

- The ‘shape and size’ task team was set up because there is undeniably a crisis. There are too many institutions, many of them in the wrong places, and student numbers are dropping. A significant number of institutions are in serious financial difficulties. The problems of governance and management are so profound at many of the HBUs that even if there were sufficient funds it is questionable whether they could pull themselves through. To what extent will public policy interventions be able to deal with this crisis and manage the necessary change in an orderly way?
- Is there a crisis in higher education as such? The system is not dysfunctional in all its parts. A kind of political correctness seems to insist on talking about the crisis in general terms to avoid focusing on HBUs, in case that seems to scapegoat them. But the bottom line is that some institutions are not dysfunctional – they are well managed, reasonably strong financially and academically efficient. The trouble is that the CHE

There are too many institutions, many of them in the wrong places, and of very uneven quality.

⁵ The CHE’s report, *Towards a new higher education landscape*, was released on 18 July 2000. See box on p28.

and its task team seem reluctant to say unequivocally that the crisis is actually limited to some sectors and some institutions.

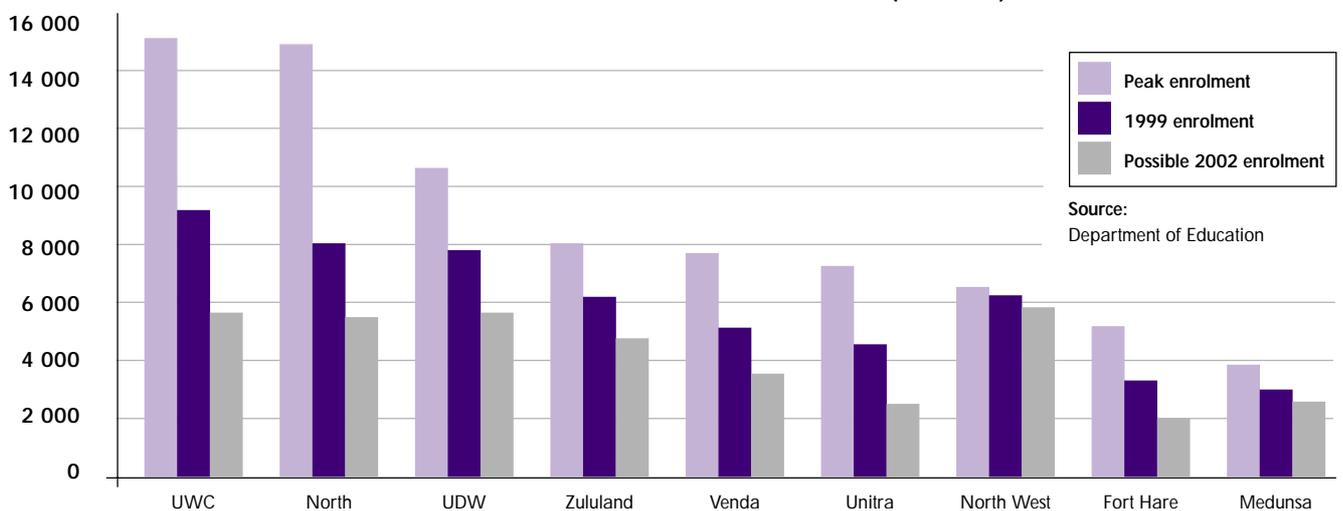
- Declining student numbers in rural HBUs do not constitute a crisis, though that might be the perception. There was a real crisis when numbers were at their peak in 1995. The University of the North was in crisis when it had 17 000 students because that was way beyond its capacity.
- The declining participation rate in higher education, which is falling to levels found in the least developed countries, must ring alarm-bells for South Africa's future competitiveness. In 1996 the NCHE said that the participation rate, calculated at 19%, must grow to 30%. Recent calculations show a participation rate of only 15% in the relevant age-group. South Africa must recognise that an educated population is an important national goal. Increasing the participation rate must become a major policy-driver.
- Statistics don't tell the whole story – one must also look at the quality of higher education in different institutions. The fact that South Africa has no established system of quality assessment is a major problem. The CHE is still at an early stage in tackling this issue. Without objective procedures, quality judgements simply reflect the reputation of an institution or a degree, which may

not always be well-founded.

- It is probable that not a single university in South Africa can assemble critical mass at international levels in its key departments. UCT has a first rate physics department, with 16 members of staff. To be a serious contender internationally there should probably be over 100. Warwick, which is very good in British terms, has 35 – and knows that it doesn't have a sustainable quality base. No business school in this country can assemble a core faculty to ensure a high quality core education, with specialisations as a bonus.
- The better managed and better resourced institutions are already re-appraising what they do and how they do it, and making better use of resources.
- The perceived tension between equity and quality is based on a misconception. If institutions define their missions realistically and focus on excellence in delivery, this resolves the apparent contradiction. One institution might commit itself to being internationally excellent in a specific research field; another might focus on widening access. Each must aim for excellence in terms of its particular mission. An output-driven system can foster diversity and get away from a hierarchical conception of institutions that are in fact complementary.

HEADCOUNT ENROLMENTS IN HISTORICALLY BLACK UNIVERSITIES

(thousands)



Source: Department of Education

What does business need from higher education?

Does business really need South Africa's publicly funded universities?

Does business really need South Africa's publicly funded universities? Behind this provocative question lies the larger issue of what business in South Africa needs and wants from higher education in general.

Introducing the discussion around these issues, **Douglas Irvine** noted that in the face of global competition and the opportunities offered by new technologies, business everywhere is being forced to rethink its strategies, its operating structures and its relations with higher education.

A book published by the American Council on Education, *What business wants from higher education*⁶ has caused a considerable stir in the United States.

According to its authors, business needs:

- Employees who are intellectually equipped to work in the 21st century; who are 'successfully intelligent' and can think analytically, creatively and practically.
- Teachers trained to lay an excellent foundation in the school system – a dimension often neglected in discussions around higher education.
- A system of life-long learning in a changing world of work.
- A society with a large proportion of highly educated people, because as high earning consumers they are important for the economy.
- Institutions that produce knowledge and information with business applications. HEIs are only one element in the institutional mix, but in many countries there is a growing emphasis on the role of universities in this context.

Business leaders in America want graduates with excellent communication skills; who are flexible, able to work in teams and with people from diverse backgrounds; with a sound ethical training, and an adequate understanding of globalisation and its implications.

The authors of this study focusing on what business wants from higher education also make the important point that higher education is about more than productivity in the workplace. The quality of life for individuals and the societies in which they live is linked to higher education in many ways – including their ability as citizens in a democracy to contribute to public debate and make informed decisions.

How successfully are South African universities and technikons meeting requirements such as these?

The role of universities in a developing country

His own career, **Ramesh Mashelkar** said, had been made possible only because a bursary from a business undertaking had enabled him to get an education. Disinterested philanthropy of that kind is no longer at the centre of business's relations with higher education. Interactions are now more focused, more strategic, and there is nothing wrong with that – provided there is also an understanding of the broader social contract.

Many people say that the 21st century will be the century of knowledge. The products of mind will dominate it, and indeed they are already beginning to do so. The definition of rich and poor is going to change. Nations will be information rich, knowledge rich; and information poor, knowledge poor. Ignorance will be the new

In 1998, about 65% of all publications recognised for subsidy purposes were produced by only six of the 21 universities. These six institutions also produce close to 70% of the country's masters and doctoral graduates.

⁶ Diana Oblinger and Anne-Lee Verville, *What business wants from higher education*, Phoenix: American Council on Education/Oryx Press, 1998.

It's very easy to destroy centres of excellence. India preserves them as a matter of policy. There are centres of excellence that operate entirely on the basis of merit. No other consideration applies.

form of poverty. A nation's comparative advantage will lie in its access to knowledge, and its capacity to produce knowledge that can be put to work and turned into wealth and social goods. If this is so, then tertiary education is clearly the cornerstone of today's knowledge societies. Future positioning in the global economy will depend on a country's ability to excel in tertiary education, and not only in quantitative terms. Quality is a critical issue.

In listing India's comparative advantages, its high level of technical education must certainly be near the top. About five years ago on a visit to the sub-continent Jack Welch, CEO of General Electric, observed that while India is rightly regarded as a developing country in many respects, it is a developed country in terms of intellectual infrastructure – and he proceeded to set up his company's second largest R&D centre there, which employs a thousand Indian PhD's.

India has some 250 universities, six institutes of technology that are real centres of excellence, 19 regional engineering colleges and a large number of private colleges. But all is not well in the system. While the number of universities has grown, there are large variations in quality. Very few are really world class institutions. And, although it is widely recognised that teaching without research is sterile, many universities have not accepted this principle and are not seriously engaged in research.

There is also a migration crisis. Some of the best minds do not stay in India. For instance, some 500 000 students take the annual entrance exam for the Indian Institute of Technology. Only 2 000 are selected. Forty per cent of the institute's graduates eventually leave the shores of India. Many go not because of better material prospects but for the psychological rewards of working in more innovative societies.

Another worrying problem is that enrolments in science are declining, and

there is a diminishing pool of practising research scientists. Apart from the well-known phenomenon of scientists moving into management, very large numbers are now going for careers in software, leading to an over-concentration of scientists in one field.

In assessing any system of higher education one must look not only at its customers (students and their families) and end users (employers), but also at its suppliers – the schools. India is currently looking very critically at its school system. There are poorly designed curricula, uninspiring teachers and so on. India is also looking hard at the potential role of information technology to reach those who are now unreached and to include the excluded. But it would be a mistake to assume that it is enough to provide information. A special effort is being made to look at issues such as enjoyable learning, effectiveness of communication, creative and critical thinking. Education must open up minds, not just to knowledge but to ideas, to inspiration. We must understand the hierarchy of data, information, knowledge and wisdom. Winning nations and corporations are those who convert information into insight. And this can only be done through a process of intelligent and creative enquiry. India is trying to go back to basics and see how these issues can be addressed. In the final analysis there is no substitute for a good teacher.

The two key issues in South Africa preoccupying current debates about higher education concern the size and shape of the system, and excellence and equity. India also faces these issues. There are too many universities in India and they are not all of the same quality. Hard decisions are postponed at one's peril; they cannot be avoided. Democracy does not mean equality; it means equal opportunity. How to provide equal opportunity is the fundamental issue.

It's very easy to destroy centres of excellence. India preserves them as a matter

of policy. There are centres of excellence that operate entirely on the basis of merit. No other consideration applies. India is setting up performance indicators for its 250 universities and linking budgets to performance. A committee set up to review regional engineering colleges (the main suppliers of engineering graduates to industry), found that their governing boards were becoming politicised. It changed the system of governance completely, bringing in top technologists and industrialists to restore merit. This is being demanded of the private education sector as well. The private sector latched onto engineering and medicine as profitable fields, creating havoc because colleges were established without adequate laboratories or teachers. Ten thousand engineers who were basically sub-standard were coming out every year. This has now been remedied.

It is one thing to say we'll be globally competitive, it is another to assemble the technological skills which will make you competitive. You must gain critical mass. Each nation must find its own solutions in this regard. India found that its university system was inadequate to create critical mass, particularly in very high technology areas such as high performance computing and high performance materials, where the real strengths in terms of resources and manpower were located in its 40 CSIR laboratories. It therefore proceeded to link these laboratories with universities in collaborative relationships.

Tomorrow's industries will be knowledge industries. This does not simply mean that information technology constitutes the knowledge industry. If you buy a kilogram of steel, 90% is material, 10% is knowledge. If you buy Microsoft, 95% of it is knowledge, 5% is material. But in between, there is a whole range of industries, products and services that must incorporate a higher and higher knowledge content. Only those that incorporate knowledge successfully will win.

Public versus Private?

Speaking on the role of publicly funded institutions, **Chabani Manganyi** said that it has become clear that South Africa's HEIs must respond more consciously to the needs of the economy at local, national and transnational levels. As we repair and improve the system, we must produce employable graduates and enlarge the pool of human capital in our changing economy.

Public institutions must develop and maintain a world-class yet locally relevant science and research base. That certainly does not mean that every institution should aim to operate at this high level. It is striking that in Japan, for example, a large number of universities are only four-year institutions.

Our system has suffocated for a long time under a homogenising tendency, the belief that a university in Venda must have the same kind of BSc or MSc as one in Cape Town. It is to be hoped that one outcome of the task team's work will be to allow the system to diversify.

Diversity is being promoted in another way through the growth of private sector institutions. Public institutions are clearly challenged by the internationalising multinational private university system that has come onto the scene. Is this competition an unmitigated threat? Fears that private institutions will destroy the public system are greatly exaggerated. We need a judicious and balanced response to the private sector; we certainly need a regulatory framework; but we also need to appreciate that healthy competition is good.

In the field of science and technology, government policy post-1994 has been designed to encourage and support innovation, inter-disciplinary studies and cross-sectoral co-operation among research institutes and HEIs. A key issue is how HEIs can organise their operations to find synergies with the business sector. In the past few years, there have been a number of

It is one thing to say we'll be globally competitive, it is another to assemble the technological skills which will make you competitive. You must gain critical mass.

If we want to be globally competitive we have to talk about excellence and we have to face up to reality. South Africa is not nearly as big as India, so how many world-class centres of excellence can we realistically aim to have?

exciting instances of universities, technikons, and research councils responding to this policy framework. For example, incubation work in the engineering faculty at Pretoria University is an important development in the relationship between the university sector and business. The Gauteng innovation hub, another recent initiative, is the result of an alliance between the CSIR, Pretoria University, and other stakeholders. The intention here is not only to transfer technology but also to transfer entrepreneurial capability, interacting with established companies and creating start-up opportunities for new companies and new technologies. Initiatives of this kind can make an important contribution to the country's competitiveness.

One of the most impressive things about South Korea is the extent to which that country has managed to integrate education and development. The idea of developing the national economy is embedded in education policy throughout the system. The challenge for South Africa is to bring business and the higher education sector together so as to understand these connections.

What is the role of private institutions? **Pat Ngwenya** noted that it is important to distinguish between the institutional functions of tuition, and certification – that is, awarding degrees and diplomas. Many private institutions in South Africa provide only tuition, in partnership with other institutions that certify the qualifications.

The primary role of private education is to provide alternatives and enrich the range of choices in methods of instruction, curricula and qualifications offered. While there are no standard ways of measuring quality in either public or private education, a number of private institutions in South Africa are benchmarked against highly reputable institutions in other parts of the world. One way to nurture quality is to focus on the quality of teaching. Private sector teaching staff on flexible employ-

ment contracts know that they must deliver results. By the same token, they are paid attractive salaries.

Another indicator of the quality of education offered by an institution is its relevance to the world of work, as judged pragmatically by students and employers. The private sector has clearly made itself highly attractive in this regard. More attuned to the market, it increases access to studies which students really want to undertake.

In a system that is more flexible than the public sector, private providers can assess students' capabilities in terms of their objectives, tailor a curriculum to match their requirements, and establish channels to prospective employers. In addition to core components in a standard degree, students can include courses relevant to workplace needs – so that a BSc graduate, for example, can also be equipped to understand budgeting and business operations.

Another field of opportunity for private institutions is the massive gap in the marketplace for imaginative programmes in further education, rather than higher education, that will help school leavers to become employable.

Discussion

- South Africa's universities are a drag on the economy. Business in any country needs the state to make an investment in tertiary education, but the way in which the universities are handling that investment comes close to being a liability as far as business's interests are concerned. Our universities have by and large not adapted to the economic challenges facing South Africa. They have old-fashioned curricula, ageing equipment, dilapidated campuses, and pay structures that simply don't attract competent young people into their employ. They are not utilising ways to generate additional income by making themselves viable partners with business.

- Most business people in South Africa aren't attuned to the potential role of HEIs in the economy. Conversely, universities don't know what they can offer business. Companies need to know what universities are offering, and what they can build on. Universities must get out and market themselves.
- Is 'business' synonymous with the corporate business world in this context? Many or perhaps most graduates no longer go into large corporations. We need to know what smaller businesses require from higher education.
- Long-established academic departments of direct importance to business are in crisis. For example, the chemical engineering department at one of our most reputable universities has five members of staff; three are within five years of retirement; the other two are over 40. It is dead on its feet. There is virtually no prospect of employing younger staff. The gap between academic and industrial salaries is now so large that a well-qualified graduate who joins Sasol, for instance, can expect to be earning more than the top of the senior lecturer scale within eighteen months.
- The undoubted importance of science and technology must not blind us to the dangers of a decline in the humanities. We need a due balance in the system as a whole, and one of the challenges is to ensure that the humanities are sustained in this period of change. For instance, there are good grounds – intellectual, cultural, national – for thinking that we should be producing more history graduates.
- Any sensible analysis of the relationship between higher education and the economy must make important distinctions with regard to the humanities. This is a highly diverse sector. Some of these academic fields are vital to business; others are equally important but more indirectly; while yet others are clearly less significant in terms of business's needs.
- We must be careful to distinguish

between the specific training needs of business and industry, and the role of higher education in developing critical thought and the generic skills that make graduates flexible and adaptable. Business often has a short-term view of its needs. The higher education system cannot be reduced to servicing business's immediate needs, though it should be responsive to them, as well as to broader changes in the economy.

- A kind of recipe book, mechanical mentality prevails in many of our HEIs – the complete opposite of the kind of flexibility and adaptability which graduates need in the new economy. Universities must remember that their primary role is to teach high level theory because it is through grappling with abstract concepts that people gain intellectual flexibility.
- Recent research among employees indicates a clear preference for private sector education, precisely because these institutions function in a more business-like way. They understand students' needs and requirements, and are prepared to design courses to meet them. Public HEIs are far too inflexible and conservative in their response to changing needs. They are reluctant to relax rules and regulations governing fixed curricula; slow in responding to requests to develop new modules; and all too often use outdated text books rather than drawing on current information resources and new technologies. They simply are not sensitive to their potential market.
- Foreign institutions came into South Africa in partnership with the private sector because public institutions were too reticent and hidebound to recognise the great opportunities for public-private partnerships. Many public sector educationists still can't understand that one can make a profit without compromising quality.
- Private institutions are often viewed as a profound threat to the public sector, but a system of higher education that does not

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have room for private institutions is unthinkable in the modern world. However, private institutions cannot replace the comprehensive programmes of teaching and research undertaken by publicly funded HEIs, because these activities are not profitable and must be subsidised. In fields such as science and engineering, with their high costs and emphasis on postgraduate programmes, private institutions can play only a limited role at best.

- We need a clearer picture of the private sector's involvement in higher education.

This sector has been allowed to grow in an anarchical way, and boundaries between higher education and further education and training are blurred. Private institutions must be involved in the process of developing a regulatory framework best suited to South Africa's circumstances through dialogue with government, the CHE, SAUVCA and business.

- The fundamental question is how South Africa can best use limited resources to get value for money and organise the system as whole to meet our national goals.

Universities and business in South Africa

Working relationships?

This session began with short presentations reviewing some of the ways in which large universities in South Africa work with business, the professions, and government.

Nick Segal noted that state funding for South Africa's universities has remained at roughly the same level for a number of years. Universities have enjoyed a protected position in an education budget under severe pressure. While universities may consider themselves fortunate, there are nevertheless important questions about the effects of the subsidy system. One danger in subsidising suppliers in any field is that it protects them from the discipline of the market. A more unexpected effect, perhaps, is that universities supported by state funding have in fact been subsidising businesses for years by undertaking contract research and other such activities at unrealistic rates. Universities have been charging about 10% for overheads. It has now become evident that the real cost on average is probably 105%, ranging from 40% in soft areas up to 200% in engineering and medicine.

For universities, the strategic question

is how to diversify their financial base without compromising the academic endeavour in either teaching or research. They can learn from impressive examples showing how this has been done in other parts of the world over the last two decades.

Focusing on research links between universities and external bodies, **Sibusiso Sibisi** noted that these are multiplying in a very encouraging way. The volume of contract research commissioned by industry and government is growing. There has also been a considerable increase in state funding for programmes that promote collaborative work between industry and academia. THRIP is a major example, stemming from a Department of Trade and Industry policy initiative, and run by the National Research Foundation on behalf of DTI. Another example is the Innovation Fund run by the Department of Arts, Culture, Science and Technology. In programmes of this kind there is a clear shift from pure research towards research with an eye to practical applications, innovation and entrepreneurship. Inevitably there are questions about the extent to which this accords with a university's central mission.

The most significant challenges that universities encounter in this context

A national innovation system hinges on collaborative interactions among tertiary institutions, government and industry. If the lack of effective communication between these sectors persists, South Africa's chances of becoming a really innovative country will be minimal.

include:

- **Confidentiality.** The unavoidable tension between an academic ethos geared to the publication of research results, and the need to protect research for commercial advantage, has to be managed very delicately if the university's academic mission is not to be compromised.
- **Cost recovery.** Universities are subsidising industry in their contract research. Costs attach to the use of infrastructure and equipment, including replacement costs that must be built into budgets. South African industry balks at even the extraordinarily modest charge of 10% for overheads. The widespread perception in industry that universities are places where you can do research on the cheap, must change.
- **Ownership of intellectual property.** In contract research this problem is generally handled on a case by case basis, negotiated between the research group and the industry in question. However, with increasing government support for university-business partnerships, and a growing emphasis on commercial applications, issues of intellectual property rights have become more acute. South Africa must think very seriously about a national policy on ownership of intellectual property arising from publicly funded research. The best known example of intellectual property rights law – the USA's Bayh-Dole Act of 1980 – gave a significant impetus to university-business partnerships and is arguably the single most important factor driving the dramatic technology transfer from research institutions to industry in America.

South Africa can benefit from international experience in many respects. For example, despite our very different circumstances we can learn from the report on public investment in investor research published by the Canadian Advisory Council on Science, to be more active in establishing synergies between research

institutions, investors and entrepreneurs, and in nurturing start up companies. Here our financial sector must be prepared to play a more active role. The infrastructure of Warwick University's science park, for instance, was wholly funded by Barclays Bank. If we are serious in our belief that South Africa's future lies in knowledge-based industry, and more particularly in small knowledge-based enterprises, business and government must invest in our universities. It is in these institutions that most of the requisite knowledge generation is likely to take place.

Ian Steadman said that he wanted to deconstruct the myth of 'the university' before talking about what business is doing, what it is not doing, and what it could be doing.

What is Wits? Or UCT? Or the University of the North? Institutional identities as such exist only in our imagination. In talking about standards at a given institution, one is talking not about the university as a whole but about a large number of departments of varying quality. Some might be working well; others might not.

In practice companies choose a department (for instance, geology) which they identify as a centre of excellence, and into which they then put money with a view to benefiting a particular industry. Or they support a particular academic who is producing graduates useful to business. Such support is not unimportant or misplaced – but it doesn't cover academic activities which are less obviously related to business's interests, though no less crucial, such as the gastro-enterology research at Chris Hani Baragwanath Hospital, or the reproductive health unit working on HIV/AIDS. Although researchers tell us that the HIV/AIDS crisis is going to knock 15% off the bottom line of business by the year 2002, Wits has not succeeded in getting business to put money into HIV research. Nor can business be persuaded to fund disciplines in

Long-established academic departments of direct importance to business are in crisis.

the humanities and social sciences such as social anthropology. Of course, universities mustn't churn out masses of students whose qualifications are irrelevant to the world of work. But it must be remembered that an important part of a university's function is to contribute to and create public intellectual life. How can business be convinced that it is in its own interests to help sustain a tradition of critical inquiry and public intellectual debate?

Views from the business sector

CDE commissioned two research studies to establish how South African business currently thinks about its relations with higher education, and what it needs from higher education in the context of global economic competition. The first study involved a substantial number of interviews with business leaders in the corporate sector and professional organisations. A second smaller study focused on business people serving on the councils of seven South African universities⁷.

Presenting the findings, **Douglas Irvine** noted that fierce competition to recruit suitable graduates from a shrinking pool means that businesses are generally reluctant to divulge recruitment strategies and information about their relations with specific HEIs.

No clear picture emerges of what business wants from higher education, apart from the obvious points: more effective preparation for the world of work; more maths and science graduates; and a greater emphasis on business and technical courses – all too often narrowly conceived in terms of a Bachelor of Commerce degree. Many senior people in business appear to have a limited understanding of the information age and its implications for economic activity. Only a very small

proportion of people interviewed mentioned the importance of critical thought as something required by business in the 21st century.

Business is not unwilling to interact with HEIs, especially in discussions around curricula. Generally this is seen as a dialogue with specific institutions and faculties, rather than system-wide. Companies tend to put their money into individual students through bursaries and scholarships, into individual members of academic staff through salary supplementation and sponsored chairs in specific disciplines, and into particular institutions through strategic bilateral arrangements – generally those institutions which they see as having proven track records. By and large, business is very narrowly focused in this regard, though there are notable exceptions.

Organised business doesn't talk directly to universities about their needs or what should be provided. The National Business Initiative's focus in the educational sector is on schools, colleges, and further and technical education, not on the university sector.

By and large business people evince little awareness that business might be able to play an active role in response to the crisis in higher education, or in influencing education to meet the challenges of globalisation. No coherent sense of direction emerges, except in a few specific sectors and professions.

In large corporations it is unusual to find anyone who can take a view of business's overall needs in relation to the higher education system. Inside these corporations, various structures deal with such matters from their own different perspectives – recruitment is a human resource issue, research is dealt with by the R&D people, educational matters as such

The real question that emerges from CDE's research is whether business can rise to the challenge of defining its collective interests and then find ways to promote them effectively in the public policy arena.

⁷ Philippa Garson, Business and higher education in South Africa: Views from the corporate sector, report commissioned by CDE, 2000; R H Lee, The role of business people on university councils, report commissioned by CDE, 2000. These research papers can be ordered from CDE.

go to corporate social investment programmes, and so on.

Business leaders, perhaps understandably, would rather look to government to develop a vision and formulate policy. They're hesitant to adopt a common position or strategy. They are reluctant to put forward unpopular or critical views in public, especially where they perceive that issues are politically sensitive. The real question that emerges from CDE's research is whether business can rise to the challenge of defining its collective interests and then find ways to promote them effectively in the public policy arena.

In the second CDE study, interviews were conducted with seven senior business people, most of them with very lengthy periods of service on university councils across the spectrum of historically differentiated institutions. What emerged is that as council members they operate in an individual capacity, they don't see themselves as 'representing' business in any way, they don't articulate business interests, they don't confer with other business people about business-higher education issues. Their perception is that business has not established its claims as a primary stakeholder in higher education in the eyes of administrators, academic staff and other interests represented on councils.

Discussion

- CDE's research on the situation in South Africa tells a pathetic story. Something must be done to get business and higher education to talk to each other – not in a NEDLAC type institution, but in some way that can really work.
- Business has not only failed to lodge itself as an effective stakeholder in the universities but also in the eyes of government. The CHE has only one employer voice in a council with twenty members – and this is not through lack of trying to attract high-level business participation.
- Businessmen on university councils

have not distinguished themselves in dealing with issues of governance and the institutions' financial responsibilities. They appear reluctant to bring their business skills to bear on management issues. Has any businessman resigned from a university council because accounts for the year were not audited?

- The skills crisis in even the most reputable universities and in academic departments critical to the economy has to be tackled as a matter of urgency by business and higher education. We cannot look to government to solve the problem.
- From the perspective of the legal profession, business clearly needs the universities, but the universities also need business. Very often business is seen chiefly as a potential source of funds, with universities as the source of expertise. But business has a lot of expertise to offer, not only in research partnerships but also in teaching. While universities are struggling to secure and retain competent staff, highly qualified people in the private sector may well be prepared to lecture in a part-time capacity. At Wits, for example, all the lecturers in certain postgraduate law courses are practitioners, and academic standards haven't been compromised.
- South Africa needs good universities. But how do we get there? Dr Mashelkar made a very important point about merit and the need for excellence, which South Africans are nervous to talk about. If we want to be globally competitive we have to talk about excellence and we have to face up to reality. South Africa is not nearly as big as India, so how many excellent centres can we realistically aim to have?
- The Department of Arts, Culture, Science and Technology should have a more central role in shaping developments in the higher education sector. In the White Paper on Science and Technology there was a vision of a national system of innovation. We need to think seriously about fleshing that out. The problem of

Businessmen on university councils have not distinguished themselves in dealing with issues of governance and the institutions' financial responsibilities... Has any businessman resigned from a university council because accounts for the year were not audited?

critical mass must be addressed by identifying knowledge wherever it is located – in universities, industry, science councils, parastatals – and establishing working partnerships.

- A national innovation system hinges on collaborative interactions among tertiary institutions, government and industry. If the lack of effective communication between these sectors persists, South Africa's chances of becoming a really innovative country will be minimal.
- Globalisation is an inescapable reality impacting on business and education alike, providing strong grounds for the interna-

tionalisation of research in industry and the HEIs. It is absolutely necessary for us to strengthen international links if our research is not to lag behind.

- In the 1980's the debate in Britain was remarkably like that in South Africa today, indeed further behind in some ways. Even then it was clear that the knowledge economy and therefore the output of HEIs would be crucial to Britain's economic future. Most of the captains of British corporations didn't understand that. A few did, however, and they got a remarkable enterprise going, the Council for Industry and Higher Education (see p.24).

Business & universities: strategies for co-operation

Review of international experience

Robin Lee reported on a wide-ranging research project he had undertaken for CDE to investigate international experience

Business-university-government partnerships

Argentina, Australia, Brazil, Canada, Costa Rica, France, Hong Kong, Japan, Malaysia, Singapore, the United Kingdom, the USA and Venezuela all have specific government agencies which work with universities and business to encourage various kinds of partnerships, primarily in technology transfer and the commercialisation of research results. Examples of governmental involvement include grants to 'technology incubators' in Brazil; support for research centres developing technologies for regional industries in Japan; the ambitious development of a 'technopolis' in Johor state, Malaysia; the promotion of 'smart partnerships' between academia and industries by the Malaysian Industry-Government Group for High Technology; the Teaching Company Scheme in the UK; and the Government-University-Industry Research Roundtable in the USA.

in business-university co-operation.⁸

Two key conclusions emerged:

- As we go into the 21st century, business has unprecedented opportunities to influence universities in a series of mutually beneficial relationships.
- Most of these relationships have already been pioneered and developed in other parts of the world, and South Africa can gain significantly by putting this experience into practice.

Government features very largely as the third player in business-university relations world-wide. A government's choice of macroeconomic policy is almost invariably the factor that precipitates a new relationship between business and universities. Macroeconomic policies with a strong emphasis on an outward-looking economy, export-oriented industries, inflation targeting and control of public expenditure, brought about a profound reorientation in business-university relations in the UK in the late 1970s and early '80s, a bit later in the USA, in Canada and Australia at the

⁸ R H Lee, International experience in business-university co-operation, report commissioned by CDE, 1999. The full paper can be ordered from CDE. An executive summary is posted on CDE's website: <http://www.cde.org.za>

end of the '80s, and are now doing so in a large number of Latin American countries.

The choice of macroeconomic policy is almost always followed by a corresponding decision to reduce university funding. This forces universities to reorientate themselves towards more beneficial relationships with business. In many cases legislation then helps to drive the process forward through laws such as the Bayh-Dole Act, which made it possible for American universities to benefit from intellectual property produced from federally funded research, and similar legislation in many other countries. Governments in pursuit of an entrepreneurial and outward-looking economy take steps to encourage universities to become entrepreneurial themselves. Further measures include the establishment of new government agencies to assist and promote relations between business and universities, generally under the auspices of the department responsible for trade and industry. THRIP, TipTop, Bottom Up and a number of other schemes are typical South African examples. In many countries government will also finance various initiatives directly, most notably in Latin America.

Industrial innovation is becoming as important as teaching, research, and community service in modern universities' range of activities; and governments are encouraging businesses to outsource research to universities through policies and funding provisions that further stimulate the process.

The relationship is therefore not between two partners but three: business, universities and government. A number of thinkers have developed the concept of the 'triple helix' to describe this relationship, implying that a new kind of intellectual and economic life is being created. The protagonists of this view believe that there is evidence that this process has now developed an autonomous life of its own, no longer dependent on continuous planned

support from any of the three parties involved. Every time a successful business-university-government project is developed, this creates more opportunities for further projects, which multiply in their turn.

Business-university relations internationally

CDE's comprehensive survey of international practice shows 14 major ways in which business engages with universities:

- Business influences public policy in the field of higher education by belonging to policy forums and other organisations, and participating in policy task teams.
- Business works with universities in local or regional economic development. Some of the most productive relationships are regional or local rather than national.
- Business participates in university governance. It influences the strategies and missions of universities by playing an active part in governing bodies and in an advisory capacity.
- It assists universities to become more business-like in their management, for example by helping them to focus on adding value to their core business as universities and outsourcing other functions.
- Business participates in the delivery of lifelong learning by promoting the concept and providing ongoing access to higher education for employees.
- It provides opportunities for work-related learning to students.
- It influences the quality, quantity, nature and direction of university research through grant or contract funding.
- By recruiting personnel from university staff and students, business demonstrates that an investment in higher education opens up greater life opportunities.
- Business works with universities and their staff to develop and commercialise the intellectual property they produce, generating income for the university and its staff in the process.
- Business uses university staff in a consultancy capacity.
- Businesses make use of university plant, workshops and laboratories, avoiding the duplication of specialist facilities in their companies and providing income to universities.
- Business develops new ideas from university research in the public domain, converting these into economically productive products or services.
- Through working with university staff, businesses gain access to wider international networks of expertise.
- Business makes grants or donations to universities.

University-community enterprise partnerships

Partnerships between universities and business are not restricted to the area of private entrepreneurship, with a dominant profit motive. Many universities have brought knowledge and skills into partnerships with private sector finance to provide support and development opportunities to poor communities in search of a sustainable economic base.

Carleton University in Ottawa and the University College of Cape Breton in Nova Scotia, Canada, have worked together with community development enterprises on Cape Breton Island to halt and then reverse economic decline in the area. Profit-making ventures include a small shopping centre, a high-tech rope manufacturer, a plumbing and heating company, a tourist hotel, a radio station and ski resort.

The two universities have now extended this approach to a completely different community – in the Yucatan area of Mexico, home of the remaining Mayan people who were living there when the first Spanish colonisers arrived.

In ventures of this kind the community business corporation creates a powerful instrument for the regeneration of economically marginalised communities.

The international survey undertaken for this round table (involving an extensive literature search and study of the activities of more than 80 universities) shows fourteen major ways in which business is engaging with higher education. While the overwhelming majority of business people in South Africa think that the only thing business can do for higher education is to make grants or donations, this is only a small part of business-university relations world-wide.

In every country surveyed for this report, governments are attempting to create conditions in which business and universities can work together to an even greater extent. Currently South African universities have a low level of co-operation

with business⁹. They are not oriented to developing partnerships with business or industry beyond traditional business school and engineering faculty links, and are still a long way from conceiving of themselves as 'entrepreneurial' in their relations with business. At the same time, South African business has *not* thought seriously enough about the kind of universities it (and the country) needs. It has put minimal effort into influencing either state policy on universities or the ways in which universities manage themselves.

It is important that this situation should change. Very positive outcomes can be gained from sensible alliances, partnerships and commercial transactions between business and universities without loss of identity or autonomy by either. Much of the learning about what works has already taken place in other countries.

The Council for Industry and Higher Education in the UK

Richard Brown outlined the activities of the Council for Industry and Higher Education (CIHE) and some of the issues facing it, relating this to themes in the round table discussion.

CIHE is founded on the belief that the future of the UK depends on the development and application of knowledge. CIHE is not just a pressure group for business. It has a much wider vision of the role of higher education in society in a creative partnership with business.

It was formed in the 1980s by a small number of business leaders who felt that higher education and business were talking at or past each other – and that establishing the process of dialogue was as important as specific outputs or even an agreed agenda.

Membership is by invitation, and

⁹ In 1997, a survey of 244 firms in the manufacturing sector showed that only 30 had co-operation agreements with HEIs. Only 60% of these reported 'satisfactory' or 'very satisfactory' relationships. (Tjaart van der Walt and William Blankley, South African strategies for the promotion of research and technology innovation: Towards effective collaboration and new business development, *Industry and Higher Education*, February 1999, pp15-24.)

comprises leading business people, Vice-Chancellors of universities and heads of other HEIs and of four Further Education Colleges. CIHE has some 40 members from private sector companies representing a cross-section of British business ranging from financial institutions, IT and engineering companies, through to the service sector; and it deliberately includes three small or medium sized enterprises so as to engage with their rather different perspectives. Similarly, the fifteen Vice-Chancellors represent institutions ranging from internationally recognised research centres such as Cambridge University, Imperial College London, and Edinburgh, through to the University of Westminster (a former polytechnic), and Glasgow Caledonian (whose mission is largely to serve the inner-city population); institutions with very diverse missions, recognised as all equally valid and having complementary functions in the system of higher education.

The heads of the Quality Assurance Agency and the Higher and Further Funding Councils are also present at CIHE meetings. A government minister normally attends, together with senior officials from the Department of Trade and Industry or the Department for Education and Employment depending on the issues being discussed.

The full Council meets about three times a year (over lunch, finishing promptly at 2.30), operates only at company chairman and chief executive level, and does not allow substitutes. It is precisely by getting these top people round the table with university and college heads that policy is influenced.

CIHE is supported by various working groups, including a policy forum composed of senior human resources representatives from business, and representatives from the academic world. Other sub-groups are formed to work on specific topics.

Issues tackled by CIHE have included:

- The need to increase participation rates in higher education to 50% to match the best of Britain's international competitors such as South Korea and Singapore; an objective which has been adopted by Tony Blair's government;
- Increasing access for disadvantaged groups – seen as both a social and an economic imperative – so that as businesses de-layer, individuals throughout the organisation will have the knowledge, power and confidence to take decisions;
- Defining the kinds of skills needed by graduates, such as academic depth and critical ability; flexibility; high-level transferable skills; problem-solving skills; communication skills and the ability to learn for themselves.

CIHE promotes collaboration between business and academia to help develop relevant skills, among other things by trying to provide opportunities for quality work experience for every student. It has a subsidiary, the National Centre for Work Experience, which focuses on this issue. It has also encouraged partnerships with HEIs in developing real life case studies and simulations, refreshing the curriculum and helping the system to become more flexible. CIHE considers that students must not only be equipped with skills that make them more employable; their academic training should also encourage them to become entrepre-

The skills crisis in even the most reputable universities and in academic departments critical to the economy has to be tackled as a matter of urgency by business and higher education. We cannot look to government to solve the problem.

Business-university policy partnerships

Partnerships between business and higher education at the public policy level are exemplified by the Council on Industry and Higher Education (CIHE) in the UK, the Business-Higher Education Forum (BHEF) in the USA, the Corporate-Higher Education Forum in Canada, the Business-Higher Education Roundtable in Australia, the Business-University Forum in Japan, and the Polish Higher Education-Business Forum.

Business-Higher Education Forum (USA)

The BHEF was established in 1978 by 20 presidents, chairpersons or chief executives of business corporations, and 20 presidents or chancellors of universities. Membership has now grown to 90, by a process of invitation. It acts under the auspices of the American Council on Education and the National Alliance of Business.

The BHEF has three goals:

- To identify and act on public policy issues of joint concern to business and universities
- To enhance public awareness of such public policy issues
- To guide the evolution of relationships between business and higher education in the USA.

Since its inception, the BHEF has published influential reports in areas such as higher education and global economic trends (*America's Competitive Challenge*) and relationships between business and higher education (*Corporate and Campus Co-operation*). One of its major initiatives at present is a study of university-industry research collaboration.

Observers credit the BHEF with major influence on public policy, especially in the area of legislative change to permit easier commercialisation of research results.

neurial, to think about starting their own businesses and create wealth.

CIHE is increasingly concerned with issues of quality. Too many institutions in the UK are trying to do too many things. They lack critical mass in world terms, and haven't thought enough about comparative advantage. This is even truer at the departmental level. HEIs must decide on their focus and mission. They also need to appreciate that, like business, they must outsource and buy in courses from other institutions where they don't have critical mass. To achieve economies of scale and share best practice they need to engage in partnerships with institutions sharing the same mission, with other institutions in their locality and with private companies. The private sector has for long been restructuring, focusing on core activities and entering partnerships. Higher education will want to learn the lessons and adopt similar approaches if it is to deliver the excellence its customers deserve and increasingly expect.

Business and universities: Quo Vadis?

Introducing this discussion, **Michael Spicer** stressed that it is important to deconstruct not only 'universities' but also 'business'. Business is not a collective entity ready and willing to act on a clear vision of its interests. In fact, South African business is in disarray at present – as can be seen if one looks at employer representative bodies. Business is moving from the old establishment towards a new set of arrangements, but it has not yet arrived. Older businesses are modifying into new forms of corporate life, and some are listing abroad. Among the newer businesses no clear set of actors has emerged as yet who are ready to take up public policy issues and engage in social responsibility activities.

It would be short-sighted not to recognise these problems in looking to business for a positive initiative. However, it is clear that we have arrived at an important point of decision. It is absolutely necessary for business and higher education to set the process in motion. Starting with one or two key issues, things can take their course: the substance can develop out of the process.

This calls for leadership from business people who feel passionate about the issue – people with influence, who will galvanise not only their peers but also government and the educational sector. We must sharpen our ideas about how to catalyse the process, focusing on the issue of leadership.

Discussion

- Every organisation in South Africa is bedevilled by skills shortages today and desperately worried about skills shortages tomorrow. It's a great irony that this hasn't translated into a clear perception of mutual interest between business and higher education.
- In CDE's research survey, it was notable that the mission statement of virtually every university in other developing countries – Singapore, Malaysia, Venezuela, Argentina – committed the university right up front to the country's central economic goals. While the mission statements of South African HEIs all include a commitment to national reconstruction and development, when asked to spell out their visions for themselves not one of the 36 institutions related this to its own immediate socio-economic environment.
- Business needs champions to take up the challenge of getting a dialogue going with higher education. Even though the business agenda is overloaded with other issues this problem must be tackled as a matter of urgency not only in the interests of business but also in the national interest.

- When business or university leaders approach government separately their case is much weaker than if they can make a joint approach. When a partnership representing leading business people and Vice-Chancellors goes to government and says that in the national interest they are really concerned about a particular issue, it is much more likely that they will be listened to – particularly if government departments have also been involved in the process.
- Even in Britain, business has only come to recognise the central importance of knowledge in the last ten or fifteen years. The CIHE was crucial in changing that perception and getting CEOs to see a strategic self-interest in getting together and creating a platform for dialogue with higher education. In the late 1980s an outstanding set of publications on best practice in business-university relations, commissioned jointly by CIHE and the Department of Trade and Industry, raised the level of debate dramatically.
- To get buy-in from business leaders and Vice-Chancellors we need a crisp statement of critical issues around which a shared understanding can develop.

The key conclusion from the CDE round table is that South African business must urgently address its own interests in influencing the future of South African universities.

CDE Recommendations

In essence, **Ann Bernstein** pointed out, the key conclusion from the CDE round table is that South African business must urgently address its own interests in influencing the future of South African universities.

The facts are indisputable. There are enormous problems facing the higher education system as a whole; the few institutions and pockets of global excellence are under threat; the feeder system from our schools is not delivering the quantity or quality of students required; South Africa is slipping against its competitors globally with respect to

higher education; and the country is about to embark on a new and ambitious round of change and intervention, the outcomes of which are uncertain. Business has a fundamental interest in ensuring that this round of change positions South Africa more favourably in terms of its own needs and those of the country for a sound system that delivers increasing numbers of students equipped for the highly flexible, competitive international information economy and educates citizens to sustain, participate in and support the kind of vigorous public debate essential for a vibrant democracy.

The report of the CHE's shape and size task team, *Towards a new higher education landscape*, which was released shortly after the round table took place, presents both an opportunity and a threat to business in South Africa.¹⁰

The task team understood its brief as 'an overarching exercise designed to put strategies in place to ensure that our higher education system is indeed on the road to the 21st century. The restructuring will therefore impact on the system as a whole.

There can be no business as usual (Minister of Education, May 2000, press statement).¹¹

In its report the task team puts forward a package of recommendations that – irrespective of whether you agree with them, believe they are achievable or not – will undoubtedly alter the higher education landscape in South Africa.

The task team made two proposals of direct significance for business:

- The opportunity – ‘*The Minister should begin a process of consultation with key*

HOW WILL BUSINESS RESPOND?

Major recommendations of the CHE shape and size task team

The recently released CHE report, *Towards a new higher education landscape*, argues that 'South Africa cannot afford to continue with the incoherent, wasteful and uncoordinated system inherited from the past. It must confront what is required by a developing country with respect to knowledge, human resource and service needs and take decisive action to reconfigure the higher education system... Far-reaching changes in higher education are overdue, urgent and unavoidable.'

Its recommendations include the following:

- The system must ensure a geographic distribution of HEIs that will best serve national and regional socio-economic needs.
- The distinction between 'universities' and 'technikons' should fall away.
- The total number of HEIs should be reduced through a process of rationalisation involving the combination of institutions, without closing down any existing institution.
- Reconfiguration should result in a differentiated system, with three types of public HEIs:
 - 'bedrock' institutions (some 19 in all) concentrating on undergraduate programmes, with limited post-graduate teaching to masters level
 - six institutions working in selected

areas of research, offering only selected doctoral programmes but extensive masters programmes, and undergraduate programmes

- a very small number of full research institutions, with comprehensive postgraduate programmes to doctoral level, as well as undergraduate programmes.

- A single distance education institution, combining Unisa and Technikon SA.
- A four-year bachelor's degree, with the first two years providing for the development of broad basic skills.
- The national participation rate in higher education should be raised to 20% of the 20-24 year age group over the next 10-15 years.
- The Minister must begin a process of consultation with key national stakeholders on the proposed reconfiguration.
- Public and donor funds must be mobilised to support these changes.

Initial reactions from HEIs have been mixed, but generally unenthusiastic and openly hostile in some cases. The report will clearly be the subject of intense debate and institutional manoeuvring for some time to come.

How will business respond?

national stakeholders on the proposed reconfiguration of the higher education system' (p. 66).

- A threat and an opportunity – ‘Public, international donor and private sector funds should be mobilised for strategic interventions towards the reconfiguration of the system and the achievement of quality, equity and efficiency in higher education’ (p. 68).

The ideas and work involved in the CDE round table provide pointers for how and why business leaders should respond to the new set of circumstances facing their companies and the country’s system of higher education.

CDE would put forward the following priorities:

1 The business sector should develop a well-researched position on the way in which the interests of government, the higher education sector, and business – and therefore the interests of the nation – link to and coincide in respect of higher education. The higher education system of South Africa can be successfully developed only on the basis of this understanding. Without it higher education cannot play its crucial roles in democratisation, economic growth and social equity. It will be dangerous for the country if the (mistaken) perception is allowed to develop that business might have interests in respect of higher education which are not shared by the tertiary sector itself or by government or the rest of society at large. Business has to ensure that its proposals with respect to the future of higher education are clearly designed and perceived to promote national interests and not a narrow sectional interest.

2 As a core element of this broad understanding **business should develop a collective perspective articulating the distinctive benefits from higher education to business.** This should be publicised and accepted within the

business sector, and linked positively to the perspectives of government and the higher education sector.

3 Leading corporations should urgently initiate an appropriate collective process to study the report on the ‘shape and size of higher education’ in South Africa from a business interests perspective. They need to do this informed by their own needs now and for the foreseeable future, and fully cognisant of the many problems facing schools and higher education in South Africa. If the recommendations threaten to weaken or undermine centres of excellence for the sake of bailing out and supporting institutions with very limited capacity to contribute to the economy then national and business interests will be adversely affected.

4 On the basis of this work and equipped with its own vision, needs and perspective **business should engage with senior cabinet ministers and senior officials in government and a selection of higher education institutions in order to make a considered contribution to the direction of the ‘shape and size’ debate.** This will require resources (people and time) appropriate to the task.

5 Business should take the initiative to establish a co-operative business-higher education forum for the ongoing exchange and development of views. This forum could contribute to the consultations undertaken during the ‘shape and size’ debate, and beyond that to the much-needed, ongoing process of consultation and co-operation. This forum needs to operate and make inputs at the highest level, with very senior business participation and competent professional support staff, to provide a continuing base for influencing public policy on higher education and the school system feeding into higher

The report of the CHE’s shape and size task team, *Towards a New Higher Education Landscape*, presents both an opportunity and a threat to business in South Africa.

¹⁰ CHE shape and size of higher education task team, *Towards a new higher education landscape: Meeting the equity, quality and social development imperatives of South Africa in the 21st century*, July 2000.

¹¹ CHE, *Towards a new higher education landscape*, p5.

education. The UK's Council for Industry and Higher Education provides a useful model for South Africa.

6 Business should exercise much more influence on universities by **more co-ordinated and vigorous use of voluntary membership of internal university decision-making, advisory or consulting bodies**. A meeting of business members of university councils once a year – perhaps under the auspices of the forum – to share thoughts and strategies on making their inputs more effective could strengthen their contribution immeasurably.

7 Business should **make strategic use of its financial donations and grants to universities**. This sounds obvious

but it does require businesses to formulate clearly what their interests are in respect of funding higher education. Consideration should be given to the drafting of a set of strategic guidelines in this respect.

8 Business should **sharply increase its collaboration with universities, the science councils and other such bodies** in carrying out research programmes.

9 Business should actively begin to **co-operate with universities in the commercialisation of suitable research results to the benefit of business, universities and society as a key element in South Africa's strategy for economic development**.

Concluding remarks

Higher education has a vital role in helping South Africa to develop an internationally competitive economy, a more prosperous and equitable society, and a stable democracy.

South Africa is the most developed economy on the continent but it is losing momentum relative to certain other emerging markets. We have already lost relative position. After the second world war we were at the level of Brazil and Australia in terms of productive strength. Now South Africa has been overtaken by south east Asia and seem likely to fall relative to the economies of eastern Europe, Latin America and south Asia. We do not have large regional markets nor do we have domestic savings, cheap capital or cheap labour. South Africa's lifeline for the protection of our relative position in the emerging markets of the world depends increasingly on high level skills and technological innovation.

Business must protect and build this resource base otherwise we are going to become merely the leading economy in sub-

Saharan Africa. Business has to look to itself, to universities, to the education system in general and to the interface with technology. It has to get serious about this and begin to co-ordinate its efforts. For this it needs to act collectively through a business-higher education forum backed by expertise, and it needs to develop **political will** as much as government needs to do so. Vision and leadership is required to bring together an inherently disorganised set of business players and interests.

South African business now has an opportunity to influence the future of the country's universities in an unprecedented way and to a significant degree. It also has an unusual opportunity to influence public policy towards higher education as a whole. The methods of doing so and the variety of specific roles business can play are clearly delineated in studies of the international experience and current South African practice by CDE and other business funded organisations on how best to influence public policy. Indeed many governments, universities and businesses around the

South Africa's lifeline for the protection of our relative position in the emerging markets of the world depends increasingly on high level skills and technological innovation.

world are ‘simply getting on with tasks which South African business and universities regard as novel and even revolutionary’.¹²

International experience shows that the new knowledge economy is the key force behind the changing relationship between business, universities and government. Economic globalisation is creating an ever greater drive for competitiveness in business and a relentless search for niche export areas, often involving high tech production, marketing and sales. In turn companies are seeking more highly qualified employees and require access to lifelong learning and skills improvement for their employees throughout their careers. Universities must respond to these needs and to the other demands of a knowledge-based economy. This does not only apply to areas of high technology. Knowledge and the technologies of implementing knowledge are just as vital in programmes of poverty relief and the development of markets in communities previously excluded from the benefits of modern innovation as they are in pushing computer applications beyond previously imagined limits. A better quality of life for all is based on better knowledge, better products and better economic growth. Business and universities could co-operate

fruitfully in all these areas, even if the demands of economic growth were not actually compelling them to do so.

Globalisation has had specific impacts on universities. Through a series of linked policy decisions relating to successful macro-economic policy, globally competitive imperatives are the ultimate cause of diminishing state support for universities and the increasing need for universities to diversify and increase their sources of income. Universities therefore have very immediate reasons for entering into partnerships with business.

The government needs business as an active strategic partner in the difficult task of rethinking the higher education system South Africa currently has, to one far better suited to a middle income developing country determined to become a global competitor and an African success story. Business can be government’s key ally in taking the country forward and beyond the narrow interests and perspectives struggling to catch up with President Mbeki’s bold vision of a modern, globally competitive nation.

The stakes are high. Effective and strategic business participation in the debate about the future of South Africa’s system of higher education could make all the difference between success and failure.

‘Many governments, universities and businesses around the world are simply getting on with tasks which South African business and universities regard as novel and even revolutionary.’

¹² Lee: International experience in business-university co-operation: Executive summary, p1.



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