

IMPROVING MANUFACTURING PERFORMANCE IN SOUTH AFRICA



REPORT OF THE INDUSTRIAL STRATEGY PROJECT

AVRIL JOFFE

DAVID KAPLAN

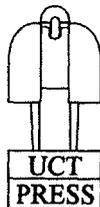
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FOREWORD

In the late 1980s COSATU commissioned a group of economists to prepare a report analysing the impact of sanctions on the South African economy. We commissioned this work in response to criticism in the media and elsewhere that held us—through our support for sanctions—responsible for the sorry state of the South African economy, including the miserable conditions of our members and others whose interests and aspirations we represented.

The research revealed that the crisis of the South African economy was rooted in the policies of the apartheid era and our commission to the economists was transformed into a full-scale critique of the economics of apartheid. A key consequence of the failures of apartheid's social and economic policies was its unproductive manufacturing sector. It was unable to produce basic goods of a suitable quality and at an affordable price; it was unable to produce goods that successfully penetrated international markets; it relied on low-paid, poorly-trained workers, and harsh, authoritarian shop-floor supervision; above all, it proved incapable of generating desperately needed employment. While manufacturing's contribution to the global economy escalated, South Africa relied increasingly on its natural resource base and the cheap labour that mined and farmed it.

Appreciation of these problems inspired COSATU to request its research collective to undertake research in support of our attempt to formulate a new industrial policy. This request flowered into the Industrial Strategy Project, whose output is represented in these reports.

The research process has been characterised by considerable dialogue between COSATU, its affiliates and the researchers. We have learnt much from this interaction; we are confident that we have taught the researchers much. However, this work is the output of an independent research collective. As is to be expected in an arms-length relationship of this kind, we do not agree with every line of each report; we do not accept every recommendation. But with regard to its major findings, we do agree that there is real potential for building an efficient manufacturing base, rooted in well-paid, productive workers. Above all we believe, and this is endorsed by the ISP, that an independent trade union movement, actively and aggressively pursuing its interests, is not merely compatible with rapid and sustainable industrial development—it is a precondition.

John Gomomo

President, Congress of South African Trade Unions

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INTRODUCTION

The Industrial Strategy Project has its origins in the Economic Trends Research Group, a voluntary collective of economists and other social scientists convened by the Congress of South African Trade Unions (COSATU). COSATU, under attack for its support for sanctions, initially asked these researchers to examine the impact of enforced isolation on the South African economy. It soon became clear that sanctions were a small aspect of the problems besetting the South African economy, and the work of the Economic Trends Research Group expanded into a full-blown analysis of South Africa's economic crisis.

The poor performance of South Africa's manufacturing sector loomed large in the litany of problems bedeviling the South African economy. The 1980s had been, in economic terms, something of a lost decade. The manufacturing sector was particularly conspicuous in its inability to produce jobs, or to produce commodities that satisfied either the divergent needs of the domestic market or of the international market. A range of factors contributed to this malaise—apartheid's impact on the skills profile of the work-force, repressive and out-moded industrial relations systems and work organisation, technological backwardness, a highly concentrated industrial structure coupled with a concomitantly weak and repressed SME and micro-enterprise sector, and a poorly structured system of protection were the most obvious sources of the crisis in manufacturing.

However, the solutions were less obvious than the problems, and, in 1990, again at COSATU's suggestion, the Industrial Strategy Project (ISP) was launched. From the outset, the ISP was conceived as being distinct from a normal research project. The unbanning of the ANC and the certainty of the immediate accession to power of COSATU's political ally, coupled with the federation's increasingly direct role in policy formulation, ensured that the ISP focus closely on policy. The ISP was effectively charged with supporting the development of an industrial policy that could address the poor performance of South African manufacturing.

To this end, the ISP engaged a range of researchers to undertake a detailed examination of the key subsectors of South African manufacturing. The researchers were assigned, generally for a period of 14 months, to the study of a particular sector, with the aim of examining the factors promoting and restraining its development. They were required to assess the prospects of a particular sector in the light of the likely global trajectory of the industry. Detailed examination of local firms were complemented by visits abroad where researchers were able to consult with international experts and visit factories to enable them to situate South African firms in a comparative perspective.

In addition to the sectoral studies, the ISP also engaged researchers to examine key cross-cutting issues. Those selected for study were human resource development and industrial relations, technology development, market and

ownership structures, trade performance and policies, and regional industrial strategies.

The results of the ISP are to be found in the sectoral and cross-sectoral research reports listed at the back of this volume.

The first part of this volume—the ‘synthesis’—represents an attempt to elaborate an overall industrial strategy for South Africa. It overviews the performance of South African manufacturing. It identifies the objectives of our industrial strategy and outlines its broad strategic direction. It then enunciates a framework for the policies necessary to realise the stated objectives. The key policy interventions that we propose are then examined under several headings—trade policy, industrial organisation, strengthening underlying manufacturing capabilities, and the institutional framework.

The second part of the volume comprises three background essays dealing with vital cross-cutting issues—market and ownership structures, human resource development, and technology. The other cross-cutting issues referred to in the synthesis—for example, trade policy and micro-enterprise—are dealt with in separate research reports.

The synthesis does not attempt to summarise the sectoral and cross-sectoral research reports. It draws heavily on the reports, but it also draws heavily on a vibrant international debate surrounding industrial strategy. However, just as a national industrial strategy cannot simply be imported from China or Korea, Sweden or Japan, so too is it more than the sum of its national parts. Although the realisation of a national industrial strategy is indelibly linked to complementary sectoral strategies, and ultimately resides in improved firm-level performance, these, in turn, demand that the policy-making authority develops a set of objectives, as well as the broad strategic direction and policy framework necessary to meet these objectives. This is the purpose of the synthesis.

The synthesis and the sectoral research reports persistently emphasise the point that industrial policy is not a document; it does not identify a number of key levers which, if correctly positioned, produce a predictable set of desired outcomes. As some of the most successful industrialised countries are beginning to discover, there are no industrial policies that are valid for all time. Technology and the shape of national and global markets evolve too rapidly to permit a ‘correct line’ in industrial policy; social forces, social interests and coalitions shift to accommodate new strategic orientations and policy frameworks and, in so doing, structure new strategic and policy possibilities. Industrial policy is an endless process of definition and redefinition.

This begs two questions about the processes associated with the Industrial Research Project. How does this research enter the policy-making arena? How does the ISP *qua* research project deal with the evolutionary character of industrial policy?

The South African landscape of the immediate past is strewn with policy projects, some of which have made little impact, others of which remain central to policy development, and yet others that enjoyed a glorious burst of publicity only to fizzle rapidly into oblivion. Partly through resource constraints, partly as a consequence of the particular origins of this project, we have

eschewed the path of high-profile roadshows in an attempt to put the ISP on the map. We have chosen to direct our 'message' at government, at the representative organs of labour and business and, most particularly, at the various national and sectoral tripartite institutions that have been grappling with the industrial features of South Africa's transition. To this end we have interacted consistently with decision-makers in each of these institutions, interactions that have played a significant role in shaping the thinking that underlies this report.

Four years on, many ISP researchers are in influential positions in government, the unions and in business. However, the ISP's participation in the policy-making process is rooted rather less in personal influence than in its constant iteration with the key industrial actors. Many of the ideas contained in this volume and in the other research reports were gleaned through this iterative process. Accordingly we have no need, indeed no right, to claim ownership of these ideas in order to track our influence. However, if the level of debate surrounding terms as loaded as 'productivity', 'competitiveness', 'empowerment', 'stakeholders', 'protection', 'concentration' and many others, is higher in 1995 than it was in 1990, we modestly lay claim to some of the credit.

The research process continues. The world, and South Africa's place in it, has already moved on and the research process must reflect this movement; further development of our industrial policies requires a deeper, more detailed knowledge of the firm and the world of work. We have identified major gaps in the first phase of this study. For example, we are all but silent on the environmental impact of our industrial strategy and, in a country that has moved into a new era of relations between central and provincial and local government, we have had disturbingly little to say about local industrial strategies.

The ISP has been funded for a further two years and some of these questions will be taken up in this period. In addition, we hope that the questions asked in the first phase of this study and the answers proffered will encourage further research from beyond the limited confines of the ISP. There is already considerable evidence of this. The industrial policy research environment exhibits considerably greater breadth and depth at the beginning of the second phase of the ISP than was the case at its inception. For this, too, we lay claim to some modest contribution.

Avril Joffe
David Kaplan
Raphael Kaplinsky
David Lewis

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ACKNOWLEDGEMENTS

This summary of the findings of the Industrial Strategy Project (ISP) is based upon a series of studies, comprising more than 30 person years of research and policy discussions. It is thus impossible to thank individually all those people and institutions who have been associated with a complex research and policy process.

However, this project would have been impossible without the ongoing support of a number of persons in the leadership of ANC's Department of Economic Planning (DEP) and the Congress of South African Trade Unions (COSATU). Many of them are now in senior public positions. They include Alec Erwin, Trevor Manuel, Tito Mboweni, Jay Naidoo and Jayendra Naidoo.

Interim results and findings were presented on a number of occasions at various venues in South Africa, and a range of institutions and individuals contributed to the evolution of our thinking. COSATU, its affiliates, and the ANC's DEP shared their experiences and insights with us. We have also benefited from interaction with a range of local organisations and institutions, including the Development Bank of South Africa (DBSA), the Industrial Development Corporation (IDC) and the South African Chamber of Business (SACOB). Many of our ideas have their genesis in these interactions. A number of foreign participants also contributed to a series of local workshops, and we would like to thank, particularly, Sam Bowles, Charles Cooper, Sam Ginden, Olle Hammarström, Tim Jackson, Brian Levy, Bruce MacFarlane, Bill Mountford, Robin Murray and Sheila Page.

Our research was discussed abroad at the following institutions, whose support we would like to acknowledge: the Institute of Development Studies (IDS), Brighton, England; United Nations University Institute for New Technology (UNU-INTECH), Maastricht, the Netherlands; The Trade Union Project, Cambridge, United States of America; the Olof Palme International Center, Stockholm, Sweden, and the International Development Research Center (IDRC), Ottawa, Canada. We are grateful to Elaine Bernard, Charles Cooper, Philip English, Jan Hodann and Arthur MacEwan for arranging these meetings, and to the institutions and the many participants, too numerous to list, who gave of their time for constructive comment and suggestion.

The ISP was funded by generous grants from the Hummanistisch Instituut Voor Ontwikkelingsamenwerking (HIVOS) of the Netherlands, the IDRC, Canada, and the Olof Palme International Center, Sweden. We benefited not only from the financial resources of these institutions, but also from the wide-ranging experience of their staff members and their deep and abiding commitment to a democratic and prosperous South Africa.

Institutional support was provided by the Development Policy Research Unit at the University of Cape Town (UCT), which administered the project and functioned as the ISP head office. The Sociology of Work Unit at the University of the Witwatersrand and the University of Natal housed other local researchers, while the IDS in Brighton served as the international base for our

research.

We have drawn liberally on the reports of our researchers, many of which have been published by UCT Press. Researchers and trainees contributed their collective experience and research findings. Without them this endeavour would have been impossible. We are also deeply appreciative of the research assistance so ably rendered by Steven Hanival in the writing of this book and of the competence and dedication of our editor, Glenda Younge.

To all of the above, we offer our thanks. Obviously, the responsibility for the final product rests with the authors alone.

*S*ECTION 1

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MANUFACTURING PERFORMANCE

The transition to a new political order in South Africa has taken place after nearly two decades of economic stagnation. In the 1960s and early 1970s, per capita income rose rapidly, at a rate similar to that of the Newly Industrialising Countries (NICs). But, since that time, there has been no sustained increase in South African per capita income, while the per capita income growth of other countries has been quite rapid—particularly in the NICs. See Figure 1.

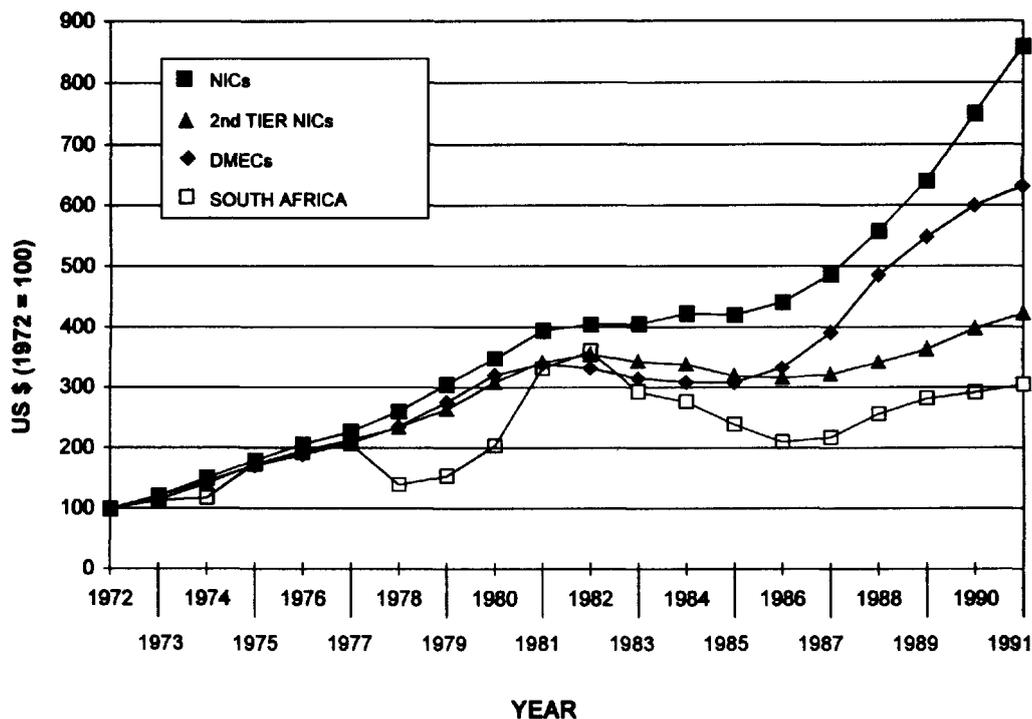


FIGURE 1 GNP PER CAPITA INCOME INDEX

Had South Africa continued to grow at the same rate as the NICs after the mid 1970s, our GNP per capita would now have been over \$7 250 as opposed to its present level of a little over

\$2 500. While such counterfactuals are to be treated with caution, they do indicate the magnitude of the economic opportunities lost.

THE SOUTH AFRICAN GROWTH MODEL

Although every economy has a unique economic structure, there does appear to be a broad contrast between the growth model followed in Latin America and that of the high performing economies of East Asia. In general, the Latin American economies have been far less dynamic. They had lower long-term annual growth rates of GNP per capita and their industries were less internationally competitive, as reflected in the ratio of exports to imports in metal products and machinery. They also had markedly more uneven distributions of income, measured by the ratio of the income of the poorest 40% of the population to that of the richest 10%, and had more exuberant consumption, particularly of foreign-type consumer goods, measured by the number of passenger cars per population. This pattern of consumption is partly a consequence of the uneven distribution of income.

These dimensions of development are self reinforcing. For example, in Latin America the high overall demand and high income elasticities of demand for foreign-type consumables was an important factor in limiting demand for indigenously-designed, traditional consumable goods. This hampered the spread of small manufacturing firms. By contrast, the very different demand structure of the high performing East Asian economies gave much more scope for the profusion of small-scale enterprises. The profusion of small-scale enterprises, in turn, was one important factor accounting for the lower levels of income inequality of the East Asian economies.

From figure 2, it is evident that, over the decade of the 1980s, South Africa could be characterised as an extreme form of the Latin American growth model, rather than that of the more successful East Asian economies. Our income distribution has been particularly uneven. It is thus not altogether surprising that, as with the Latin American economies, our recent growth performance has been so poor.

In the Latin American economies, the high level of demand for imported consumables, such as motor cars, provided considerable scope for the initial policies of Import Substituting Industrialisation (ISI). ISI was designed to overcome balance of payments constraints. However, high income inequality limited the growth in demand and soon resulted in saturation and excess capacity in industry. As ISI was then extended to more

'South Africa, over the decade of the 1980s, could be characterised as an extreme form of the Latin American growth model'

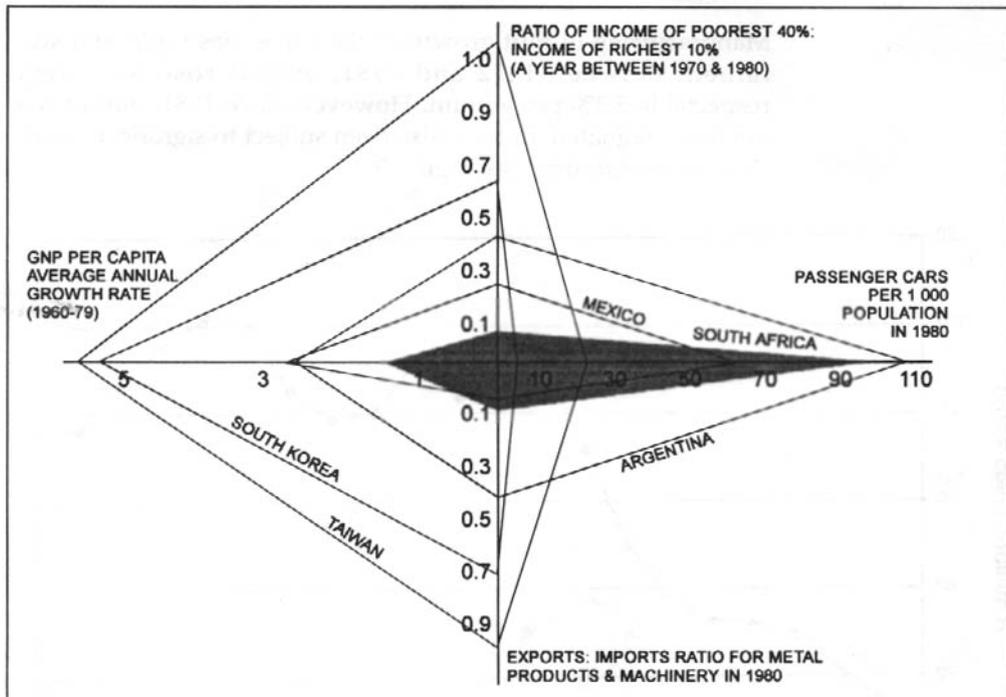


FIGURE 2 GROWTH MODELS: SOUTH AFRICA IN COMPARATIVE PERSPECTIVE

Source: (International) Wade, R. *Governing the Market*. (South Africa) IDC 1990; *Weekly Mail* 1994; World Automotive Statistics 1991; *World Bank World Development Report* 1992.

import-intensive products, the share of imports in GDP rose and shortages of foreign exchange became the primary constraint on further industrialisation.

South Africa followed a similar pattern. As with many of the Latin American economies, ISI in South Africa was initially accompanied by significant new investment and industrial diversification. New investment and output increases facilitated increases in productivity. Overall, our industrial performance, particularly during the 1960s and the early 1970s, was strong—output, employment, investment and productivity all rose rapidly. However, since then, as with the Latin American economies, our manufacturing performance has been very inadequate.

Poor manufacturing performance is manifest in low output and low employment growth, as well as low rates of export growth.

OUTPUT

Manufacturing output growth in the 1970s was rapid and sustained. Between 1972 and 1981, output rose by a very respectable 5.3% per annum. However, since 1981, output has not only stagnated, but has also been subject to significant year-on-year fluctuations. See Figure 3.

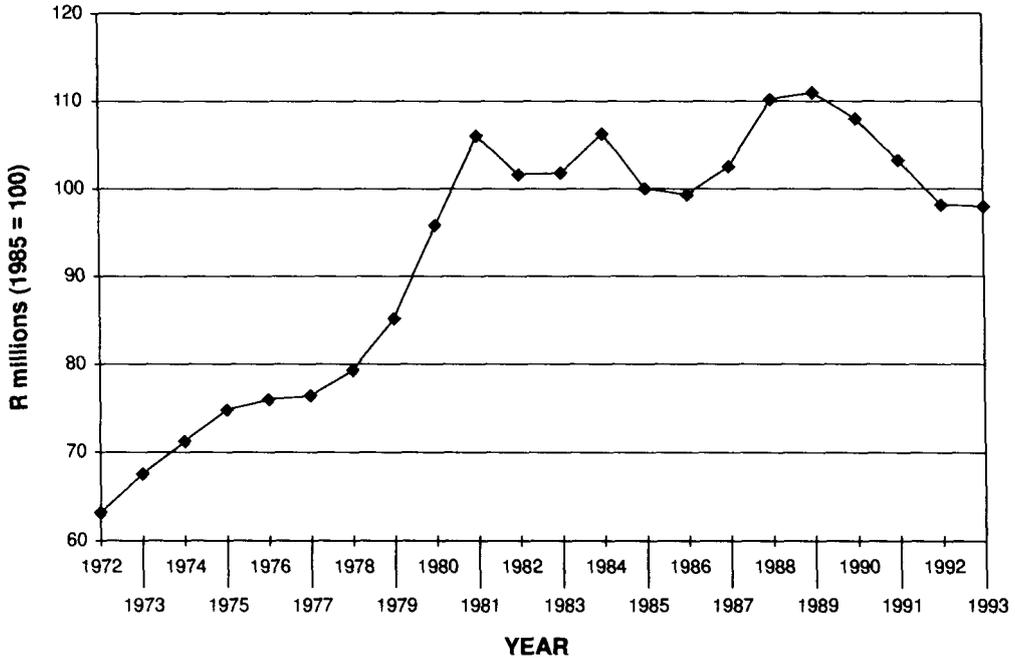


FIGURE 3 MANUFACTURING: INDEX OF PHYSICAL VOLUME

Manufacturing employment rose steadily in the 1970s, increasing by a little over 35% between 1972 and 1982. However, since then, manufacturing employment, despite some fluctuations, has shown a tendency to decline. In 1993, there were 89 000 fewer jobs in manufacturing than there had been in 1982. See Figure 4.

EXPORTS

Manufactured exports have been erratic, but have shown an increasing trend over the last decade. See Figure 5.

However:

- ◆ Manufactured exports actually declined between 1989 and

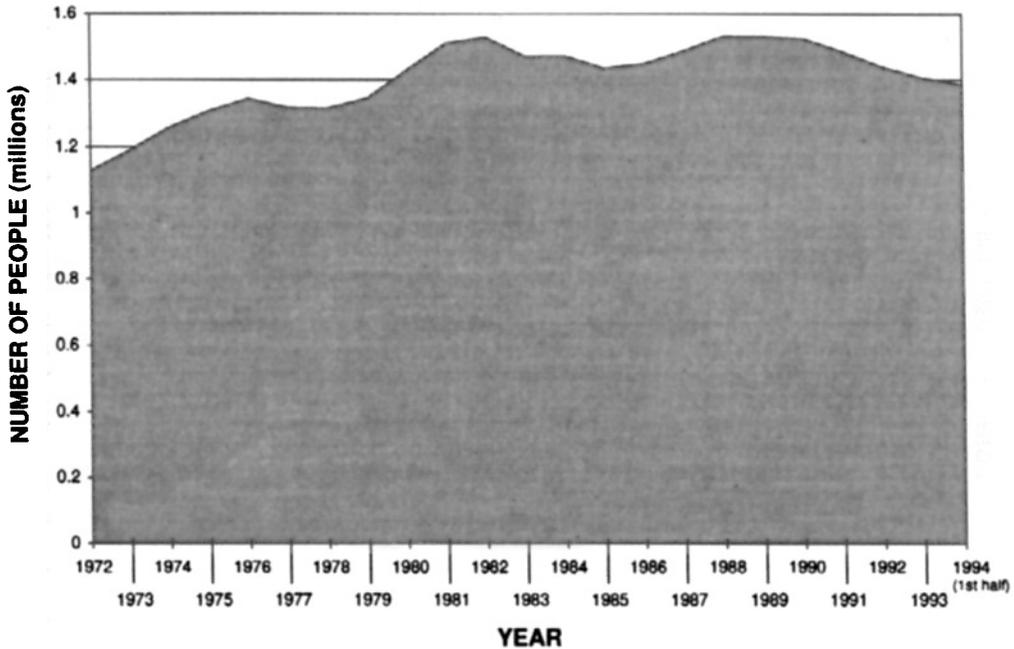


FIGURE 4 EMPLOYMENT: ALL MANUFACTURING

1992. The current revival in manufactured exports is very recent.

◆ Our rate of increase has been lower than that of our principal competitors. See Figure 6.

A number of factors have contributed to the recent rise in manufactured exports. These include export incentives; the declining value of the rand; and, especially important, a prolonged recession and the low levels of demand in the domestic market. While there are exceptions, micro-level studies have found that firms were not investing significantly in plant and equipment in order to produce for the export market.

All of this suggests that the increase in manufactured exports is still far from satisfactory. The increase does not arise from South Africa becoming significantly more competitive and is unlikely to be sustained.

Overall, South African exports still remain concentrated in primary products or lightly beneficiated primary products. Only one-eighth of our current exports can be classified as manufactures, with primary products and semi-manufactures (raw material intensive, processed products such as

'The increase in manufactured exports is still far from satisfactory. The increase does not arise from South Africa becoming significantly more competitive and is unlikely to be sustained'

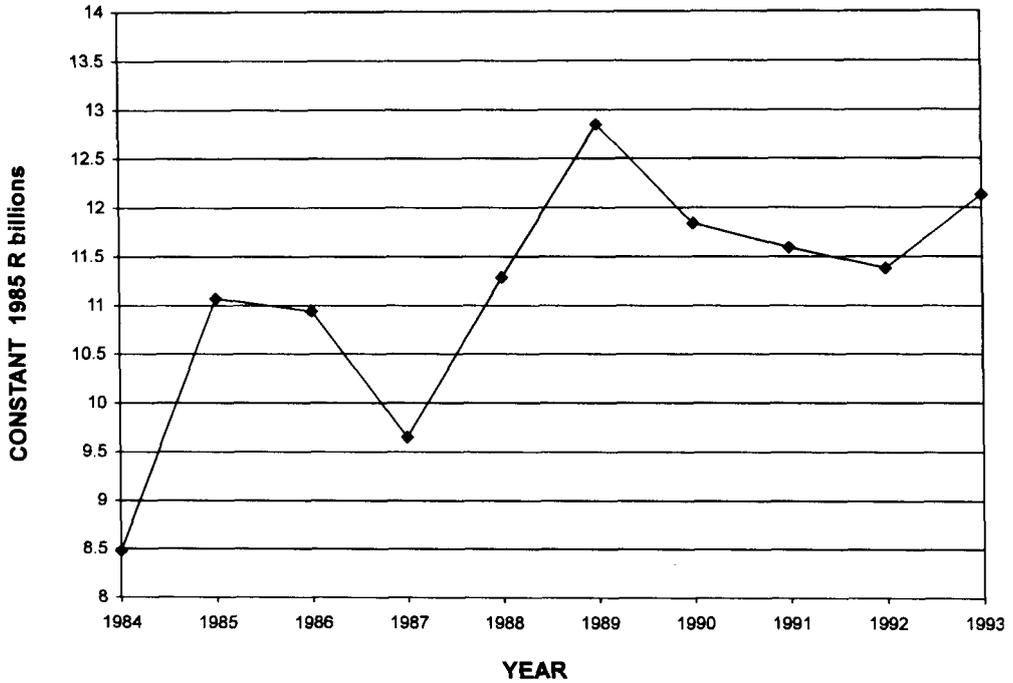


FIGURE 5 MANUFACTURING EXPORTS IN 1985 R BILLIONS

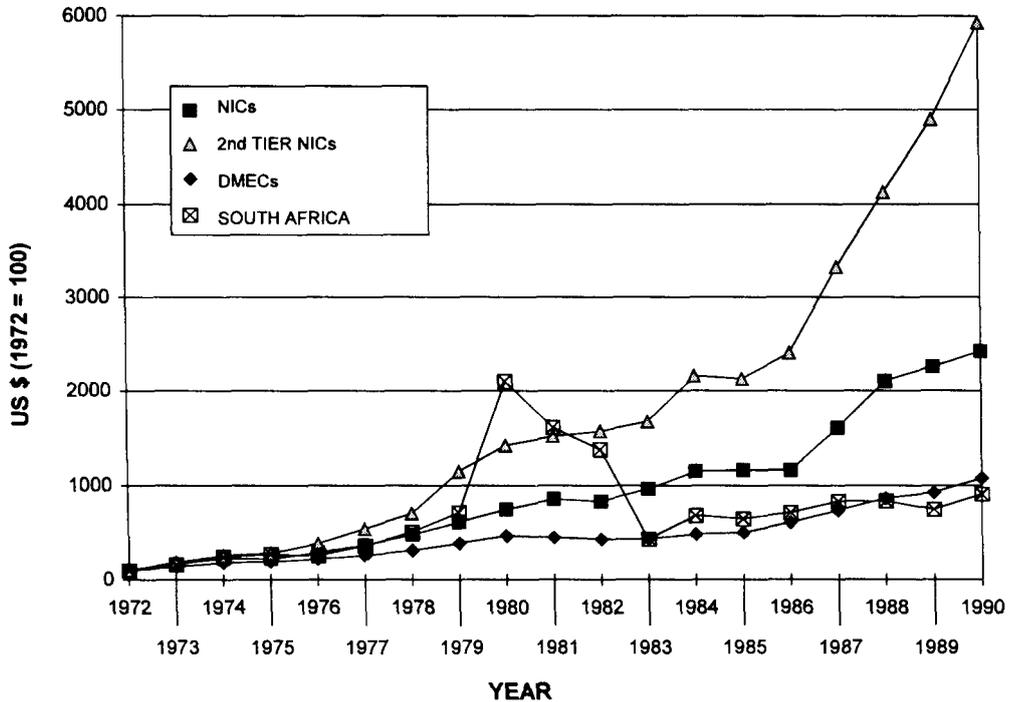


FIGURE 6 INDEX OF MANUFACTURED EXPORTS

iron and steel and processed foods) making up the rest. The international demand for these products is growing slowly as the developed countries (the main market for primary products) expand their output of manufactured goods without substantially increasing their need for primary and semi-manufactured products.

Poor export performance has been the major factor prohibiting the entire economy from growing at a faster rate. South Africa is heavily dependent on the need to import, particularly capital equipment. When the economy expands, the demand for imported capital equipment rises very rapidly placing pressure on the balance of payments. Until the early 1970s, South Africa's capacity to import—the amount of imports that can be paid for through exports—rose at a similar rate to that of the NICs. But the amount of imports that South Africa could pay for by exporting was no higher in 1990 than it had been in 1980. This is in marked contrast to other countries, particularly the NICs and the Second Tier NICs, whose capacity to import has risen dramatically since 1980. See Figure 7.

Many factors have contributed to poor manufacturing performance. But two stand out in particular—investment and productivity.

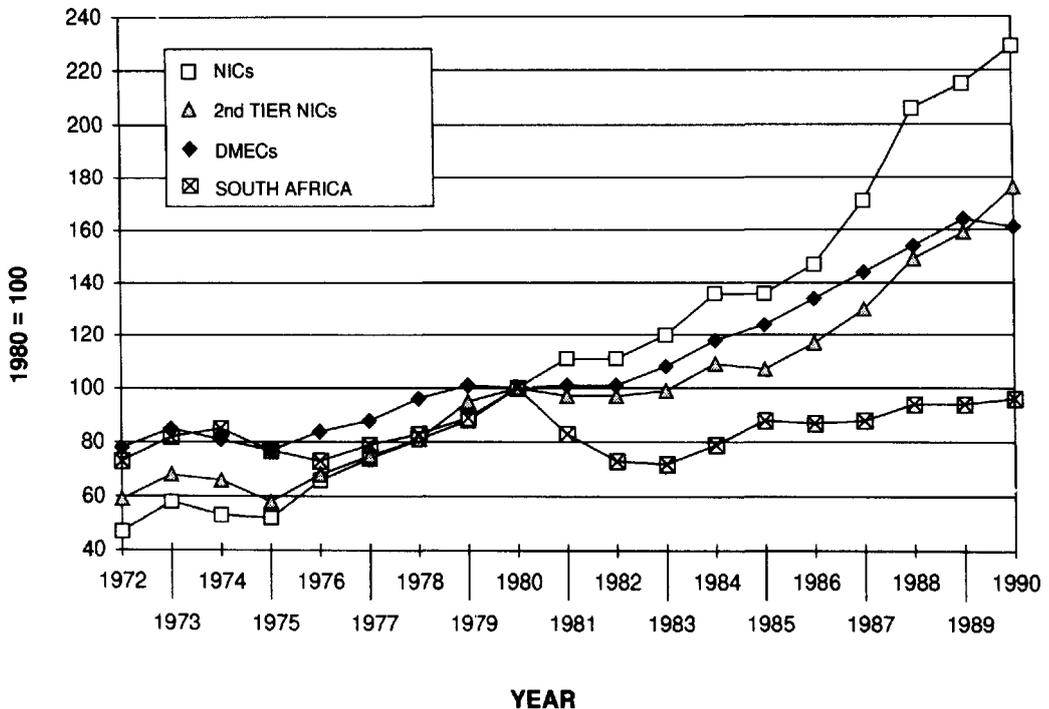


FIGURE 7 CAPACITY TO IMPORT

INVESTMENT

The amount of resources invested as a percentage of GDP, while considerably above 25% until the early 1980s, has shown a clear tendency to decline since 1982. The decline was particularly precipitous between 1989 and 1993. In the 1990s the amount of investment has been insufficient to replace even plant and equipment as it wore out.

Compared to our competitors, our investment levels were satisfactory through the 1970s (especially the early 1970s) but, particularly since 1982, our investment levels have been comparatively poor and the gap has been increasing. In the early 1990s,

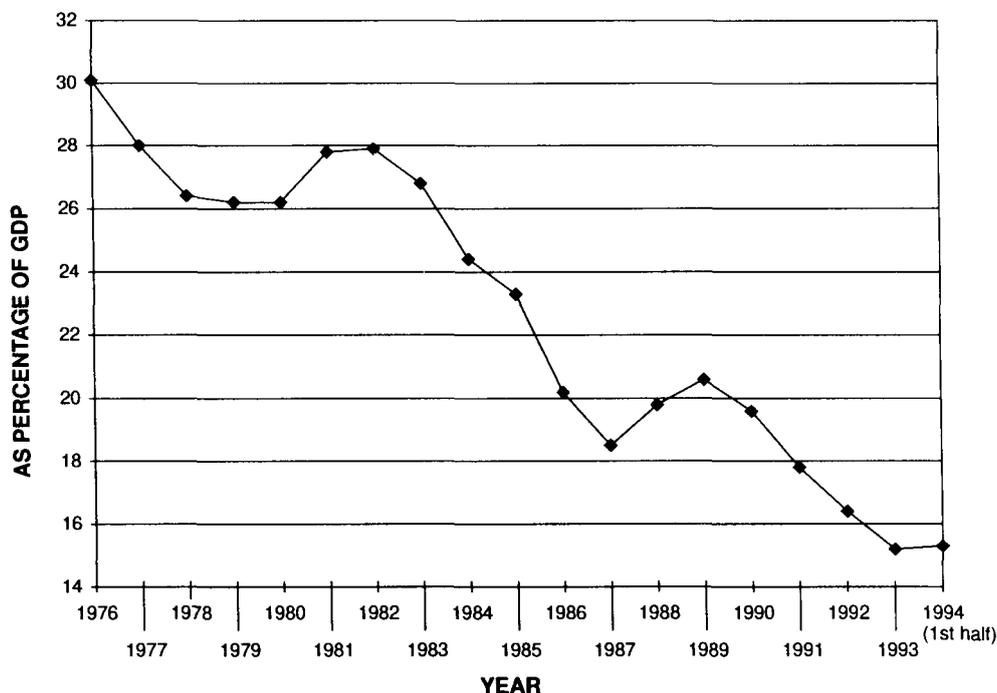


FIGURE 8 GROSS DOMESTIC FIXED INVESTMENT AS A PERCENTAGE OF GNP

as a proportion of output, South Africa was devoting less than half the amount to investment than were comparator countries.

Manufacturing investment has generally not been as poor as in other sectors. However, manufacturing investment has also declined dramatically to levels that are well below those of our competitors. In fact, over the period 1985–8, South African manufacturing investment was negative. While positive thereafter, manufacturing investment has remained at very low levels. See Figure 10.

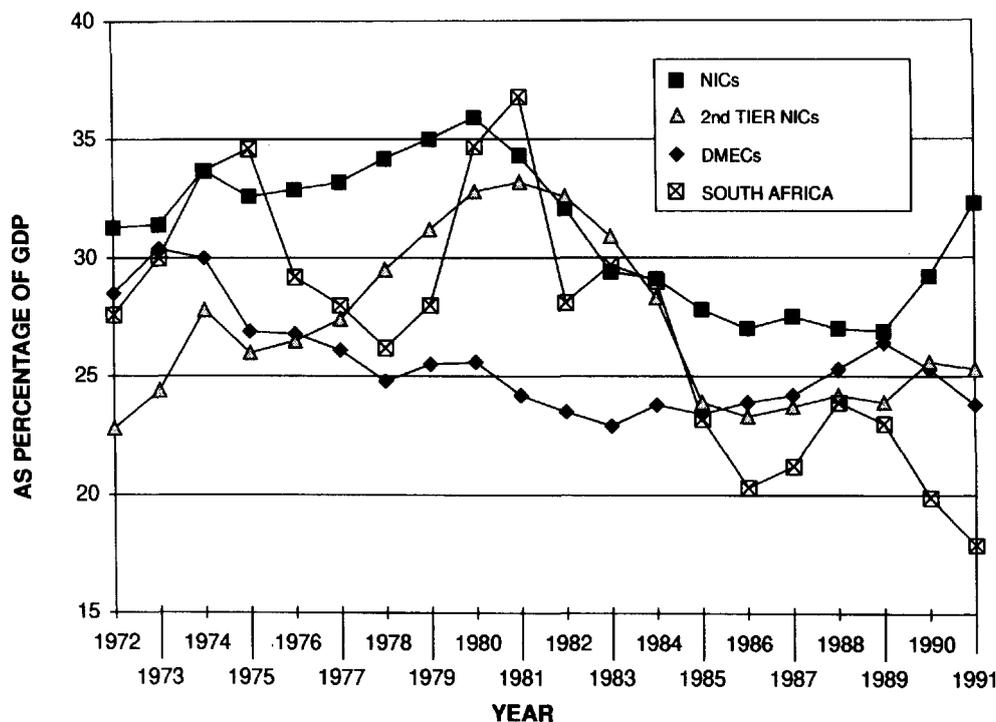


FIGURE 9 TOTAL INVESTMENT AS A PERCENTAGE OF GDP

PRODUCTIVITY

The second major factor contributing to South Africa's poor manufacturing performance is that we have not made good use of the plant, equipment and labour employed in production. Economists measure the relative efficiency with which these resources are utilised by means of an index called 'total factor productivity growth' (TFP). There are a host of problems in constructing such an index, particularly one that allows for comparability between countries, and any TFP index should be treated with caution. Nevertheless, TFP measures can provide some indication of the efficiency with which resources are employed.

Table 1 strongly suggests that in South Africa:

- ◆ Manufacturing industry has had a very low rate of productivity growth for a sustained period.
- ◆ Productivity growth in manufacturing has been declining over time and has latterly been negative.
- ◆ Productivity growth in the business sector has been lower in South Africa than in almost all of the OECD countries.

'In the early 1990s, as a proportion of output, South Africa was devoting less than half the amount to investment than were comparator countries'

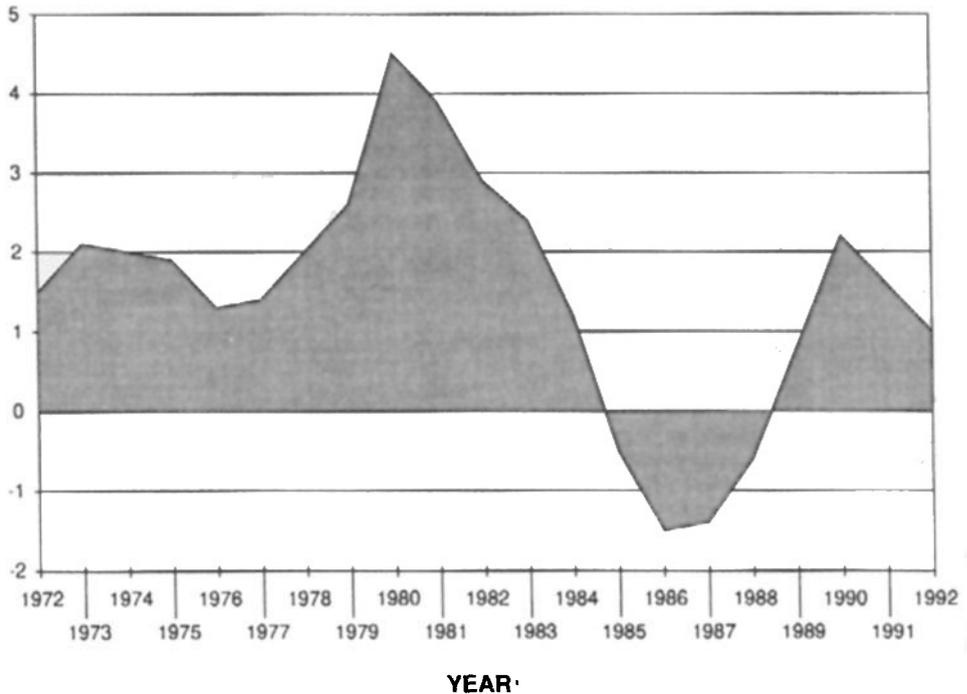


FIGURE 10 MANUFACTURING: ANNUAL NET INVESTMENT, IN 1985 R BILLIONS

These conclusions are strengthened if TFP growth is disaggregated into the different industrial sectors. Apart from a few capital intensive sectors, the picture is one of low and declining TFP growth over a sustained period.

Sustained declines in productivity are highly unusual. This is particularly so where they are accompanied by declines in investment and employment. Lower levels of investment and lower levels of employment usually result in a larger reduction in capital and labour than a reduction in output, leading to an increase in the productivity (output per unit) of labour and capital. But, in South Africa, TFP has not increased in this period, despite the low rates of investment and employment growth.

'The conclusion is inescapable—South African manufacturing industry currently utilises its employed resources very inefficiently'

The conclusion is inescapable—South African manufacturing industry currently utilises its employed resources very inefficiently. Moreover, what is of major concern, is that this poor rate of productivity increase has come about at a time when investment, employment and output have all been declining.

TABLE 1 AVERAGE ANNUAL INTERNATIONAL PRODUCTIVITY GROWTH

COUNTRY	TOTAL FACTOR PRODUCTIVITY			LABOUR PRODUCTIVITY		
	1960-73	1973-79	1979-90	1960-73	1973-79	1979-90
USA	1.6	-0.4	0.1	2.2	0.0	0.5
JAPAN	5.9	1.3	2.0	8.6	2.9	3.0
W. GERMANY	2.6	1.8	0.9	4.5	3.1	1.6
FRANCE	4.0	1.7	1.5	5.4	3.0	2.4
ITALY	4.4	2.1	1.3	6.3	3.0	1.9
UK	2.3	0.6	1.3	3.6	1.6	2.0
CANADA	2.0	0.8	-0.1	2.8	1.5	1.1
AUSTRIA	3.3	1.2	0.9	5.8	3.2	1.9
BELGIUM	3.9	1.4	1.5	5.2	2.8	2.3
DENMARK	2.8	1.1	1.4	4.3	2.6	2.3
FINLAND	3.2	1.5	2.5	4.9	3.2	3.6
GREECE	5.7	1.5	-0.2	8.8	3.3	0.7
NETHERLANDS	3.1	1.5	0.9	4.8	2.8	1.5
SPAIN	3.3	0.9	1.8	6.0	3.3	2.8
SWEDEN	2.6	0.3	0.7	4.1	1.4	1.5
SWITZERLAND	2.0	-0.4	0.5	3.2	0.8	1.1
AUSTRALIA	1.6	0.8	0.3	2.7	2.2	0.9
NEW ZEALAND	0.9	-1.9	0.5	1.7	-1.3	1.5
OECD	2.8	0.5	0.7	4.1	1.4	1.4
SOUTH AFRICA a	NA	-0.2	-0.1	NA	1.9	1.7
SOUTH AFRICA b	1.2	0.2	-0.5	3.2	2.1	0.2

Source: OECD (1992) TABLE 55 FOR ALL COUNTRIES EXCEPT SA.

a These SA productivity measures are from the NPI (1990) and are estimated for the whole private economy, thus are relatively comparable to the other countries shown here.

b These estimates relate only to the manufacturing sector, not the whole economy, and are thus not strictly comparable.

A NEW CONTEXT

Our poor industrial performance is, in itself, cause for concern. But the need to revive industrial growth occurs in a global context in which competitive pressures are increasing and in which a growing proportion of manufactured output is traded.

It is also an era in which the nature of international competition is changing. New forms of production have revolutionised competitive parameters. Price is no longer the major determinant of market share. New standards of quality, reliability and innovation are required to ensure survival.

ISP studies showed that in most manufacturing sectors, firms performed particularly poorly in the these non-price-competitive factors. Thus, not only has our performance, as measured by reference to the macro data, been weak in general, but the evidence accumulated through the intensive study of South African manufacturing firms strongly indicates that, in the absence of corrective measures, this is set to continue.

OBJECTIVES AND STRATEGIES

This brief review of recent industrial performance highlights the challenges now facing South Africa. It is clear that if the needs of our population are to be met and if political stability is to be maintained, it is imperative that industry should change its course. To some extent a reorientation is occurring already, and many enterprises have begun to transform their operations. They have altered their strategic focus and are redirecting their investment profiles and manufacturing operations to achieve new ends which are appropriate to the needs of the economy as a whole.

But it would almost certainly be unprecedented if the individual decisions of these leading-edge firms summed into an industry-wide reorientation of sufficient magnitude to confront the challenges of the late 1990s and the new millennium. Faced with similar challenges, many countries in analogous circumstances have found it necessary to focus and co-ordinate economic activities and policies in respect of industrial development—in other words to develop an industrial strategy—in order to achieve the desired goals.

An industrial strategy does not imply a 'big-brother' state which directs economic activity in detail. To the contrary, an effective industrial strategy seeks to co-ordinate policy such that the state works together with and, indeed, seeks to improve the effective functioning of markets. By and large, state intervention is limited to the situation where it is clear that market imperfections and market failures produce sub-optimal outcomes. It is in this market-friendly context that the process of fashioning and implementing an industrial strategy is to be understood. The key concepts in this strategic approach to industrial policy are:

- ◆ whenever possible, industrial restructuring works *with* rather than against the market;
- ◆ industrial restructuring should be seen as a process, rather

WHAT IS AN INDUSTRIAL STRATEGY?

'Industrial restructuring should be seen as a process, rather than as a blueprint'

than as a blueprint;

- ◆ to be effective, this process must involve all of the key stakeholders.

Any strategy—be it in industry, in a public institution or a firm—has to be set in context. That context is given by the existing performance and structure of the manufacturing sector. It then requires that the objectives are specified. The broad route, often also termed strategy, by which it is proposed to meet these objectives, must then be identified. Finally, concrete policies must be established in order that the strategy can be implemented effectively. The discussion of the industrial strategy in this document follows this schema.

OBJECTIVES

Our analysis of the poor performance of the manufacturing sector leads us to suggest four interlinked objectives of industrial policy:

- ◆ Creating employment
- ◆ Increasing investment
- ◆ Raising productivity
- ◆ Improving trade performance.

CREATING EMPLOYMENT

The major factor retarding employment growth in South African manufacturing has been the low rate of manufacturing investment (see below). But employment growth has also been limited due to the character of that industrial investment.

- ◆ Compared to the 'normal' pattern of industrial development, as computed by Chenery and Syrquin, the heavy and less labour-intensive industries tend to be 'overdeveloped' and the lighter, more labour-intensive industries to be 'underdeveloped' in South Africa. This 'underdevelopment' is particularly marked in respect of textiles and clothing (especially clothing), and in leather and footwear. The share of manufacturing industry's total capital stock accounted for by the textile, clothing, leather and footwear sectors has declined consistently, from near 7% to about 3%, over the last two decades.

- ◆ A closer examination of the subsectoral components of the two major 'overdeveloped' industries—namely chemicals and base metals—reveals that there is considerable 'underdevelopment', compared to the normal pattern, in the downstream and more labour-intensive ends of these sectors. In particular, there is considerable 'underdevelopment' in plastics as well as in transport equipment. These downstream subsectors are far

more labour intensive than are the upstream subsectors.

◆ In most countries, industry is more highly concentrated with respect to output than with respect to employment, reflecting the higher capital intensity of larger firms. In South Africa, the evidence suggests that this is more particularly so, indicating that larger firms are considerably more capital intensive than smaller firms. The unusually heavy dominance of larger firms, combined with the fact that they tend to be particularly capital intensive compared to smaller firms, further retards the employment performance of South African industry.

◆ The manufacturing component within the South African informal sector is distinctly 'underdeveloped' by comparison with that of most other countries, more especially other African countries.

Our industrial policies attempt to improve the overall employment performance of South African industry by addressing each of these distortions. Thus, we have policies with respect to the more labour-intensive sectors. We advocate a series of policy measures to ensure more 'downstream' investments in the material-intensive industries, as well as measures to facilitate the emergence and development of small and medium-size enterprises, and to support the growth of informal industrial micro-enterprises.

However, in our view, industrial expansion will be driven by the increasing productivity of labour rather than by a major expansion in industrial employment in the aggregate. The evidence suggests that in the early phase of industrialisation, aggregate manufacturing employment tends to rise rapidly, while later rises in output are secured through gains in the productivity of labour. Thus, even those countries which, in contrast to South Africa, experienced significant growth in manufacturing output, particularly over the decade of the 1980s, have seen slow growth in manufacturing employment in the aggregate. See Figure 11.

Manufacturing's direct contribution to employment will therefore be more significant in the area of high-productivity/high-wage jobs. Moreover, in addition to generating more high-paying employment opportunities, a more productive manufacturing sector would also make it possible for jobs to be created elsewhere in the economy, for example, in the services sector or through the provision of social infrastructure. But it would be unrealistic to expect significant aggregate job creation on the part of the manufacturing sector itself, particularly in the short run.

While employment creation in manufacturing is one of our objectives, the principal locus for employment growth will not

'Industrial expansion will be driven by the increasing productivity of labour rather than by a major expansion in industrial employment in the aggregate'

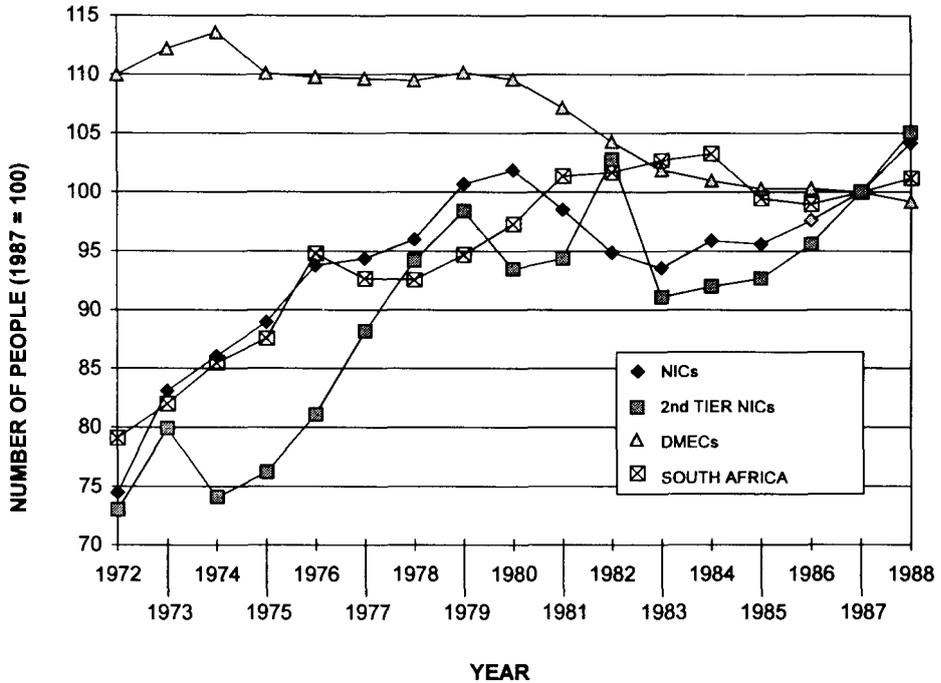


FIGURE 11 MANUFACTURING EMPLOYMENT INDEX. *Source:* UNIDO Industry & Development: Global Report 1991/2; Forstner, H. & Ballance, R. 1990.

be in manufacturing. Industrial policy, therefore, is no substitute for confronting the difficult issues entailed in developing an employment-generating and poverty-alleviating macro-economic strategy.

There is a widely held view that 'market imperfections', principally a high wage rate in the manufacturing sector and a low, and sometimes negative, interest rate have encouraged capital-intensive investment and limited employment growth. A more 'labour demanding' path of development, in this view, necessitates a reduction in the real wage rate. Quite apart from the political feasibility of this approach, we do not see evidence to the effect that distorted relative factor prices, high-priced labour and comparatively low-priced capital, have led to inappropriate capital-intensive technical choices. The aggregate high levels of capital intensity, observed in the South African economy since the early 1970s, are principally a consequence of the heavy investments in iron and steel and later chemicals. These investments and technology choices were driven by 'strategic considerations'. There is no indication that, disaggregated by sector, South African industry utilises more capital-intensive

technologies than other countries at a similar stage of industrial development.

This is not an argument for increasing real wages, but it does suggest that reductions in wage rates may not have a significant impact on the adoption of more labour-intensive technologies. Moreover, wage reductions are likely to run counter to measures designed to ensure enhanced productivity—and it is the latter that is most critical to improving our overall manufacturing performance (see below).

INCREASING INVESTMENT

We have already noted the low rates of investment in South African manufacturing industry. In the 1970s, the growth rate of real investment in manufacturing was 4.7% per annum. This fell to 2% per annum in the 1980s, and was actually negative towards the end of the decade. Although we have begun to see some revival of manufacturing investment, as outlined earlier, the rate remains considerably lower than for many of our major industrial competitors.

Moreover, this poor investment performance of the manufacturing sector is made more stark if the sectoral components are specified. Between 1972 and 1992, the chemicals and basic metals sectors accounted for almost two-thirds of all manufacturing investment—much of this State directed. By contrast, the textile and clothing, and leather and footwear industries accounted for less than one-half of one per cent of manufacturing investment over the same period.

We have identified instruments of industrial policy and institutional mechanisms that would encourage an increase in the level of private-sector manufacturing investment. In particular, we advocate an enhanced role for State-supported industrial development financing, directed by the Industrial Development Corporation (IDC), as a catalyst to private investment (see section on Building Institutional Capacity). However, private manufacturing investment, as with investment generally, depends upon a wide range of political and macro-economic factors. Industrial policy can affect these factors only marginally and indirectly. The tools of industrial policy are concerned principally with enhancing the productivity of investment rather than the level of investment *per se*. However, enhancing the productivity of investment will also, of course, indirectly stimulate the level of investment.

The declining industrial growth is not only due to the level of capital investment in manufacturing. The investment that has been made has not been very productive.

Capital productivity tends to be inversely related to the degree of capital intensity (a rise in the capital input, keeping all other inputs constant, will generally result in a smaller percentage rise in output). We would therefore expect to see especially rapid rates of increase in capital productivity in all those sectors which experienced declining levels of investment (which, as we have seen, has been a feature of South Africa's industrial performance). In fact, indications are that capital productivity has fallen in almost all sectors—not only in the chemicals sector which accounted for much of the increase in capital stock—but even in the more labour-intensive sectors. These sectors not only experienced a decline in overall capital stock, but also generally registered low or even negative growth in capital productivity. See Figure 12.

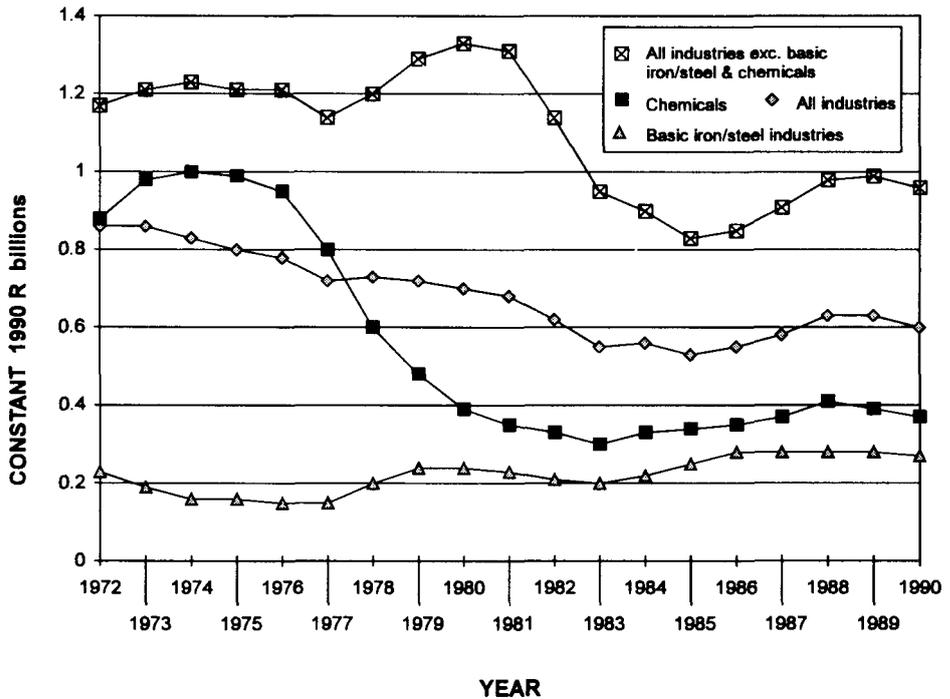


FIGURE 12 PRODUCTIVITY OF CAPITAL: MVA/CAPITAL STOCK, IN 1990 RANDES

If capital productivity is measured not as the relation between the total capital stock and total output, but rather by the additional output generated by additional inputs of capital—the incremental capital output ratio (ICOR)—South African manufacturing similarly saw low rates of increase of capital productivity when compared to a number of industrialising countries.

Although, capital productivity in South African manufacturing improved after the mid 1980s, this has been in the context, as we have seen, of very low levels of capital investment.

Our industrial strategy seeks to address both the low rates of manufacturing investment and the low levels of productivity of that investment. Its heart lies in a series of measures aimed at raising the productivity of investment—embodied in concrete policies to augment human resources, to raise the competitive pressure on local manufacturing firms on both domestic and international markets, and to enhance technological capabilities at the level of the firm, in addition to more specific policies directed at individual sectors.

RAISING PRODUCTIVITY

Capital is only one input into production. As we have noted, it has not been utilised efficiently in South African industry. But, over the past two decades, South African manufacturing industry has also seen very low rates of growth in labour productivity. This is true in the aggregate and, with the exception of 'other basic chemicals', has been the case in all sectors.

Overall, therefore, South African manufacturing has seen low rates of both capital and labour productivity growth. To reiterate—while TFP growth rates were high in the 1960s, over the 1970s and 1980s TFP was virtually stagnant. Such low rates of growth of TFP for such an extended period are highly unusual.

Raising productivity is the heart of any industrial strategy. Given the protracted poor performance in productivity, this acquires particular salience in respect of a strategy for South African manufacturing industry.

A large variety of factors influence productivity. Some of these are macro-economic, such as movements in the business cycle, while some relate to other issues, such as the education of the labour-force. However, many of the key determinants of factor productivity are micro-economic in nature, that is they relate to the way in which resources are employed at the level of the enterprise. Identifying these factors and thereafter formulating policies to enhance productivity growth therefore requires detailed micro-economic examination of individual firms and groupings of firms, that is, industrial sectors. Such micro-economic examination can reveal the major constraints on productivity increase which are operative at the level of the enterprise, as well as those constraints which arise from the broader environment within which the enterprise functions. In brief, micro-economic examination can reveal the extent to which constraints on enhancing productivity are endogenous

'Capital productivity has fallen in almost all sectors—not only in the chemicals sector which accounted for much of the increase in capital stock—but even in the more labour-intensive sectors'

'In a number of sectors, our research has indicated that the principle factors retarding productivity lie not within the firm itself, but arise from the external environment'

or exogenous to the enterprise.

In a number of sectors, our research has indicated that the principle factors retarding productivity lie not within the firm itself, but arise from the external environment.

By way of illustration: A South African plant, producing small electrical durables, was found to have a similar level of physical productivity to that of an Australian plant, that is, it produced a similar output per unit of labour and capital. However, the South African plant was found to be less competitive, having higher costs and enjoying lower profits. There were a number of factors that accounted for this. The South African plant

- ◆ had to hold larger inventories because of the unreliability of suppliers;
- ◆ had higher input costs—both for imports which bore high tariffs and for locally-produced raw materials which were priced above the international market price;
- ◆ had higher levels of excess capacity;
- ◆ was far weaker in terms of the resources it devoted to product development and design, resulting in the production of more standardised products sold in very price-competitive markets.

In this particular case, the sources of the productivity problem were primarily external to the firm. The policy emphasis, therefore, would not lie primarily in measures designed to raise productivity within the firm (although lack of design skills is also important), but rather in altering the broader environment. Altering tariff duties (the trade regime), securing lower prices for local raw materials, and ensuring better co-ordination between firms and/or better transport infrastructure. With regard to the problem of excess capacity, there is a clear linkage with electrification programmes which serve to enhance demand, and our study of this sector was undertaken from this perspective. Finally, and perhaps most critical for industrial revival, enhanced productivity cannot be achieved by the improved performance of individual industrial firms; it requires widespread and thorough changes throughout the supply chain.

'The principal objective of our industrial strategy is to raise the productivity of South African manufacturing firms'

The principal objective of our industrial strategy is to raise the productivity of South African manufacturing firms. In the short to medium term, we see considerable possibilities for raising the rate of productivity increase to a level commensurate to that of our industrialising competitors. This requires a battery of policies to address those factors, both internal and external to the firm, which currently constrain the rate of productivity increase.

IMPROVING TRADE PERFORMANCE

We have already noted that the export earnings of the South African manufacturing sector have increased at a lower rate than that of our competitors. Currently, manufactured exports make up a lower percentage of total export earnings for South Africa than they do for other comparable countries. Similarly, manufactured exports as a share of GDP are lower in South Africa than for other countries, except for the largest Latin American countries, Brazil and Mexico, whose domestic markets are very large.

This is not unexpected. South Africa clearly has significant advantages as an exporter of raw materials. But what is particularly noteworthy is that, in the case of South Africa, the share of manufactured exports as a percentage of total exports remained constant between 1970 and 1990. By contrast, all other comparable countries saw sharp rises in the share of manufactured products in their total exports. See Table 2.

TABLE 2 MANUFACTURED EXPORTS: SOUTH AFRICA IN COMPARATIVE PERSPECTIVE

COUNTRY	M A N U F A C T U R E D E X P O R T S						
	IN US\$ MILLIONS			AS A % OF TOTAL EXPORTS			AS A % OF GDP
	1970	1980	1990	1970	1980	1990	1990
KOREA	634.6	14205.2	60622.7	76.5	89.5	93.5	24.8
TAIWAN	1082.8	17437.6	62011.9	75.8	87.9	92.5	39.5
HONG KONG	1949.6	13083.7	27407.3	95.7	95.7	94.5	39.1
MEXICO	391.8	1837.6	11781.0	32.5	11.9	44.1	5.0
BRAZIL	361.5	7489.1	16090.2	13.2	37.2	51.5	3.4
THAILAND	32.2	1605.0	14514.5	4.7	25.2	63.1	18.1
MALAYSIA	109.6	2433.6	15944.9	6.5	18.8	54.2	37.6
INDONESIA	12.7	503.9	9071.4	1.2	2.3	35.5	8.5
PHILIPPINES	79.5	1213.4	3192.5	7.5	21.1	39.0	7.3
GERMANY	29915.0	162040.2	354539.2	87.5	84.3	89.1	23.8
S. AFRICA	738.5	5111.7	6525.3	34.4	37.8	34.4	6.4

In addition to the obvious advantage of increased foreign exchange earnings, enhancing the export orientation of industry can lead to a more efficient allocation of resources, promote the acquisition of more leading-edge technologies and enhance productivity growth. Apart from benefits to the export-oriented firm, there are potential spillovers in marketing and

information which may serve to enhance productivity in the rest of the economy. The effects of exporting on productivity growth would be more direct and pronounced where, as is currently the case in South Africa, significant excess capacity exists in the context of a stagnant domestic market.

While manufactured exports have been rising, and exports as a share of total production have been growing for most manufacturing sectors, and for manufacturing generally, this has to be seen in the context of a severe and sustained economic recession and a sharp decline in manufacturing output. In only a few of South Africa's industrial sectors, do exports currently absorb a significant share of manufacturing output. Firm and sector level studies suggest that, while there certainly are exceptions, many firms are engaged in exporting their surplus production—the surplus arising from a depressed domestic economy. There are others, particularly in the textile industry, who have exported at the minimum level required in order to qualify for the earning of duty-free imports.

'With many firms simply exporting the surplus products that they are not able to sell in the domestic market, the potential benefits on firm-level productivity and related spillover effects are limited'

With many firms simply exporting the surplus products that they are not able to sell in the domestic market, the potential benefits on firm-level productivity and related spillover effects are limited. In many sectors and firms we found little evidence to suggest that an increase in exports had led to significant changes in firm-level organisation, enhancing productivity performance. Without significant changes to the products or the organisation of production, enhanced exporting often had limited impact on the firm's input suppliers or customers.

By way of example, a survey of clothing exporters located in Durban and Cape Town found that, for many firms, there were few changes in the organisation of production as a result of exporting. Most firms surveyed had only begun to export over the last few years and, as in textiles, many were exporting simply to profit from export incentives. Most firms had little confidence that export incentives would be maintained and, therefore, that they would sustain their export activity. The incentives which have been available have not been designed to wean exporting firms away from their dependence on export incentives.

Many firms are exporting (often at a loss) what they are unable to sell in the local market, and have not engaged in developing products specifically for the export market.

At present, neither the prevailing policies of export incentives, nor the very limited exposure of many of our firms to the rigours of international competition, serve to encourage firms to improve their product and production processes constantly—to engage in firm-level learning. Our objective, therefore,

is to enhance the exposure of South African firms to export markets and to ensure that this exposure is sustained, whatever the vagaries of the domestic market. Hence, we advocate a number of policy measures, principally but not exclusively in the area of trade policy, to remove the 'inward bias' of South African manufacturers. In addition, we have a number of policies that are designed to encourage, simultaneously, firm-level learning.

But trade performance is not confined to exports; it also relates to imports and the domestic market. Here we propose two seemingly contradictory policies. On the one hand, the measures designed to enhance productivity are liable to increase the ability of local manufacturing firms to compete with imports. On the other hand, trade liberalisation and a greater focus on exports will inevitably result in a substantial increase in manufactured imports. We anticipate that this, in addition to other policy measures which we advocate, will lead to more competitive pressures in domestic markets. Such pressures will further facilitate productivity gains. However, in the absence of productivity-enhancing measures, many local firms may respond to the pressure by ceasing production altogether. One important objective of our industrial policy is to ensure that local manufacturers can compete more effectively with imports on the domestic market.

INTERLINKED OBJECTIVES

We have sketched the four key objectives of our industrial strategy and have situated these objectives in the light of the poor performance of South African industry over the past two decades.

Raising productivity is the centre-piece of our industrial strategy. Many of our policies are, therefore, designed to reverse poor productivity performance in South Africa. However, we must emphasise that we see the four objectives outlined as an interdependent package. There are considerable dangers in meeting some of these objectives, whilst neglecting the others. In particular, if significant gains in productivity are not accompanied by either vigorous growth in domestic manufacturing investment and/or increased penetration of export markets, the result will be significant losses in employment.

Moreover, policies and measures designed to enhance productivity growth will engender resistance, and will ultimately be undermined, if they are seen to lead to significant employment loss.

'Policies and measures designed to enhance productivity growth will engender resistance, and will ultimately be undermined, if they are seen to lead to significant employment loss'

An example drawn from the auto components sector is apposite. The firm is a foreign-owned, medium-size producer. Over the past few years, it has implemented Japanese-style reorganisation of production, particularly Just-In-Time (JIT) production with the aim of enhancing productivity and so reducing costs.

Substantial productivity gains have been realised (see Table 3). Overall, labour productivity in the plant more than doubled over a period of three years. A reduction of machine set-up time also substantially enhanced the productivity of capital equipment.

TABLE 3 INTERLINKED OBJECTIVES

A CASE STUDY FROM THE AUTO-PARTS SECTOR: SOME MEASURES OF PRODUCTIVITY IMPROVEMENT		
	OLD ASSEMBLY LINE	NEW JIT CELL
OUTPUT PER SHIFT	500–1000 UNITS	1000–1500 UNITS
MACHINE CHANGE-OVERS PER SHIFT	3–4	7–8
NUMBER OF WORKERS	8	3

However, the firm is selling largely into a stagnant domestic market. As a result, productivity gains have resulted in a sharp fall in employment (by more than 45% over the past four years). Improvement in productivity will enhance the firm's prospects in export markets, but export success will not flow 'automatically' from productivity gains and, in any event, will take considerable time to materialise.

The strategies and policies described in later sections are thus designed not only to facilitate productivity in firms of this sort, but also to enhance their capacity to develop new products and markets in order to consolidate employment in the manufacturing sector.

STRATEGIES

Following our detailed research into South Africa's industrial performance in the context of meeting both domestic needs and the challenges of international competitiveness, we propose four major linked strategies to achieve the objectives outlined above:

- ◆ Industrial specialisation and movement up the value chain
- ◆ Beneficiation of natural resources

- ◆ Targeting of key capabilities
- ◆ Empowerment necessary to secure productivity growth.

SPECIALISATION: MOVING UP THE VALUE CHAIN

Since the time of Adam Smith, economists have been aware of the role played by specialisation as a significant source of economic efficiency. Of course there are many important caveats to this economic dictum. For example, as we shall see in the discussion of industrial policies, within firms there is a trend away from the division of labour and this has important consequences for training. It is also necessary to focus on specialisation in a dynamic context, since firms and economies can easily be caught in product niches which have declining attractiveness in the market. However, as a general rule, there is no denying the fact that, in an era of increasing technological complexity, no firm or economy can afford to produce across the board; selectivity is critical to economic efficiency.

A popular myth asserts that South African manufacturing is narrowly focused on middle- and high-income earners, in the process ignoring the requirements of low-income earners. In fact, the domestic manufacturing sector is unusually diversified, characterised by a pronounced lack of specialisation. Typically, local firms produce a far larger product range than similar-size firms located elsewhere.

In thinking through the consequences of this for South Africa's industrial restructuring, it is helpful to consider the distinction between different segments of the value chain. At the one end of this chain lies the production of commodity products which tend to be undifferentiated and of low quality. These are low value products, in which market share is largely determined by low prices, and in which the technology is relatively stable. In most cases the production of these commodities tends to involve unskilled labour and, since this resource is widely available across the globe, wages tend to be low. At the other end of this value chain lies the production of highly differentiated quality products. These are high value products, in which design and other non-price factors are critical determinants of market share, and in which technologies are relatively unstable. The production of these commodities requires relatively skilled labour; wages, as a consequence, are relatively high. Firms and economies wishing to change their position along this value chain may do so by changing the sector of their economic activity—that is, they move from the production of one product (for example clothing) to another (for example electronics). But they may also be able to change their

'The domestic manufacturing sector is unusually diversified, characterised by a pronounced lack of specialisation. Typically, local firms produce a far larger product range than similar-size firms located elsewhere'

specialisation by moving to different market niches within the same sector, for example, from the manufacture of veldskoene to intricately-patterned men's brogues, or from commodity to fine chemicals.

If we consider the experience of South African manufacturing in the context of this perspective on the value chain, it is evident that:

- ◆ Principally as a consequence of the protective trade regime, which encourages firms to produce a wide product range for the domestic market, economic activity is spread across the value chain, both within and between sectors. This lack of specialisation also surfaces in the structure of individual firms; for example, South Africa's largest packaging firm manufactures virtually all forms of packaging—glass bottles, plastic injection and plastic blow moulding, plastic extrusion, tin cans, cardboard and carton board—whereas all of its major foreign competitors specialise in a narrow range of these materials.

- ◆ Compared to the low-income countries, according to International Labour Organisation (ILO) data, South Africa's industrial wages are high—typically more than 10 times those of China and 4 times those of Kenya. For further examples see Table 4. (Data collected by our researchers suggest that the ILO may overstate the wage index for South Africa by comparison with the industrialised countries. Typically, this is of the order of 16 compared to 100 for the USA. ILO data for the wage index for South Africa, by comparison with the low-income countries, broadly accord with our own findings). It is therefore unlikely that we shall be able to compete effectively with the low-income economies at the commodity end of the value chain.

- ◆ Despite these wage levels, our protective regime continues to allow the production of many low-value commodities in which the key determinant of competitiveness is wage competition.

- ◆ In virtually all of our sectoral studies we have attempted to locate the more dynamic firms and to understand their strategies. We have observed, across many sectors, that the more dynamic firms have tended to concentrate on product niches which are some distance from the commodity end of the value chain. For example, Table 5 shows the experience of seven of the most successful textile firms, located in the spinning, weaving and finishing segment of that industry. While firm strategies vary in their detail, all seven companies are placing their primary stress on moving into higher value-added products—products that incorporate more 'features' and that are 'tailored' to the needs of specific customers.

'The more dynamic firms have tended to concentrate on product niches which are some distance from the commodity end of the value chain'

TABLE 4 WAGE INDEX COMPARISON FOR SELECTED COUNTRIES AND SECTORS

COUNTRY	FOOD	BEVERAGE	TEXTILE	CLOTHING	LEATHER	FOOTWEAR	PAPER	PRINTING	IND. CHEM.	OTHER CHEM.	PLASTICS	IRON & STEEL
USA	100	100	100	100	100	100	100	100	100	100	100	100
AUSTRALIA	99	71	107	130	—	124	90	98	86	88	127	90
CANADA	112	108	116	111	108	108	125	109	117	85	104	119
GERMANY	114	82	126	131	124	130	107	125	109	87	120	101
JAPAN	97	69	110	97	133	133	101	133	120	120	—	128
SPAIN	—	81	79	87	82	104	87	80	82	84	84	92
UK	98	70	92	90	102	113	98	107	81	81	101	83
SWEDEN	—	148	111	163	192	183	175	141	143	123	104	156
NETHERLANDS	117	96	126	119	—	—	99	115	111	93	128	106
AUSTRIA	99	70	85	80	83	87	83	—	71	71	105	77
GREECE	39	31	52	54	56	51	34	38	33	—	—	48
ISRAEL	56	40	49	60	57	57	49	55	72	72	60	56
CYPRUS	2	36	28	41	41	41	49	27	45	33	25	46
HUNGARY	10	7	9	10	11	10	8	10	8	9	10	9
POLAND	5	4	6	6	6	6	4	4	4	4	5	6
CZECHOSLOVAKIA	—	9	7	10	11	12	13	7	8	7	6	9
SINGAPORE	39	28	30	37	35	35	35	38	37	37	54	—
MEXICO	12	10	18	16	—	22	12	12	14	14	18	16
CHILE	—	10	6	9	10	12	9	15	11	9	11	9
CHINA	2	1	2	2	2	2	1	1	1	2	2	2
TURKEY	13	12	12	12	13	—	10	11	15	0	—	11
KENYA	6	9	6	6	9	10	6	9	6	9	7	—
BOTSWANA	1	13	9	8	—	12	—	11	11	10	10	15
SOUTH AFRICA	26	26	29	26	27	27	32	39	38	40	37	38

Source: *Yearbook of Labour Statistics* (ILO, 1992)

Exchange rates: IMF International Financial Statistics, May–June 1993

Many of the factors promoting movement up the value chain are poorly represented in South Africa. For example, skill demarcations in our industrial relations have made it difficult to encourage flexible production and thus meet customer needs for rapid response to changing market conditions. Another example arises in relation to the structure of the corporate sector. The dominance of the large conglomerates has been built upon the production of resource-based commodities which are

undifferentiated in nature. The strategic perspectives of the management of these firms has been conditioned by their long experience in commodity production and many have not been sensitively attuned to the plethora of niches in modern manufacturing, nor of the instruments which are required to move up the value chain.

TABLE 5 PRINCIPAL STRATEGIES OF SEVEN SUCCESSFUL TEXTILE FIRMS

	KEY THRUST	METHOD	EXPORTS (%)
FIRM 1	Design	Elaborate decoration, weave & print design	18
FIRM 2	Design & marketing	Quick response, low lead times, diverse products, on-time deliveries	2.5
FIRM 3	Specialisation	Highly specialised products	3
FIRM 4	Quality	Consistency of product, high quality cotton inputs	3
FIRM 5	Quality	Close contact with customers, niche marketing	30
FIRM 6	Quality	Manufacture to high specifications, reliability, close contact with customers	Minimal
FIRM 7	Vertical integration	Quality products, development of brand names	35

As South Africa enters a period of trade policy reform, it will be forced to develop much higher levels of specialisation. The question is, which way will the economy move along the value chain? One alternative is to attempt to secure a major reduction in real wages. However, a substantial lowering of manufacturing wages to allow South Africa to be competitive with the low-income countries is, in our view, not a viable objective of economic policy. The high costs of reproduction of labour in South Africa, expressed, for example, in transport as a result of living long distances from work—a legacy of apartheid's spatial structure—or high costs of energy, consequent upon limited access to electricity, impose severe economic limits to sustainable wage reductions. Moreover, any lowering of wages will impact negatively on productivity. To those who might be inclined to suggest the repression of wages, we would also caution that this is unlikely to be politically sustainable.

The other alternative is to actively promote processes of specialisation in order to encourage South African firms to move up the value chain. This strategy necessitates a focus on continuously enhancing productivity and product quality and variety. To those who wish to see an immediate increase in real wages, we would caution that, in the context of import liberalisation, this movement up the value chain is the only strategy that will enable us to manufacture competitively with our existing wage rates.

Left to market forces alone, it is likely that most firms whose present focus is at the commodity end of the value chain will not be able to make the adjustments necessary for a sustained movement up the value chain. We therefore propose a package of mutually-reinforcing macro- and micro-economic policies which are geared to enabling and facilitating the movement of firms up the value chain. These include:

- ◆ A package of trade policy reforms focused to promote the desired form of specialisation.
- ◆ Policies on work organisation and industrial relations which facilitate the movement up the value chain within individual firms, and which promote the growth of appropriate vocational skills.
- ◆ Technology policies which aim not only to enhance the development and diffusion of more productive technologies, but also the better integration of firms with the publicly-supported S&T system.
- ◆ Institutional design and development—since our reading of international experience suggests that movement up the value chain will need to be underpinned by a dense institutional fabric.

‘A substantial lowering of manufacturing wages to allow South Africa to be competitive with the low-income countries is, in our view, not a viable objective of economic policy’

THE BENEFICIATION OF NATURAL RESOURCES

South Africa is uniquely endowed with natural resources. Processing of these natural resources is, at present, heavily concentrated upstream—indeed more so in South Africa than in many other raw material producing countries which are industrially less developed. There is a widespread presumption that more domestic downstream processing should be a major objective of industrial policy. This approach is termed beneficiation. This perspective is based upon the fact that the value per unit of weight of processed resources is invariably greater than that of the unprocessed material.

Sometimes this philosophy of beneficiation is confused with a movement up the value chain, as described in the previous section. But this is a mistaken approach, since there is no inherent reason why the downstream processing of natural resources should be focused up the value chain. Many of these beneficiated products—for example, aluminium hollow-ware—are basic commodities which involve cheap labour and which can be competitively produced by many low-wage economies. Because the rents which arise from South Africa’s generous endowment of natural resources may be better used in sectors which are unrelated to the resource extraction sector, it may not be desirable to promote beneficiation. For example, the profits derived from the production of aluminium (in this case

‘Many of the higher priced raw material inputs—particularly the metal inputs—rely on South Africa’s natural resource base and, despite South Africa being a low-cost producer internationally, domestic consumers are still paying well in excess of world prices’

based upon South Africa’s very low energy costs) may be better used in the clothing sector than in the manufacture of aluminium automobile components. In these circumstances the market mechanism may be the most efficient allocator of resources and the corporate sector may be left to make its decisions autonomously.

There are, however, particular reasons to believe that if market signals alone are left to allocate these resource rents, the extent of locally-based beneficiation may be economically sub-optimal, and therefore that South Africa’s resources rents will not be utilised to maximum effect. If this is the case, then some form of policy support will be required to compensate for these market failures.

Our research findings suggest that the mechanism whereby these market imperfections may be associated with too little beneficiation is largely to be found in the prices utilised to transfer natural materials to downstream manufacturers. The premium paid by local producers for key raw materials is frequently accounted for by tariff protection, and is particularly significant in the protection of basic chemicals. But many of the higher priced raw material inputs—particularly the metal inputs—rely on South Africa’s natural resource base and, despite South Africa being a low-cost producer internationally, domestic consumers are still paying well in excess of world prices. Respondents to our researchers claimed that they were able to purchase South African-produced raw materials abroad at lower prices than they could from the domestic producer.

The resulting inflated cost of locally-produced raw materials is often a major factor accounting for the higher prices of locally-manufactured products. This is evident, for example, in the production of various household electrical durables which utilise considerable raw material inputs. The higher price of locally-produced raw materials, compared to the prices prevailing on international markets, currently adds, for example, over R41,00 to the ex-factory costs of an automatic washing machine. See Table 6.

The prevalent form of pricing used for the transfer of raw materials for downstream processing is that based upon the equivalent landed cost of imports. This means that, far from our resource rents being utilised to subsidise beneficiation, many manufacturers are penalised compared to their international competitors who gain access to equivalent inputs at lower prices. The high costs of raw materials results in higher costs for derived products. Table 7 lists some of the major raw materials where estimations of the higher prices for locally-produced raw materials and their derived products could be assessed.

TABLE 6 ADDITIONAL EX-FACTORY COST FROM PURCHASE OF LOCAL RAW MATERIALS AT ABOVE INTERNATIONAL PRICES: HOUSEHOLD ELECTRICAL DURABLES

RAW MATERIAL	AUTO WASHER	TWIN-TUB WASHER	TWIN-TUB WASHER	EYE-LEVEL OVEN	HOB	EFS STOVE	FRIDGE	FREEZER
MILD STEEL	R10,89	R4,49	R8,88	R15,88	R3,30	R14,92	R8,31	R10,00
STAINLESS STEEL	R2,98	—	—	—	—	—	—	—
ALUMINIUM	R19,88	R3,01	—	R8,81	—	R5,17	R1,15	—
CARDBOARD	R0,75	R1,29	R1,02	R4,69	R0,59	R3,62	R1,42	R2,65
POLYSTYRENE	—	R4,73	R1,80	—	R0,43	—	R3,25	—
PVC	—	—	—	—	—	—	R2,84	R2,96
POLYPROPYLENE	—	R18,96	R1,59	—	—	—	—	—
ABS	R0,59	R1,68	R0,78	—	—	R0,91	R5,91	R0,50
KPS	R8,62	R6,02	—	—	—	—	R4,73	—
POLYURETHANE	—	—	—	R5,99	—	—	R9,72	R9,74
NORYL/ACETYL	—	—	R1,23	R1,74	—	R1,20	—	—
EPOXY POWER	—	—	—	—	—	—	R3,22	—
TOTAL	R43,51	R40,18	R15,30	R37,11	R4,32	R25,82	R40,55	R25,85

TABLE 7 RAW MATERIAL INPUTS AND DERIVED PRODUCTS' PRICES: PREMIUM PAID BY SOUTH AFRICAN MANUFACTURERS

BASIC RAW MATERIAL	INDUSTRY SECTOR	% ABOVE INT. PRICE	DERIVED PRODUCT	% ABOVE INT. PRICE
ETHYLENE	COMMODITY PLASTICS	20-44	POLYETHYLENES	19-33
POLYETHYLENE	COMMODITY PLASTICS	19-38	POLYPROPYLENE	39-46
	COMMODITY PLASTICS	19-38	PVC	27-49
SHEET METAL	MOTOR	41	WHEEL HUB	43
RUBBER	MOTOR	57	TYRE 195/65 R15H	41
STEEL	ENGINEERING	67	ERW PIPE	63-73
			GALVANISED SHEET	27
			REINFORCED BAR	38
COPPER	ELECTRONICS	LME	TRANSFORMERS	30-45
ALUMINIUM	ELECTRONICS	LME	CABLES	15-17.5
	MINERAL BENEFICIATION	10		
	MOTOR	30-50	WHEEL RIMS	24
WOOD	PAPER	10-15	PULP	10-15

In addition to the role which prices play in the beneficiation story, there may also be too little processing because the conglomerates reaping the resource rents are not geared to take advantage of the synergies with downstream production, and prefer to reinvest their resource-based profits elsewhere, perhaps in other countries where they can maintain their particular resource-bases focus.

Our sectoral analysis of South African industry provided evidence to support a variety of viewpoints with respect to beneficiation:

- ◆ In many sectors, the fact that South Africa is a resource producer provides no special advantage to downstream processors; a case in point here is the production of gold jewellery, where there is a widespread call for particular programmes of industrial support. However, there are no inherent transport advantages, no significant energy components, and no skill or technological synergies between mining and jewellery manufacture, and little craft tradition of jewellery manufacture.

- ◆ In other sectors, there is clear scope for efficient downstream processing which would enhance overall economic productivity. A good example is to be found in the wood, pulp and paper industrial chain. South Africa has a natural advantage in the timber industry and is a successful producer of pulp; yet enough woodchips are exported (to Japan) to justify another pulp mill, and there are considerable exports of unsawn logs, despite their potential use in the paper industry and in furniture manufacture (which suffers from a shortage of good quality timber).

- ◆ When faced with the possibility of increasing downstream processing in an economically efficient manner, the conglomerates frequently prefer to capture the resource rents, since this is where their expertise lies. Potential downstream manufacturers thus get caught in a hostile pricing environment, often exacerbated by collusive practices between conglomerates engaged in market forbearance. For example, in the production of certain packaging materials and in the production of fine papers, manufacturers face a situation in which the two major suppliers appear to have agreed not to penetrate their rival's market.

- ◆ The consequence of suboptimal beneficiation is that overall economic productivity suffers, and output, employment and foreign exchange earnings are lowered.

As a consequence of these findings, we conclude that a key part of our industrial strategy should entail promoting the beneficiation of natural resources, but only when this is justified due to the prevalence of market failure, and in the pursuit of enhanced economic productivity. A blind commitment to

'Key part of our industrial strategy should entail promoting the beneficiation of natural resources, but only when this is justified due to the prevalence of market failure, and in the pursuit of enhanced economic productivity'

beneficiation, without considering the impact upon overall economic performance, will diminish rather than strengthen industrial and economic growth.

TARGETING KEY CAPABILITIES

The successful East Asian industrialising countries of Japan, Korea, Singapore and Taiwan have proved to be very effective in targeting key sectors and systematically working to achieve international dominance in these fields. In each of these economies the paucity of raw materials, as well as the absence of a diversified manufacturing sector, made this form of 'hard targeting' essential if living standards were to grow. These policies were facilitated by high levels of human resource development in each of these economies, and were effected through very strong State institutional structures.

South Africa has also targeted key sectors in the past. This process has not generally been driven by the search for global competitiveness, but rather by the strategic imperatives of sanction-busting. This has resulted in extensive non-economic investments. Our analysis of the chemicals and plastics industries makes it abundantly clear that downstream processors are severely hampered by the use of coal-based basic feedstock in the production of chemical inputs. This is a consequence of investments to circumvent oil sanctions during the apartheid regime. Although coal-based chemicals provide opportunities for efficient production in particular niches of the plastic industry, such as PVC and waxes, these are the exception and most downstream chemical industries suffer adversely. Similarly, vast financial, technical and human resources were invested in the military and electronics fields, and although there have been some spin-offs, the opportunity cost of these technological developments has been high.

In general, our approach does not favour a process of targeting which provides additional resources and policy directives aimed at the development of selected manufacturing subsectors. South Africa has a highly diversified industrial base and is not faced with entering industrial production in any sector or subsector from scratch. Our diversified raw material resources provide further significant industrial opportunities. Moreover, there is widespread recognition that capabilities in the South African State do not measure up to those which guided the targeting processes so successfully in East Asia.

Rather, strategy is focused on enabling South African manufacturers in general to compete in the higher value end of their chosen sectors. Hence our detailed policy prescriptions focus

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on the 'underlying competitive fundamentals', applicable to all manufacturing firms, such as the deployment and acquisition of skills and the generation and diffusion of technology, as well as the building of an institutional fabric designed to generate these key capabilities.

But our preference for targeting the underlying competitive fundamentals does not mean that we abandon limited support to specific activities. We do emphasise, however, that this is a potentially dangerous path to follow and is subject to pressures from focused interest groups. There may be particular cases where private capital is not forthcoming to exploit viable manufacturing opportunities. For example, there may be situations where non-marginal shifts in market demand may be 'channelled' to provide a stimulus to local production. In this light, we have given attention to two sectors which, we believe, are critical if we are to meet basic needs and which are, indeed, central to the Reconstruction and Development Programme (RDP). The first of these is in the building materials supplies sector, which is critical to a mass housing programme. Here our researchers confirm that:

- ◆ Adequate capacity in basic building materials, such as bricks and cement, does exist to support a mass housing programme.
- ◆ A mass housing campaign not only involves substantial employment in the construction industry itself, but also in the building materials industry. A range of construction materials and a variety of technologies are available. There are important links between the form the housing programme takes and the choices of products and technology in the building materials industry.

Big construction companies engaged in large-scale housing developments tend to purchase their bricks from large, automated brick producers. These producers are able to assure delivery of a constant supply of large volumes of bricks of standard quality and uniformity. On the other hand, small brick producers, utilising mostly manual equipment, sell relatively small volume batches of bricks to owner builders and small contractors. Manual brick operations are smaller scale, more decentralised and more flexible, and they tend to use more readily-available, local raw materials. They utilise less machinery and are lower cost than the more automated producers. They are also significantly more labour intensive, particularly of more unskilled labour. (See Table 8.) The bricks and concrete blocks produced using more labour-intensive methods do not have the high levels of structural integrity and uniformity of the concrete blocks produced by more automated methods. They are, nevertheless, adequate for the requirements of owner builders and small contractors.

TABLE 8 CAPITAL INTENSITY, EMPLOYMENT, & PRODUCTION COSTS IN THE BRICK-MAKING INDUSTRY

TYPE OF TECHNIQUE	MACHINE COSTS	JOBS PER MILLION	TOTAL COST
	AS % OF TOTAL COSTS	BRICK EQUIVALENTS	BRICK EQUIVALENTS*
AUTOMATIC: CONCRETE BLOCK	19	2	R0,190
MECHANISED: CONCRETE BLOCK	9	5	R0,119
MANUAL: CONCRETE BLOCK	2	9	R0,100
MANUAL: CLAY BRICK	1	18	R0,146

* Assuming 85% capacity utilisation

In general, the greater the sophistication and capital intensity of the construction sector, the greater is the reliance on mass-produced and capital-intensive building materials; thus, there is a strong link between labour intensity in construction and the labour intensity of the building materials utilised.

The second sector targeted for its potential to meet basic needs is the provision of electricity from the national grid (where there is considerable excess capacity) to individual homes. Our researchers have confirmed that there is adequate capacity within the industrial sector to facilitate this programme of electrification. However, we have also examined the consequences of this electrification programme on the balance of payments, since it is likely to lead to a significant increase in the demand for household electrical durables (HEDs). Projecting on the basis of average import levels during 1992/3, the additional foreign exchange required for HED imports and imported components, over five years of a mass electrification programme, is of the order of R7,8 billion at 1994 prices, with the largest part of this (75%) required for imported components. This clearly could have adverse implications for economic growth. For this reason, we believe that a key part of industrial strategy should address ways in which these foreign exchange costs of mass electrification could be reduced. The further challenge is to ensure that the enhanced demand, consequent upon electrification, provides a domestic platform for the development of exports. Industrial policy in this, as in many other sectors, must be closely linked to the promotion of exports as a way of overcoming the considerable scale-barriers involved in the production of HEDs.

So much for the hard-targeting of specific sectors. But in addition, we also believe that a policy of what we term 'soft-targeting' is required. All of our sectoral researchers identified 'competitive gaps' in each of their sectors. The first of these

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'The internal gap between a small minority of what may be termed 'national best-practice firms' and the remainder is particularly large by international standards'

reflects the distance between leading South African manufacturers and their foreign counterparts; the second, the gap between these leading firms and their domestic competitors. The internal gap between a small minority of what may be termed 'national best-practice firms' and the remainder is particularly large by international standards. Limited labour mobility, low skill levels, barriers to new start-up companies and collusive practices, all serve to limit the diffusion of national best practice. Amongst other consequences, this means that the progress made by leading-edge firms in the restructuring of their internal operations is frequently undermined by the poor performance of their suppliers, and by the inability of their customers to make effective use of these advances.

We thus conclude that a critical element of industrial strategy is to target a generic set of market failures which retards the diffusion of national best practice, and is responsible for low levels of productivity across a swathe of industrial firms. This requires giving attention to

- ◆ measures to promote organisational change in industry;
- ◆ measures to support more multi-skilled training and the transferability of qualifications;
- ◆ support for SMEs, including technology-based firms and the informal manufacturing sector;
- ◆ measures to promote greater competitiveness in international and domestic markets;
- ◆ support for technological capabilities, within industry and in the scientific and technological infrastructure;
- ◆ measures to encourage industry associations to engage in programmes designed to raise the productivity of all of their member firms.

EMPOWERMENT FOR PRODUCTIVITY GROWTH

Until recently, there has been a strongly-held belief that economic growth was positively supported by inequality—the thinking was that innovation required that strong incentives be given to entrepreneurship, and that growing inequality underpinned high rates of saving and investment. This same philosophy was applied to enterprise management, where hierarchical managerial authority was seen to promote productive efficiency, and to the relation between firms, where the buyer's ability to play suppliers off against one another was considered to be the optimal route to cost minimisation. However, the successful onslaught of Japanese and other East Asian competitors on global markets has led to a significant reversal of this orthodoxy. At the macro-level, it is increasingly clear that countries

with more equal distributions of income have tended to grow more rapidly. At the enterprise level, the achievement of flexibility, inventory reduction, quality improvement and rapid innovation, all require the dissolution of old hierarchical relations.

In particular, the adoption of continuous improvement means that shop-floor workers also have to become involved in conceptual work. And, insofar as the relationship between firms is concerned, efficiency now dictates that firms in a production chain work together in long-term relationships of mutual dependence. This co-operation also extends to firms producing similar products, and/or firms located in the immediate vicinity.

South Africa's recent history does not instil confidence that the industrial sector is equipped to meet these new competitive challenges. Our researchers have shown that:

- ◆ Management systems generally remain very hierarchical; few firms make the attempt to spread the multi-skilling amongst all the work-force which is essential for flexible production.
- ◆ Industrial relations seldom promote stability, co-operation and participation.
- ◆ Experience with team-working is lacking.
- ◆ Wage differentials are high and often reinforce racial and skill divides in the workplace.
- ◆ The characteristic form of inter-firm relations is highly asymmetrical and short term in nature; large firms dominate and generally squeeze small-scale suppliers, to the extent that their innovative capabilities are undermined.
- ◆ Within the conglomerates, the head office dominates and imposes short-term financial performance requirements on subsidiaries, which provides little scope for innovative strategies.
- ◆ SMEs, particularly in the modern sector, are severely underdeveloped and are seldom an effective part of the production chain.

Together these various elements of inequality, hierarchy and domination impose outdated forms of behaviour on a manufacturing industry which is struggling to come to terms with global competitive practices as trade barriers fall and as the economy requires greater participation in export markets. For these reasons it is necessary to promote a comprehensive programme of empowerment across all spheres of industrial life. It must be stressed that the intent is to effect forms of greater participation and equality that will promote and improve productivity.

'We found evidence, in a number of companies, that where worker involvement was enhanced this has resulted in gains in productivity'

While extreme forms of hierarchical control are widely pervasive in South African manufacturing industry, we also observed a number of firms in which the situation has been changing in significant ways. We found evidence, in a number of companies, that where worker involvement was enhanced this has resulted in gains in productivity. This is often a result of a formal agreement between management and workers. For example, where companies have agreed to substantially raise their investment in human resource development and allow for more democratic work practices, workers have been prepared to commit themselves to making productivity improvements.

However, these practices are not diffusing rapidly through the manufacturing sector. Our goal of empowerment for productivity growth will therefore require policies and institutional arrangements to secure more rapid diffusion. Empowerment is one of our key strategies—it has pervasive relevance across sectors, between firms in the supply chain and within the structure of firm organisation.

THE INTER-RELATIONSHIP BETWEEN STRATEGIC GOALS: AN EXAMPLE DRAWN FROM THE PULP AND PAPER *FILIERE*

As observed earlier, the primary objective of our industrial policy is to enhance productivity. The subsidiary objectives are to create employment, to improve trade performance and to increase the rate of investment. Four broad strategies have been laid out to achieve these objectives:

- ◆ Promote specialisation through moving up the value chain.
- ◆ Promote beneficiation wherever economically feasible.
- ◆ Target key generic capabilities.
- ◆ Empower to promote productivity growth.

We believe that these four strategies are interdependent and mutually reinforcing. It is unlikely that any single firm or sector will be able to restructure successfully without simultaneously addressing each of these sets of issues. We also believe that market failure is prevalent in all four strategic areas, and we thus propose (in the following section) a range of policies which, we believe, will compensate for these failures. To illustrate the synergistic quality of these four strategies, we briefly present the strategic conclusions of one of our sectoral studies—that concerning the pulp and paper *filiere*. (Analogous strategies are to be found in each of our 13 sectoral studies).

South Africa is internationally competitive in the production of wood, pulp and certain commodity papers; this is reflected in high levels of exports and low levels of imports. However, we are currently not competitive in more beneficiated products

which, in this production chain (often referred to in the literature as a *filiere*, which is the French word for the ‘thread’, describing the pipeline of production from basic input to final product) also tends to comprise relatively high-value products. The downstream paper-based products tend to be differentiated, have high design intensity, involve high quality standards and utilise relatively skilled labour; in global terms the higher wages tend to be paid at the paper end, rather than the wood-producing end of this production spectrum. The central product groupings of this *filiere* are shown in Table 9, from which it can be seen that:

- ◆ the degree of exporting is higher at the upstream end of the *filiere*, and lower at the downstream end;
- ◆ the degree of importing is lower at the upstream end of the *filiere*, and higher at the downstream end;
- ◆ the degree of South Africa’s cost competitiveness is related to the position on the value chain—the further downstream, the less competitive;
- ◆ the ‘competitive divide’ can be precisely drawn within papers—bulk papers, such as newsprint and kraftliner, fall on one side of the divide and fine papers fall on the other.

TABLE 9 THE SOUTH AFRICAN PULP AND PAPER *FILIERE*: THE COMPETITIVE DIVIDE

			COMMODITY PAPERS		COMPETITIVE DIVIDE	FINE PAPERS			TOTAL
	WOOD	PULP	NEWSPRINT	KRAFTLINER		PRINTING	WRITING	PRINT & PUBL.	
EXPORTS	40%	28%	60%	29%		21%	21%	2%	2%
IMPORTS	0%	1%	0%	10%		21%	21%	15%	7%
SA COST ADVANTAGE	25%	10%		10%			0%	NEGATIVE	

South African pulp and paper production is situated primarily upstream. We currently export unprocessed woodchips in sufficient volumes to justify an additional pulp mill; moreover, we are also becoming significant exporters of raw timber. In the production of papers, the industry is situated primarily at the commodity end of the value chain.

The major factor underlying our competitive position in less beneficiated wood products is that our climate permits hard and softwoods to grow quickly. This translates into lower costs for fibre. A further factor is our low cost of energy.

Where fibre and energy make up a large part of the total costs—as in kraftliner—South African paper producers are competitive. The major factor accounting for our non-competitive position in higher-value paper products can be summarised as manufacturing inefficiency or low productivity.

'There are important opportunities up the value chain in this filiere which are currently not being grasped and which will be neglected unless policy guides resource allocation through the use of market-friendly policy instruments'

This is reflected in, for example, by comparison with our competitors, higher levels of waste, more down-time, more person hours per ton of product, and lower yields on raw material inputs. Where raw material and energy input costs are a small part of total costs—as in coated papers—South African producers are not able to offset higher manufacturing costs and are thus non-competitive.

Both the overall structure and recent trajectory of the pulp and paper *filiere* suggest that the likely impact of trade policy reform will be to drive our manufacturing sector further into areas in which it can only compete on the basis of resource rents. This, of course, is not to say that we can realistically aim to become internationally competitive right across the spectrum or, indeed, in all niches up the value chain. To the contrary, in some paper products proximity to the final consumer is an important competitive consideration. This is one of the main reasons why one of our two large paper producers has become an investor and producer in Europe and the United States of America. Nevertheless, there are important opportunities up the value chain in this *filiere* which are currently not being grasped and which will be neglected unless policy guides resource allocation through the use of market-friendly policy instruments.

The policy instruments can be illuminated if we apply our linked strategies to the restructuring of production in this *filiere*.

In so far as specialisation and moving up the value chain is concerned, we should:

- ◆ *Liberalise tariffs in order to reduce the spread of domestic production*—a wide range of products is currently being produced for the restricted domestic market, and tariffs make domestic prices higher than international prices.
- ◆ *Assist enterprises across the production filiere with programmes to enhance quality, reduce stocks, improve flexibility, and meet the needs of customers* more sensitively and reliably (our sectoral investigation identified these as major areas of weakness).

In so far as beneficiation is concerned, we should:

- ◆ *Redirect measures to encourage more benefited exports* (and so also reap economies of scale and facilitate specialisation). A high proportion of export incentives, paid to producers under GEIS, is currently being paid to upstream producers. Given their capital intensity, the small size of the local market and an established ability to compete internationally, these firms would be engaged in exporting very similar volumes, even without GEIS. Moreover, these firms are well capitalised and have been profitable. Export incentives could, therefore, be

refocused, with greater incentives provided to exporters presently located on the non-competitive side of the divide. Overall, there would be no need to commit any additional governmental resources.

◆ *Nudge activity away from timber and woodchip exports to pulp manufacture.* An export tax on these products, for example, could be considered.

◆ *Lower tariff duties* and combine this with other measures which would require local producers to make their products available at international prices. This would do much to stimulate production further downstream.

Insofar as targeting generic capabilities are concerned, we should:

◆ *Provide support to enhance technological capabilities, both within firms and within the science and technology infrastructure,* in order to maintain our low cost base at the timber end of the *filiere*, and particularly to strengthen capabilities in the paper and printing ends of the production chain.

◆ *Provide support to encourage greater co-operation between firms,* both along the supply chain and in the same subsector; this inter-firm networking might include training, export marketing and technological development.

Insofar as empowerment for productivity is concerned, we should aim to:

◆ *Promote a major programme of training,* linked to the democratisation of the workplace.

◆ *Provide support for SMEs,* particularly at the higher ends of the value chain where scale economies are less important. We should act to eradicate the anti-competitive collusive practices which our sectoral researchers have identified across this *filiere*.

Together, these policies would enhance the capacities of local firms and shift the competitive divide in favour of the production of more beneficiated and higher-value products.

Although we have only sketched the central points of these linked strategies in the pulp and paper *filiere*, on the basis of our detailed sectoral research we are confident that if a similar approach were taken across the manufacturing sector, we would make considerable progress in enhancing productivity, improving trade performance, increasing investment and expanding employment. In so doing, the industrial sector would be able to play its role in the reconstruction of our economy and in meeting the pressing needs of our population. But these general strategies are just that—general. To be effective, they need to be matched by suitable policies. It is to these policies that our industrial strategy now turns.

INDUSTRIAL POLICIES

A POLICY FRAMEWORK

The post-World War II trajectory of South African manufacturing industry has been defined by two key features:

- ◆ An inward orientation, underpinned by protection and subsidies, a high level of State purchases and demands from a complex of extractive industries for one-off or firm-specific products (particularly in engineering).
- ◆ A low level of human resource development and a high level of hierarchical control. Our research showed that South African manufacturing firms have work-forces which are undereducated and undertrained by the standards of our international competitors. Firms also tend to be characterised by elaborate hierarchies and by an exceptional 'distance' between management and the work-force.

Inward orientation and hierarchical control were able to secure high rates of industrial growth, particularly in the 1960s and early 1970s. However, as we saw in the introductory discussion, this trajectory ran its course—growth rates declined, significant levels of unemployment became imbedded in the labour market and the economy was held back by a structural balance of payments constraint. Moreover, these levels of industrial protection and subsidy became increasingly unsustainable, receipts from South African raw material exports stagnated, the terms of trade deteriorated and black labour increasingly challenged the repression and hierarchy on which manufacturing organisation was based.

These developments have bequeathed a particular legacy—South Africa's manufacturing sector is unusually diversified. Inward orientation occurred in the context of a large and heterogeneous domestic market. In consumer goods, there has been significant demand at all levels of the income spectrum; in intermediates, production has been facilitated by the existence of local raw materials combined with high levels of protection and state subsidy; and in some capital goods sectors, especially

***'South Africa's
manufacturing
sector is unusually
diversified'***

in engineering, demand has been largely sustained from the extractive and energy sectors and state purchases in armaments. Economic sanctions against apartheid reinforced a tendency for the large conglomerates to focus their activities on the domestic market. Many of these firms not only operate across the range of consumer, intermediate and capital good industries, but within these industrial divisions they also manufacture an unusually broad spectrum of products.

It is partly because of this high degree of industrial diversification that an industrial strategy for South Africa must necessarily take a different path from those pursued in the Asian NICs. Whereas in Korea and Taiwan industrial policy actively promoted the diversification of industry and firms into new areas such as shipbuilding or chemicals, a critical task of industrial policy in South Africa is to facilitate a far more specialised industrial sector and, similarly, far more product focus at the level of the firm.

Specialisation and focus, it should be emphasised, are required in order to enable local manufacturing industry to compete both on international markets and in more open domestic markets. This is necessary if South African industry is to meet the basic needs of our population effectively and efficiently.

But South African manufacturing firms face an especially difficult challenge in the pursuit of greater focus and efficiency, in that the low levels of human resource development, combined with particularly high levels of hierarchical control, are likely to impose additional barriers to effectively meeting the challenges of international competition. Producing quality goods attuned to the particular and changing needs of customers requires the active support of a skilled work-force. Moreover, this is not a once for all time achievement. A process of continuous improvement, necessitating an upgrading of the firm's human resources (often denoted as firm learning) is necessary if a competitive position is to be maintained in the market. This, in turn, requires that the firm be able to utilise its labour as a resource, rather than see it as a cost to be minimised and a challenge to be controlled. Continuous improvement is considerably enhanced if, in addition, firms collaborate and cooperate with other firms, particularly their suppliers and customers. This, too, is currently very limited in South African manufacturing.

Industrial policy in South Africa therefore has a dual challenge. The tasks are to secure a more specialised manufacturing industry composed of more focused manufacturing firms, and simultaneously to ensure that firms are driven to raise the skills

'A critical task of industrial policy in South Africa is to facilitate a far more specialised industrial sector and, similarly, far more product focus at the level of the firm'

of their work-forces, and are able to establish the co-operative relations with all elements of the work-force, and with other firms, that underlie firm-level learning.

It is around these requirements that our policy framework is organised, based on the objectives and strategies outlined in the earlier discussion. There are three key policy variables in our industrial policy framework:

- ◆ Fostering the role of market incentives
- ◆ Strengthening underlying capabilities in human resources and technology, and
- ◆ Providing an appropriate institutional environment to facilitate industrial restructuring.

FOSTERING THE ROLE OF MARKETS

‘Market incentives have a key role to play in the efficient allocation of resources and in the growth of productive capability’

Market incentives have a key role to play in the efficient allocation of resources and in the growth of productive capability. They also have a critical role to play in facilitating the specialisation and focus which we identify as being a critical challenge confronting South African industry.

Hence we elaborate a trade policy that attempts to sharpen the flow of incentives from the international market, in part by easing the access of international producers to our domestic markets, and in part by accelerating the entry of South African products into international markets.

But the domestic market is an equally important source of productivity-raising incentives. Here we elaborate a competition policy designed to confront the anti-competitive consequences of highly concentrated domestic markets. We also discuss policy addressed at the corporate governance system.

A key manifestation of concentrated market and ownership structures, and a salient feature of South Africa’s industrial structure, is the weakness of small and medium-scale manufacturing enterprise. While changes in the incentive system are clearly necessary for SME development, this segment of production requires additional support. SMEs, a vital component of modern competitive economic systems, will not take root in this hostile environment and, therefore, a wide range of additional support measures are elaborated.

ENHANCING CAPABILITIES

While sharpening the market-based and ownership incentives that drive the industrialisation process is a major pillar of our policy proposals, on its own this will not suffice to underpin a competitive manufacturing sector. Indeed, precipitative

exposure to international competition may well destroy vital capacity; capacity that, with the requisite support and enough time, has the potential to compete on world markets. Thus, the design of trade policy has to proceed against the backdrop of South Africa's individual circumstances. This reality, and the requirements of modern competitive industrial production, dictate that concrete support on the supply side is needed if South African manufacturers are to respond effectively to increased international exposure.

It is widely recognised in industrialised and developing countries alike that there is systematic underinvestment in those basic capabilities that underpin a high productivity industrial strategy. Our sectoral researchers have also shown this to be the case in South Africa where these market failures are particularly evident in relation to human resource development and technology generation and diffusion. (SMEs are particularly, although not exclusively, undermined by these market failures.) We therefore identify a number of individual policies which are designed to augment the market in respect of these critical areas of industrial development.

BUILDING INSTITUTIONAL CAPACITY

Acknowledging the limitations of the market to provide for the development of human resource development and technology, requires that we specify alternative mechanisms for generating and delivering these basic capacities. This requires the development of an appropriate institutional framework, particularly one which encourages and facilitates a process of industrial focusing and restructuring.

The institutions with which we are concerned are not only, or even most importantly, institutions of the central government. Apart from participating in the formulation, implementation and evaluation of industrial policies, the principal role of these institutions is to meet the needs of firms that are not met through the market. In particular, they need to encourage forms of co-operation between management and labour, between firms, and between firms and other economic agents that can aid productivity. For this purpose, sectoral associations, local government institutions, or local networks of firms may provide a more effective institutional base than that provided by central government. Other institutional requirements are dictated not by market failure, but rather by industrial policy's requirement for a stable coalition of the major industrial actors. Multipartite institutions may be the most effective institutional form.

'Institutions need to encourage forms of co-operation between management and labour, between firms, and between firms and other economic agents that can aid productivity'

‘Sharpening the flow of market-derived incentives, enhancing underlying capabilities, strengthening our institutional base—these are the three pillars of our policy framework’

Sharpening the flow of market-derived incentives, enhancing underlying capabilities, strengthening our institutional base—these are the three pillars of our policy framework. As with the four objectives of our industrial strategy outlined earlier, these are a package, and focusing on one to the exclusion of the others, will, at best, be ineffective—but may, indeed, lead to the destruction of existing industrial capacity.

In particular, added exposure to international competition in the absence of supply-side programmes that enable manufacturing to compete in higher productivity segments of their markets, will, in a worst case scenario, encourage specialisation by simply driving the South African economy back onto its natural resource base. Conversely, supply-side measures will have little effect if firms remain protected from domestic and local competition.

The remainder of this report fleshes out some of the detail to these policy proposals. We shall first outline our trade, competition and ownership policies which are designed to sharpen the flow of market-based incentives. We shall also examine a general policy framework designed to support SMEs and then outline our policy proposals for human resource and technology development. Finally, we turn to an examination of the institutional environment necessary to support the industrial policies which we have formulated.

INTERNATIONAL TRADE **TRADE PERFORMANCE**

South Africa’s trade policy is in the midst of a significant transition. Two factors have been especially significant in inducing these changes. First, the recently concluded GATT agreement—the Marrakesh Agreement—imposes a trade regime that runs strongly counter to that prevailing in South Africa. Essentially the GATT agreement requires the dismantling of trade barriers and the elimination of export subsidies, both significant features of South Africa’s trade regime. The imminent weakening of the competitive position of South African producers, in both domestic and international markets, has generated a flurry of interest in trade policy.

Secondly, the weak performance of South African manufacturers in international markets has inspired a re-examination of trade policy and, more generally, of the competencies underlying our manufacturing sector.

Our trade performance has been outlined in earlier sections. In summary, it is characterised by an extremely poor export performance across the range of manufactured commodities.

We perform extremely poorly in the export of technology-intensive commodities and are heavily dependent upon imported capital goods. Nor are we successful exporters of consumer goods. Indeed, were it not for the significant levels of protection accorded key consumer goods (for example clothing and autos), as well as key intermediates (particularly in the chemicals sector), our import bill would be considerably more onerous. We remain strongly dependent upon our natural resource base for our foreign exchange earnings; manufacturing remains a net user of foreign exchange.

We should emphasise that our trade performance is cause for considerable concern. The growth of the South African economy is subject to a powerful balance of payments constraint that effectively aborts the growth process before it is able to deliver rising per capita incomes.

The immediate balance of payments constraint could be significantly relaxed by more favourable movements on the capital account. However, in the medium and long term, we will only sustain the required level of importation by the export of goods and services. Whilst our mining and agricultural base will continue to underpin our export performance, we cannot ignore the reality that we are *increasingly* dependent upon exporting into stagnant or, at best, slowly growing world markets in these sectors. World trade is, as we have already shown, increasingly dominated by manufactured commodities and, to a significant degree, this is because inputs into production are increasingly dominated by manufactures and services relative to raw materials.

Recent years have seen a strengthening of our export performance, albeit from a low base. However, this recent performance is not a reliable guide to the future: a combination of domestic recession, an unsustainable export subsidy, and a depreciating currency, has created an unusually favourable climate for this export surge. We have found little evidence that these exporters have invested in the new capacity needed to support a long-term commitment to the international markets. This suggests that sudden shifts in this environment—a rapidly growing domestic market and a reduction in the export subsidy are both likely—will threaten this improved export performance.

Our trade strategy, and the policies designed to realise it, is not fixated on export performance. There are clearly important opportunities to *save* foreign exchange by substituting for imports. Measures designed to strengthen our underlying manufacturing capabilities—and these are at the heart of the industrial policies proposed here—will be reflected in an enhanced

‘We are increasingly dependent upon exporting into stagnant or, at best, slowly growing world markets in these sectors’

ability to compete with imports on domestic markets. Even within GATT constraints, there remains a certain capacity to bolster efforts at import substitution utilising the traditional instruments of trade policy.

However, the possibilities for successful import substitution notwithstanding, tariff liberalisation will certainly lead to an increase in imports across a wide front. Unless tariff liberalisation is accompanied by an immediate improvement in export performance we shall face even tighter constraints through the balance of payments, and inevitable job loss.

There are also persuasive micro-economic arguments that underlie our emphasis on securing an improved export performance. These relate to the impact of exporting on firm-level learning. Although, as outlined above, many of the recent export gains are tentative and not generally supported by new investment, there is some evidence of learning-through-exporting from the ISP sectoral studies. The textile sector provides some interesting evidence.

These arguments underpin our support for an export-oriented trade policy, the precise elements of which are outlined below.

TRADE POLICY: A BRIEF OVERVIEW

Since the 1950s trade orientation and trade policy have occupied a central place in theoretical and policy debates in development economics. However, recent years have witnessed the forging of an unexpected degree of consensus around this divisive and vital set of issues. In brief, there is now broad acceptance that inward-oriented trade and industrial policies cannot be sustained. Moreover, export success correlates with rapid industrial development.

The process of arriving at this consensus around the *objectives* of trade policy has also cast new light on the *mechanisms* that underlie improvements in a country's trade performance. In particular, it is now widely recognised that trade liberalisation alone will not underpin the desired improvements in trade performance. Indeed, there is considerable analytical and empirical support for the view that a trade reform programme, simply focused upon the dismantling of protective barriers and the consequent exposure of domestic producers to global competition, is likely to undermine both trade and general industrial performance.

Our research endorses a growing consensus that holds that:

- ◆ Trade reform must be pragmatic and gradual, and that there remains an important role, albeit limited and temporary, for

'There is considerable analytical and empirical support for the view that a trade reform programme, simply focused upon the dismantling of protective barriers and the consequent exposure of domestic producers to global competition, is likely to undermine both trade and general industrial performance'

protective tariffs.

- ◆ Measures aimed at strengthening underlying supply-side capacities are vital accompaniments to trade liberalisation. Indeed, trade reform should be presented as part of a package of which supply-side measures are the core component.
- ◆ In addition to strengthening supply-side capacities, export success requires active supportive policies in the form of subsidisation and promotion that go way beyond simple trade liberalisation.
- ◆ Export success correlates with a stable and appropriately valued exchange rate.

Key elements of this approach are imposed by the Marrakesh Agreement that concluded the lengthy Uruguay Round of the GATT. Compliance with the GATT and associated agreements essentially requires significant tariff reduction and severely circumscribes the use of trade-related subsidies and local-content measures. The agreement requires the immediate conversion of all non-tariff barriers—essentially quantitative import restrictions—to *ad valorem* duties, and the reduction of the latter by an average of one-third over a five-year period, commencing January 1995.

The GATT Agreement establishes a framework. South African policymakers are now effectively charged with matching the requirements of this framework agreement to a national reality with the following features:

- ◆ A tariff structure characterised by enormous inter- and intra-sectoral variation, the creature of lobbying and of the absence of a coherent industrial policy, that, in certain important instances, provides for exceedingly high levels of effective protection.
- ◆ A number of programmes—some general (for example, GEIS), others sectorally specific (for example, the auto industry Phase VI programme)—that attempt to correct the anti-export bias arising from the protective system;
- ◆ Key sectors—for example, autos, electrical consumer goods, clothing and textiles—that are extremely vulnerable in the face of intensified international competition. The vulnerability of these sectors is accounted for by the high levels of protection afforded them, and by the impact of social policies that have undermined our basic manufacturing competencies. In brief, large swathes of South African manufacturing will not respond positively to intensified international competition without supportive measures directed at strengthening their underlying capabilities.
- ◆ Export support programmes and institutions that are biased

'We cannot overstate the importance of the relationship between tariff reform, export support, supply-side policies, and exchange rate policy'

in favour of large firms and that offer little to SMEs.

We cannot overstate the importance of the relationship between tariff reform, export support, supply-side policies, and exchange rate policy. Unless the interaction between the four sets of interventions is carefully constructed and sequenced—unless, in other words, they are informed by an overall industrial strategy—exposure to international competition will, in important instances, simply destroy existing capacity, including jobs. Some of the productive capacity thus destroyed may well be endemically uncompetitive but, even in these cases, there are usually grounds for a managed downscaling. In other instances, harsh competitive winds may destroy potentially competitive industrial capacity, that may well have thrived under a more nuanced adjustment programme.

Nor, however, should we underestimate the difficulties associated with sequencing trade and industrial policies. In part these difficulties stem from the GATT which has effectively imposed a global trade regime as the parameter to which national trade and industrial policies have to conform. This has a double-edged effect upon national policy formulation.

On the one hand, it secures the domination of trade policies over broader industrial policies. We are effectively obliged to construct our supply-side policies within the framework imposed by the GATT agreement, so that, once again, the trade policy tail appears to be wagging the industrial policy dog. However, as we shall elaborate below, there is room for manoeuvre within the GATT parameters. The capacity for manoeuvre within GATT—and the prospects for extending it—is a key point of entry for national policymakers.

On the other hand, GATT's circumscribing of national trade policy options does focus attention on supply-side interventions: where the hands of domestic policymakers are tied by liberalised commodity and capital markets, supply-side policy measures take on an added significance in the domestic policy armoury.

Either way, there remains a key role for industrial policies: our point of entry is either the flexibility contained in the GATT parameters that enables us to construct the specific trade policies that fit our industrial strategies and policies; or we focus on the constraints imposed by GATT and construct industrial policies designed to relax these constraints.

While emphasising the dangers inherent in subordinating industrial policy to trade policy, the reverse tendency should also be guarded against. Given their considerable impact on resource allocation and established practices—and, hence, on a range of vested interests—firms and their various stakeholders

are unlikely to adopt far-reaching supply-side measures in the absence of market pressures to do so. The international market is a key potential source of pressure. For this reason we generally favour the imposition of time limits on supply-side programmes, and performance criteria on firms that benefit from these programmes. The performance criteria should, wherever possible, use the international market—export performance, import replacement, comparator prices—as the benchmark for assessing firm-level performance and continued eligibility for supply-side programmes.

TOWARDS A NEW TRADE POLICY

Our new trade policy will be constructed from the following elements:

- ◆ A tariff policy, the terms of which are effectively set by our adherence to the GATT.
- ◆ A system of export supports designed, in the first instance, to compensate for the anti-export bias arising from tariff protection, but, beyond that, to underpin a net outward orientation in our overall trade regime.
- ◆ An exchange rate policy directed at ensuring a stable and appropriate value for the currency.

The introduction of these policy measures will be sequenced with supportive supply-side measures that are intended, *inter alia*, to strengthen the manufacturing sector's capacity to respond effectively to international competition.

Tariff Policy

South African manufacturers are protected by a combination of *ad valorem* and formula duties. GATT requires the conversion of the formula duties into *ad valorem* duties. The *ad valorem* duties are then to be reduced by an average of 30%, the reduction to be phased in over five years, commencing January 1995. The import surcharge, in place since 1985, has been reduced by the 1994 budget.

The immediate impact of the tariff reform will be the simplification of an inordinately complex system. The removal of the formula duties alone will greatly simplify the system. In addition, approximately 80 *ad valorem* rates will, with certain key exceptions, ultimately be standardised at 0%, 5%, 10%, 15%, 20% and 30%. The number of tariff lines—approximately 12 800 at present—will be reduced by some 30% by the end of the five-year phasing-down period; 98% of these lines (as opposed to 55% at present) will be subject to GATT bindings that cannot

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be exceeded after 1999, the end of the phasing-down period.

The reformed tariff structure attempts to underpin two underlying principles. The first supports an export orientation by extending only minimal protection to primary and semi-primary products, and capital goods. The protection afforded these products ranges from 0%–15%. The second supports labour-intensive downstream production by placing consumer goods in the highest tariff band (20%–30%) with components protected by a somewhat lower tariff rate (10%–15%).

The rates stipulated in the GATT agreement are ceiling rates. In many instances the rates actually prevailing are set below these ceiling rates. We would, in general, caution against raising rates to the GATT ceiling. However, the differential does effectively permit the limited use of tariff protection in support of industrial policy.

There are a number of key exceptions to the general rules sketched above. The most significant of these exceptions are motor assembly and components, and clothing and textiles. These sectors are presently distinguished by the exceptional levels of protection afforded them. If subjected to the general tariff reform agreements, there is a real risk to the survival of these key sectors. The auto assembly sector has been permitted a phasing-down period of eight years and a maximum tariff of 50%; auto components will also phase down over eight years to a maximum of 30%. Clothing and textiles will phase down over a period of twelve years to a maximum of 45%.

South Africa's offer to GATT was effectively negotiated by the tripartite National Economic Forum. It appears to be the best that South Africa could have achieved in the context of an international political economy that demanded the rapid dismantling of trade barriers. South African producers are, in general, subject to intensified international competition and there is widespread, albeit reluctant, acknowledgement that this is a precondition for strengthening our manufacturing base. However, the additional exposure to which South African producers have been subjected is, in general, not excessive. By using 1989 (as opposed to 1993) as the base year for calculating the reforms, the actual extent of tariff reduction is, for the most part, considerably less than the mandatory one-third. Those sectors that are particularly exposed by the reform have won additional breathing space or have already been somewhat liberalised relative to 1989 levels of protection.

The tariff is always a blunt instrument of industrial policy. The principals, outlined above, that putatively underlie the reformed structure are, if sectorally applied, honoured selectively at best. The GATT requirements now limit even further

'The tariff is always a blunt instrument of industrial policy... The GATT requirements now limit even further the use of the tariff as a policy instrument'

the use of the tariff as a policy instrument. They do not, as already noted, eliminate it entirely from the policy armoury.

However, where the tariff continues to be deployed in pursuit of an industrial strategy, we believe that it should be used cautiously. In particular, we do not believe that those rates presently below the GATT bindings should be allowed to be moved upwards, even in the name of rationalisation. Where this occurs, it should be done with maximum transparency in order to head off the still powerful industrial lobbies.

Of course, the tariff may be set at rates lower than the GATT ceilings. Where supply-side policies are sufficiently effective to permit this it should be done. The Motor Industry Task Group—the tripartite body responsible for negotiating the tariff arrangements applicable in those sectors—has recommended that the tariff on fully-assembled units be reduced to 45% over the agreed eight-year period, slightly below the 50% level agreed with the GATT.

For the most part, then, the path of tariff reform is agreed and immutable. In the area of tariffs and protection, what remains is the not inconsiderable task of setting up an effective anti-dumping capacity. While cognisant of the real danger of turning anti-dumping into a new protectionism, it is important that South African manufacturers be protected from disruptive and predatory trade practices, and this may include imports from companies and countries that engage in blatantly repressive and anti-social labour and environmental practices.

For the most part, however, we would want to get on with the task of formulating the supply-side policies that enable our manufacturers to respond effectively to international competition. However, we need to confront immediately a serious consequence of our tariff structure. Our sector reports persistently identify the cost of domestically-produced intermediates as a major impediment facing downstream producers attempting to enter international markets.

These key intermediate commodities fall into two broad categories. There are, firstly, the products of endemically uncompetitive sectors. Key chemical products fall into this category. This represents one of the most intractable problems confronting industrial policy. Jobs, skills, and capital are tied up in activities that, for the most part, will not be able to compete with imports. The tariff reform will expose all of these producers. The ISP study of the petrochemical industry has addressed this issue, as have the textile and auto studies. There is no single answer to this question and producers will have to be dealt with on a case-by-case basis. In each instance, however, a greater degree of specialisation—withdrawing from

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fundamentally uncompetitive sectors in order to focus upon potentially competitive market segments—is, to a greater or lesser degree, unavoidable.

Secondly, our downstream fabricators are paying a premium price on key commodities competitively produced in South Africa. The steel industry is a major culprit here, as are our paper and pulp producers. This arises, to a significant extent, from the practice of import parity pricing. Where tariffs are imposed on competitively-produced domestic inputs, local producers are simply factoring the tariff into their domestic price structure. It also arises as a result of local producers factoring in the transport and insurance charges that local fabricators would have had to pay if they had chosen to import the required input. While it is not difficult to see the profit-maximising logic in these pricing strategies, they should be terminated as a matter of urgency. Regardless of the GATT bindings and current tariff levels, protection of competitively-produced inputs should be removed immediately. It is more difficult to prevent the practice of charging international CIF prices to local users. The recent decision to reduce the General Export Incentive Scheme (GEIS) subsidy available to local upstream producers may help to bring down the price to local consumers. An export tax is a possible mechanism for encouraging these producers to nurture rather than undermine their domestic customers, and should be investigated.

Export Support

Protective tariffs underlie a significant anti-export bias in South African manufacturing. Various efforts have been made to compensate exporters and potential exporters for this policy-induced bias. Although the tariff reform will considerably reduce the anti-export bias, a degree of bias will remain and compensating measures will be necessary.

There are two broad sets of issues under consideration here:

- ◆ Do the existing schemes compensate for the anti-export bias, and what is their future in the context of the tariff reform?
- ◆ What, if any, additional export support measures should be introduced?

Existing schemes designed to correct the anti-export bias fall into two broad categories. There are the general schemes, the most significant of which are the General Export Incentive Scheme (GEIS) and the tariff rebates and duty drawback facilities available to exporters. Secondly, there are a variety of sectoral schemes. The schemes applicable to the clothing and auto industries are the best known of these. There are also important

existing arrangements in the steel industry.

Although these schemes have substantially reduced the anti-export bias, there are important question marks that attach to each of them.

The measures referred to here have all been extensively described and analysed in the ISP trade report and the relevant sectoral studies, and will not be detailed here. We will restrict ourselves to the following observations:

GEIS—a performance-based cash subsidy—is the dominant general scheme. Exporters are effectively offered a choice between applying the tariff rebate scheme or GEIS and have inevitably opted for the latter. The available evidence suggests that GEIS has underpinned export growth—the scheme coincides with a resurgence of non-traditional exports, and industrialists interviewed by our sectoral researchers emphasised the importance of the subsidy. We are aware that the export revival has also coincided with a major domestic recession and a currency depreciation, and we acknowledge that industrialists are unlikely to suggest that a generous cash subsidy is ineffective. However, all things considered, we believe that GEIS has facilitated the export of manufactured commodities.

But GEIS is riddled with shortcomings. Firstly, it is in clear contravention of GATT. Secondly, it represents a major fiscal burden. Thirdly, it is poorly structured and administratively complex.

Critics of the GEIS structure have highlighted the high level of fraud associated with the subsidy. Of greater concern is a legal fraud perpetrated by the same lobbying process that gave rise to an irrational and chaotic tariff structure. GEIS is designed to encourage downstream manufacturing processes. However, the lobbying process has ensured that the producers of lightly-beneficiated products in basic metals, paper and pulp, and in key agricultural products, are placed in a category of subsidy intended for relatively elaborately-transformed manufactures. They receive the lion's share of the subsidy. The new government recently addressed this anomaly by recategorising major beneficiaries of GEIS, for the most part moving them from the third to the second category. Although, as a result of exchange rate movements, this coincided with a substantial reduction in the overall size of GEIS, it nevertheless met with major opposition from powerful vested interests. It is to be hoped that this action will send a clear signal to the lobbies responsible for manipulating the subsidy in order to achieve their own limited and, essentially, private ends.

On balance, however, the restructured GEIS should be retained for as long as the GATT permits. It should at least

continue to exist over the period of tariff phasedown. In that period, as with the tariff, it should be gradually reduced, although a significant level of subsidy should be retained until the end of the phase-down period. The actual size of the subsidy is presently moderated by exchange rate movements and this should continue to play a central role. The 'E-factor'—exchange rate depreciation—has recently reduced the GEIS subsidy substantially.

Over the longer term, GEIS—and the sectoral schemes—should be replaced by a system that ensures a free trade regime for exporters. Our proposal is for a general system of rebates or drawbacks—we are not in favour of the introduction of Export Processing Zones or any of their variants.

A free trade regime for exporters confronts the same set of problems that is associated with any 'free trade' scheme, even those confined to exporters. The problem concerns, of course, the competitiveness of the domestic producers. As with any tariff liberalisation, the free trade regime for exporters must be introduced gradually and in tandem with sectorally specific supply-side programmes, so as to ensure that potentially competitive domestic capacity is not precipitously eliminated.

The key export support schemes—GEIS, tariff rebates for exporters, and the sectoral schemes—are specifically intended to correct the anti-export bias generated by the tariff. Suitably reformed variants of these will remain in place to counteract the impact of trade barriers on our export performance.

There are a number of other schemes run by governmental and para-governmental institutions that are less directed at the anti-export bias and more in the general realm of export support. For example, the IDC offers preferential interest rates and credit facilities to exporters; the Department of Trade and Industry (DTI) offers marketing support, as does the South African Foreign Trade Organisation (SAFTO); the DTI, in conjunction with the Credit Guarantee Insurance Corporation, offers credit guarantee and risk insurance facilities to South African exporters. Our proposals for export support would focus on schemes of this nature. Whereas subsidy schemes and tariff rebates would be used to establish the neutrality of the trade regime, institutional support would establish an effective export orientation in the trade policy regime.

These schemes have also received considerable attention in the ISP trade study and will not be discussed in detail here. We offer three general observations, applicable to all of the export support schemes:

While there is strong evidence that certain of the schemes—GEIS for example—underpin a substantial volume of exports,

there is little indication that any of the schemes induce exporters to undertake the investments necessary to sustain a long-term involvement in the export markets. Many of the schemes are of relatively recent origin and, with GATT, the long political transition, economic recession and fiscal pressures, each has operated under a cloud of uncertainty. These factors, rather than any directly related to the nature of the various support programmes, may underlie the lack of investor commitment to export activity.

It is difficult to address these essentially exogenous determinants of investment through redesigning the export support measures. In particular, trade-related investment measures are specifically prohibited by the GATT. In general, it would be difficult to monitor the relationship between exporting, on the one hand, and investment, on the other. It would be well nigh impossible to police a scheme that insisted upon making such a connection. Under GATT it is possible to support investment in capabilities—for example, schemes related to technology development and human resource development—that effectively underpin export activity. These possibilities should be explored more fully—clearly, support measures that merely underpinned export activity in the life of any given scheme, that did not put in place the capacity that permanently oriented its recipients to the international market, should be judged highly deficient.

Secondly, the export support measures, without significant exception, are more accessible to large firms than to SMEs. They tend to discriminate against firms that do not have ready cash reserves, or sophisticated administrative capabilities, or the economies of scale in exporting that enable them to set up expensive international marketing divisions or to employ costly consultants. The weakness of SMEs is a major theme of this report. Where export support is concerned we see a clear case of policy-induced weakness. Several proposals for forms of export support accessible to SMEs are made in the ISP trade report and are detailed elsewhere in this report. These include establishing an Export Bank in order to provide SMEs with access to pre-export credit facilities and strengthening marketing support for SMEs through, *inter alia*, the reform of SAFTO.

This is identified as an issue of first order importance. While we do not necessarily expect large, immediate returns from export support to SMEs, our researchers have encountered firms—in the furniture industry for example—who are producing in heavily concentrated and inaccessible domestic markets and who, with a little focused support, might easily be induced (more easily than the dominant firms) to contest international markets.

‘Support measures that merely underpinned export activity in the life of any given scheme, that did not put in place the capacity that permanently oriented its recipients to the international market, should be judged highly deficient’

Thirdly, the tariff reform will be accompanied by the phasing out of some extremely costly export subsidies, GEIS in particular. If South African manufacturers are to respond to intensified international competition, and if they are to penetrate export markets without the support of a subsidy, the underlying capabilities of the manufacturing sector are going to have to be considerably strengthened. These supply-side programmes will also be costly and it is vitally important that the resources withdrawn from export subsidisation be earmarked for further industry support.

The Exchange Rate

‘There is an established relationship between a stable and appropriately-valued exchange rate, on the one hand, and export growth, on the other’

Empirical studies that attempt to correlate policy regimes with export success have dismissed some conventional wisdoms in mainstream economic thought. For example, the assumption that tariff liberalisation correlated with export growth has not withstood empirical examination. Unfortunately, empirical studies have been more successful at dismissing inadequately tested correlations, than at verifying solid relationships. The single exception is in regard to the exchange rate: there is an established relationship between a stable and appropriately-valued exchange rate, on the one hand, and export growth, on the other. It is extremely difficult to penetrate international markets with an overvalued exchange rate.

There is a broad consensus that the rand is somewhat overvalued, partly in consequence of the Reserve Bank’s use of the exchange rate as an anti-inflationary measure. In addition to the problem of overvaluation, South African manufacturers have had to contend with a highly unstable exchange rate, more unstable than those facing producers in most other countries, even those still dependent upon primary product exports.

We cannot refine our policy proposal beyond a simple call for a moderate once-off devaluation, and the institution of mechanisms designed to ensure that the exchange rate be insulated from the random shocks that underlie its instability. While we are aware that these conclusions are overly general, specifying the ‘appropriate’ value of the currency and identifying the mechanisms (and particularly, their sequencing) designed to address overvaluation will take in policy issues way beyond the scope of industrial policy. We can only state that we are persuaded that the currency is moderately overvalued, and that this inhibits export penetration.

It remains, however, to identify potential problems that arise from a currency depreciation. Foremost amongst these are:

◆ The inflationary impact of an increase in import prices. We do not support the use of the exchange rate as a primary anti-inflationary measure. Moreover, the conventional wisdom that associates devaluation with rapid inflation is questionable. It is unlikely that, in an economy as depressed as South Africa's, prices would rise by the full extent of the currency devaluation. In any event, the inflationary impact of a currency depreciation will be somewhat ameliorated by the tariff reductions that will accompany it.

◆ The negative impact of a currency devaluation on real incomes. Again, and for reasons partly related to those outlined above, there are grounds for arguing that this impact has been exaggerated. As already noted, in a depressed domestic environment, already manifest in reduced inflation, prices, even those of imported commodities directly affected by the currency depreciation, are unlikely to rise by the full extent of the depreciation. In any event, the direct impact on real incomes is limited by the size of the import component in consumption. This is not insignificant, but nor should it be exaggerated—it is, after all, only a fraction of total consumption. Nevertheless, despite these mitigating factors, a conventional currency devaluation will impact negatively on real incomes. It will therefore be important to examine mechanisms to accompany a currency devaluation which could further serve to support the level of real incomes. One such mechanism would be to accompany a currency devaluation with a similar point fall in the nominal tariff levels—a so-called 'compensatory devaluation'. This would leave the local currency price of imports unchanged. A compensatory devaluation might also be accompanied by an export tax on the windfall gains of traditional producers whose raw material outputs are overwhelmingly destined for export markets.

◆ The possibly adverse signals that a decision to devalue the currency sends to domestic producers. Domestic producers will not take the difficult productivity-enhancing route that is at the core of our industrial strategy, if they believe that their underlying weakness will be constantly compensated by a currency devaluation. A strategy that simply privileges price competition—and this is what a strategy rooted in devaluation suggests—is not a sustainable route into international markets. Moreover, although a one-off devaluation may not be inflationary, constant devaluation will ultimately impact on inflation and real living standards to an unsustainable degree. For these reasons we do not accept the argument that suggests that the question of export competitiveness be simply reduced to exchange rate policy. We do, however, defer to evidence that

'In order to penetrate international markets, the exchange rate has to reflect the country's underlying level of productivity relative to that of its trading partners'

suggests that, in order to penetrate international markets, the exchange rate has to reflect the country's underlying level of productivity relative to that of its trading partners.

Persuading domestic producers to accept that a devaluation is a once-off measure, is, to a certain extent, a political problem. In South Africa this is made easier by the fact that our currency is clearly overvalued in consequence of a particular institutional arrangement—the dual exchange rate mechanism. Devaluing the currency by elimination of this arrangement will help to underline its once-off character. Allowing the currency to simply slide down is the worst of all worlds: it is an unstable arrangement and, to the extent that the general trajectory of the currency is downwards, it simply allows producers to expect more of the same.

INDUSTRIAL INTRODUCTION STRUCTURE

It is frequently argued that the high level of concentration that characterises South African product markets is inevitable if our leading corporations are to achieve the scale necessary to compete in global markets. Moreover, it is pointed out, a small number of well-resourced firms dominating a single market may well be a recipe for exceptionally vigorous competition.

In similar vein, it is held that ownership and control concentrations that characterise South Africa's corporate world enable proven entrepreneurs to retain control of expanding corporations (and their managers) and, through the structures of the conglomerate, permit the sharing of scarce managerial, technical and financial resources. In short, while the structures of ownership and markets may represent a measure of inequality, they also represent dynamism and efficiency.

These issues are far from resolved. A government committed to democracy and equality is unlikely to respond to an appeal based purely upon considerations of economic efficiency. Furthermore, ISP research has led us to question the claims made for the efficiency and dynamism of current forms of industrial organisation. Our research leads us to conclude that:

- ◆ Oligopolistic collusion and single-firm dominance, rather than intense competition, is the norm in concentrated South African product markets.
- ◆ Conglomeration does not promote productivity-enhancing co-operation between its subsidiaries; it is not synonymous with entrepreneurial control of South Africa's major corporations; and it limits broadly-based stakeholder participation in the corporate economy.
- ◆ Market and ownership concentration constitutes a particu-

larly hostile environment for the development of dynamic SMEs.

Industrial organisation and governance issues are notoriously difficult to research conclusively, and the policy stakes are very high. Our policy conclusions are intended to be cautious and pragmatic, but their overall trajectory supports lower levels of concentration and greater stakeholder participation in corporate control. It strongly endorses measures aimed at protecting SMEs from the effects of these dominant structures.

MARKET STRUCTURE

By any standard, South African product markets are highly concentrated. Amongst the sectors studied by the ISP, paper and pulp, mineral beneficiation, poultry, wine, cement, white goods, furniture, shoes and chemicals are all heavily concentrated. Detailed examination of sectors that at first glance appear to be characterised by intense competition—textiles for example—reveals single-firm domination in important market niches. Other sectors characterised by high levels of competition sell into highly concentrated retail markets or purchase from concentrated suppliers.

Several concentrated sectors are nevertheless characterised by vigorous competition—white goods, for example. Generally, however, cosy collusion is more common. The cement industry is governed by a formal, sanctioned cartel. The paper and pulp industry, with two suppliers, appears to be characterised by vigorous competition in some subsectors of the industry. But other key subsectors are entirely dominated by one or other firm with a strong suggestion of market sharing arrangements between the duopolists. Market sharing arrangements, accounting for single-firm dominance of key markets, is a relatively common outcome of collusive arrangements.

Defence of consumer interests defines orthodox approaches to competition policy. Despite this focus it is difficult to measure, with any precision, the impact of high levels of concentration on consumer welfare. We are, in any event, particularly interested in the impact of South Africa's industrial structure on dynamic efficiencies and on the interests of particular classes of producers. Again, these relationships are difficult to establish conclusively, although, in several sectors, ISP research has identified a clear association between dominant firms and low levels of technological dynamism. This latter is reflected in relatively low levels of expenditure on R&D in dominant firms and a strong dependence on foreign technological licences.

We are persuaded that the structure of South African prod-

'ISP research has led us to question the claims made for the efficiency and dynamism of current forms of industrial organisation'

uct markets constitutes a powerful entry barrier for SMEs. And, in turn, we are persuaded, by both the weight of international evidence and local research, that dynamic SMEs are a vital component of a competitive, modern economy. A necessary, but not sufficient, source of support for SMEs will take the form of policy designed to deconcentrate markets or, at least, to check the behaviour of the firms that dominate concentrated markets. This is dealt with below.

A strong defence of dominant firms asserts that their superior position is attributable to their efficiency relative to that of other firms. Hence, action taken against them is tantamount to punishing success; supportive policies directed at non-dominant firms is tantamount to rewarding failure.

Regardless of the validity—which will naturally vary case-by-case—of this historical claim, it does not offer a solution to policymakers now confronted by an industrial structure that, regardless of its origins, is highly concentrated and undynamic.

A solution is frequently sought in a liberal trade policy and in policies that encourage inward direct foreign investment. Many dominant South African firms are, when firmly located in the international market, only minor players. The argument against additional interventions, from, for example, the field of competition policy is that it would further impair the ability of these (now reduced) South African firms to compete against their international counterparts. Direct foreign investors entering concentrated domestic markets are clearly an additional source of competitive pressure.

Trade liberalisation is not, however, a substitute for competition policy. It is frequently pointed out that fierce competition between local producers underpins the dynamism of Japanese firms, notwithstanding the relatively closed and protected economy within which they are located. In many sectors local producers do not compete on a level playing-field with importers. National custom and culture, long established domestic brand names and long-standing arrangements with retailers and suppliers of after-sales services, conspire in the maintenance of uneven playing-fields long after the more commonly acknowledged trade barriers have disappeared.

Moreover, in those sectors where international competition is highly threatening to domestic producers, our general view is that trade barriers should be lifted only gradually lest local capacity be precipitately eliminated. Our urgent requirement is to ensure *competitive local capacity*. In impenetrable domestic markets, trade policy will not significantly enhance local competitiveness; in easily penetrated domestic markets, trade policy may eliminate local capacity altogether.

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As for foreign investment as a potential instrument for deconcentrating domestic markets, there is growing recognition that existing levels of market concentration and conglomeration constitute powerful obstacles to increased foreign investment.

We are then thrust back onto competition policy. Competition policy is presently governed by the Maintenance and Preservation of Competition Act which established an independent authority, the Competition Board, responsible for advising its responsible minister on all competition matters. We propose major revisions aimed at strengthening this legislation and the authorities responsible for its implementation.

Competition policy must be viewed as a major instrument of a broader industrial policy. For this reason we strongly welcome the recent decision to move ministerial responsibility for competition policy from the Minister of State Enterprises to Trade and Industry. We should emphasise, however, that the complex and potentially contradictory mandate that governs a comprehensive competition policy—mediating between the interests of producers and consumers and between different classes of producers—leads us to support very strongly the retention of the statutory independence of the Competition Board.

‘Competition policy must be viewed as a major instrument of a broader industrial policy’

Strengthening the competition authorities requires a radical revision to the principles underlying the Act. In terms of current legislation, the Competition Board is an advisory body, required to investigate ‘restrictive practices’, ‘monopoly situations’ and mergers and acquisitions. Its investigations provide advice to the Minister at whose discretion action may be taken. A number of ‘restrictive practices’—resale price maintenance, collusion on prices and tendering, market sharing and conditions of supply—have recently been designated ‘*per se*’ prohibitions, alleged violations of which are handed over to the police for investigation and prosecuted through the normal courts. A paltry fine is provided for.

This requires major revision. Vigorous application of competition policy relies, to a significant extent, upon the confidence placed by victims of anti-competitive practices in the competition authorities. Without confidence in the punitive and corrective powers of the authorities, victims are unlikely to risk initiating action against powerful and potentially vengeful competitors, suppliers or customers. Current legislation provides few grounds for confidence.

Our proposal is that the Board, effectively acting as a tribunal, be empowered to take action on the findings of the investigative authority who should, ideally, be separated from

the Board itself. This would remove competition matters from ministerial discretion and from the hands of the police and the normal judicial authorities. A special court of appeal for competition matters should be established, thus circumventing the drawn-out judicial processes that dominate the application of US competition law. This would necessitate rigorous definition of anti-competitive practices. It would also involve the commitment of considerably greater resources to the competition authorities.

It remains our strongly held view that there are no ideal industrial structures and that a competition policy that attempts to construct one is doomed to failure. For this reason we envisage that the central focus of the strengthened competition authorities would remain the *behaviour* of firms in concentrated markets. In addition to their investigative and judicial functions, the competition authorities should be charged with identifying and defining forms of anti-competitive behaviour not contemplated by the legislative drafters.

'The central focus of the strengthened competition authorities would remain the behaviour of firms in concentrated markets'

Our emphasis on behaviour does not preclude the possibility of action designed to restructure markets. Persistent anti-competitive practices by a dominant firm should invite structural remedies, for example compulsory divestiture. Certain structural features that appear to support anti-competitive practices and little else should be subject to a possible prohibition by the competition authorities—for example, interlocking directorships on the boards of competing companies or on the boards of conglomerates that include competing companies in their groups should be prohibited, as should cross shareholdings.

The current Act gives the Minister the authority to prevent mergers that would have the effect of reducing the level of competition. This is an area in which the authority of the Board is seriously regarded, and is bolstered by the recent introduction of a rebuttable presumption to the effect that all horizontal M&As reduce competition. In the South African context we propose that this be extended to vertical and conglomerate mergers.

CORPORATE GOVERNANCE

The South African corporate governance system is characterised by highly concentrated ownership, or, more accurately, control structures. Concentrated control is institutionalised through the medium of vast conglomerates whose interests span the South African mining, manufacturing and services sectors.

There is a strong relationship between ownership and

market concentrations. The practice of 'conglomerate forbearance', where a conglomerate head office instructs a subsidiary to desist from vigorously competing against the subsidiary of another conglomerate for fear that the latter would support retaliation in another, unrelated market, is an important factor underlying single-firm dominance in South Africa.

However, the fundamental link between ownership and market structures is that they govern two of the key incentives—property rights and competition—that underpin economic development. Our research demonstrates that the high levels of concentration that characterise each of these structures blunts and distorts the impact of these powerful incentives.

Control of the core of South Africa's corporate economy is vested in six conglomerates. Of these, two—SA Mutual and Sanlam—are mutual societies. The others—Anglo American, Anglovaal, Rembrandt and Liberty Life—are ultimately controlled by their founding families. The basis for shareholder concentration in South Africa is the listed pyramid company. This is essentially a legal device that enables dominant South African shareholders to finance expansion by the sale of corporate equity without relinquishing control of their underlying corporate assets. Other control devices employed alongside pyramiding are the use of shares with differential voting rights (Anglovaal) and cross shareholdings (Anglo American).

This corporate governance system has been bitterly attacked for the inequality it represents. Recently, however, it has been celebrated for the efficiencies that it is said to embody, insofar as it allows strong entrepreneurs to retain control of their assets and to act as effective disciplining agents over their managers. Moreover, the organisational form of these concentrations, the highly diversified conglomerates that span the economy, is said to facilitate the sharing of scarce technical, managerial and financial assets.

Our research calls these claims into question. We examined a number of South African manufacturing groups located within the dominant conglomerate structures and found little evidence of effective inter-firm sharing of technical and managerial resources.

R&D efforts were not co-ordinated, nor was export marketing. There was no discernable attempt to rotate key personnel between the firms within the groups—the only instance of staff rotation that we encountered covered members of a head office finance department.

In general, the composition of the manufacturing groups does not reflect a determined strategy. At best the composition of several of the groups reflected a historic strategy rooted in

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exploiting backward linkages from mining. However, the significance of these historic linkages has long since disappeared. Judged from the viewpoint of manufacturing strategies or synergies, the current composition of many of the major groups appears to be random. Indeed, they only make sense if viewed from the perspective of an investor's key strategic requirement for a *diversified* portfolio.

The engagement of the conglomerate board is reflected in strong financial ties between the corporate centre and its operating subsidiaries. An evaluation of a subsidiary's financial performance is the basis for decisions regarding the allocation of capital.

These decisions do not necessarily represent an effective sharing of capital. Certainly, many senior operating executives believe that those who control their financial lifelines know little of the operations or even sectors in which they are active. They understand that favourable treatment from their head office depends on the most recent financial statement and, in general, believe that these narrow evaluation criteria distort investment decisions against those who wish to strengthen their long-term capacities.

The performance criteria employed by the head office to monitor their subsidiaries are necessarily financial. In large part they arise from the practical difficulties attached to controlling such diverse interests. Diversity, in turn, arises from the investor's imperative to spread the risk attached to a given portfolio of financial interests.

Focus on narrow and short-term financial results is thus rooted in a corporate governance system in which non-managing shareholders are able to retain control of massive corporate centres. The controlling owners are no longer entrepreneurs—they control large and appropriately diversified portfolios of stock; the senior executives (who are increasingly stockholders themselves) are portfolio managers.

In the United States and Britain, the dominance of financial evaluation is associated with disruptively short-term investment horizons—shareholders, unable to control management, will exit an underperforming asset; managers attempting to mollify shareholders will focus on quarterly reports and share performance.

As in the United States and Britain, South African corporate strategy is similarly subordinated to narrow financial considerations. But there is a crucial difference, namely that South African investors, in contrast to their US and UK counterparts, cannot exercise their right of 'exit'. Their characteristic holdings are so large and, thanks to these ownership concentrations, JSE

'Focus on narrow and short-term financial results is thus rooted in a corporate governance system in which non-managing shareholders are able to retain control of massive corporate centres'

trading volumes are so low, that large sellers would risk seriously depressing the value of their holdings were they to attempt a significant bale-out.

This is what underlies the extreme conservatism, what Derek Keys has referred to as 'trustee-like' behaviour, of major South African corporations. Their 'patience' is not akin to that often attributed to German banks or Japanese stakeholders. It rather reflects the risk aversion of portfolio managers denied the ability to exit an investment whose financial returns are not competitive with average market returns. This is why the conglomerates hoard blue-chip stock and encourage their operating subsidiaries to engage in the anti-competitive strategies often associated with concentrated markets. It is a strategy that ensures a steady rate of return on shareholders equity; it positively discourages the risk-taking associated with long-term, innovative manufacturing strategies.

To a certain extent we are simply describing the consequences for governance of an equity-based, as opposed to debt-based, investment regime. The difficulties of moving from one regime to another are vast. Nevertheless, there are areas for policy intervention that might be considered. Certainly those macro-economic circumstances and tax regulations that favour equity over debt-based financing strategies should be addressed.

But a more fruitful area for policy intervention, concerns the extent of stakeholder participation. In a more broadly based corporate governance system, a system in which a broader range of stakeholders participate, financial criteria do not cease to be important in establishing corporate objectives and determining investment decisions; they simply cease to be the sole criteria employed.

We would recommend three policy interventions:

The first set of policies that we recommend seeks to encourage the corporate sector to 'deconcentrate' and, in the process, to sharpen the focus of their activities. Policy in this area would aim to accelerate the 'unbundling' process already initiated by major South African corporate groups, most notably Barlows and Gencor.

This process would be accelerated if the JSE prohibited the listing of pyramids or any other legal device used purely for the purposes of control. This should be accompanied by greater flexibility in the application of exchange control regulations. Where a local corporation begins to divest itself of particular assets in order to focus its activities, it may be necessary to enable the corporation to invest off-shore in its designated core

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areas.

Pyramiding and other control devices have recently achieved a new respectability—and the JSE has actually *relaxed* the limitations imposed on the use of these mechanisms—because of their ability to leverage corporate control on the part of black business interests.

We are, however, not persuaded by the argument that these devices be retained for the purpose of leveraging black ownership. Apart from the fact that the cost of extending a relatively miniscule share of corporate power to a handful of black business leaders is the maintenance of a device that supports widespread control by a handful of white shareowners, it supports a highly imperfect corporate governance system. The political strength of this argument should not be underestimated, particularly as other social groups, unions for example, start to buy into these portfolios.

Unbundling need not, of its own accord, significantly deconcentrate ownership and control. In the Barlows and Gencor unbundlings, SA Mutual and Sanlam have retained control over the more focused corporate groups that have emerged as a consequence of the restructuring exercises. However, simply achieving greater corporate focus is sufficient reason to warrant active support for the unbundling process.

The second set of policy recommendations focuses on the financial institutions, in particular the two large mutual societies, SA Mutual and Sanlam, the most active investors on the JSE. South Africans need to engage in the international debate concerning the ownership role of institutions. The fact that South African institutions—SA Mutual and Sanlam in particular—hold *controlling* interests in important South African corporations, makes South African participation in this debate both more urgent and more complex.

Where SA Mutual and Sanlam are concerned, the prior question that requires resolution concerns the control of the two institutions themselves. As mutual societies, they are nominally controlled by their policyholders, but are actually controlled by their managers.

There are certainly very clear grounds for insisting, as in the German codeterminist framework, on the appointment of a broadly-based supervisory board to which the executive managers are directly accountable. The current situation is highly undesirable—in effect the senior managers, the executive directors, appoint a number of non-executive directors to join them on the board. The policyholders are, because of the extent of their diffusion, effectively incapable of appointing a sufficiently representative board of directors or supervisory board. Unless

the mutuals are able to devise a process for securing a more broadly-based representation on their boards, representation that reflects the racial and social diversity of their policyholders, it may be necessary to reserve a number of board seats or appointments to the supervisory board to Cabinet or Parliament, acting on the advice of an appropriate ministry. Given the role of these institutions in the management of pension and provident funds, the unions are obvious potential participants in broader stakeholder governance of the financial institutions.

Will a shift in the control of the institutions impact on the manner in which they exercise control over their corporate assets? The core character of their portfolios will remain intact—these institutions are, by their very nature, conservative and cautious investors and are required to remain so.

Our intention is to institutionalise a system of governance that enables the policyholders, who clearly represent a considerably greater diversity of stakeholder interests than does the single dominant shareholder of the family-controlled conglomerate or the executive directors of the mutuals, to make an informed choice between investment options. This requires more broadly representative control structures. Given the scale on which these institutions operate, even a marginal shift in their investment criteria and practices may impact significantly on broader economic objectives.

The third set of policy recommendations would focus on extending stakeholder control, even within the context of concentrated ownership. There are several developments in this area. The slow trickle of black community and business leaders into non-executive positions on major corporate boards is an acknowledgement by the dominant shareholders and their representatives of the necessity to broaden stakeholder participation. However, non-executive directors are a very weak element of the South African corporate governance system and regulations aimed at strengthening non-executive shareholders should be investigated.

Potentially more fruitful interventions designed to strengthen stakeholder participation lie in the system of co-determination and strengthened corporate disclosure requirements. As already noted, we propose that a broadly representative supervisory board be imposed on Sanlam and SA Mutual. This could be extended to other corporations as well.

Corporate disclosure requirements in South Africa are, even if only judged from the narrow perspective of financial disclosure, exceedingly lax. We would wish to extend the disclosure obligations beyond the financial realm, the realm of

greatest pertinence to shareholders. A requirement that obliged companies to report market share, expenditure on new product development, export performance, jobs created and lost, expenditure on training, environmental impact, and social responsibility expenditure, would empower communities beyond the JSE, in the process imposing new performance criteria on firms. In our view these criteria are more productive of sustainable and equitable growth than those that rely on financial returns alone.

SMALL AND MEDIUM-SCALE AND MICRO-ENTERPRISE

A careful reading of international experience confirms the importance of developing a diverse national industrial structure. Neither 'small' nor 'large' will, on its own, underpin industrial dynamism. What is required is a co-operative blend of both.

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As already outlined, South Africa's industrial structure is overwhelmingly dominated by large firms and groups. The average size of South African plant is large compared to international norms. Vertical integration along production chains is commonplace.

There are, however, sectors of manufacturing in which SMEs are numerous—furniture, clothing and electronics, to name three examples. Our technology study confirms that in certain of these sectors, electronics for example, SMEs have a better R&D and innovation record than their larger counterparts. Whereas the large firms in the sector are able to defend their market share by continued reliance on licensing agreements, innovation is effectively the only route whereby small firms in the sector are able to maintain and extend their market access. However, the general picture is of weak and vulnerable SMEs.

This section of the report focuses on SMEs. Although manufacturing in the informal sector—micro-enterprises—is also very weak, the bulk of the enterprises that comprise this segment of manufacturing fall outside of the scope of our study. Micro-enterprises are largely 'survivalist' and incapable of interacting effectively with the instruments of industrial policy.

The ISP study on micro-enterprises does emphasise that these activities will be most effectively supported by policies aimed at improving the general physical environment in which micro-entrepreneurs live and work—the provision of housing, electricity, telephones, and transport facilities will significantly enhance the prospects of this class of producers.

The study has also found significant heterogeneity in micro-enterprise. Although conventionally treated as an undifferentiated

grouping, to the extent that industrial policy measures are deployed in their support, inter-sectoral distinctions are significant. Intra-sectoral distinctions are also important—hence in the clothing sector informal, micro-enterprise activity spans a range from survivalist activity through to skilled tailoring work, through to CMT operations on the cusp of entering the ranks of the formal sector. These latter activities may well benefit from some of the SME-directed industrial policy measures suggested here and, to the extent that the informal sector is incorporated within the ambit of industrial policy, it is these enterprises that must be targeted for support.

Lack of access to markets dominated by large, vertically integrated firms is the key obstacle confronting South African SMEs. We will emphasise policy—competition policy, market reservations mechanisms, inter-firm co-operation, trade policy—specifically directed at overcoming the entry barriers rooted in these hostile market structures.

However, altering, by whatever policy instruments, the structure and functioning of markets will not be sufficient to underpin SME development. Hence we make proposals specifically geared to supporting the enhancement of technological capacity in SMEs. Proposals directed at the system of industrial relations take cognisance of the particular problems encountered by SMEs. Institutional development is particularly significant with respect to SMEs and these receive due attention below. This conforms to our general approach that argues for the importance as well as the limitations of a market-based incentive structure, but it also acknowledges the particular market failures encountered in the sphere of SME development.

Before proceeding to a discussion of our policy proposals we should underline a conclusion of our, and many other, studies aimed at identifying the key factors underpinning successful SME. In brief, the previous technical and managerial experience of the entrepreneur is a persistently significant factor in accounting for successful SME ventures. This is a challenging conclusion for South African policymakers. Black South Africans have been denied technical and, particularly, managerial experience. Hence, those who conflate SME development with the access of *black* entrepreneurs to the formal economy may be in for something of a shock—in short, the development on a significant scale of *black-owned* SMEs may require specific targeting. One possible way forward that is suggested is the prior identification of areas in which black workers have acquired technical and managerial experience. Hence, workers in the auto-assembly industry, who have considerable high-

'Lack of access to markets dominated by large, vertically integrated firms is the key obstacle confronting South African SMEs'

level technical experience and who may be displaced by the tariff reforms in that sector, are a potential target for black-owned SME development.

SMEs and the Domestic Market: The Role of Competition Policy

South African SME operators identify circumscribed market access as the greatest obstacle to their development. SMEs frequently confront a dominant single firm as competitor, colluding input suppliers (that may well be part of the same corporate group as the dominant firm in the sector), and a concentrated retail sector into which the dominant competitor is, once again, vertically integrated.

The furniture industry is a case in point. AFCOL produces 40% of the country's household furniture. It is also the largest producer of foam in the country and it owns the largest producer of springs. SAB, the conglomerate that owns AFCOL, controls the largest producer of board, as well as the major producer of furniture upholstery. SAB also owns two of the country's largest furniture retailers.

This picture of concentration and integration is contrasted with hundreds of small, struggling, independent furniture manufacturers, who complained of collusive pricing of key inputs and their vulnerability in the face of extremely powerful retailers. Small furniture manufacturers complained of being excluded from the market because of their inability to meet the volume demands from retailers demanding product uniformity in their national chains. 'Exclusive dealing' arrangements, whereby large retailers prohibited suppliers from dealing with other competing retail outlets, were commonly cited. Summary cancellation of orders by retailers is commonly cited. Small producers are generally obliged to wait 120 days for payment from their large customers. The relationship between the retailers and manufacturers is dominated by tight social networks in which a small group of buyers (who are, without significant exception, white men), predominate. This further prejudices black manufacturers who have been historically excluded from these networks. The experience of small furniture manufacturers is mirrored in the clothing industry.

In order to support the development of SMEs, the competition authorities should monitor closely links between producers, suppliers and customers, particularly in the case of vertically-integrated ownership structures. SME development urgently requires that the Competition Board's power to prohibit anti-competitive horizontal mergers and acquisitions be extended to vertical arrangements. Persistent abuse of existing

'The previous technical and managerial experience of the entrepreneur is a persistently significant factor in accounting for successful SME ventures. This is a challenging conclusion for South African policymakers'

vertical integration arrangements should constitute grounds for the competition authorities requiring divestiture.

The Competition Board should also be drawn into the process of regulating joint ventures between multinationals and South African producers. Concentrated market structures are an oft-cited impediment to direct foreign investment. There is, however, evidence of foreign producers attempting to overcome these barriers by entering into joint ventures with South African companies dominant in the local market. While certain of these arrangements may strengthen South Africa's manufacturing base, a joint venture between a dominant South African firm and a large international counterpart may further raise entry barriers in the domestic and regional markets. If, on the other hand, the authorities responsible for regulating inward investment flows and competition facilitated joint venture arrangements between international producers and local SMEs, the structure of domestic markets would be positively influenced.

In general, beyond protecting SMEs from the consequences of an extremely 'imperfect' market, we envisage a more proactive role for the competition authorities in supporting these producers. One area in which the activities of the State may impact considerably on the fortunes of SMEs is in the area of government purchases. Researchers confirm that the SMEs are acutely disadvantaged by the excessively bureaucratic tendering and other regulations that govern State procurement, as well as by the high product specifications demanded. Here, a 'levelling of the playing-field' may be accomplished by a definite tilt in favour of procurement from SMEs.

A major difficulty associated with 'market reservation' measures of the sort suggested here, is the possibility that they amount, by way of higher prices and inferior quality, to a significant hidden subsidy on the consumer, in this case the taxpayer. The competition authorities, with their dual responsibility for protecting the interests of both consumers and small producers, may be ideally placed to monitor the impact of market reservation measures and to mediate between the various interests differentially implicated by these arrangements.

Current legislation permits, in the case of small producers, a suspension of limitations imposed by competition policy on inter-firm co-operation. Whilst actively facilitating co-operation between small firms is probably beyond the scope of the competition authorities, extreme care should be taken to ensure that competition policy does not conflict with the attempts of other agencies, private and public, to promote co-operation between small producers. This underlines our proposal

'In order to support the development of SMEs, the competition authorities should monitor closely links between producers, suppliers and customers, particularly in the case of vertically-integrated ownership structures'

regarding the necessity to co-ordinate competition policy with industrial policy.

SMEs and the International Market: The Role of Trade Policy

There is little evidence to suggest that present trade and industrial policy is concerned to integrate SMEs into the international market. Our proposals focus on export support policies that are intended to re-orient trade policy in this direction.

Our policy proposals are rooted in a strongly observed market failure: key inputs specifically related to successful export penetration cannot be acquired by SMEs through the operations of the market. The particular difficulties that confront SMEs in acquiring information pertaining to the exporting process, including access to domestic facilities aimed at supporting exporters, as well as intelligence regarding international markets, and the inaccessibility of credit guarantees and risk insurance facilities are strong exemplars of this market failure.

Our proposals focus, firstly, on the redesign of export subsidies and incentives so as to enhance their accessibility to SMEs; secondly, on refocusing those supply-side agencies, public and private, that provide export-related inputs in order to ensure a more effective service for SMEs; and, thirdly, facilitating co-operation amongst SMEs in the field of export marketing.

We have already identified the strong anti-export bias built into the current tariff regime. We have outlined the various subsidies and schemes—in particular GEIS and the duty drawback and rebate schemes—intended to countervail this bias. We have referred to private arrangements, partly encouraged by the official schemes, whereby local suppliers provide exporters with access to inputs at world prices.

However, closer examination reveals that the design and workings of these schemes, both official and private, privilege large firms over SMEs.

The rebate and duty drawback schemes are administratively complex and more easily processed by firms with sophisticated administrative and management systems; the rebate involves upfront financial commitments that small firms may be hard-pressed to meet. The private arrangements between input suppliers and manufacturers are more easily accessed by large firms with market power than by their smaller counterparts. GEIS is a results-based system and is only paid after the completion of the qualifying transaction, thus constraining small cash-strapped firms with limited access to credit.

‘Key inputs specifically related to successful export penetration cannot be acquired by SMEs through the operations of the market’

Whilst, attention should be directed at simplifying the administration of the rebates and duty drawback schemes, and the competition authorities should ensure that the private schemes are not distorted by yet another exercise of market power, it will be difficult to overcome the bias against small firms that is built into these schemes. It is preferable to design new schemes that directly address the key market failures. Hence, the ISP trade study strongly recommends the introduction of a pre-export credit system directed at SMEs.

Assessing South Africa's export promotional services against the requirements of potential SME exporters, leads to conclusions similar to those drawn after examination of the export subsidy programme: the programmes and the institutions responsible for their implementation are, despite being under-resourced, generally effective, but are relatively inaccessible to SMEs. SAFTO's big business bias and its 'whiteness' is reflected in the composition of its board of directors. However, although we strongly support a change in the composition of the SAFTO board, this alone may not suffice to refocus the organisation.

Government's contribution to SAFTO's annual budget has declined significantly. In 1992 government accounted for only 20% of a total annual budget of R22 million. The effective privatisation of SAFTO—its increasing reliance on the sale of its services—is the underlying reason for the organisation's growing distance from SMEs. Its less costly services do not provide sufficiently focused market information and its more effective services are too costly for SMEs.

There are a number of potential solutions to this problem that do not involve a significant increase in government's overall contribution to export support. The solution that we favour would see the lion's share of the government's subsidy to SAFTO earmarked for SMEs. This could be put to a variety of uses: it may be used to support marketing and technical support programmes specifically directed at SMEs; it may be used to subsidise the use by SMEs of private sector consultants. Government's contribution to SAFTO should be jointly managed with the Export Centre, the export promotion arm of the DTI. After 30 years of government support, SAFTO should be expected to break even in the sale of its services to big business.

In general, we would support a greater orientation towards export *promotion* as distinguished from export *subsidy* or *incentive* schemes. Export promotion, with its focus on marketing and technical supports, with its emphasis on intelligence gathering and training, provides inputs that are, through the market alone, far more easily accessible to large companies

'The ISP trade study strongly recommends the introduction of a pre-export credit system directed at SMEs'

than SMEs. This information is extremely costly to purchase and, in the absence of a domestic network of private consultants in this field, would involve the use of expensive foreign consultants. Public provision of this support would be of particular advantage to SMEs who would not be able to obtain this elsewhere.

These, essentially public-sector initiatives, may still not be sufficient to overcome the disadvantages faced by SMEs. International marketing is costly—particularly in a country located so far from its major markets—and is subject to considerable economies of scale. Substantial advantages may be derived from co-operating firms forging collective solutions: groupings of SMEs establishing trading houses is one possibility; large firms marketing complementary products for small firms is another. Government should give urgent attention to the restructuring of tax and export incentives that would encourage effective inter-firm co-operation in the area of international marketing.

‘We would support a greater orientation towards export promotion as distinguished from export subsidy or incentive schemes’

Technology Support for SMEs

There is no comprehensive data on the relationship between innovation and firm size in South African manufacturing industry. However, somewhat surprisingly in the light of the high levels of economic concentration that characterise industry, there is evidence from a range of sectors and subsectors, electronics and telecommunications equipment for instance, which suggests that SMEs account for a significant share of successful innovation. SMEs frequently devote a higher proportion of their turnover to R&D than do larger firms and SMEs feature prominently amongst local firms that receive design awards.

‘SMEs rarely receive significant support for their innovation activities from the public network of S&T institutions’

However, the evidence, while still somewhat fragmentary, also strongly suggests that these SMEs rarely receive significant support for their innovation activities from the public network of S&T institutions.

This is perhaps not so surprising. Hitherto government has not developed any policies aimed specifically at raising the technological capacities of SMEs. The absence of policy support has been reinforced by the absence of any institutional support. The elaborate and well-developed science councils, for example, have no mandate to particularly service the technological needs of smaller-scale firms. Furthermore, as we outline later (see the chapter entitled ‘Ensuring Technological Advance in South African Manufacturing Industry’ in Section 2), the requirement that the science councils recoup a much larger share of their expenditure from ‘the market’ has reinforced

their tendency to orient their activities to contracts with the larger firms, since such contracts are generally far more profitable than contracts with SMEs. Hence the increasing market orientation of the science councils, whatever its other virtues, has also served to further divorce the science councils from the SMEs, particularly from those SMEs which are technologically poorly resourced and which lack market power.

There are a variety of other channels by which firms are potentially able to enhance their technological capacities: relationships with customers and suppliers; associations and interactions with other firms in the same activity; and direct acquisition of technological services from private consultants or other firms. All of these are important potential sources of technological know-how. Indeed, there is international evidence to suggest that these mechanisms, which arise directly from a firm's conduct of its business and hence are private rather than public, are the most critical in enhancing the technological capabilities of SMEs. This is especially true where production is less technologically complex.

However, in South Africa, these private channels, too, are poorly developed. ISP researchers observed, in general, a pronounced lack of both horizontal linkages between manufacturing firms (links between firms in the same line of business) and vertical linkages (links between firms and their suppliers and customers). This is even more pronounced in respect of SMEs.

A variety of policies are proposed, throughout this report, which are designed to strengthen the horizontal and vertical linkages of South African manufacturing firms in general and, in this section, of SMEs in particular. But, in addition, in the absence of institutions directed at specifically supporting the technological development of SMEs, there is clearly the need to design and develop new institutional supports.

International experience is suggestive of the broad contours of the design of such institutional support.

Every group of SMEs and every individual SME will have particular technological needs and require very specific support in order to apply technology within its own environment. This suggests that 'technology delivery' to SMEs should be decentralised and access should be immediately and locally available. Generalised technological support will not be very effective. Support should focus on specific requirements.

In South Africa, there are significant regional agglomerations of SMEs—clothing in Cape Town, footwear in Pietermaritzburg and furniture in Randfontein—to mention just three examples. Decentralised, regionally- and locally-based institutions should be designed, therefore, to provide technical support targeted at

'Decentralised, regionally- and locally-based institutions should be designed, to provide technical support targeted at the specific requirements of SMEs in their immediate locality'

the specific requirements of SMEs in their immediate locality.

Furthermore, a considerable variation exists in the kind of technological support required by different categories of SMEs. One category of SMEs is sub-assemblers or component producers manufacturing to the specification of their customers, as in auto-components. These SMEs derive their technology from their customers and perform no, or very limited, R&D. Other SMEs produce for final consumers in more traditional sectors, such as clothing or footwear, where the pace of technical change is very slow. This category of SMEs may engage in incremental development and product design, but this is likely to be very limited. A third category of SMEs comprises modern, niche-based firms which are engaged in considerable innovation. These SMEs—New Technology Based Firms (NTBFs)—do undertake some in-house R&D, but they also tend to be highly reliant on external inputs into their innovative processes.

In South Africa, a similar spectrum of SMEs exists. Each of these categories of SMEs will clearly require different forms of technological support. However, there are also some common elements. Firms in all three categories will require assistance in order to effectively utilise new vintages of production equipment. This will generally entail training, particularly in South Africa, where poor basic skills of the work-forces in many SMEs retard their ability to adapt to the requirements of new technologies. An example would be shifting from the use of mechanical to electronically-controlled machinery. SMEs require regular information and updating on materials, components and machinery developments. They need assistance with quality control and meeting standards, and they need advice on productivity-enhancing procedures.

With the exception of the NTBFs, SMEs' requirements for technological support are generally 'low-level'. Their requirements are overwhelmingly met by 'off the shelf' production techniques. Institutional support is really technical rather than technological. The requirement is for information, advice and support in order to utilise what is already widely diffused and to effectively adapt this to local conditions and the requirements of the particular enterprise. Only NTBFs, which form a small proportion of SMEs even in the industrialised countries, require new or advanced technology and need to complement their in-house R&D with advanced technological inputs derived from other institutions such as universities, laboratories and other firms.

SMEs frequently require technical support in combination with support in a number of other related areas. In particular,

market information, education, assistance in coping with product standards and help in obtaining information and assistance in tendering, have proven to be important for SMEs in other countries. In South Africa, SMEs have particular problems in meeting tender requirements and in coping with product standards. Institutional support for advancing the technological capacities of SMEs should, therefore, simultaneously aim at providing informational support and assistance in related areas.

The deficiencies of the existent science councils in so far as meeting the technological needs of the SMEs is evident. *Inter alia*, the science councils—particularly the Council for Scientific and Industrial Research (CSIR) and the Council for Mineral Technology (MINTEK), but also the South African Bureau of Standards (SABS)—are highly concentrated geographically; they have a staff which is trained to offer support in more sophisticated technology than is generally required by SMEs, especially by the less technologically-advanced firms; and the technological support offered is not accompanied by support in other areas, such as marketing or training.

The conclusion is clear. New institutions, specifically targeting technological support for SMEs will be required. These new institutions will also need to be strongly linked to the existent science councils, the CSIR in particular. In effect, these new institutions would act as 'retailers' of technical information and inputs that they derive from the science councils in so far as the latter both develop new technologies in-house and are a major conduit for technology derived from abroad.

'International experience offers powerful support for the view that enhanced inter-firm co-operation may be the most effective means of supporting SMEs'

Inter-firm Co-operation

International experience offers powerful support for the view that enhanced inter-firm co-operation may be the most effective means of supporting SMEs. The most frequently cited evidence of inter-firm co-operation is found in the 'industrial district' literature. This refers essentially to regional agglomerations of small firms deriving and developing collective efficiencies through co-operation. Regions of Italy and Germany provide the strongest evidence of the economies derived through co-operation between competing small firms. There is, however, increasing evidence of these small firm networks in the Third World.

It is not only small firms that derive economies through co-operation. The relationship between large Japanese manufacturers and the networks of firms that supply them exemplifies co-operation between small and large firms and, given South

Africa's industrial structure, may offer more tangible prospects here than do the canonical industrial districts of the Third Italy.

There is very little evidence of this type of co-operation in South Africa. Indeed, the characteristic South African experience has tended to cast inter-firm co-operation in a particularly negative light. We have, for example, elaborated at length on the impact of oligopolistic collusion. Institutions putatively designed to forge inter-firm co-operation are generally dominated by large firms and, for the most part, are justifiably perceived to be little more than narrow sectoral lobbies.

The ISP has developed a range of proposals relevant to the issue of inter-firm co-operation. We have, for example, suggested the formation of trading houses in order to facilitate SME exports. Policy designed to encourage large firms to act as agents for small exporters has also been suggested. Our technology policy has underlined the importance of inter-firm co-operation in the area of technical support and technology diffusion, and this may be extended to the area of worker training and numerous other key productivity-enhancing activities outside of the scope of a single SME.

The potential for co-operation between small firms is substantially enhanced when viewed from the perspective of local or regional industrial policy. Policy directed at promoting inter-SME co-operation should be sector specific and should be focused on existing local agglomerations. We would go further than this and argue that the most effective *regional* industrial policy, is one that focuses on strengthening existing agglomerations. This is in marked contrast to the regional industrial policies long associated with apartheid that were predicated on dispersing industry—the notorious industrial decentralisation initiatives. Such regional industrial policy should also be distinguished from the current consensus that aims at using a variety of fiscal and other incentives to attract industry into one or other region. These two policies are, in effect, opposite sides of the same coin.

There are important existing local agglomerations of small firms in South Africa—the Western Cape clothing factories, the metal-working establishments on the East Rand, and the furniture factories clustered in Johannesburg and the West Rand, are three examples amongst many. The ISP report on regional industrial policy has identified the benefits that small firms in the furniture sector may derive from co-operation.

The lack of attention to the economies that potentially flow from these small firm agglomerations is, ironically, highlighted by the dense institutional environment in which they are located. At the sectoral level, there are trades unions, employer

'The most effective regional industrial policy, is one that focuses on strengthening existing agglomerations'

and professional associations and, frequently, industrial councils; the significant national institutions charged with supporting industrial development—for example the IDC and the SBDC, but also the various government departments and agencies—have local offices in the major industrial centres; each important regional centre has at least one readily accessible university and technikon; local government, despite obvious legitimacy problems and current uncertainties, is long established and well resourced.

However, there is little evidence of concrete effort aimed at bringing together these regional agglomerations with those institutions that may be able to enhance inter-firm co-operation. For example, the proudly-proclaimed industrial policy of Roodepoort, a West Rand city host to many small firms in the furniture industry, is focused on attracting high-tech industry. Its officials seemed blithely ignorant of the city's status as one of South Africa's centres of the furniture industry.

We offer three proposals aimed at strengthening local agglomerations of small firms:

The first is directed at our principal industrial policy support institutions, in particular the IDC and the CSIR. Both are highly centralised and, partly for that reason, incapable of effectively supporting regionally-clustered small firms.

In the case of both technology and financial support, we are certain that there is an important role for strong well-resourced national centres. But we are equally certain that effective SME support will only be provided by institutions closer to the ground than the current national financial and technological centres. There is a real danger that a combination of a widespread perception of the importance of SME development, dissatisfaction of the distance between local requirements and the highly centralised and somewhat lofty support institutions, and the powers of the new provincial governments, may produce a proliferation of weak, competing regional institutions.

The solution is either for the existing national institutions to develop stronger regional divisions or, preferably, for regional governments to set up their own institutions that effectively take responsibility for retailing the services provided by the centre, for intermediating between the national institutions and local firms. The ISP technology study has concluded that new institutions are required to facilitate technology diffusion to small firms. This may be apposite in the case of the financial and extension services provided by the IDC. Certainly, the structure of the SBDC, with its powerful head office, is wholly incapable of performing the highly localised tasks, including networking, that constitute the core of SME support.

'Effective SME support will only be provided by institutions closer to the ground than the current national financial and technological centres'

The second suggestion amounts to a plea for a recasting of regional industrial policy. International experience persuades us that inter-firm co-operation is the most effective form of support for SMEs; we are equally persuaded that existing regional agglomerations of small firms afford the most fertile environment for promoting inter-firm co-operation. However, as long as regional policy remains fixated on devising incentive schemes to attract new industrial investment, schemes that often imply potentially damaging competition between regions, it is unlikely to focus on strengthening its *existing* industrial capacities.

Thirdly, policy designed to support agglomeration of firms is unlikely to succeed in the absence of any organisational form at the sectoral level that holds the firms together. This is an extremely complex and under-researched area. Suffice it to say that the proliferation of business associations should not be mistaken for organisational strength. Many of these associations are little more than post boxes. Many of the associations, including some of the more active amongst them, were established to deal with tariff-related issues, and display little interest in the more complex supply-side issues that constrain the development of SMEs in particular. And finally, those business associations that do demonstrate some robustness, tend to be dominated by the larger firms in their respective sectors.

We have developed several policy proposals designed to strengthen sectoral business organisation—the ISP technology study has proposed sector partnership funds, which effectively make resources available to the organised representatives of employers and workers. However, much work remains to be done in this area. It is extremely difficult to strengthen voluntary organisation by administrative fiat. For this reason serious consideration should be given to making registration of firms with the sectoral business association compulsory, a common practice in many countries.

Encouraging productive co-operation between large and small firms is, if anything, a more daunting prospect than that of facilitating co-operation between small firms. We are not persuaded that either the social conscience or political expediency of large firms constitutes a sufficiently strong basis for ensuring co-operation. Our major concern in the area of large firm/small firm relations remains the strengthening of competition policy. We are convinced that large firms will focus on developing productive relations with their smaller counterparts only when they believe that they will be actively deterred from abusing their market power.

There are strong measures that may directly enhance market

‘Large firms will focus on developing productive relations with their smaller counterparts only when they believe that they will be actively deterred from abusing their market power’

access for small firms whilst simultaneously improving their relationships with large firms. We have suggested that government procurement be used to support small firms. It may, of course, also seek to achieve this objective by making evidence of a productive relationship with small firms a precondition for extending government support to large firms. Hence, a large firm's access to a lucrative government contract or to an IDC loan should, in part, be made conditional upon demonstrated commercial support for small firms. This requires further detailed research, but appears, on the face of it, to be a clear example of the sort of measure required to break down the relation of domination and subordination that characterises interactions between large and small firms in South Africa.

Currently, our human resources, forms of work practices and industrial relations systems are inadequate to meet the demands of industrial regeneration.

Some general observations can be noted:

- ◆ *Poor basic skills and task-specific production skills.* *Inter alia*, this is evidenced in the low level of literacy and the low proportion of the work-force trained to artisanal levels.
- ◆ *Low levels of investment in training.* While there are some notable exceptions, on average South African firms spend only 1% of their payroll on training: the equivalent figure in OECD countries is 4 to 7%.
- ◆ *Only artisan training is nationally accredited* and therefore portable.
- ◆ *Investment in education is skewed towards the tertiary level and is racially biased.* Within this sector the ratio between university and technikon students is heavily skewed towards the universities.
- ◆ *The proportion of matriculants passing mathematics and science is very low* and actually declined during the 1980s. Less than 2% of African matriculants passed mathematics in 1990.
- ◆ *There is a poorly developed system of wage regulation* resulting in intense distributive conflict, both in industrial councils (where they exist) and, most usually, on the shop-floor.
- ◆ *A number of problems characterise the industrial council system.* Key sectors of manufacturing—for example, paper and pulp and chemicals—do not have employer bodies. Only a few of the industrial councils have a wide coverage. Industrial councils are bureaucratic and inflexible, demanding dedicated personnel and substantial paperwork to fulfil the criteria of membership. These problems affect SMEs in particular.

HUMAN RESOURCE DEVELOPMENT & WORKPLACE ORGANISATION

In addition, ISP research has shown that:

- ◆ *Work practices are rigid and supervisory control is hierarchical and authoritarian.* There is a racially-entrenched division of labour on the shop-floor with strict, highly paid, and often unskilled supervision. This division of labour provides little incentive to management to acquire and deploy enhanced skills, or for workers to acquire skills.
- ◆ *There are large earnings differentials, both within the workforce (between labourer and artisan), and between management and workers.* Racial and gender differentiations in earnings remain features of industry and are a considerable source of conflict on the shop-floor.
- ◆ *The system of collective bargaining—particularly at the plant level—is characterised by adversarialism* and, as with the skills profile, is the outcome of the hierarchical and rigid mode of organisation; it also reinforces this work organisation.
- ◆ *Worker participation schemes (green areas, quality circles, suggestions boxes, briefing sessions, etc.) enjoy limited success on the shop-floor.* They are usually led by supervisors who frequently believe that workers do not have insights to offer.

Nevertheless, our researchers showed that in most sectors there are a few firms which are managing, despite the impediments of poor human resources and an adversarial context, to carve out a more progressive and productivity-enhancing route forward. At the firm level, ISP research found a number of agreements entered into on the plant-floor which provide for flexibility in exchange for greater decision-making. The agreements in such companies begin to suggest that co-operation around production issues is possible and will, in all likelihood, take the form of a negotiated agreement with both management and the trade unions accepting trade-offs.

At the industrial or sectoral level, in the major centralised bargaining sectors, demands have been tabled which highlight employers' concerns regarding questions of wage restraint, productivity and affordability. Trade union concerns for poor productivity performance are, at times, overshadowed by pressure from trade union members to preserve jobs and improve wages and working conditions. A number of significant industry-wide agreements (mining, metal, auto, clothing and textile) have been reached. These suggests the emergence of forms of co-operation and joint decision-making between the trade union movement and employer bodies. The test is whether this involvement will translate into a greater degree of co-operation over production issues on the shop-floor.

At the macro-national level equally significant developments have occurred, from the qualified participation of the labour

movement in State advisory bodies such as the National Manpower Commission (NMC) and National Training Board (where it participated in shaping labour law, human resource development, tripartite institutions, and education and training), to the establishment of the tripartite National Economic Forum (NEF) where economic policy and industrial restructuring were negotiated. A National Economic Development and Labour Council (NEDLAC) has recently been launched to replace the NMC and NEF.

While South African industry generally has been shown to be performing poorly, there are clearly significant exceptions. The problem is that these productivity enhancing practices, both at the plant level and at sectoral level, are not diffusing widely despite the fact that they do appear to offer firms considerable gains. Public policy should seek to overcome this market failure. Since these practices cannot be imposed from above (since their essence requires participation from below) we look to institutional arrangements to provide the space and the framework for negotiated agreements.

'Practices, both at the plant level and at sectoral level, are not diffusing widely despite the fact that they do appear to offer firms considerable gains'

ISP STRATEGY AND POLICY PROPOSALS

We advance a set of three interlinked policy directions—now widely referred to as an Intelligent Production Strategy—which is derived to increase productivity and promote efficiency.

1 *A wage-skill nexus*: the establishment of a nexus between skills, grading, training and wages, which attaches a fixed wage-relativity to a given skill.

2 *An approach which stresses co-operation and skills in the development of work organisation*, leading to working conditions that deliver more interesting and rewarding jobs while promoting greater efficiency.

3 *Democratic practices in the workplace*: decentralised structures of decision-making necessary to develop a co-operative and skilled approach to the design of products and processes.

The skill-wage nexus would operate through the establishment of a career structure within each industry. The lowest paid worker could, through nationally accredited training courses, progress along a 'career path' linked to the acquisition of clearly established skill levels. The incentive would be provided by the new appropriate pay rate. The implementation of a skill-wage nexus will necessitate substantial modification of the grading system:

◆ *The number of job grades will have to be reduced by broad-banding existing grades with similar skill levels into a broad,*

skill-level classification for the industry;

- ◆ *Grades will have to be redefined on the basis of skills rather than tasks;*
- ◆ *Grades will have to be structured so as to enable career progression through the establishment of benchmarks linked to agreed national streams and qualifications;*
- ◆ *Assessment methods will have to be introduced in order to recognise prior learning and experience with a view to regrading.*

Co-operation and skills in the development of work organisation would involve the progressive abandonment of restrictive work practices associated with narrow skills and strict job demarcations. The traditional distinction between direct and indirect labour could be eroded through the establishment of teams and the promotion of co-operation between different functions or departments (such as production engineering, sales, product design and marketing). Shop-floor workers should be involved in these cross-functional teams.

'Information disclosure by management, as well as the ability of management to mobilise information held by the work-force, are critical components of this decentralised competence'

Workplace democracy would require that managerial hierarchies and intense supervision be replaced by greater horizontal communication and group/self supervision; that worker rights be acknowledged and respected; and that unions be treated as legitimate stakeholders in the corporation. Information disclosure by management, as well as the ability of management to mobilise information held by the work-force, are critical components of this decentralised competence. A guaranteed voice for workers will not only contribute to democracy in the workplace, but in communicating their strategic thinking to workers' representatives, management will go some way to generate trust between themselves and workers, and hence gain the opportunity to increase efficiency.

The importance of democratising the workplace is winning converts amongst a few large companies such as Carlton Paper, PG Bison, Eskom, Murray and Roberts, South African Breweries, Nampak, Volkswagen and Rotek. Companies attempting to implement practices which move them to world-class status tend to view production as both a consultative and co-operative project. Where we found evidence of sophisticated worker participation through formal, structured, management-shop steward committees, many of the companies indicated that these ventures had been recently implemented. Preliminary indications suggested that they had resulted in improved productivity. As one company said, these structures result 'in a better relationship as employees are kept updated and informed on a continuous basis on progress, problems and the overall business requirements'.

However, since these practices have not diffused to the

majority of companies in the manufacturing sector, the problem of market failure is again highlighted. A number of policy mechanisms can be suggested to diffuse these desirable practices more rapidly and more broadly.

THE ROLE OF INSTITUTIONAL ARRANGEMENTS

The proposals suggested here cannot be achieved by merely persuading employers and workers or their representatives that an Intelligent Production Strategy is in their collective long-term interest. It is to social and political institutional arrangements that we must look to provide the appropriate consultative mechanisms to elicit the desired changes.

The heart of our policy proposals lies in the development of institutional arrangements. Appropriately designed, these will support the diffusion of the progressive, productivity-enhancing practices contained in the Intelligent Production Strategy.

Because of the potentially short time-frame of an agreement to co-operate, it is necessary to devise incentives and mechanisms to facilitate co-operation and establish institutional arrangements which do not rely on the temporary goodwill of management or on the current desire of unions to be involved in decision-making.

A number of mechanisms can be devised to promote the long-term co-operation necessary for productivity enhancement:

- ◆ Provide career-paths in which workers are able to achieve training and gain skills which are necessary for the firm, but which are also portable to other sectors.
- ◆ Attach economic reward to enhanced productivity through gain-sharing schemes which underlie the co-operative nature of work, which build team effort, and avoid fostering divisions between groups of workers in the workplace.
- ◆ Set up consultative committees to plan, implement and monitor workplace change.
- ◆ Change patterns of ownership within companies through employee shareownership schemes which provide for employee rights to nominate or elect representatives to their corporate boards of directors.

Concrete Policies

The first set of concrete policies relates to the education and training system:

1 *Establish a coherent national education and training system.* This will necessitate a national qualifications authority and a

'The heart of our policy proposals lies in the development of institutional arrangements'

'Provide career-paths in which workers are able to achieve training and gain skills which are necessary for the firm, but which are also portable to other sectors'

national standard-setting body.

2 *Link the national education and training system to a coherent human resource development policy.* This would be achieved by integrating the education and training systems by means of a common system of governance (planning, co-ordination, finance and administration) and a common certification structure (formally recognising that competency has been achieved or demonstrated to a particular standard).

3 *Work-related programmes should be a priority.* While general education will provide a base for future generations, the current work-force will be unable to respond to skill enhancement without the provision of adult basic education (ABE). Both formal education and adult education are important as basic requirements of the changing nature of work organisation. This non-vocational education is more geared to critical thinking, problem solving, and creative and innovative skills for life-long learning. The ISP, therefore, endorses the proposal made by educationalists, the ANC and COSATU, that ABE and general education be developed in an integrated manner toward a general education certificate equivalent to 10 years.

4 *The focus of the education and training system should be on skill acquisition and adult basic education (ABE) for the incumbent work-force and other adults, outside of employment, who were deprived of basic schooling, in addition to investment in general education.* Without this attention to basic literacy, the South African economy will remain on a low-skills trajectory and its competitiveness will depend on its ability to undercut low-wage countries.

5 *A close interaction and articulation should be established between post-school education and training through the provision of modular-based programmes.* This would allow portability of skills and engender flexibility in the provision of learning; 'exit point' qualifications of one programme should be recognised as the 'entry point' qualification to another. This would link different parts of the education and training system in a formally structured way, thus overcoming fragmentation and duplication, as well as removing barriers to learning.

6 *The National Training Board should be restructured to allow for a nationally coherent system.* The National Training Board could set frameworks for training, develop occupational certifications, and set competency standards for each industry. Such a national standards framework would cover both universal core skills and a wide range of specialisations and specify the level of competency to levels of skill. These standards would then inform the learning outcomes to be achieved in the curriculum

for all accredited courses and the levels of skills to be acquired and recognised in skills grading systems. This core/specialisation approach to skill standards makes it possible to locate the progress of an individual within the national system.

7 *An authoritative body, such as the proposed national accreditation and certification authority, South African Qualifications Authority (SAQA) would need to determine when courses meet appropriate curriculum contents, standards and methods.*

The second set of concrete policies relates to the industrial relations and collective bargaining system. While this is clearly a sensitive area, it will not be possible to move to a high productivity growth path without a degree of labour market regulation. Detractors are more likely to appreciate this when they interact with potential collective bargaining partners in a forum designed to discuss the competitiveness of their sectors.

The second set of concrete policies relates to the industrial relations and collective bargaining system:

1 *Develop a coherent collective bargaining system to cope with the diversity of industries, which meets the need for flexibility with respect to the system of bargaining, including both the level of bargaining and the range of issues to be bargained.*

2 *Establish a multi-tiered system of collective bargaining with appropriate frameworks set by each layer in turn. These tiers would include the enterprise level, the industry or sectoral level and the macro-national level.*

The enterprise level

1 *The current labour relations legislation (Labour Relations Act) should be revised to address the requirements for bargaining and joint decision-making at the enterprise level. This level is necessary for the central project of altering and reorganising outmoded forms of work organisation in order to secure productivity enhancement.*

2 *Specify structures for co-operation (such as joint shop-steward management committees or workplace forums) to oversee and monitor developments at the enterprise level. In the absence of legislation, mechanisms such as a code outlined in the LRA should be investigated to develop workplace institutions of industrial democracy at the enterprise level.*

3 *Include guidelines for the establishment and scope of teams, hierarchies within the enterprise, and the nature, extent and selection of education and training to be targeted.*

4 *Develop different forms of governance that enhance greater worker involvement in company decision-making, from workplace forums to the participation on boards of directors.*

'It will not be possible to move to a high productivity growth path without a degree of labour market regulation'

5 *Develop a two-tier wage policy framework: minimum rates per skill category at the industry level and productivity-based rates at enterprise level to serve as an incentive for workers to engage seriously with productivity, as well as a reward for productivity improvement.*

The industrial or sectoral level

1 *Encourage industrial or sectoral level bargaining.* This is critical to the success of the Intelligent Production Strategy, since bargaining at this level is a precondition for proactive, strategic involvement of trade unions in restructuring, workplace change and productivity improvements.

2 *Establish a centrally-determined wage system.* This would go some way to distance the shop-floor from conflict over distributive issues (particularly wages).

3 *Set a realistic minimum floor at the industrial level.* This would enable employers to 'buy-in' to centralised industrial bargaining.

4 *Establish industry agreements to alter the grading system in order to enlarge and enrich job definitions.* This would be a precondition for the development of a skills-wage nexus and would provide a mechanism by which productivity-enhancing forms of work organisation could be diffused.

5 *Set industry standards for training appropriate to the new skills-based grading system.*

6 *Develop mechanisms to encourage employers to establish representative bodies and to bargain industrially.* One such mechanism derives from the expected productivity improvement flowing from the flexible work practices and enhanced skill levels of the work-force, achieved through the nexus of skills, wages, grading and training. Since this nexus can only be bargained for an industry as a whole—given the need to set industry standards which fall within the national qualification framework—unorganised sectors will be denied access to these likely benefits to work organisation.

7 *Currently unregulated sectors should either be self-regulated (via collective bargaining) or State regulated (via wage determination).* The policy suggests that the Department of Manpower plays an active role in extending agreements, as defined by the Labour Relations Act, and that the Wage Board (with tripartite representation) be restructured so that it can effectively carry out its original intention to regulate terms and conditions of employment where no collective bargaining structures exist. Rather than be faced with the prospect of wage determinations established by the Wage Board, employers may prefer to sit down

'Bargaining at this level is a precondition for proactive, strategic involvement of trade unions in restructuring, workplace change and productivity improvements'

with labour and negotiate a wage outcome sensitive to the interests of both parties.

8 *Enhance the poor representivity and institutional capacity of industrial councils* in the following ways:

- ◆ make them into more user-friendly, one-stop institutions, able to handle all employer payments in a simplified and streamlined manner (such as the collection of employment-related taxes, levies, etc.) through one form and one payment, and
- ◆ establish an exemptions policy and practice as well as a dispute resolution capacity;
- ◆ extend their jurisdiction to include, for instance, engagement in the formulation of industrial plans. This would be advantageous to both parties since it would secure the commitment of their respective constituencies to this restructuring and thereby help to avoid industrial conflict.
- ◆ enhance the organisation and representivity of parties to the industrial relations system and, where necessary, upgrade their professional and technical expertise. This would promote effective negotiation and adherence to agreements.

9 *Ensure flexibility for particular companies, sub-sectors or regions.* A creative response to the cumbersome and bureaucratic style of industrial councils could include moving away from complex and rigid agreements. This would lower the barriers to entry, and could be achieved, as suggested by COSATU's NALEDI, through:

- ◆ simplifying the administrative work needed for compliance;
- ◆ making some concessions, for a limited time period, to SMEs in the start-up phase;
- ◆ making simpler, more basic schedules for certain categories of SMEs;
- ◆ linking exemptions or applicability of special conditions to registration of the SME concerned, and by not attempting to be punitive where survivalist micro-enterprises are concerned.

10 *Encourage an interface between the industrial level and sectoral initiatives.* Bargaining or discussions may be needed at the sectoral level within a specific industry (such as the auto sector within the metals sector). This could assist to manage the adjustment process of restructuring within that sector through the establishment of sectoral partnership and adjustment funds. South African manufacturing may yet count itself

extremely fortunate that many of its key sectors are governed by centralised collective-bargaining arrangements. Certainly, the ability to diffuse more productive forms of work organisation throughout the engineering industry, for instance, is enormously enhanced by the agreements reached in industrial council wage negotiations between NUMSA and SEIFSA, as well as between NUMSA and AMEO (the Automobile Manufacturers Employers' Organisation).

The national level

1 *Provide for the articulation of labour and human resource policies with broader, national, economic and social policy objectives at the national level.* The National Economic Development and Labour Council is in a position to address this co-ordination and articulation through a labour market policy which correlates to an industrial policy framework. This body would need to specify adjustment mechanisms for workers in industries being restructured.

2 *The National Economic Development and Labour Council should investigate a social accord (or incomes policy) between the major stakeholders in society so as to implement the Reconstruction and Development Programme and to base economic policy decisions on negotiated compromises.*

3 *The trade union movement should facilitate on-going shop-steward education, on an industry basis, around work organisation, grading systems, skills development, and training and manufacturing performance. Policy could include public funding of such education as part of a social accord. Organisational development will need to become a priority area for trade union educators and trainers, as demands are made for sophisticated plant-level negotiations over work design, productivity enhancement and co-determination. Both unionists and managers are going to require increasing skills and expertise. Sector Partnership Funds could be utilised to enhance such skills.*

'South African manufacturing may yet count itself extremely fortunate that many of its key sectors are governed by centralised collective-bargaining arrangements'

SEQUENCING AND FINANCING

The above proposals and policies are designed to integrate the requirements of a high-productivity manufacturing sector with the education and training systems and the collective bargaining and remuneration systems. While very important, these proposals and policies will only produce productivity gains over the medium to longer term. Nevertheless, in the short term, productivity gains are possible from the reorganisation of work, the recognition of skills in the highly experienced manufacturing work-force and the fostering of co-operation between

management and labour. Rather than wait for policy recommendations or legislations from the new government, the tripartite fora or other bodies, management and labour can begin to set the framework and reap the benefits which will flow from these proposals.

Sequencing

The ISP focus on labour market interventions on questions of work organisation, payment, reward and incentive systems, and industrial relations, arises because these produce more rapid results than do those derived from education and training systems.

1 *Attack rigid and hierarchical forms of work organisation.* It is clear from our sectoral studies (especially clothing, automobiles and household electrical durables) that a short-term thrust, designed to unlock the skills and experience from the hierarchical and authoritarian forms of work organisation, would enhance productivity substantially. This would involve revising incentives (including remuneration, grading systems and improved flexibility), forms of supervision, and production organisation necessary to deploy these skills. A workplace organised along these lines is characterised by team work, reduced hierarchies, with a de-emphasis on the quantity of supervision and an emphasis on leadership and coaching.

2 *Redesign the elaborate grading systems to allow for the flexible deployment of labour.* The ISP proposals around a wage-skill nexus suggest mechanisms to achieve this. These policies would effectively reduce the wage differentials between lower and higher skilled workers, and eliminate narrow job categories defined by task-specific grades, allowing for flexibility and giving workers an incentive (together with the workplace empowerment proposals) to commit themselves to work re-organisation and productivity-enhancing strategies.

3 *Diffuse workplace innovations by making available experts and professionals specialised in the field of work organisation and human resource development.* The policy implication here would be for a body such as the National Economic Development and Labour Council, or a restructured National Productivity Institute, to

- ◆ maintain a register of approved consultants for use, on request, particularly by those small and medium-size enterprises which lack resources;
- ◆ establish a set of guidelines which outline those issues which impact on productivity and which would require attention by the consultants;

'In the short term, productivity gains are possible from the reorganisation of work, the recognition of skills in the highly experienced manufacturing work-force and the fostering of co-operation between management and labour'

- ◆ provide a consultant's report on work organisation prior to the disbursement of financial support by bodies such as the Industrial Development Corporation and Small Business Development Corporation;
- ◆ partially fund the work of such consultants.

In this way, both management and trade unions would contribute to the guidelines which would assist the respective parties at plant level to participate in and finally endorse the consultant's recommendations.

While these proposals are comprehensive and far-reaching in their implications, they are not unattainable. They resonate with agreements reached in both the engineering and automobile industries, which essentially recast the operation of the incentive structure on the shop-floor. These agreements specify

'These proposals resonate with agreements reached in both the engineering and automobile industries, which essentially recast the operation of the incentive structure on the shop-floor'

- ◆ a revision of the grading system to allow for fewer skilled-based grades which accord with a national grid;
- ◆ the development of standardised training modules to defined competency levels for each skill level;
- ◆ specialist operational skills and core skills (such as communication and problem solving) in the training modules appropriate to each skill level;
- ◆ the provision of an education and skills assessment with accreditation through recognition of prior learning procedures;
- ◆ the reduction of differentials in earnings between the bottom skill level and the artisan (moving to 60% of the artisan's rate of pay) with a 10% differential between each skill level;
- ◆ the provision of certificates detailing both skill and competency levels according to industry standards, such as those set by industry and education training boards. These agreements also accord with National Training Board recommendations on the integration of the training and education system.

Financing

A critical issue that needs policy recommendation is the source of financing for this qualification system and skill-based training and education system. It is clear that employers will only invest more if there is a mechanism to promote high standards to ensure quality (such as a National Qualification Framework) and that this investment leads to increasing productivity.

There are a number of policy options which could be explored.

1 *Tax expenditure to relieve companies of the financial burden of training.*

2 *A training levy (as a percentage of payroll) to generalise and deepen expenditure allocated to training.* Many countries have accepted this, for instance, Australia has a national training fund of 0.5% of the annual wage bill. Australia's fund is subject to increases, over an unspecified time period, to the OECD average (4–7%). Clinton's administration in the USA has recently suggested a figure of 1.5%, while Sweden also operates a training levy.

3 *Industry-negotiated agreements between labour unions and employer federations to increase investment by the private sector.* These may include expenditure on in-service training, with agreements on eligibility and financial contribution to external training, and workers' and companies' contributions to paid education and training leave.

4 *Specify special public funding arrangements for labour market programmes, including the unemployed, and for industry-linked labour market programmes.*

5 *Link the allocation of funds for education and training to targeted criteria (as the NTSI suggests) such as*

- ◆ supporting training in firms or sectors which otherwise would be unlikely to provide adequate training (including micro-enterprises, SMEs and targeted programmes for reconstruction and development);
- ◆ providing some preference to projects which direct resources to historically under-supported groups (such as women workers and front-line blue-collar workers);
- ◆ giving preference to projects which incorporate workplace transformation objectives among the project goals;
- ◆ linking funds to South African Qualification Authority (SAQA) accreditation since accreditation addresses the question of quality, relevance, credibility and efficiency.

These proposals raise enormous challenges to both organised labour and managers of capital. The central question facing the trade union movement is whether it has the capacity, in terms of organisation, education, research and leadership, to pursue such a strategy of industrial renewal. On the other hand, will management be able to overcome its deep opposition to 'interference' with its prerogatives, and be able to change its position and regard workers as a valuable resource and trade unions as legitimate stakeholders in the economy? We have suggested here that social and political institutional arrangements offer the most scope for opportunities as well as obligations on the part of both employers and labour.

Clearly, there are areas of potential conflict in these

'These proposals raise enormous challenges to both organised labour and managers of capital'

recommendations. There is also no guarantee that the efforts will succeed in overcoming the distrust that has built up among the parties. Nevertheless, these proposals and policy recommendations do begin to address the needs of both parties with the view to securing the long-term future of the manufacturing sector. They offer labour an opportunity to contribute towards and enhance production efficiency through education and training processes, and procedures for consultation, information sharing and negotiation. At the same time, these recommendations constrain managerial prerogative to reorganise the workplace unilaterally, or to view workers merely as a cost, or their relationship as short term. They offer management an opportunity to involve workers in the decisions that ultimately impact on productivity and thereby ensure that the company succeeds in meeting the challenges of domestic and international competition.

ENHANCING TECHNOLOGICAL CAPABILITY

WHY HAVE A TECHNOLOGY POLICY?

Governments have long supported scientific and technological development in the advanced industrialised countries. Support has been validated by clear demonstrations, both empirical and theoretical, that, if left to the market, the level of investment in generating new advances would be less than is socially optimal. By contrast, until recently, the prevailing consensus was that the developing countries were simply technological borrowers; users of technologies developed by the advanced countries. As with the purchase of all other goods, it was argued, the consumers of technology would be best served by the operation of freely functioning markets.

However, as the industrial history of the NICs has most vividly demonstrated, technology transfer is unlike the purchase of other products. Effective identification of an appropriate technology, let alone its operation or adaptation, requires active investment on the part of the recipient country. As with the generation of new technologies, the level of investment undertaken to acquire and absorb technology from elsewhere is similarly likely to be suboptimal and render transfer wholly or partially ineffective, that is, be similarly subject to market failure. Moreover, with the quickening pace of technological advance impacting ever more directly on the competitive positions of firms and countries, technology policy has moved to the forefront of policy making. Many countries have adopted comprehensive technology policies, the NICs being only the

most evident. For the most part, these policies have been integrally linked to broader policies of industrial development.

THE CURRENT SITUATION IN SOUTH AFRICA

South Africa currently has no such technology policy. The few programmes (all recent) which are in place to support technology development within firms are wrongly cast and not linked to an overall policy to secure technological advance as a component part of a strategy for industrial development.

There is not only a lack of policy. The very institutional mechanisms which govern and co-ordinate policy making, and which manage the national S&T system, are seriously deficient. *Inter alia*, this system is characterised by:

- ◆ a divorce between the management of science and the management of technology;
- ◆ a very high level of fragmentation (with the areas of strategic research such as defence and atomic energy being separately funded and managed);
- ◆ no agency with oversight of the entire S&T system.

Policy and institutional shortcomings prevail within a context in which it is clear that, while overall investment in S&T is reasonable in South Africa (that is, by comparison with other countries at similar stages of industrial and economic development), much of this investment is 'politically' motivated (armaments and atomic energy, in particular) and not market competitive. Moreover, the overall investment in R&D in South African manufacturing industry is declining. The same decline is evident in respect of S&T outputs, such as patents. A strong feature is that South Africa, in contrast with the NICs, currently performs far more strongly in science than in technology.

Analysis of the overall data for S&T expenditures and outputs therefore suggests two first order policy priorities:

- ◆ Increase investment in enhancing technological capacities.
- ◆ Ensure that scientific advance translates more effectively into technological applications.

At the level of the firm, ISP research found that technological effort tends to be highly localised in R&D departments. Some notable exceptions apart, there is very little attempt to advance incremental technological change through involving the entire work-force in innovation. Firms' innovatory activities are rarely linked to other performers of S&T—either the science councils or tertiary education institutions. Technological links between firms and their suppliers are unusual. While customers have a significant impact on product design, especially

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in consumer goods, it is rare for customers to actively encourage their suppliers to enhance their own design capacities.

As is characteristic of inward-oriented manufacturing elsewhere, South African firms are generally effective in securing good operational capacities from imported technologies and adapting these to local manufacturing conditions and inputs. However, firms are far weaker at constantly customising products to the changing needs of the market. By and large, South African firms are content to reproduce the broad product characteristics and, despite some generally minor adaptations for local inputs and manufacturing conditions, the process characteristics which prevail in the market of the technology supplier. Analysis of technology importation, especially that effected through licence agreements, revealed that technology importation is very frequently accompanied by a range of restrictive clauses. Most significant here are the restrictions imposed on the local licensee in respect of exporting—export restriction being especially prevalent in auto components, paper products and plastics. Many local manufacturing firms appear content to continue to rely passively on technology importation, and do little to ensure that they progressively acquire the ‘know-why’ from their licensors. Here the larger firms with more market power are particularly in evidence. Technology importation functions as a substitute for, rather than as a supplement to, enhancing the local firm’s own technological capacities.

While we were able to identify some South African manufacturing firms, across the different sectors, whose technological capacities were advanced and who were situated close to the international frontiers, it is evident that there are severe deficiencies, both in the overall magnitude and in the characteristics of the technological capacities currently acquired by most South African manufacturing firms. A number of policies are proposed to address these problems.

POLICIES TO SUPPORT TECHNOLOGICAL CAPABILITY BUILDING IN INDUSTRY

◆ We have noted the limited commitment of South African manufacturing firms to invest in enhancing their technological capabilities and, particularly, in designing and developing products that require constant adapting to the changing needs of their customers. Currently, inadequate incentives and pressures are transmitted by the market as a result of the limited extent of competition in the domestic market and the barriers imposed by trade policy on the international market.

There is evidence that manufacturing firms located in the

‘Many local manufacturing firms appear content to continue to rely passively on technology importation, and do little to ensure that they progressively acquire the ‘know-why’ from their licensors’

more competitive segments of the domestic market, as well as those focused on export markets, are more active in advancing their overall technological capacities and in harnessing these capacities to meet the particular requirements of their discriminating customers.

A more competitive environment will be an important factor in compelling firms to enhance their technological capacities. Therefore, a more export-oriented trade regime, import liberalisation and the promotion of competition, while clearly outside of the ambit of technology policy proper, will be integral to the design of policies aimed at enhancing the technological capacities of firms.

However, a too rapid rate of import liberalisation could adversely affect technological capacities. Furthermore, merely enhancing competitive pressures on local manufacturing firms will not lead, in the absence of additional substantive policy measures, to the development of technological capacities to the extent necessary to support export expansion. A more proactive set of policies is required.

◆ In 1989, government initiated its first programme designed to support technology development at the firm level. This was the Innovation Support for Electronics (ISE) programme. Its declared success resulted, in April 1993, in a similar programme being extended to all manufacturing firms. This is the Support Programme for Industrial Innovation (SPII).

The support for firm-level innovation under the SPII is to be welcomed. However, in the light of evidence that innovation expenditure in some industrial sectors does have a particularly large positive impact on the capacity to innovate in other sectors (technological externalities and spin-offs), this programme should become more sector specific. The SPII should target those sectors where technological innovation is characterised by more positive externalities and technological spin-offs.

◆ We note that South Africa is very unusual in that business funds more research expenditure in the public sector than government funds in the private sector. Moreover, in a growing number of countries, R&D expenditure enjoys some fiscal incentive, while in South Africa this is treated as an ordinary expense. The experience of other countries suggests that fiscal incentives to promote R&D are successful, and there is evidence to suggest that firm-level expenditures on R&D would respond similarly in South Africa.

We therefore propose a permanent tax credit for incremental firm-level R&D expenditures. Tax credits may be open to abuse, but the social benefits are significant. The experience of many countries suggests that such credits are ultimately enhan-

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cing of fiscal revenue. R&D expenditure is a long-term investment, and the permanent nature of the credit is designed to allow businesses to plan their R&D activities in a policy-stable environment.

◆ The lack of inter-firm linkages in the promotion of technological development is underscored by the prevalence of industrial associations whose *raison d'être* is lobbying for tariffs. A more liberalised trading environment would undermine this activity but, in addition, government could take more positive steps to encourage these associations to engage in developing the technological capacities of their members.

To this end, we propose a sector-level partnership fund which industry associations (if they can demonstrate widespread support amongst their own constituents) could access for projects that would enhance the technological capacities of the sector as a whole. Access could be enhanced for those projects which also enjoy the support of other industry stakeholders, such as organised labour, thus strengthening tripartite policy initiatives.

◆ In South Africa, public sector procurement has traditionally been used (particularly in certain sectors such as telecommunications equipment) to promote technological capacities. This has not always been successful and such government support has recently been significantly reduced.

Past policies were poorly conceived. In particular, they were very broadly cast and aimed at securing local self-sufficiency.

We suggest that this policy should be reformulated. Government procurement, as a means of supporting innovation in industry, should be applied only in respect of products in which South Africa has a clear potential to become an internationally cost-effective producer. In particular, there are significant prospects in the case of new investments linked to the RDP, where non-marginal increases in demand for domestically designed and developed products could provide a platform from which exports could be developed.

◆ South Africa's comparatively strong showing in scientific output and the very limited extent to which this is translated into technological applications has already been noted. There is clear evidence of weak linkages between industry and the universities—which are principally responsible for scientific research.

Government has, thus far, made no attempts to strengthen linkages between universities and firms. There are a variety of mechanisms which could promote these linkages. These include increasing the financial involvement of business in university research; government support for application-oriented

'We propose a sector-level partnership fund which industry associations could access for projects that would enhance the technological capacities of the sector as a whole'

research in universities; support for teaching programmes which combine technical and scientific study with the study of the management and operation of manufacturing activities; and governmental programmes to support technological partnerships between universities and firms. There is a wealth of international experience to draw on in this area.

◆ Under the system of framework autonomy, the scientific councils are highly market-oriented. This has led to two principal problems. Firstly, their links with those firms who are less technologically sophisticated and/or firms who enjoy less market power are weak. This applies particularly to the SMEs and we have made proposals in this regard (see the section on SMEs).

Secondly, the science councils tend to focus on the short-term needs of their clients and to neglect longer-term investments, particularly those in more generic and risky technologies. We propose that this be rectified by changes to the national S&T management system. An agency or ministry should be empowered with the task of ensuring that adequate longer-term technological capacity-building is undertaken within the science councils.

◆ The passive reliance of many South African manufacturing firms on the importation of technology, principally via licensing, has already been noted. Licensed technology from abroad is generally expensive and contains numerous restrictive clauses, particularly regarding exports. The ISP found considerable evidence that many South African firms (particularly larger companies whose exclusive access to technology or trade marks from abroad help buttress their market power) are content to passively rely on their licensor rather than engage in developing their own in-house technological capacities.

The DTI maintains a largely *laissez-faire* policy in regard to licence agreements. The DTI's concern is, firstly, to limit the payment of royalties by imposing a broad ceiling on the royalty rate and, secondly, to limit the imposition of export restrictions. It is unlikely that these measures have the desired effect. In any case, we would suggest, the objectives of the DTI are wrongly cast. The key objective should be to ensure the maximisation of the technology transferred rather than the minimisation of the price of transfer. Access to 'know-why' as opposed to mere 'know-how' should be sought, and the most effective way of ensuring this is to require the extensive training of local personnel as a condition of technology transfer. Once again, there is extensive experience of this, notably from the NICs.

As regards the price at which technology is transferred, there are many asymmetries in the market for technology—for exam-

'Government has, thus far, made no attempts to strengthen linkages between universities and firms. There are a variety of mechanisms which could promote these linkages'

ple, only the seller of the technology has knowledge of its potential and actual worth. The determination of a 'fair' price is, therefore, likely to be impossible. However, government has a role to play in providing information to local firms as to the alternatives available and the transfer prices and terms secured by firms in other countries. Such information and support is available, notably from UNIDO, and is utilised by a number of countries. This would enable a local licensee to assess more accurately what is likely to be a realistic and achievable price for the technology. In addition, government has an important role to play in strengthening the selection and negotiating skills of local firms in relation to technology acquisition.

◆ Current government policies to promote technological advance in industry are, as we noted above, very limited. Moreover, they are stand-alone policies and are not considered in relation to broader policies for industrial development.

'Government has an important role to play in strengthening the selection and negotiating skills of local firms in relation to technology acquisition'

In conformity with our view of industrial strategy, and we believe in conformity with the approach taken by those countries which have had effective policies for technology promotion, we propose that a comprehensive technology policy be developed and implemented as an integral component of an over-arching industrial strategy.

◆ We noted earlier that the lack of a comprehensive policy for technology in South Africa is complemented by serious deficiencies in the system for the management and co-ordination of the national S&T system. We would like to highlight certain principles upon which the national management system for S&T has been erected, namely, the separation of science and technology; the high degree of fragmentation of the system, with the research activities of the 'strategic' sectors and the universities having a high level of autonomy; and, most importantly, the lack of any organisation with oversight of the entire system.

While noting that there is no one optimal organisational design, we have emphasised the need for a co-ordinating agency, such as a ministry, with oversight of the entire system. The agency would, *inter alia*, ensure the integration of policies with respect to science and technology; link the research activities of the science councils and the universities to the needs of industry, and require that the research activities of the strategic industries are managed with reference to broader S&T policy objectives. Amongst the agency's functions would be to translate the broad goals set for the S&T system by Parliament into thematic goals for the various S&T performers and to lobby for, and represent, S&T with regard to the budget. But the agency's most critical function is to ensure that the long-term capacity

building for the S&T system is not neglected. The recent establishment of a Ministry of Arts, Culture, Science and Technology, for the first time, provides the potential for such a co-ordinating agency, although its precise functions and its role in advancing technology are still to be determined.

Finally, we note that, historically in South Africa, government has been strongly interventionist in promoting technological advance in certain technology-intensive industries and that such interventions have been, in terms of their objectives, quite successful. In general, and more particularly in the light of the targeted interventions of the past, we are confident that the policies to advance technology in manufacturing industry that have been outlined above are well within the capability and resource constraints of government.

BUILDING INSTITUTIONAL CAPACITY

INTRODUCTION

'In settings as diverse as Japan, Germany, Sweden and Korea, institutions have managed highly successful attempts at rapid and sustainable industrial growth'

Industrial policy is strongly criticised for what is perceived to be its systemic reliance on institutional capacity, and, hence, its susceptibility to 'bureaucratic failure'. This danger is intensified in the case of the application of industrial policy in Third World countries where, it is argued, there is a lack of the political capacity necessary to monitor powerful institutions, and insufficient technical and administrative capacity to ensure their efficient functioning.

Proponents of industrial policy have developed a number of responses to this charge. It has, for example, been pointed out that the most market-conforming strategies and policies themselves rely upon considerable institutional capacity. Similarly, even the most *dirigiste* of industrial policies accepts an important role for market relations: *guiding*, rather than *substituting* for the market has become the generally accepted *modus operandi* of industrial policy.

However, it is widely acknowledged that the successful formulation and implementation of industrial policy does demand institutional capacity. It is frequently pointed out that in settings as diverse as Japan, Germany, Sweden and Korea, institutions have managed highly successful attempts at rapid and sustainable industrial growth. Hence, there is now a growing body of theoretical literature and empirical research that attempts to identify those features that distinguish effective institutions from their inefficient and, frequently, corrupt counterparts.

Institutional development and reform has played a central role in our analysis to date: our trade and competition policies, our approach to human resource and technology development, our attempts to bolster SMEs, all rely upon the strengthening and refocusing of existing institutions and, occasionally, on the establishment of new institutions.

South Africa's institutional capacity must be assessed

against the following requirements of industrial policy:

Firstly, industrial policy is directed at overcoming market failure. The failure of markets to generate and nurture the key capacities that underpin manufacturing competitiveness is well documented. So also are significant externalities, positive and negative, inherent in the industrialisation process. We have, in this report, focused on critical market failures in the areas of technology, human resource and small and medium enterprise development. South Africa's manufacturing sector has an underdeveloped skills and technological base, weak SMEs, and a poor record of inter-firm co-operation. An industrial strategy which seeks to place South Africa on a high productivity growth path will, therefore, require considerable institutional capacity.

Secondly, the process of industrial restructuring will be accompanied by significant social and economic dislocation. This imposes particular short-run demands on institutional capacity. We have rejected the quick-fix policies directed at immediate and radical restructuring—programmatically liberalisation and currency depreciation, for example. We also reject the use of subsidies and trade barriers aimed at maintaining the present industrial structure. Rather, the core elements of our industrial policy revolve around the development of our underlying manufacturing capabilities.

There are potential difficulties associated with this strategy, as, indeed, with any restructuring programme. In particular, there is likely to be a time-lag before one reaps the benefits. The interim period, in which unsustainable elements of the old structure wither away, is likely to precede the strengthening of productive elements and will, therefore, be associated with considerable transitional pain. Moreover, the pain of restructuring may be unevenly distributed between regions, sectors and segments of the labour market.

If this aspect of the restructuring process is not addressed there is the real prospect of one or all of the key industrial actors, particularly those in declining sectors, withdrawing support for the restructuring process. Unions will be under pressure from their membership to refuse participation in productivity-raising programmes; hard-pressed investors may be unwilling to commit resources to restructuring their activities; and if government experiences restructuring as a massive erosion of its political base it, too, may withdraw its support for the process.

The key role specified for the institutions of industrial policy lies in maintaining the willing participation of these key actors, particularly business and labour, in the restructuring process.

'The key role specified for the institutions of industrial policy lies in maintaining the willing participation of the key actors, particularly business and labour, in the restructuring process'

More particularly, it involves institutions in hastening and leveraging the impact of those productivity-raising measures intended to strengthen 'sunrise' sectors and subsectors, and in cushioning the decline of 'sunset' sectors. A key aspect of these tasks lies in a careful sequencing of industrial policy measures and instruments.

Thirdly, institutional character and function is determined by the very nature of industrial policy. Industrial policy is not a document or a plan, it does not comprise the identification of a number of policy levers which, if correctly positioned, yield the desired outcome. Industrial policy is rather a complex and endless process of policy formulation and implementation, reformulation and further implementation. It is, moreover, a process that must incorporate and galvanise the key actors in the manufacturing realm—labour, business and government—whose interests are often sharply divergent, as well as actors who may not readily perceive themselves to be part of the nation's industrial capacity, for example, educators and scientists.

This strong process orientation presupposes institutional strength and continuity. But the requirements of industrial policy formulation and implementation in the face of rapidly changing technologies and markets also demand a substantial measure of flexibility from its institutions. Institutional design has, therefore, to accommodate the twin, though often conflicting, imperatives of strength and durability, on the one hand, and flexibility, on the other.

Our discussion of the institutional environment flows from the analysis outlined above. The character and role of institutions is not determined on an *ad hoc*, issue-specific basis. Our institutions must have the capacity to support a transition to high productivity manufacturing, to overcome the key market failures that obstruct this strategic orientation, and to underpin the coalition of social forces whose continued support during periods of considerable pain and uncertainty is vital.

We focus on three sets of institutions:

- ◆ *The State*, which is ultimately charged with responsibility for policy formulation and implementation, is examined through an attempt to specify the role of the Department of Trade and Industry in the process of restructuring.
- ◆ There are a number of *key parastatal institutions* which are relevant to the industrialisation process. This family of industrial support institutions, though generally poorly focused, combine to provide South Africa with unusual 'technical capacity'.
- ◆ Those *institutions that fuse the key actors in civil society and government* and that have come to play a central role in the process

'Our institutions must have the capacity to support a transition to high productivity manufacturing, to overcome the key market failures that obstruct this strategic orientation, and to underpin the coalition of social forces whose continued support during periods of considerable pain and uncertainty is vital'

of industrial restructuring. Of particular importance are the tripartite fora that first emerged in the political vacuum that characterised the period between the unbanning of the ANC and the establishment of the Government of National Unity. This also provides insights into the roles of key non-governmental institutions, namely employer associations and trade unions.

This is by no means an exhaustive list of the institutions central to industrial policy formulation and implementation. They do, however, constitute some of the key participants and institutional functions in the industrial policy process.

The most heated debates that surround the area of industrial policy generally concern identifying an appropriate role for the State. For many, the mere propagation of an industrial policy implies an elevated role for the State; a State that deploys a wide range of instruments and policies in order to influence and direct private investment decisions.

As already elaborated, we identify a key role for institutions in the formulation and implementation of industrial policy, although these are not always, or even most significantly, institutions of the State. But we do, nevertheless, believe that the State has a central role to play in the process of industrialisation, although, again, we should stress that this does not refer solely to the institutions and departments of central government. There is a key role for lower levels of government. We will, however, confine our remarks to the Department of Trade and Industry (DTI).

Despite the heat surrounding 'the role of the State', it remains extremely difficult to specify the appropriate function and orientation of the departments of State. It is an area that demands further research and thought, and what follows should be read as a preliminary effort to specify the role of the DTI.

While a number of departments have a major bearing on the industrialisation process—Finance, Labour and Mineral and Energy Affairs, to name but three of the most important—the Department of Trade and Industry is the State department responsible for industrial policy. The major parastatal and statutory bodies whose activities impact directly on trade and industry—for example the IDC, the CSIR, the SBDC and SAFTO—report through this department.

In our view, one of the reasons why South Africa currently has no coherent strategy for industry resides in the structure and performance of the DTI. Following the examples of the NICs and, particularly, Japan, the key to effective industrial

THE STATE

'One of the reasons why South Africa currently has no coherent strategy for industry resides in the structure and performance of the DTI'

strategies lies not in the material resources which the DTI can command and allocate, but rather in the quality of the advice and information that it can make available to manufacturing firms. For example, the strong influence that MITI exerts over Japanese industry is not a consequence of its command over resources (which are quite limited), but rather a consequence of the quality of information and personnel at its disposal.

It is important to understand, at the outset, what output is required of the DTI. The main thrust or engine for securing competitiveness rests with firms, both public and private. As a result of their access to markets, firms generally have the information and the knowledge of what outputs are required; via their access to suppliers and knowledge of their own resources, firms are cognisant of the inputs available to satisfy those requirements.

'The DTI should be internally structured as an information-processing body'

However, the quantity and quality of the information to which firms have access is limited. These limitations arise as result of market failures that attach to the vital resource that is information. The market fails to direct sufficient resources to the acquisition of information because it is costly to acquire, and the benefits and commercial applicability of such information are impossible to ascertain until the information has actually been acquired and processed.

More particularly, the information that individual firms receive tends to be both spatially bound (acquired through the firm's established channels) and temporally bound (related to the firm's ongoing activities and products). Although information on new markets and customers and on 'tomorrow's products' is not absent, information channels here are often far less systematic and comprehensive. Moreover, individual firms have few incentives to search for information that could be of benefit to other firms.

Market failure with respect to knowledge and information provides the basis for day-to-day DTI involvement in the industrialisation process. The principal output required is information. The DTI should be internally structured as an information-processing body—it should monitor and assess the informational needs of firms under its jurisdiction and acquire and process information that these firms need but are unable or unwilling to access themselves.

There are two critical elements in establishing the DTI as an information-processing body. The first is internal—a matrix organisation. Vertical divisions would represent the principal industrial groupings. These vertical divisions would be in a structured ongoing dialogue with the firms that constitute these divisions. The horizontal divisions would deal with

cross-cutting issues such as international trade and SMEs. Particular market failures apply to the gathering of information pertinent to international markets and internationally-available inputs, just as they do in respect of the access of SMEs to information. Horizontal divisions may also be constructed within the DTI to deal with the interface between firms and those key cross-cutting issues for which principal functional responsibility rests with other agencies and departments—for example human resource development, the environment and technology.

The DTI would thus be structured so as to have a detailed knowledge of each industrial division and, at the same time, have a holistic appreciation of the principal issues affecting the entire manufacturing sector. The former is developed by the vertical divisions, the latter by the horizontal ones.

The second critical element in establishing the DTI as an information-processing body is external—that is, to establish information channels. These information channels should be established to collect and diffuse both domestic and international information. Here the DTI will have to rely on a series of intermediate organisations—industry associations, consultative and specialist committees which may be *ad hoc* or more permanent, and the parastatals and statutory bodies that report to it, including institutions such as the IDC and SBDC, the CSIR, and the Competition Board. For example, in the case of Japan, MITI has made extensive use of its own research institutes, not only to support industry directly but also to provide it with information regarding technological trends in industrial sectors, and the technological capacities of Japanese firms in these sectors. The CSIR might play a similar role *vis-à-vis* the DTI.

The information collected and processed by the DTI would then be made available to firms so as to enable them to determine their own strategies more effectively. It would also allow the DTI to develop and sustain more effective industrial strategies for each of the principal industrial sectors.

MITI's advice is highly respected, both within industry and more broadly. Moreover, a key product of this structured interaction between government and firms is nothing short of Japanese industrial policy. In South Africa, the DTI currently bears no resemblance to MITI and its contact with, and influence over, South African firms is very limited. As a result, it fails to provide the information-processing service (outlined above) to South African firms and it also has no basis for formulating an effective industrial policy.

Under these circumstances it is not surprising that the role of industrial policy formulation has effectively passed to the IDC.

The IDC does have a structured interaction with South African firms, as well as a number of products, principally capital, but also research and industrial extension services, that it supplies. However, its interaction is highly selective and it produces an industrial policy focused on supporting a similarly selective segment of manufacturing. The DTI needs to reclaim the role of industrial policy formulation. It will, however, only be able to do this on the basis of a fuller interface with South African manufacturing and this requires the fundamental and complex changes proposed above.

Before concluding this brief discussion of the role of the DTI, we should emphasise three points that anticipate a more elaborate discussion below.

‘The DTI needs to reclaim the role of industrial policy formulation’

Firstly, although we have identified information processing and policy formulation as the key roles of the DTI, this should not exclude the deployment of ‘hard’ public and quasi-public resources to support the industrialisation process on the part of the DTI, and government more generally. For example, the IDC deploys financial resources and the CSIR deploys technological resources. While, for reasons outlined below, we support the retention of the relatively autonomous status of such institutions (that is we do not think that they or other similar bodies should become departments of government), we do believe that is vital that they remain within the DTI family of institutions and that they deploy their respective resources within an overall industrial policy framework developed by the DTI.

Secondly, there are policy frameworks and line functions that, for obvious reasons, fall outside of the direct sphere of competence of the DTI but which are critical to the industrialisation effort. Foremost amongst these are labour market and technology policies, and the various line functions and institutional relations involved in these policy fields. We have suggested cross-cutting line functions within the DTI that would also interact with the functional departments and agencies responsible for these policy fields. These DTI departments would, in line with the major functional responsibility of the DTI, attempt to ensure complementarity between industrial policy, on the one hand, and, for example, education and training policy or labour market policy.

Thirdly, we argue for a tripartite policy formulating process. Our emphasis here on the interaction between firms and the DTI does not compromise the necessity for broad stakeholder participation in the industrial policy process. In any event, our notion of the firm, as already outlined, cannot be reduced simply to its managers or owners, but incorporates a range of other stakeholders, including its employees. However, we do insist

that, in its day-to-day functions, there is, or should be, a particularly strong relationship between the DTI and firms. This relationship would, for example, be mirrored in the labour department's relations with unions, and the science and technology department's relationship with the science councils.

Considerable technical and other capacities reside in a family of statutory corporations—though differentially structured, we will refer to these collectively as the 'parastatals'—that loom large in South Africa's industrial landscape. Although the public utilities—in particular Eskom, Telkom and the various branches of the transport services—are key instruments of industrial policy, and have received attention in several of the sector reports, they will not feature here.

We are rather concerned with those public institutions within the family of the DTI that are principally and self-consciously designed to underpin the industrialisation process. The key institutions referred to are the Industrial Development Corporation (IDC), the Small Business Development Corporation (SBDC) and the Council for Scientific and Industrial Research (CSIR).

Within this range of institutions we have chosen to focus on the IDC. There are a number of reasons for this choice:

Firstly, the IDC's central role, that of providing finance to firms in the manufacturing sector, is vital and demands careful examination. At the outset, we noted that industrial policy is generally concerned with the *productivity* of investment and, to a significant extent, its *direction*—a concern reflected in our policy focus. The quantum of investment, though a matter of vital significance for the industrialisation process, is subject to a range of forces (for example, political developments and macro-economic policy), outside of the province of industrial policy.

However, we have stressed the dangers that flow from improving firm-level productivity in a stagnant investment environment. The IDC has the capacity to influence the scale and direction of private-sector investment. It is for this reason, above all others, that it has pride of place in our examination of institutional capacity. In each era of industrial policy since the 1940s—import substitution, 'strategic' investment, mineral beneficiation—the IDC's investment strategy has been a leading instrument of industrial policy.

Secondly, the IDC has capacity beyond its financial resources. It describes itself as the 'largest centralised,

THE PARASTATALS

'The IDC has the capacity to influence the scale and direction of private-sector investment'

multi-disciplinary, technically experienced project evaluation group in the country'. It has, in other words, the capacity to provide an industrial extension service. This makes it a potentially important agent for securing the productivity increases, as well as the access to international markets that lie at the heart of our industrial strategy.

Thirdly, the IDC exercises an important influence over the country's industrial policy. We have already noted the major influence that the IDC exerts on industrial policy through the deployment of its vast financial resources. In addition, the professional staff of the IDC's research department are charged with undertaking many of the investigations that currently underpin the major initiatives around industrial policy.

This unique combination of capacities—financial, industrial extension, and policy formulation—underpins the IDC's status as the premier public institution engaged in the manufacturing sector. It is, in short, a vital instrument of industrial policy.

Concern is frequently expressed at this range of powers residing in a single institution. In particular, a possible conflict of interest between its role as investor, policy-maker and assessor of applications for key government subsidies has been noted.

In addition to concern at the power wielded by the institution, the IDC's investment strategy has attracted widespread criticism. These criticisms span a wide range. Detractors point to the IDC's support for government's 'strategic investments' which has, on occasion, led it to support some notorious white elephants, with developmental and commercial considerations clearly subordinated to political imperatives; on the other hand, it is criticised for extreme risk aversion—for sacrificing its developmental role to the 'bottom-line'. Recently, the institution has been criticised for its strong commitment to highly capital-intensive, mineral beneficiation projects.

These criticisms are to be treated seriously. Although fears of a conflict of interest arising from the range of activities controlled by the IDC are well founded, on balance, however, we discern considerable advantage in the existence of a powerful organisation co-ordinating finance and industrial extension. As already noted, we would seek to reduce the IDCs influence over policy formulation by reclaiming this role for the DTI. Clearly, though, a quasi-public institution with massive financial resources and professional capacity, will, by its very nature, influence policy development.

Firmly located within the framework of an industrial policy that is clearly the responsibility of the DTI, we would support a powerful role for the IDC. The real dangers of a conflict arising

from the exercise of its still considerable range of powers, or of the organisation playing hand-maiden to narrow political interests, have to be tempered by a control structure that reduces these risks. In addition, the activities of the IDC, including the deployment of its investable resources, have to be refocused to meet the objectives of a coherent industrial strategy and the short-term imperatives of the restructuring process.

The IDC, established in 1940, is essentially the State's vehicle for investing in manufacturing. It describes itself as 'a financial institution offering an extensive range of financing facilities to assist private entrepreneurs in the establishment and expansion of economically viable manufacturing industries in Southern Africa'. Whilst the IDC is not subject to South African company legislation, it claims to adhere 'to normal private sector company practice as to its operations, administration and reporting'. This claim—in our view all too accurate—is a key point of departure for our re-examination of the IDC's role.

The last capital injection received by the IDC from the State was in 1954. Its considerable profits are subject to normal company tax and it pays a regular dividend to its sole shareholder, the State. Since inception the State has contributed R924 million to IDC financing, and has received from the IDC some R2,2 billion in taxes and dividends. In the corporation's 1991 and 1992 financial years, it remitted dividend payments totalling R1 billion to government and has agreed that, in future, it will pay out one-third of its after-tax profit as dividends. In respect of the 1992/3 financial year, a dividend of R81 million was declared.

Whilst its financially sound position is something of a welcome departure from the experience of the vast majority of development finance institutions, it is widely held that this has been achieved at considerable cost to its development role. The IDC has been increasingly criticised for its risk aversion, reflected in its large, passive holdings of equity in blue-chip industrial companies. A relatively low gearing in the past is indicative of considerable underutilisation of its substantial assets. The IDC's standard response to criticism of this nature is to plead that there has been an insufficient demand for funds to necessitate realising their assets.

The IDC's practice of following general investment trends is clearly evident in Figure 13. In 1991/2, the dominant trend shifts dramatically, reflecting the corporation's response to the criticism outlined above. As stated in its 1992 Annual Report, it has 'accepted that, in order to play a meaningful role, it would have to commit and mobilise its full financial resources to support appropriate fixed investment programmes'.

'The activities of the IDC, including the deployment of its investable resources, have to be refocused to meet the objectives of a coherent industrial strategy and the short-term imperatives of the restructuring process'

This new perception of its role is further manifest in its sale, in 1992, of a large slice of its holding in SASOL, realising some R1 billion; the unbundling, in 1993, of its investment trusts, National Selections and Industrial Selections; and its announced intention to sell off its remaining SASOL holdings, as well as its large holdings in ISCOR and FOSKOR.

This is complemented by the investment plan announced by

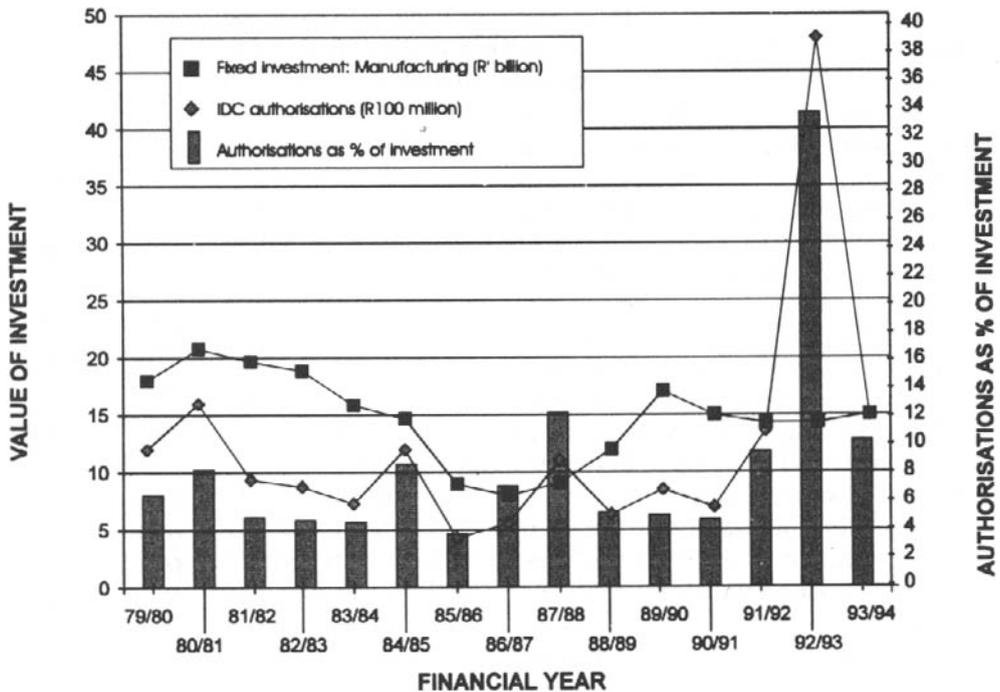


FIGURE 13 IDC INDUSTRIAL FINANCING IN 1993 RANDS

the IDC. In 1991 the corporation announced a five-year investment target of R10 billion. Maintaining its preferred 1:2 ratio of IDC capital to private sector capital, the IDC contribution is expected to generate total new investment of some R30 billion. The funds are targeted at natural resource beneficiation and SMEs.

After only two years the IDC has already met 66% of its overall target, 27% of its small industrial target, and 37% of its medium industrial target. However, despite record authorisations in the financial year ending June 1993, its authorisations under the heading 'general industrial financing'—as opposed to 'natural resource beneficiation' and 'tourism'—declined dramatically from R527 million in the previous year to R321 million.

At issue, then, is not merely the *quantum* of IDC investment activity but also its *direction*. The focus of IDC investment strategy has, predictably, shifted over the period of its existence. From inception, and for much of its existence, the IDC investment strategy supported import replacement. Early investments in a diverse range of companies such as Simba, Safmarine, Da Gama Textiles and Siemens, exemplify this commitment.

This focus shifted in line with major priorities of government—its commitment to support industrial development outside the metropolises reflected the State's notorious concern with industrial decentralisation; as sanctions began to bite the focus of IDC strategy moved towards 'strategic' investments, particularly associated with investments in capital-intensive, mineral beneficiation projects.

The IDC generally identifies itself with three key roles. In the words of its 1992 Annual Report, these are to:

- ◆ Assist smaller and medium-size industrialists to establish new businesses and expand and modernise existing undertakings to generate employment opportunities.
- ◆ Promote the further beneficiation of the country's natural resources in partnership with large investors to enhance exports and general welfare.
- ◆ Provide services to the State in formulating and implementing industrial policies to create an environment in which the private sector can expand productive activities.

There is little doubt that natural resource beneficiation tops the IDC's order of priorities. Table 10 evidences an IDC commitment to the capital-intensive non-ferrous metals, and paper, pulp and printing sectors that far outweighs the share of manufacturing capital stock represented by those sectors. Although the representation of the more labour-intensive clothing and textiles sectors in the IDC's investment portfolio also exceeds that of their share of manufacturing capital stock, these are relatively old investments, and skewed towards the more capital intensive textiles sector.

This perception of the IDC's priorities is confirmed by the views of its senior executives, whose confidence in the forex earning potential of natural resource beneficiation, is matched by a deep-seated lack of confidence in the ability of the more labour-intensive sectors to compete on international markets. A senior General Manager has defended the focus on capital intensive investments by arguing that 'there are no viable alternatives... if we had a labour-intensive project which was viable we would fund it. Our labour-intensive industries cannot compete with the Pacific Rim countries.'

TABLE 10 MANUFACTURING CAPITAL STOCK AND IDC FINANCING (PERCENTAGE CONTRIBUTION)

ECONOMIC SECTOR	MANUFACTURING CAPITAL STOCK AS AT 31.12.93	IDC FINANCING (1940–93)
CHEMICALS	32	14
CLOTHING AND TEXTILES	3	6
FOOD AND BEVERAGES	12	5
IRON AND STEEL	23	14
MACHINERY	5	5
METAL PRODUCTS	3	4
MINERAL PRODUCTS	5	5
NON-FEEROUS METALS	2	23
PAPER, PULP AND PRINTING	5	14
TRANSPORT EQUIPMENT	5	7
WOOD PRODUCTS AND FURNITURE	1	2
MISCELLANEOUS	4	1
TOTAL	100	100

‘The IDC needs to identify sectors with growth potential, as opposed to merely identifying firms with profit potential, and then to deploy its investment and other resources in support of these sectoral choices’

This is not to deny the strong recent evidence of energetic IDC pursuit of SME investment. The recently-announced special facility for SMEs departed most radically from previous IDC practice in the vigour with which the corporation attempted to sell the scheme to local entrepreneurs. A public road-show that attracted thousands of manufacturers and intense media publicity suggests a departure from the explicitly passive position taken by the IDC towards SME financing. No longer, or so it appears, is the IDC willing to wait for an approach from an SME; it is now actively touting its wares to this sector.

The IDC’s stated objective of supporting natural resource beneficiation and small and medium enterprise is too general and unfocused. Industrial policy demands a sectoral approach; a requirement that is underlined by the imperatives of the restructuring process. Whilst our approach generally eschews ‘hard-targeting’ in favour of targeting ‘competitive fundamentals’, in the short run, the period of restructuring, IDC financial support has to focus on specific industrial sectors and clusters. For example, we have proposed several sectoral candidates suggested by, *inter alia*, major public investment programmes (hence, building materials) and restructuring contingent upon tariff liberalisation (hence, subsectors of the clothing industry). The IDC needs to identify *sectors* with growth potential, as opposed to merely identifying *firms* with profit potential, and

then to deploy its investment and other resources in support of these sectoral choices.

We should emphasise that we do not advocate a general departure from the requirement that the IDC evaluate prospective investments on their commercial merit. Our point is simply that the IDC has been explicitly willing to confront one particular capital market failure—namely, the market’s inability to allocate massive quantities of capital on a sufficient scale—by socialising a portion of the risk entailed in those large beneficiary projects that its evaluation adjudged potentially profitable. It has done this, firstly, by committing its own capital resources and, secondly, by lending its support to policies designed to make investment of this scale profitable—the Section 37e capital depreciation allowances, for example.

We are now proposing that it confront a second capital market failure, namely the market’s unwillingness to allocate relatively small amounts of capital to enterprises operating in labour-intensive sectors amidst considerable uncertainty. IDC investment programmes increasingly recognise these capital market failures. IDC investment into these areas must be accelerated. While the IDC should continue to focus on supporting and catalysing private-sector investment, it must recognise that present circumstances are exceptional. Accordingly, there is an added requirement that public and quasi-public funds play a leading role in catalysing private-sector investment because, in this conjuncture, it may not materialise with sufficient rapidity, even in sectors with demonstrable competitive potential.

The IDC is the ideal vehicle for leading this investment drive to overcome these capital market failures. We would go further and propose that the government waives its dividend—in effect, that it reinvests its dividend in the IDC—and that this be earmarked as a restructuring fund with the express purpose of supporting designated sectors. The only loss here is to the fiscus—and the taxpayer is the most representative constituency on which to impose the burden of socialising risk. Most importantly, it does not impact on the internal discipline that the IDC imposes on its investment evaluations.

In addition, the IDC has not yet developed a clear perspective on the supporting policies necessary to overcome accompanying market failures—in the labour market or the market for innovation and technology development—and so enhance the prospect of a profitable return on investment directed at the manufacturing sector. These are more complicated, time consuming, and personnel consuming than the Section 37e-type initiative, but they are as necessary.

There are two possible mechanisms for supporting an

‘We propose that the government waives its dividend—in effect, that it reinvests its dividend in the IDC—and that this be earmarked as a restructuring fund with the express purpose of supporting designated sectors’

investment portfolio more strongly oriented towards the more labour-intensive ends of manufacturing. Firstly, IDC should increase the focus of its considerable professional resources on aftercare provision. IDC staff are clearly vigilant in pre-investment evaluation. However, our strong sense is that the corporation's post-investment follow-up is limited to financial evaluation. The IDC is anxious not to appear to take control of the operations of an investment. Accordingly, it only intervenes at the request of the owners or if it has reason to doubt the security of its investment. In short, it behaves in much the same way as other conglomerates behave towards their investments—it is a hands-off investor whose monitoring and control is narrowly financial in character. In our view, it is wholly appropriate for a public sector investment agency such as the IDC to take up an active ownership position with respect to its holdings.

Secondly, more effective co-ordination of the activities of the various public sector industrial support agencies is required. Hence the resources of the IDC, the CSIR, SAFTO, the NPI and other relevant institutions should be deployed in a co-ordinated and complementary manner. This co-ordinating function should be undertaken by the DTI in close consultation with the IDC. Although an investment in the clothing sector or furniture sector may not benefit from a capital depreciation allowance of the Section 37e variety, it may be considerably strengthened by the more focused activities of an institution like the CSIR or SAFTO.

We have dealt with the IDC's financial capacity, as well as the research and technical support capacity necessary to underpin its investment decisions. Its third area of capability is its influence over trade and industrial policy. Here we have advocated a considerably reduced role for the IDC, in favour of a concomitantly strengthened role for the DTI.

The IDC's policy-making role stems from its considerable research capacity, as well as from its investment and industrial extension services. In the first instance, the policy directorate within the DTI—significantly, an empty shell, these past years—should be substantially strengthened. This directorate should then seek to harness the research capacity of the IDC in support of its own policy-making function. Over time, there should be an effective transfer of some of the IDC's research capacity to the DTI.

The IDC will continue to influence industrial policy through its investment and extension activities. This power should also be more effectively harnessed and co-ordinated. What is required is greater transparency and a more systematic and

holistic approach from the operational departments of the IDC. At the very least, the IDC research department should be responsible for producing a regular review of its activities that self-consciously specifies the institution's relationship to the industrial policy framework developed by the DTI.

Concern at the power wielded by the IDC would also be tempered by a review of the control structures and staffing of the institution.

Although wholly government owned, all the IDC directors are statutorily required to be drawn from the private sector and are generally exceptionally successful business executives and entrepreneurs. The IDC has a large professional staff whose conditions of service are generally competitive with the private sector. This combination of State ownership with a structural non-governmental orientation is a potential advantage—the power of the State is limited by the non-governmental orientation manifest in the identities of the directors and the conditions of service of the staff; but in the final analysis, the State is the owner and is formally able to impose its broad developmental objectives on the institution. This structure allows the executives of the IDC considerable autonomy. In general we endorse this, but with the following major qualifications:

- ◆ The IDC should be subject to an urgent affirmative-action programme at all levels—all its senior executives are white males. It appears, in fact, to have made particularly little progress in deracialising its staff.
- ◆ Urgent attention must be given to appointing a new IDC board—it is obviously highly inappropriate that all the board members of the country's premier industrial development agency should be white males. Neither should all of the members of the board be drawn from the private sector. We support the prohibition on civil servants and holders of political office from serving on the IDC board, but propose that the appropriate qualification for board membership should be 'non-governmental' rather than 'private sector'.

It is obviously vitally important that the IDC's overall mission and the precise function of the board be reassessed. Simply changing the identity of some board members will have a very limited impact on an institution like the IDC. Ensuring the commercial viability of IDC investments should remain the board's principal function and board members must be suitably qualified for this purpose. However, the investment portfolio and activity of the IDC must also reflect stipulated developmental objectives.

- ◆ The IDC's current objective should be defined with reference to particular demands of the restructuring process. In broad

'Concern at the power wielded by the IDC would also be tempered by a review of the control structures and staffing of the institution'

terms, this requires that IDC capacity focus on supporting the introduction of those supply-side measures that generate the most rapid response from South African producers; that it supports a drive to penetrate international markets; that it targets the core of its investment programme on selected sectors. As elaborated above, these sectors will be chosen with reference to the overall industrial policy framework elaborated by government.

In order to meet these objectives the IDC will utilise its financial capacity, including the proposed restructuring fund; it will deploy its experience in firm and sector-level consultancy and support; and it will co-ordinate its investment strategies with the capacities of other key parastatal industrial development agencies.

MULTIPARTITE INSTITUTIONS

We have emphasised that, within the structures of government, responsibility for formulating industrial policy lies with the Department of Trade and Industry. But we have also highlighted central aspects of industrial policy that necessitate a particularly close interaction between government, on the one hand, and, on the other, institutions of civil society, particularly those representing business and labour, the two principal industrial actors.

Those features of industrial policy that underpin the necessity for broad based participation are:

- ◆ Firstly, the established capacity of strong vested interests to resist the imposition of an industrial policy that ignores these interests—as already noted, workers cannot be forced to submit to productivity-raising exercises, and investors cannot be compelled to invest. The co-operation of these key industrial actors is vital. Participation in the formulation of industrial policy is an important element in securing the ultimate co-operation of these interests in its implementation.
- ◆ Secondly, the capacity of the key industrial actors, or some of these, to capture a programme of industrial policy, reducing it to a site for unproductive rent-seeking activity. This prospect is considerably reduced when policy is formulated within multipartite structures.

Considerable concern has been voiced as to the possibility of the relatively powerful and well-organised groupings represented on the multipartite institutions capturing these institutions for narrow corporate purposes. Dangers of a corporatist 'deal' are real and have to be guarded against. We will return

to this below. However, there has been surprisingly little attention given to the obstacles that this multipartite arrangement presents to the rent-seeking activities of one or other constituency. Multipartite policy formulation substantially reduces the risk of rent-seeking so firmly rooted in the relations between a single government department, on the one hand, and a narrow industrial interest on the other. Essentially, under a multipartite regime, the 'deal' has to be struck with all parties simultaneously, enhancing the prospect of a larger deal amongst those inside the multipartite arrangement, although substantially reducing the likelihood of two of the parties—business/labour, business/government, labour/government—reaching a bipartite arrangement of the sort that has historically bedevilled trade and industrial policy in South Africa.

An inclusive, institutionally 'dense' policy-formulating environment characterises successful industrial policies in diverse social settings. While the European social democracies, Sweden in particular, represent the most democratic and inclusive end of the policy-making spectrum, even in highly repressive, rapidly industrialising societies like Korea, the State relies upon well-organised institutions of civil society to formulate and implement its industrial policy. Those societies characterised by weak and defensive organisations of civil society—Britain is a clear example—have proved to be less capable of formulating and implementing a successful industrial policy.

South Africa possesses unusual capacity in this area. The last leg of the journey from apartheid to democracy, the period from the unbanning of the ANC in 1990 to the installation of democratic government in 1994, was, in significant part, forged and traversed by ubiquitous multipartite institutions that effectively filled the vacuum left by a government paralysed by illegitimacy. In the area of trade and industrial policy, the relevant body was the National Economic Forum (NEF), representing labour, business and government. In addition, the previous government established tripartite bodies in order to formulate strategies in respect of selected, crisis-ridden industrial sectors. The most significant of these were the bodies established in the clothing and textile sectors, and in the auto assembly and components sectors. These national and sectoral initiatives in industrial strategy were complemented by others—for example, the National Training Strategy Initiative, the Science and Technology Initiative, and the statutory National Manpower Commission.

This mode of policy formulation has, in a relatively short space of time, taken deep root in the society. So much so that the National Economic Forum, hitherto the product of a simple

'An inclusive, institutionally 'dense' policy-formulating environment characterises successful industrial policies in diverse social settings'

agreement between business, labour and government, has been fused with the National Manpower Commission into a new body, the National Economic Development and Labour Council (NEDLAC). The new body, enshrined in statute, will comprise four chambers that will deal, respectively, with macro-economic policy, labour market issues, industrial policy and development. In the development chamber and on the executive council, labour, business and government will be joined by a fourth grouping representative of the 'development' constituency. The State will fund the operations of NEDLAC.

'The formation of NEDLAC represents an essential step in securing the institutional framework necessary for successful industrial policy formulation'

The new body will undoubtedly go through a difficult process of definition and redefinition—the replacement of a 'lame-duck' and illegitimate government with a robust and secure government will undoubtedly give rise to both opportunities and constraints for the labour and business constituencies, as will the introduction of the fourth constituency into hitherto tripartite arrangements. However, the formation of NEDLAC represents an essential step in securing the institutional framework necessary for successful industrial policy formulation.

There are considerable dangers and obstacles implicit in multipartite policy formulation. Foremost amongst these is the prospect of a corporatist deal that privileges the powerful and well-organised constituencies inside the multipartite arrangement at the expense of those weaker elements outside of the arrangement. Secondly, and conversely, there is the prospect of no deal at all, of paralysis of the policy-making mechanism as the parties fail to reach agreement on key policy issues.

The dangers of a cosy corporatist arrangement emerging from NEDLAC are persistently voiced. In concrete terms, it is feared that labour and business will cut a deal that prejudices the interests of the unemployed, consumers and small business.

There are several factors internal to the organisational character and capacities of both labour and business that promote the possibility of a corporatist deal. We examine these below. For the moment we focus on those factors that undermine the possibility of a corporatist deal emerging through the newly-established multipartite forum.

A powerful factor mitigating against a corporatist deal is the strong insertion of the trade union movement in the political process. Moreover, this insertion is not via the medium of a labour party strongly beholden to the union movement. Rather, the union movement's political insertion has been achieved through a recent history in which it has successfully incorporated its political interest within the general national interest. In

the process the unions have played a significant role in shaping the character of the national interest. But they have also demonstrated a commitment to the promotion of social interests beyond the narrow boundaries of union membership.

The context has now shifted dramatically and the trade union movement's past is, of course, not necessarily a reliable guide to its future orientation. However, the unions and their social partners must embrace multipartism as a key mechanism for maintaining the national orientation on the part of the unions, for maintaining their commitment to the national interest. Efforts to remove the labour movement from the political realm are fundamentally misguided—narrowing labour's perspective will reinforce the possibility of a descent from national actor into parochial corporatist.

This is not to suggest that the interests of 'outsiders' are sufficiently defended by the national orientation of the unions. The interests of the 'outsiders'—for example, consumers and the unemployed—are, to a significant extent, protected by a government for whom they loom as a large, vocal and increasingly well-organised constituency. This is a particularly important role for government in the field of industrial and trade policy.

Direct representation in the multipartite institutions is obviously the surest way of securing 'outsider' interests, and it is precisely for this reason that a 'development' constituency—NGO's active in the development field, urban and rural residence associations, women's organisations, youth organisations—is represented in NEDLAC.

There are, however, substantial practical difficulties that impede the ability of these groups to effectively represent their interest, although, combined with the resources of those ministries most directly engaged with community development (for example, the RDP and the public works ministries), their organisational capacities may be substantially leveraged. Around focused issues—for example, a regional land reform programme or a public works programme—the organisational and representational capacities of community interests may well match, and even exceed, those of labour and business.

While we recognise the dangers contained in according a poorly-organised, unrepresentative grouping a status equivalent to that of labour, business and government, we support this inclusivist orientation. Key issues that lie at the heart of business and labour interests—for example, the formulation of a broad-ranging incomes policy—will be substantially and positively influenced by broad-based, truly national representation within the policy-formulating institutions.

'Efforts to remove the labour movement from the political realm are fundamentally misguided—narrowing labour's perspective will reinforce the possibility of a descent from national actor into parochial corporatist'

Transparency in the operations of the multipartite forum will also substantially limit the prospects of a corporatist deal. There are a variety of mechanisms for ensuring transparency—organised exposure through the State-controlled media is one mechanism; automatic public access to the documents of the council is a second.

Although the dangers of cosy corporatist deals are more frequently articulated in discussion surrounding multipartite policy formulation, the prospect of paralysis in the policy-making function looms larger. Although the NEF, in its brief history, concluded some major agreements, it also failed to achieve consensus on significant issues. In these latter cases, the ball is thrown back into the government's court, with the other parties reserving their rights to influence the policy-making process. Effectively, the highly undesirable consequence of failure to achieve consensus is to trigger the lobbying process, with senior bureaucrats and politicians once again the object of the lobbies' attentions.

Again, there are mechanisms for reducing the possibility of paralysis. A well-resourced institution working to stipulated timetables, and with the necessary research backup to support its deliberations, would reduce the prospect of paralysis. A decision to refer all failures to reach consensus to parliament—as opposed to governmental regulation—would reduce the prospect of lobbying by maintaining public attention upon the issue in question.

The prospect of corporatism and paralysis would be substantially reduced by agreement on the competence of the multipartite forums. A distinction must be drawn between policy formulation and its implementation. Although we accept that it is not always possible to draw a clear line between these elements, the multipartite forum should be charged with seeking agreement on the policy framework and the principles governing implementation. Government should lead the implementation process within the agreed framework and set of principles. To take this somewhat further, the multipartite forum should effectively assist in insulating government officials from the lobbying process—the various constituencies would be fully represented in *setting* the policy framework and implementation principles; they should be strongly discouraged from *intervening* in the implementation process.

The prospect of corporatism or paralysis is powerfully influenced by the character and capacities of the constituent elements of the multipartite forum. This represents, in our view, the most daunting obstacle confronting consensual policy formation. In brief, South African business associations and trade

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unions are, arguably, not well placed to represent effectively their constituencies in policy formulation.

There are, firstly, questions surrounding the representivity of the unions and business associations. The unions appear to be more seriously hampered by schism and division than do their counterparts in the business community. There were, for example, three union federations represented in the labour component of the National Economic Forum, whereas business has recently formed a unified body, Business South Africa, to represent their interests in multipartite policy bodies. The influx of white-collar and public-sector workers into unions, and the upward occupational mobility of African workers, also portend structural dislocation in a labour movement still dominated by blue-collar workers.

However, in this instance, appearances are misleading. While union representation would be enhanced by the formation of a single trade union body, the fault line within the business community between big business and small business, with its attendant racial overtones, is considerably more pronounced or, at least, has considerably greater impact on business's ability to participate in policy formulation, than do the schisms in the union movement. There also remain the arcane differences between English and Afrikaaner business interests and between the various sectoral fractions—mining, manufacturing, and financial services—as well as between exporters and those producing for the domestic market.

The formation of Business South Africa, comprising all the major representative organisations of business, does constitute an attempt to resolve this problem. However, its standing relative to its powerful constituent bodies remains unclear. It has the appearance of being the business community's 'political wing' or its 'public affairs representative', while the hardnosed work of servicing (big) business's material needs belongs to the sectoral associations and the umbrella bodies, remarkably still divided by race and language. Certainly within SACOB, the AHI and the major sectoral organisations of business, small business remains marginalised, despite the apparent unification of these interests at the level of Business South Africa.

The schisms that Business South Africa is apparently attempting to confront have equally to be confronted in the umbrella and sectoral associations. Does the continued existence of separate business associations, formally representing the interests of English, Afrikaner and black business, make sense beyond the most parochial organisational politics? Is the continued existence of these organisations not incompatible with a strong, unified Business South Africa?

'The fault line within the business community between big business and small business, with its attendant racial overtones, is considerably more pronounced or, at least, has considerably greater impact on business's ability to participate in policy formulation, than do the schisms in the union movement'

Sectoral business associations are vital institutions of industrial policy. The dominance of big business in these organisations does not, however, simply reflect organisational sclerosis. It reflects, as outlined earlier, the continuing material weakness of SMEs relative to big business. We have suggested mechanisms for re-orienting sectoral business associations—for example, the provision of government support to business association conditional upon the recipients demonstrating their material support for SMEs within their sectors—but this area requires more urgent attention. The continuing failure of business to address the schisms within its ranks represents an extremely serious obstacle in the path of multipartite policy formulation.

These problems have complex roots that go beyond the relation between small and big business or the uneven development of the labour movement. Both unions and business associations are characterised by powerful conservative, defensive tendencies. As outlined above, circumstances have enabled the South African labour movement to rise above this. However a number of powerful factors—for example, resource constraints and the gradual assertion of a rigid division of labour between the conduct of ‘politics’ and the work of ‘trade unionism’—conspire to narrow the horizons of the labour movement.

South African business associations, for their part, are steeped in a narrow parochialism. The years of anti-apartheid struggle have not, as in the case of the unions, fused their interest with that of the larger nation. Moreover, most business associations were set up to represent business in a narrow range of dealings with government—for example, lobbying for tariffs—and have attempted little by way of providing ‘real’ services to their members. In short, business associations have not helped to fuse business interests with the national interest (solid support for black-owned enterprise may have been a way in here but it was an opportunity lost by business), nor have they been effective instruments in enhancing business competitiveness.

Influencing, by means of public policy, the trajectory of what are essentially voluntary associations is extremely difficult, although, we re-emphasise, vitally important if the tripartite organisations are to have a chance of ‘transcending’ corporatism and rent-seeking. The tentative policy proposals that we offer here, some of which are elaborated elsewhere in this report, amount to government making a deep-seated commitment to the tripartite process. These proposals serve to underline the difficulties of taking a multipartite route. It is a path

that involves more than 'goodwill'; it is a difficult route that requires some hard policy decisions and associated action.

Our proposals for strengthening a tripartite approach to policy formulation are:

◆ *Industrial relations and corporate governance structures and practices must be consistent with tripartite policy formulation.* This has already been discussed at length. We simply restate the rather obvious point that national tripartite policy formation is not consistent with highly atomised collective bargaining, nor with a refusal to take collective bargaining out of its narrow traditional confines, nor with rigidly hierarchical and repressive shop-floor relations.

◆ *Tripartite policy formulation presupposes high levels of organisation,* and we need to question the voluntaristic character of labour and business organisation. There are a variety of mechanisms to encourage collective representation, but which still permit choice with respect to levels of membership or to choice of representative organisation.

◆ *Government has to be prepared to devote considerable resources to tripartite policy formulation.* This extends beyond merely supporting the running costs of multipartite institutions. In particular, it extends to underpinning the capacity of the constituent elements to participate meaningfully in policy formation. This would incorporate support for the research requirements necessary to underpin policy formulation, and would extend to the funding of union and business leadership education programmes and institutions. The unions certainly do not possess the resources demanded by participation in policy formulation. Already, within the labour movement, the deployment of scarce resources from traditional union activities to economic policy formulation is perceived to be undermining the 'basics' of union organisation. This response is as justifiable as it is short-sighted. It will certainly encourage narrow defensive strategies inimical to the requirements of industrial policy.

◆ *Finally, government should signal its intention to accord major significance to multipartite policy formation.* To some extent this signal is conveyed both by the quantum of resources it is prepared to devote and by the stature of government representation in the various institutions. This could be more substantively conveyed by the character of the issues placed on the table. Multipartism will only be effective if all issues are up for discussion in the appropriate forum. The purpose of multipartite policy formulation is not merely to discuss and influence the policies and strategies of one party to the arrangement, namely the government. It presupposes a co-ordinated approach on the

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part of the social actors. To date multipartite policy formulation has taken place in the context of weak government. Strong and robust government intervention in these institutions will undoubtedly be greeted with some wariness by the various partners. It is, however, an essential ingredient of successful industrial policy. Strong South African government will not pursue a path of repression; rather it will pursue a path of inclusive policy formulation, where government policy is manifestly designed by the public in its own interest, in return for a similar commitment from other key actors within the society.

*S*ECTION 2

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MARKETS, OWNERSHIP & MANUFACTURING PERFORMANCE

DAVID LEWIS

Concentrated market structures and highly centralised control structures have been at the centre of policy debate in South Africa for a long time. From the perspective of one pole of the debate, the forms of industrial organisation that characterise the South African economy constitute a particularly strong representation of apartheid's legacy: through the medium of massive, diversified conglomerates, a small number of white shareholders and senior executives hold sway over the country's core mining, manufacturing and financial assets; key product markets are dominated by large monopolies and oligopolies that, more often than not, are members of these same corporate groups.

This argument holds that these features of South Africa's industrial organisation impact negatively on a range of constituencies and interests: workers and their unions; consumers; small business; even the democratic state itself, it is argued, is undermined by these tightly-held centres of private economic power. From this perspective, then, the impact of the dominant forms of industrial organisation is distributional—they reflect and exacerbate a skewed distribution of wealth, income and power.

The solutions historically proffered by the democratic movement are anathema to the business establishment. Nationalisation of the major corporate centres was one solution on offer, and the application of strong 'trust busting' measures was another. For business, these measures—particularly the former—represented, not surprisingly, an attack on private property. More pointedly, it was argued, their application, even the mere threat of their introduction, would sound the death knell for the prospects for renewed investment, including foreign investment, in the South African economy. Already, here we have presented the prospect of a trade-off between equity and efficiency in its baldest form: investors will spurn

an economy where the political commitment to equity threatens private property and corporate growth.

In recent years, the character and extent of the trade-off identified in policy directed at industrial organisation has been refined by the major protagonists in the debate. However, this area of policy formation remains highly polarised and the terms of the polarisation remain a perceived trade-off between equity and growth.

Recent actions by key firms—for example, the ‘unbundling’ exercises and the attempts at ‘black empowerment’—are, in part, recognition by business of the salience of the central critique directed at aspects of South Africa’s industrial structure. However, the business viewpoint remains focused on identifying the virtues of large scale and of high levels of concentration and on emphasising the dire efficiency costs consequent upon attempts to restructure markets and ownership. Hence it is argued that,

- ◆ vigorous competition characterises relations between the conglomerates and between their operating subsidiaries;
- ◆ large, well-resourced firms are a *sine qua non* for successful penetration of world markets;
- ◆ conglomeration provides the centralised financial muscle necessary for large-scale investment and that it promotes the sharing of scarce managerial and technical resources;
- ◆ the conglomerate form accords owners the power necessary to discipline management and maintain entrepreneurial initiative.

These approaches effectively coalesce into an argument that holds that South Africa is blessed with entrepreneurial, well-resourced, and domestically-owned firms capable of penetrating international markets. The extent to which South African firms are ‘excessively’ diversified, or South African markets are ‘unusually’ highly concentrated, is attributed to policy interventions such as exchange control and tariff protection. Or, it is an inevitable consequence of the particular imbalances wrought by the dominance of gold mining, with its unusually large capital requirements and returns, in a small economy. From this perspective the determinants of South Africa’s industrial structure are essentially exogenous and, to the extent that the current structure represents a shortcoming, it will be positively influenced by liberalisation of the capital and trade accounts, by permitting South African firms to invest off-shore, and by enabling multinationals to trade with, and invest in, South Africa.

These, then, are the broad juxtapositions that underlie the

debate surrounding market and ownership concentration—in the one corner, an egalitarian quest informed by opposition to the power represented by these concentrations; in the other corner, a position increasingly focused on questions of economic efficiency.

The efficiency arguments raised carry considerable weight. At the most general level, those Third World governments—not to mention a few industrialised nations like Australia and Canada—that have attempted to develop national economic policy in an economy dominated by foreign multinationals will quickly point to the advantages of a strong, domestically-owned corporate sector. And many of the arguments regarding the salience of financial and other muscle in international markets are persuasive.

And yet, ISP research has consistently rejected a simple and positive relationship between efficiency and the current form of industrial organisation. On the contrary, from the perspective of industrial competitiveness, we find that serious disadvantages attach to certain of the key features of South Africa's industrial structure. Moreover, it is not merely allocative efficiency that is compromised by the form of industrial organisation, that is inefficiency expressed in prices exceeding marginal cost, 'high prices' for consumers and 'excess profits' for producers. Productive efficiency, reflected in higher underlying costs of production, is also undermined by the industrial structure.

Moreover, it appears that the negative impact on productive efficiency is rooted precisely in the inegalitarian character of South African industrial organisation: hence, whilst oligopolistic markets may be reflected in intense competition between their participants, this all too frequently gives rise to cosy collusion; in particular, domination at key points in the productive chain and ubiquitous vertical integration underpins the weakness of SMEs; and while concentrated corporate control may accord shareholders an unusual degree of authority over operational managers, it drastically narrows the entrepreneurial base of the society—the incentives that derive from a share of effective ownership are extremely narrowly focused.

We are, in the end, persuaded that the area of industrial organisation demands an exceptionally cautious, pragmatic approach. On the one hand, it incorporates the key incentives that drive a dynamic economy. If these incentives are seriously blunted or distorted the negative impact will, and indeed does, pervade the entire economy. On the other hand, we are also dealing here with South Africa's largest firms, amongst the most important industrial institutions in the country. If

imprudent intervention shackles these key institutions we will be counting the cost for many generations.

There are, in short, no ideal industrial structures. This is why many of our policy recommendations are responses to behaviour rather than structure. However, certain forms of sub-optimal behaviour are clearly rooted in underlying structural conditions. Here we have to face up to the prospect of difficult structural shifts that will be contested by some powerful interests.

1 MARKET STRUCTURE

The structural character of many of South Africa's major product markets is widely acknowledged. In short, a wide array of key commodities is produced in highly-concentrated markets. Although the precise degree of concentration is difficult to measure and is the subject of active academic debate, the findings of the ISP sectoral researchers confirm the conventional wisdom that identifies South African markets with extremely high levels of concentration. Hence the paper and pulp industry, the various subsectors engaged in mineral beneficiation, cement production, the furniture, footwear, poultry, and wine industries, basic chemicals, and the production of white goods are all highly concentrated.

Moreover, certain of these sectors—for example paper and pulp, furniture, cement and poultry—are characterised by high levels of vertical integration. In other of these sectors, key inputs are produced in highly concentrated markets—for example, the supply of glass bottles to the wine industry. In yet others—the clothing industry, for example—downstream customers are highly concentrated.

Other sectors covered in the ISP appear to be characterised by high levels of competition—clothing and textiles for example. But here, as in many of the sectors listed above, a disaggregated cut of the output produced in the industry would reveal that major products are, indeed, produced in highly concentrated markets. For example, in 1988 the Board of Trade and Industries found that 90% of production of all spun yarn was in the hands of five companies, while more than 90% of continuous filament yarn was produced by only one company.

Does this matter? Are these market structures cause for concern—or celebration? A raft of persuasive arguments identify considerable advantage in key features of high levels of concentration.

Possibly the most persuasive of these observes that in a small economy scale, considerations underpin high levels of

concentration in major product markets. Yet, from a global perspective, these local monopolists or oligopolists, particularly those in the manufacturing sector, are, inevitably, relatively small fry. Indeed, this line of reasoning continues, if South African policy makers were seriously concerned with penetrating the international marketplace and withstanding competition from imports in the domestic market, they would be extremely tolerant of, and possibly grateful for, their domestic giants. The price paid for low competitive temperatures in domestic markets is adequately compensated for by the gains that will accrue to these firms—and the national economy—in international and domestic markets.

This argument is reinforced by the assertion that those firms that dominate concentrated markets, have achieved their dominant position via the competitive process. As long as their success has not been achieved or is not maintained by government regulation or collusive practices that restrict the entry of potential competitors to the market, then policy action designed to counter their domination is tantamount to punishing success. Conversely, policy supportive of non-dominant firms is tantamount to rewarding failure.

Finally, it is argued, a small number of well-resourced firms dominating an industrial sector, may well constitute the ideal market structure for fostering robust competition.

These arguments warrant serious consideration and embody clear policy directions. The arguments that insist on placing concentration in the context of the relative scale of domestic and global markets, and that caution against 'punishing success', clearly imply a competition policy that is subordinated to trade policy. The policy conclusion of this analysis supports a liberal trade policy that opens the domestic market to international competition and that entices South African firms into global markets—these pressures from the international market will provide all the competition that is required.

In general, each of these arguments would hold that policy designed to generate effective competition must, at most, focus on the *behaviour* of firms participating in concentrated markets rather than on the *structure* of the markets in question. There are, in this view, too many exogenous factors—for example, scale imperatives—determining the particular structure of product markets, and too many potential advantages embodied in high levels of concentration to justify policy intervention designed to restructure markets.

The 'large firm imperative' is compelling but should be treated cautiously. If the trade-off entailed in policy support for large, market-dominating domestic firms is a lack of

competitive temperature in the domestic market, we may well simply reproduce existing patterns—firms satisfied to exploit their local privilege with neither the will, nor ultimately the ability, to penetrate international markets. The widely held view that identifies the high level of *local* competition as the major force driving Japanese manufacturers into the international market is worth bearing in mind.

1.1 TRADE POLICY AS COMPETITIVE POLICY

- ◆ Will a liberal trade policy do the trick?
- ◆ Will it introduce robust competition into the domestic market?

A lowering of trade barriers will undoubtedly raise the competitive temperature. Empirical tests confirm—not surprisingly—that in those sectors where import penetration is high (in excess of 20%), the Gini levels for the sector decrease significantly when imports are factored into the concentration measures.¹ But there are limits to the extent to which trade policy can be used to achieve the objectives of competition policy.

Trade and competition policy are, to an important extent, driven by different considerations. Hence, whilst the overall direction of our trade policy clearly does support exposing domestic producers to international competition, this instrument should, in our view, be deployed selectively and gradually for fear that precipitative exposure would, in important instances, quickly eliminate domestic capacity. However, we would have considerably fewer qualms about immediately exposing local producers to competition from *domestic* sources.

In other instances, there is evidence that suggests that established brand-name loyalty, country-specific trading conditions, and the availability of after-sales facilities, will substantially privilege domestic firms even in a relatively liberal trade regime. This effect will be exacerbated by ubiquitous vertical integration.

In essence, concentrated markets and conglomerated ownership structures are, themselves, instrumental in raising barriers for prospective imports of both commodities and capital. South Africa is a difficult market to break into. Key brand names are well established, as are marketing channels and after-sales services.

The flurry of joint ventures between dominant domestic producers and transnational corporations is instructive. Is the competitive temperature in the domestic cigarette market raised by the joint venture between Rembrandt and Philip

1 Fourie, F. and Smit, M. 1989. 'Trends in Economic Concentration in South Africa', in *South African Journal of Economics*, 57, 3.

Morris? On the face of it, not. Competition in the domestic market would be strengthened by Philip Morris exporting its products into a suitably liberalised local market or by investing in production facilities in this country. But these alternatives have apparently been rejected in favour of a tie-up with a local corporation that is unchallengeable in its domestic market, even by a competitor with the resources and brands of a Philip Morris.

This area clearly requires more detailed research. However, our current impression is that we should not expect direct foreign investment or trade liberalisation to substantially deconcentrate the domestic market. In fact, current levels of concentration serve to inhibit the inflows of commodities and foreign direct investment that liberalised markets are intended to generate. Our impressions are confirmed by potential international investors. A senior executive of Morgan Grenfell & Co., the British merchant bank, is worth quoting at length:

If the barriers to entry are to be opened up, SA businessmen must ask if the market shares enjoyed by local companies are sustainable in the long term.

In other parts of the world, the businesses would be considered monopolies giving incumbents an unfair advantage.

I don't know too many international companies prepared to contemplate a greenfield investment in direct competition with an established producer with 40 percent to 100 percent market share.

Recently I was talking to a large multinational keen to invest in South Africa. It was happy to take the political and economic risk, but it was wary of starting up from scratch in direct competition with a near-total monopoly.

We are, if anything, more confident of the positive impact that will flow from South African firms' activities in the international market, although there is not yet much evidence of productivity-enhancing investments and practices in support of this export activity. Accordingly, we are not fully confident that many firms will remain in international markets in the context of growing domestic markets. ISP research confirms that subsidies drive a significant proportion of new export activity. Moreover, there are substantial complaints—in the paper and steel sectors, for example—of local exporters using the domestic market to subsidise their penetration of international markets.

But these qualifications notwithstanding, those firms that have established a position in international markets—albeit supported by export subsidies (GEIS), or subsidised by local

customers, or prodded by domestic recession—and that wish to remain in these markets, will ultimately succeed only if they are able to respond positively to the extremely tough competitive pressures that prevail in the global environment. This would, in the name of sharpening the competitive environment, support a trade policy that focused on driving South African manufacturers into international markets. There is, though, a chicken and egg dilemma here: there is a considerably reduced possibility of driving South African firms into international markets when they have an unassailable position in domestic markets, the more so if post-apartheid circumstances and policies contribute to rapid growth in these markets.

In short, high levels of concentration inhibit international competition in domestic markets, and domestic competition in international markets. Trade policy, whether in the form of import liberalisation or export support, will be hard put to override the privileges enjoyed by dominant local firms in the South African market.

1.2 SMES IN CONCENTRATED MARKETS

Above all, the impact of high levels of concentration on SMEs demands careful consideration. Many of the successful economies characterised by large firms and groups of firms—notably Japan and Germany—are also characterised by dynamic networks of small and medium-size enterprises which frequently depend for their existence on the custom of well-known large firms. The well-documented relationship between large Japanese firms and their smaller suppliers is a case in point—here the large firms characteristically support their suppliers financially, technologically and by entering into long-term contracts.

In South Africa, however, small and medium enterprise is particularly weak. This is detailed elsewhere in this volume. Suffice it to say that, in our view, the weakness of SMEs in South Africa is strongly attributable to the highly concentrated industrial structure, and provides a powerful argument for a vigorous competition policy directed at market power. The negative impact of the industrial structure on SMEs is partly attributable to collusion in oligopolistic markets—bear in mind that the essential backdrop to the co-operative relationship that characterises relations between small and large firms in Japan, is intense competition in oligopolistic markets dominated by the large producers.

1.3 COLLUSION IN OLIGOPOLISTIC MARKETS

Our research rejects the assertion that South Africa's oligopolistic markets underpin robust competition. On the contrary, there are indications of widespread collusion. Some of this is organised through formal and sanctioned cartels as in the case of the cement industry. Predictably, though, much of the collusion is informal and extremely difficult to track and act against.

An important qualification must be inserted here: collusion does not characterise all oligopolistic markets. For example, the auto assembly industry and the consumer electronics sector, both highly concentrated markets, are characterised by robust, indeed cut-throat, competition. Here, our researchers have proposed that greater inter-firm *co-operation* may be an important instrument in reviving the fortunes of crisis-ridden sectors. This does not conflict with our view of the process of competition—it is a complex view and one that specifically acknowledges the necessity for inter-firm co-operation in the context of a market economy. This reinforces our view that *behaviour* rather than *structure* is the key element determining policy. In this chapter I focus on *collusion*, a particular form of inter-firm co-operation that undermines the process of competition and the pursuit of competitiveness.

As with the problems surrounding the precise measurement of the degree of concentration, there is an active debate surrounding the even more complex question of identifying the precise incidence of market power, with collusion a key instrument in the exercise of market power. The results—mostly using 'excess' profits as a measure of market power—are predictably inconclusive. Although, as with international experience, a weak correlation is established between 'excess' profits and market structure—prima facie evidence of producers colluding to achieve market power—there is no agreement on the direction of causality suggested by this correlation. Evidence gleaned by the ISP researchers supports the conclusion of a 1985 study undertaken by the Competition Board:

...restrictive practices existed in a large number of branches of industry in respect of a variety of commodities. On account of the confidential nature of the practice, it is not possible to establish its magnitude in the South African economy. That they do, however, occur fairly generally, in fact more than supposed originally, is certain.²

We are especially concerned at the particular form that collusion between South African firms appears to take. When a

2 Competition Board, Report no. 15, August 1985.

disaggregated view is taken of South African markets, we find that single-firm dominance (as opposed to oligopolistic collusion or competition) is ubiquitous. This suggests that South African oligopolies collude in the sharing of markets.

A precise definition of dominance is difficult. Clearly though, whilst a monopoly obviously dominates the market in which it is located, dominance is consistent with smaller market shares.

Where a single firm commands resources and access to suppliers and customers considerably greater than that of any of the other suppliers in the market, we are confronted with the existence of market domination. It will generally follow that absolute size is reflected in market share, thus permitting the exercise of market power, but this need not be the case. However, in order to establish the existence of dominance, market share—the C1 ratio, the market share of the largest firm—is a good first approximation.

At the level of aggregation employed by standard concentration measures—generally 3-digit SIC categories—C1 ratios will, for the most part, not establish dominance. However, greater disaggregation will reveal dominance in major markets.

Hence, to take an oft-quoted example, the C1 ratio in beverages will be considerably lower than the C1 ratio in beer brewing; or, to take another example, the 'processed food' sector is highly concentrated, although, at this level of aggregation, dominance would not be established. On the contrary, the presence of several very large food conglomerates may suggest a fiercely-competitive market. A more disaggregated picture leads to very different conclusions. Hence, the poultry industry, at one stage a fiercely-competitive industry, is now thoroughly dominated by one supplier, Rainbow, with its erstwhile competitors having either been absorbed by Rainbow or having retreated into smaller market niches in which they, in turn, are dominant. Prior to the deregulation of the bread industry, the dominant firms, subsidiaries of the largest food conglomerates, Premier and Tiger, effectively allocated control of regional bread markets to single producers within one or the other conglomerate stable.

The important paper and pulp industry is a particularly interesting example of market domination. Hence, the recent assertion by Derek Keys, then Trade and Industry Minister, that SAPPI (formerly chaired by Keys) and Mondi, the producers that dominate the important pulp and paper industry, 'compete the hell out of each other' is only partly accurate.³ The two firms do compete vigorously in particular market segments in their sector. But other important segments of the

3 'A Wonderful Opportunity'. Interview with Derek Keys in *South African Labour Bulletin*, 17, 1 (January/February 1993).

market are clearly dominated by one or the other firm. We obviously do not have evidence that establishes overt collusion around market sharing. We are, however, confident that both firms have the resources, technological and financial, to enter and compete in the full range of activities in the paper and pulp sector. That they choose not to is evidence, at the very least, of implicit collusion.

What are the appropriate policy responses to collusion in oligopolistic markets, and, in particular, to single-firm domination, the form that collusion frequently takes in South Africa?

Despite the evidence of collusion in South Africa, we are persuaded that an oligopolistic market structure constitutes a potentially fertile competitive environment. This is borne out in particular sectors of South African manufacturing that are simultaneously characterised by concentration and intense inter-firm competition. We are certainly in favour of strengthening the ability of the competition authorities to monitor and check collusive behaviour when it occurs. But, in general, we are not in favour of an approach that attempts to restructure markets simply because they are oligopolistic.

The rather more interesting policy issues arise from an analysis of the underlying conditions that predispose South African markets to single-firm dominance, and oligopolies to collusion rather than fierce competition. In particular, the extent to which effective competition policy is compromised by conglomeration or concentrated ownership structures should not be underestimated. It is this aspect of South Africa's industrial organisation that underpins single-firm dominance and collusion.

There are three features of conglomeration that impede effective competition:

Firstly, *collusion—explicit of implicit—between the various conglomerates*. This is frequently manifest in a practice inelegantly dubbed 'conglomerate forbearance'. This occurs when Conglomerate A restrains a subsidiary active in a given market from vigorous competition against the subsidiary of Conglomerate B, lest B support retaliation by another of its subsidiaries in a market in which A's subsidiary is vulnerable. The most extreme form of conglomerate forbearance is a decision not to compete at all, to cede a given market to the subsidiary of a competitor conglomerate in exchange for a similar consideration in another market. This effectively results in single-firm dominance.

The extent of conglomerate overlap in broadly-defined product markets and, hence, the potential and incentive for conglomerate forbearance, is significant. As already indicated, a

more detailed investigation reveals a distinct absence of competition—as a result of conglomerate forbearance—in major market niches.

This practice is extremely difficult to verify. The Competition Board believes that it is widespread and each of the conglomerate executives interviewed acknowledged that it was a significant factor in corporate strategy. The Chairman of Malbak, a large manufacturing conglomerate in the Sanlam stable, in proclaiming the independence of his subsidiaries' managers from head-office control, insisted that the only operational decisions that the conglomerate head office vetted were gearing decisions and decisions that involved 'challenging a major competitor and upsetting a market'.⁴ Given that the very pursuit of competitiveness entails 'challenging' competitors and 'upsetting' markets, this seems to constitute admission of conglomerate forbearance.

Secondly, the 'deep pockets', the *superior financial muscle*, of the conglomerates bears close examination. This is frequently presented as an argument in favour of conglomeration—a conglomerate is able, by virtue of its financial resources, to nurture a subsidiary in hard times. Barlows' support for Middelburg Steel is sometimes cited here (although it is as frequently cited as a poor management decision that Barlows was sufficiently unconstrained to indulge further). However this financial muscle may also provide the wherewithal for predatory pricing practices. Essentially, powerful financial backing enables a producer to drastically reduce prices in order to force a competitor out of the market, simply to raise prices again once the competition has been seen off. In South Africa, the close relationship between the major financial institutions and the key manufacturing conglomerates ensures very deep pockets indeed.

Thirdly, there is the question of *vertical integration*. Again there are many circumstances where close relationships between a firm and its suppliers should be strongly encouraged. The relationship between Japanese manufacturers and their suppliers has been cited. Here commercial relations are generally supported by a small ownership stake. Moreover the context is one of highly competitive domestic markets with the ownership stake one aspect in a series of relationships designed to establish long-term loyalty.

In South Africa the ownership relation generally runs one way: down from the corporate head office. It is characteristically a controlling stake and, as opposed to the Japanese case, does not generally reflect the existence of commercial or other relationships between the corporate head office and the subsidiaries or between the various subsidiaries—ownership is the

4 'Young and Tough and in Charge of Billions'. Interview with Grant Thomas, Chairman: Malbak, in *Sunday Times*, 20 September 1987.

dominant relation. Moreover the context is frequently characterised by single-firm domination of manufacturing markets which places small upstream suppliers in an extremely vulnerable position. Where the manufacturer integrates vertically, the fate of other suppliers is sealed and entry into the market by competing manufacturers is severely constrained. There are legal prohibitions that govern anti-competitive behaviour such as exclusive dealing and discriminatory pricing but, again, these are difficult to enforce.

The consequences of South African industrial organisation are difficult to pin down precisely, although the broad tendencies are reasonably clear. High levels of concentration—or at least the particular form that it takes in South Africa—lowers the competitive temperature. Data compiled by Robin McGregor suggest a positive correlation between sectoral price increases and sectoral concentration ratios, and, whilst we do not claim that concentration levels are the only factors explaining high inflation, these certainly are consistent phenomena.⁵

The dynamic consequences of concentrated markets are evidenced by the persistent inability of large, long-standing, and well-resourced manufacturers to penetrate international markets. Again, although the domestic market structure is not the only factor accounting for the inward orientation and lack of dynamism characteristic of South African firms, international evidence correlating levels of local competition with success on international markets is persuasive.

The dynamic effects of our market structure can be tracked in the performance of some of the key components of a competitive manufacturing sector. The ISP technology study found that the combination of trade barriers and high levels of concentration was a major inhibitor of technology development and capacity. Moreover—and to return to a major theme of the ISP—this industrial environment is palpably hostile to the growth of small and medium-size enterprise, key elements of a modern, competitive manufacturing sector. As elaborated elsewhere in this volume, an attempt by a small manufacturer to enter the mainstream of the formal economy will inevitably encounter a collusive oligopoly or a dominant firm—as supplier, as customer, or as competitor.

1.4 POLICY PROPOSALS

The proposals that follow essentially seek to strengthen the competition authorities and refine the focus of competition policy. However, we should underline that what is required is a major policy review of market structure as well as ownership

5 McGregor, R. 1992. 'The Structure of South African Corporations'. Unpublished paper presented to ANC Workshop on Competition Policy, December.

structure.

Focusing for the present on market structures and their consequences, we would propose the following measures:

We have already intimated our support for *strengthening the competition authorities*. There are a range of complex issues involved here. We will not deal with budgetary and staffing issues, although we accept the claim of the Chairman of the Competition Board that, relative to the magnitude of their task, the competition authorities are hopelessly underresourced.

The power of the competition authorities is restrained by the approach governing competition legislation. The Competition Board has no independent power. It currently occupies a position as advisor to its responsible minister who may choose to accept or reject the recommendations it makes on the basis of a formal investigation. The competition authorities may, indeed, only undertake a formal investigation on ministerial request.

Regulations promulgated in terms of the Act outlaw a range of activities, the so-called '*per se*' prohibitions. These cover resale price maintenance, horizontal collusion on prices and tendering, and market sharing and conditions of supply. Violation of these prohibitions is a criminal offence, investigated by the police and prosecuted through the ordinary judicial system. A paltry fine is provided for in the event of proven violation.

A major revision of this system is required. It effectively means that justice is administered very slowly—indeed the victim may have already been eliminated by the time the law takes its course. Policing of anti-competitive behaviour relies upon its victims believing that sufficiently rapid and stringent corrective action will be taken by the responsible authorities. Without confidence in the competence and power of the authorities, victims will not undertake the potentially dangerous step of initiating action against a powerful competitor, supplier or customer.

The Board, effectively acting as a tribunal, should be permitted to take decisions arrived at as a result of the investigations of the competition authorities. This would necessitate strict legal definition of contemplated anti-competitive behaviours and structures. As part of the process of policing anti-competitive behaviour, the Board should be given the authority to identify and outlaw additional anti-competitive practices.

These offences should be decriminalised and the Board empowered to take corrective action and administer fines considerably greater than the paltry maximum currently permitted. There should be an appeal to a special competition court, staffed by legal officers expert in the complex economic issues

underlying competition law.

We have elaborated a view that holds that there are no ideal market structures. Accordingly, the action of the authorities should be chiefly concerned with monitoring and correcting the behaviour of participants in concentrated markets.

However, as noted above, our emphasis on behaviour should not preclude intervention designed to influence the structure of a market—action to prohibit mergers that will reduce competition effectively falls within this category. By the same token, action by the competition authorities to restructure particular markets should not be excluded, even if this necessitates a finding that a company divests itself of certain interests. This is already possible in terms of present legislation. Persistent anti-competitive behaviour by a monopolist, or a dominant firm or colluding oligopolists would justify action directed at changing the structure of the market.

In addition to strengthening the general powers of the competition authorities, the monitoring of particular acts and structures that are potentially anti-competitive should be tightened up. The *regulation of mergers and acquisitions* is one important example. In terms of current legislation the Board is empowered to investigate, at the minister's request, horizontal acquisitions. Indeed, recent amendments to the Maintenance and Promotion of Competition Act provide a rebuttable presumption that horizontal M&As are contrary to the 'public interest', the test that legitimises ministerial action in terms of competition law. Interviews with industrialists confirm that the Competition Board's authority in this area is seriously regarded. However, the impact of conglomeration and vertical linkages—especially their relationship to single-firm domination of important markets—requires that the narrow focus on horizontal M&As be extended to vertical and conglomerate M&As.

Conglomeration and its impact upon competition is another that requires more systematic treatment by the competition authorities. Collusion between conglomerates and the resulting practice of 'conglomerate forbearance' has been identified as a key factor undermining vigorous competition in oligopolistic markets and underpinning single-firm dominance. For this reason close monitoring by the competition authorities of *links between conglomerates* is essential.

In particular, the competition authorities should be empowered to prohibit interlocking directorships and cross shareholding where there is reason to believe that these links support anti-competitive practices. There are a growing number of instances of directors serving on the boards of competing

companies, or, at least, on the boards of conglomerates that include competing companies in their stables. Interlocking directorships frequently arise from shareholdings in competing companies.

The competition authorities' role in relation to the vexed question of *supporting SMEs* requires urgent reassessment. Presently, the competition authorities are mandated to support SMEs. This is interpreted as a mandate to roll back intervention in the market prejudicial to the interests of SMEs. However the existence and actions of large and dominant firms are not generally viewed as bearers of these interventions. Instead, the State and the industrial councils bear the major brunt of pro-SME pronouncements by the competition authorities.

As outlined elsewhere in this volume, we find that concentrated market structures and restricted market access are major impediments to the development of dynamic SMEs. We are not confident that, in such a hostile environment, policy directed at restructuring markets or at monitoring the conduct of large firms constitutes sufficient support for small firms.

Apart from policy interventions designed to enhance the underlying capacities of this class of producers, we recommend aggressive measures aimed at easing market access. Market reservation measures—effected through, for example, government procurement—will have a major impact on the interests of different classes of producers and on potentially conflicting interests between producers and consumers. The competition authorities appear ideally placed to monitor measures of this nature.

Finally, the structure of the competition authorities and their place in government is significant. The brief of competition policy is complex. It is, in effect, charged with mediating apparently contradictory interests—between producers and consumers and between different classes of producers. Moreover, the competition authorities have to interpret their brief in the context of national policy priorities. The structure of the competition authorities and their location in government must reflect the complex and contentious nature of their brief.

For this reason we strongly favour retaining the statutory independence of the competition authorities. The Competition Board should not simply be subsumed within a government department. Furthermore, consideration should be given to separating the investigating authority from the institution responsible for possible action arising out of the investigation. We would also propose the establishment of a special appeal court to deal with appeals arising from the decisions of the competition authorities.

We do, however, welcome the recent decision to relocate ministerial responsibility for competition policy from the State Enterprises ministry to Trade and Industry. Competition policy is a major instrument of industrial policy. It can only perform this role effectively if the structure of its relationship with the 'mainstream' of industrial policy reflects both the duality and tension implicit in its brief. The tension is reflected in the statutory independence of the competition authority—it should not be reduced to a directorate within the Department of Trade and Industry.

However, the symbiosis between competition policy and industrial policy must also be expressed and this is better achieved by placing the competition authorities in the same policy 'loop' responsible for trade policy, technology policy, SME support and the other key State instruments of overall industrial policy.

Concentration refers to two distinct, although frequently confused, phenomena. We now shift our focus away from the first of these, concentrated market structures, towards an analysis of the structures of corporate ownership and control.

A small cluster of families and institutions control a large proportion of South Africa's core mining, manufacturing and financial assets. The institutions through which these concentrations are represented are the large and highly diversified corporate groups that dot South Africa's industrial landscape. These corporate centres, in turn, control groups (themselves extremely large and diversified) that represent the conglomerate's interest in broadly defined economic activities—mining, manufacturing, and financial and other services.

The numbers are well known but bear repetition. In 1992, the top six conglomerates controlled companies accounting for 85,7% of the market capitalisation of the JSE. These—the 'conglomerates' in popular parlance—are the Anglo American Corporation (with 33,7%), the Rembrandt Group (14,6%), Anglovaal (2,9%), the Liberty Group (4,7%), SA Mutual (14,2%) and Sanlam (15,6%).⁶ As with the market concentration measures, there are quibbles regarding the precise level of control that these concentrations represent, but, by whatever measure, control is exceptionally centralised.

The conglomerates and the manufacturing groups that they control are highly diversified.⁷ The six conglomerates span major interests in mining, manufacturing, and financial and

2 OWNERSHIP STRUCTURE

⁶ *Ibid.*

⁷ Throughout this paper we will refer to the big six corporate centres—Anglo, Rembrandt, Anglovaal, Liberty, SA Mutual and Sanlam—as the 'conglomerates'. The companies that cluster their manufacturing interests and other similar clusters of manufacturing assets will be referred to as the 'manufacturing groups'.

other services. The attached organograms (Organograms A to F) vividly illustrate the range of interests controlled by the conglomerates.

As depicted by the organograms, these sectoral interests are themselves clustered in substantial groups in which one or other of the big six conglomerate centres hold a controlling interest. For example, the major mining interests controlled by Anglo are held through Anamint, JCI, Amgold and Amcoal; its key activities in the financial sector are held by First National Bank and Southern Life; its major industrial interests are represented in AMIC and in the powerful positions that it holds in Beverage and Consumer Industries, the company that controls South African Breweries, Premier Milling and Tongaat-Hulett.

Each of the six conglomerates control, via subsidiary groups, a major interest in manufacturing—SA Mutual's controlling interests in the manufacturing sector are held through Reunerts, CG Smith and Barlows, the groups spun off in the unbundling of the Barlow Rand Group; Sanlam's controlling interests are held in Gencor, Malbak, and Murray and Roberts; Anglovaal's through Anglovaal Industries; Rembrandt's through Huntcor; and Liberty's through its joint control (with Anglo) of Premier and Bevcon.

The manufacturing groups controlled by the conglomerates are themselves highly diversified. Again this will be verified by a glance at the attached organograms. Applying one widely accepted definition of a conglomerate—a corporation where less than 70% of revenues are earned in a single line of business—firmly establishes the highly diversified character of these groups.

The extent of diversification is verified by Anglovaal's proud claim in an advertisement entitled 'Anglovaal Limited—much more than a mining house' which reads:

Deep-sea trawling, the preparation and packaging of frozen foods and seafoods, and ship repair are some of the big ones we've landed in our investment portfolio.

And just a few examples of the diversification of the Anglovaal group.

We finance, manage, own and invest in some 200 companies with products that vary from bearings to burgers, cement to coffee, fruit juices to ferro-alloys, biscuits to bottles and shirts to switchgear. Apart from this we mine gold, uranium, copper, zinc, pyrite, anti-mony, chrome, manganese and iron ore.⁸

8 *Financial Mail*, 1990. 'Top Companies' survey.

2.1 THE MANUFACTURING GROUPS: ORIGINS AND STRUCTURE

The process of constructing the South African manufacturing groups and their insertion into the six conglomerate centres has occurred partly from the 'top down' in consequence of the massive influx of revenues into the mining finance houses, corporate centres established to cope with the exceptional financial requirements of gold mining. These revenues were gradually invested in manufacturing. Whilst, in the initial phases of this process, core investments were located in activities closely linked to mining—chemicals, forestry, heavy engineering—they now constitute distinct lines of business and there is little rationale in their current clustering, accounting for the degree of diversification encountered in the manufacturing groups within the mining house stables. In recent decades the massive influx of revenues into the life offices has resulted in the build up of their manufacturing portfolios.

In part, the South African manufacturing groups were built from the 'bottom up'. In the early 1960s, in a booming equity market, and in the midst of another international management fad that favoured conglomeration, South African manufacturing companies expanded by exchanging highly-rated paper for control of additional assets, in order to maintain their stock exchange rating, so as to acquire new assets. As these companies were required to make ever larger acquisitions in order to maintain their asset growth rates, and as difficulties in managing increasingly diversified groups were reflected in deteriorating financial returns (and hence stock exchange ratings), these high fliers turned to the only institutions with the capacity to improve their balance sheets or to replace the empire builders of the 1960s, namely the life offices, particularly SA Mutual and Sanlam, and the mining houses. It is certainly via this route that Sanlam made many of its 'strategic' manufacturing investments.

This process of conglomeration was accelerated by policy—in particular exchange control and the lucrative returns to be earned from diversifying into a protected domestic market—and, in recent years, by the departure of multinational corporations from South Africa and the acquisition of their local assets by those domestic investors with the necessary resources, namely the established conglomerates.

The degree of control exercised through each successive corporate layer is extensive. This is again confirmed by the organograms—Anglo holds 45% of the voting stock of its major industrial subsidiary, AMIC; Anglovaal holds 60% of

Anglovaal Industries; the Rembrandt Group holds 66% of Huntcor; Sanlam (until recently) 55% of Gencor; and Mutual, which until recently held 34% of Barlow Rand, previously South Africa's largest industrial group, now controls a similar stake in Barlows, Reunerts and CG Smith, the three manufacturing groups spun off in the Barlow Rand unbundling. These manufacturing groups replicate (and frequently exceed) this extent of control in respect of their holdings in their operating subsidiaries.

Despite popular representations that persistently bracket the six conglomerate centres, they are neither structurally nor behaviourally homogeneous. These differences are, to some extent, manifest in the size of the stake they maintain in their subsidiaries. Hence Sanlam—until very recently—has preferred a strong majority position, a position that has been backed up by a history of strong intervention in the affairs of its subsidiaries; SA Mutual, on the other hand, eschews intervention and generally holds a minority stake, although of a scale that ensures effective control. Rembrandt stresses the concept of 'partnership' with its subsidiaries and states a preference for strong minority positions. Anglo American and Anglovaal generally hold strong majority interests in their subsidiaries. Sanlam, Mutual and Liberty, predictably hold strong minority stakes in corporations controlled by other majority shareholders, whereas Anglo, Anglovaal and Rembrandt prefer to exercise control over their major investments. In general, though, these corporate 'concepts' that are claimed to govern relations between the conglomerate centre and its subsidiaries and expressed in notions of 'control', 'partnership', 'intervention', 'autonomy', and the like, are vague and are honoured as much in their breach as in their observance, particularly as inter-conglomerate participation becomes increasingly commonplace.

The key distinction amongst the six corporate centres is in the control of the conglomerates themselves. Four of the conglomerates are ultimately controlled by members of their founding families—the Oppenheimer family (Anglo American); the Rupert and Hertzog families (Rembrandt); the Hersov and Mennell families (Anglovaal); and Donald Gordon (Liberty Life).

Sanlam and SA Mutual, on the other hand, are mutual societies, nominally controlled by their thousands of policy-holders. Effectively, these corporations are controlled by their managers. The SA Mutual board, for example, comprises a group of executive directors drawn from the ranks of senior management—frequently lifelong Mutual employees—and

non-executive directors comprising the usual notables, including the chairmen (and previous CEOs) of Barlows and Safren, the two largest corporations controlled by Mutual.

It is important to appreciate the mechanisms whereby these shareholders have managed to retain control over their vast portfolios of corporate assets. The pervasive use of listed pyramided holding companies is the most common mechanism and by no means restricted to the top six conglomerates. Approximately 10% of the number of companies listed on the JSE produce nothing—their only function is to hold controlling shares in other companies.

This device effectively allows the company at the apex of the pyramid—and, of course, the family (or institution) whose shareholding dominates this apex company—to control all the companies layered beneath it with a minor equity share, or, what amounts to the same thing, a minor commitment of actual capital. The controlling shareholder will, in Gerson's terminology, have a progressively smaller 'claim to dividends' (or, share of ownership) the further one descends from the apex of the pyramid.⁹ However, the degree of control remains the same.

Hence if Company A owns 51% of the voting stock of Company B, which in turn owns 51% of the voting stock of Company C, then A will have acquired control of C but will, through its 51% commitment to B, have contributed only some 25% of C's equity capital. If C now acquires 51% of D, then A will acquire control of yet another company but this time with an effective capital commitment of only 12.5% of D's equity. The cluster of pyramids whereby the Rupert and Hertzog families retain control of the assets of the Rembrandt Group (see organogram B) is a particularly clear instance of the use of this mechanism.

The dominant shareholder of the Anglo American Corporation secures control by a complex of substantial cross shareholdings, centrally between the Anglo American Corporation and De Beers with each owning in excess of 30% of the voting share capital of the other, but replicated throughout the conglomerate's structure.

In other countries, dominant shareholders similarly connive to fund their investments without relinquishing control of their corporations to the new investors. One possibility is through issuing non-voting shares. The holders of these shares participate in dividend payouts and benefit from any appreciation in the value of the company's assets, but they do not participate in the control of the company. This method is extensively utilised in Sweden, with levels of concentration of corporate control

9 Gerson, J. 1992. 'The Determinants of Corporate Ownership and Control in South Africa'. Ph.D. thesis, University of California.

that match South Africa's. In South Africa the Companies Act (No. 46 of 1952) prohibited non-voting shares, effectively restricting new issues to companies where they were already in use. Anglovaal is alone among the South African conglomerates in employing this device to maintain the control of its controlling shareholders.

Another method of shareholders retaining control of their companies is to use bank debt—as opposed to shareholders' equity—to fund the activities of the corporation. Japan, Korea and Germany are all countries where corporate debt : equity ratios are much greater than in the case of British or US (or South African) companies. In South Africa long-term debt : equity ratios approximate those found in the two Anglo-Saxon economies.

In summary then, South African corporations finance expansion via internal resources or through the sale of shares in the company. The pyramid is the common form whereby strong South African shareholders support their control of major listed corporations. In a relatively small economy like South Africa's, the upshot of these arrangements is to effectively allow a few strong shareholders to control a large slice of the nation's corporate assets, and, in large part, accounts for the exceptional levels of corporate diversification.

The degree of control exercised by this handful of shareholders, overwhelmingly represented by a small number of white male board members, is the issue at stake here. The avowed objective of the policy measures traditionally offered to confront these structures—ranging from nationalisation through conglomerate 'dismemberment' to racial quotas for board membership—is a more equitable spread of ownership and control of the corporate sector. However, here too, the policy debate has been shaped by a putative trade-off between deconcentrating ownership structures and reducing corporate efficiency.

In many key industrialised economies, including the Asian NICs, there are certainly outstanding examples of successful corporate groups at the heart of national industrial progress. However, there are clearly broad national distinctions in the construction and performance of these groups—what is it that distinguishes the successful, dynamic and flexible Japanese *keiretsu* and Korean *chaebol* from the lumbering, beleaguered British and American *conglomerates*? Or, in the language of corporate strategy, why does the group form 'add value' and generate 'synergies' in certain instances, whilst failing to achieve these economies in other cases?

There are two arguments advanced in favour of a corporate

structure characterised by diversified groups and concentrated control. The first holds that concentrated control structures enable owners—presented as entrepreneurs with an established track record—to closely monitor and influence the performance of their managers. The second holds that the conglomerate form ensures the more effective spread of scarce managerial, technical and financial resources. In other words, inter-firm co-operation is facilitated by conglomeration.

2.2 CONGLOMERATION AND ENTREPRENEURSHIP: THE SEPARATION OF OWNERSHIP AND CONTROL

It is widely held that a central feature in the development of Anglo-Saxon, that is US and British, capitalism is the separation of ownership of corporate assets from their control. As the founding entrepreneurs have been obliged to turn to the financial markets in order to fund expansion, ownership has passed into the hands of a diffuse and disorganised collection of investors. In this process, effective control of US and British corporations has passed into the hands of the professional managers responsible for their day-to-day operations. These unaccountable managers have, this line of reasoning continues, used corporate profits for their own benefit, directly reflected in enormous managerial salaries and bonuses, and indirectly in the acquisition of additional assets in order to expand the horizons of their control. This latter imperative is said to underlie the process of conglomeration—highly diversified corporations whose growth process is rooted in mergers and acquisitions.

These managerial excesses are ultimately constrained by ‘voiceless’ shareholders ‘exiting’, selling their stock and thereby activating the ‘market for corporate control’. The intense activity in this market in recent years reflects growing shareholder dissatisfaction, and the fact that large institutional shareholdings have reduced ownership fragmentation. In response, senior managers have constructed an elaborate defensive armoury aimed at resisting hostile takeovers, or, at least, aimed at securing handsome payouts for themselves in the event of such action.

Shareholder dependence upon their right of ‘exit’ is widely construed to underpin a crippling ‘short-termism’ on the part of Anglo-Saxon investors. Hence, other mechanisms have been devised in order to exert control over managers. These include attempts to bring managerial and shareholder objectives into conformity by loading managerial remuneration packages with share options. In Britain, the Cadbury Committee has advocated a more active role for non-executive shareholders and the

imposition of more stringent disclosure requirements on corporate management. In the US, in particular, policy debate centres around mechanisms to encourage the large institutions and pension funds, which hold increasingly significant stakes in US corporations, to play more active ownership roles.

The shortcomings of the Anglo-Saxon governance systems are unfavourably contrasted with their more successful European and Asian counterparts. The two aspects of these 'Eurasian' systems that are most frequently stressed are, firstly, the role played by bank debt as opposed to shareholder equity in corporate finance. The advantage that is said to attach to this form of financing is that it permits the entrepreneur to fund expansion without relinquishing control. Also, for a variety of reasons, debt is considered a more 'patient' form of finance than shareholder equity, with its holders, the banks, more active participants in control, than the diffuse shareholders of the UK and the US.

Secondly, the relatively prominent role accorded non-shareowner stakeholders—including the banks—has received attention. The German codetermination system is the most explicit institutionalisation of stakeholder participation, although the complex and little understood relations between Japanese shareholders, banks, managers and workers, and vertical relations between Japanese firms, may constitute an even stronger version of broadly-based corporate governance.

How is South Africa placed in this debate? Fragmented ownership is certainly not a feature of South African corporate governance. But in South Africa, as already elaborated at length, it is not debt financing, but rather a series of legal devices, in particular the listed pyramid company, that has enabled the founding families to simultaneously fund expansion and retain ultimate control of their corporations.

How do South African corporations fare under a strong shareholder regime? Does strong shareholder 'voice' overcome the problems of US and British capitalism, or does it generate new problems?

The Financial Times (FT), clearly views the relationship between strong South African shareholders and their managers as a significant factor underlying the lack of dynamism of leading South African corporations. In a recent profile of the Anglo American Corporation, the *FT* disparagingly described the corporation's senior executives as 'polished Oxford-educated courtiers, for whom relations with the (Oppenheimer) family matter more than commercial ability', implying a conflict between a strong shareholder and 'commercial ability'.¹⁰

¹⁰ *Financial Times*, 2 July 1992.

On the other hand, the most elaborate and sophisticated

defence of concentrated ownership discerns major 'commercial' advantage flowing from shareholder power in South Africa. In direct reference to the debate between alternative corporate governance systems, Gerson identifies the retention of corporate control in the hands of the founding families as a major source of dynamism.¹¹ This allows him to equate South African governance systems with the European and Asian models. Gerson identifies centralised ownership as the outstanding feature common to both systems. In particular, he makes reference to Sweden, an equity-based system, where the use of shares with differential voting rights underlies levels of concentrated control commensurate with the South African situation.

How are these conflicting positions evaluated? Do strong shareholders suffuse their corporations with entrepreneurial dynamism? Or, as suggested by the *FT*, do they generate sycophantic managers—'courtiers'—unconcerned with 'commercial ability'? And, if unconcerned with 'commercial ability', what are the managerial skills and abilities valued by South Africa's dominant shareholders?

The relationship between the controlling shareholder, on the one hand, and, on the other, the executive directors, many of them lifelong head office employees, charged with responsibility for managing the family portfolio, is inordinately complex. This complexity deepens as the size and diversity of the assets grows, as the founders retire and die to be replaced by second and third generation heirs, and as the personal fortunes of the non-family executives become increasingly bound up with their own stock holdings in the conglomerates. Under these circumstances the picture painted of dynamic entrepreneurs controlling the destinies of their multiple assets is fanciful at best.

In fact, the family assets are managed by a board comprising executive and non-executive directors. In each case, the founding family is present in the shape of at least one of the executive directors (in Anglo's case, a third-generation heir). However, for the most part, the executive directors are career conglomerate managers. The responsibility for chairing the boards of the next layer of subsidiaries is parcelled out amongst the executive directors, although, occasionally, the chief executive of a major acquisition is retained in position and given a seat on the main board. Non-executive directors are drawn from several sources—for example, some represent associated companies with an interest in the conglomerate (for instance, an institutional investor), others are drawn from the usual array of community 'notables'. In recent years, a small number of black faces have begun to feature in this latter category.

11 Gerson, J. 1992.

The key board members are, obviously, the executive directors, although, partly in emulation of the Cadbury Committee—an investigation of the British corporate governance system—South African corporations are showing interest in strengthening the non-executive directors. But it is these professional head office managers, the executive directors, with one or more family members in their number, who oversee the portfolio of diverse interests—they represent the interests of the controlling shareholder. The main board of each of the conglomerates has the power to appoint the board of its subsidiaries, and, in effect, subsequent layers of the corporate hierarchy, with the status quo at the top secured by one or other of the legal devices outlined earlier.

But the sociology of the boardroom aside, the complexity, diversity and sheer scale of the South African conglomerates belies the romantic simplicity underpinning the entrepreneurship thesis. This argument is valid to the extent that the founding families have the voting power to remove the boards of the pyramids that control the various groups' operating assets. However, just as the reality outlined above inhibits the actual exercise of this power, so too does it narrow the criteria that the controlling shareholders are capable of adopting in order to evaluate the performance of their senior executives.

Only the narrowest of financial criteria can be employed in making this assessment, and it is precisely this mode of evaluation that extends through the corporate pyramid encompassing what, for our purposes, are the key relationships, namely those between corporate head office and operating subsidiary. Shareholder control is undoubtedly strong, however it is not the control of the entrepreneur, but the control of the portfolio manager and accountant.

To this extent, South African corporate governance approximates that of the US and Britain—there entrepreneurs gave way to managers who, via redesigned remuneration packages or the market for corporate control, have been progressively subordinated by the financial markets; in South Africa entrepreneurs converted themselves into portfolio investors without ever ceding significant authority to operational managers.

Hence, despite the distinction between their forms of governance and of the policy measures necessary to deal with them, from the perspective of a South Africa manufacturing company it makes little difference whether the controlling shareholder is one of the family-dominated conglomerates or one of the mutuals. The key relationships are between the main conglomerate boards and the shareholder, and the main conglomerate boards and their operating subsidiaries (the latter mediated by

subsidiary groups, divisions, and other organisational arrangements). The principal impact of this hierarchy of relationships is in the performance criteria that the shareholder brings to bear on the manufacturer. It was most eloquently articulated by a senior investment manager of one of the mutuals, who, when asked to explain the remarkable paucity of information supplied to policy-holders in the annual report, simply stated that 'the information required by our policy-holders is the performance of our portfolio compared to that of the market'.

A similar picture emerged from other manufacturing groups within the conglomerate stables. In general, the head offices required little by way of reporting from their subsidiaries that was not directly financial. Indeed, in addition to conducting regular financial reviews, the conglomerate head office tended to appoint the chief financial officers within the subsidiaries; the only evidence that we encountered of staff rotation between the head office and operating units and between the operating units themselves, was restricted to financial personnel. A CEO of a large manufacturing subsidiary described the monitoring process in these terms:

[the divisional holding company] comes in here once a month to look at the results, and they say a few things, but as long as our results are OK they don't worry too much.

South African corporate governance is then characterised by the domination of financial relations and performance evaluation. In the US and Britain financial interests are also dominant. But in these countries the financial domination occurs in a context where shareholders are weak because of their diffusion. This combination of financial domination and weak shareholders encourages short-term speculative behaviour.

In South Africa, financial domination is embedded in a context in which shareholders are strong and 'patient'. But they are 'patient', not because of any imagined virtues that attach to their entrepreneurial roots, but because, given the characteristic scale of their holdings in any given corporation, they cannot easily exercise their right of 'exit' without impacting significantly on their financial returns and asset values. The South African combination—the absolute dominance of financial evaluation criteria, the criteria of the portfolio investor, but in the absence of the investor's ability to exit at will—produces extreme risk aversion in the investment behaviour of the conglomerates.

This is why South Africa's major conglomerates, whose boards represent the interests of the controlling shareholders, are satisfied to manage portfolios of blue chip assets and to engage in little entrepreneurial risk taking. Contrary to a

popular image held by the left, *South African investors are not paper-chasing, risk-taking speculators. On the contrary, they take too little risk.* We concur with Derek Keys, a former Finance Minister and previous head of Gencor, who recently observed that the investment behaviour of the South African conglomerates (and he specifically included the large manufacturing groups in this assessment) is akin to that of a trustee, reluctant to invest in large projects with long payback periods, or in small risky ventures. The main boards of these conglomerates are entrusted to manage the investment portfolio of their controlling shareholders.

This analysis is borne out by research, principally through interviews with executives in the conglomerates and manufacturing groups, and with senior managers of the operating subsidiaries. The major findings are briefly summarised here:

The entrepreneurial character of the conglomerates has to be manifest in concrete performance. We have not used the conventional capital market and accounting generated data, nor have we used another commonly employed measure, the divestiture : acquisitions ratio.¹² We have rather tried to evaluate two broad claims commonly made for the conglomerates. These are, firstly, that the centralisation of financial resources facilitates productive investment. And, secondly, that conglomeration permits a spread of scarce managerial and technical resources.

The results of the interviews have revealed two broad tendencies. We shall first summarise the position that appears consistent with those manufacturing groups that effectively cluster the manufacturing interests of one or other of the conglomerate centres. We shall then look at the performance of a sample of independent manufacturing groups, independent, that is, of conglomerate control.

2.3 MANUFACTURING WITHIN THE CONGLOMERATES

Conglomerate executives generally eschew intervention in the management of their operating companies. Their assessment of the management of their operating companies and their intervention is directed at the key financial ratios. This was crisply outlined by the Chairman of one of the key groups within Sanlam:

We have defined two types of decisions—management decisions and shareholder decisions. We at head office look after shareholder decisions, which include questions such as whether there should be a rights issue, what the level of gearing should be and dividend policy.

12 Both measures are of limited value. However, analyses using the capital market and accounting criteria 'clearly indicate that conglomerates in the South African context have significantly underperformed in comparison to non-conglomerate companies' (Affleck-Graves, *et al.*, 1989).

In short, the conglomerate controls the access of its subsidiaries to capital, by determining the proportion of its earnings that it should retain ('dividend policy') and by determining additions to its financial resources (rights issues and gearing). This is borne out by the relatively high level of dividend payout from operating companies to conglomerate centres and the relatively low dividend payouts from these to their shareholders.

How are these centralised earnings deployed?

We have noted the tendency towards extreme risk aversion in the investment behaviour of the conglomerates. At one level, this assessment is probably too harsh. Gencor, for example, has been a key investor in several large projects and Anglo, too, has made several major investments in recent years. In undertaking these investments two key South African conglomerates have demonstrated a willingness to undertake risky investment with relatively long payback periods in their core areas of competence—mining and mineral processing—although the most significant of these investments have benefited from considerable State support.

However, with respect to manufacturing, Derek Keys' observations are borne out. Principally the manufacturing groups have used the earnings of their subsidiaries to diversify by means of acquisitions, an option that has been relatively risklessly exercised in the context of disinvestments by multinationals. The steady, and sometimes substantial, growth rates achieved by key manufacturing groups, especially through the 1980s, have been achieved almost entirely by means of new acquisition rather than internal growth.

It is not at all clear how the existing operations responsible for generating these earnings benefit from this centralisation of financial resources. This was graphically underlined by the chief executive of a key operating subsidiary of one of the large groups who complained bitterly of the loss of his company's listing, and hence its ability to raise capital independently, since its absorption into the group. He believed that his company had been delisted solely in order to strengthen the group's position on the JSE.

This is particularly important given that the strongest defence of the proponents of conglomeration resides in their putatively greater ability to support large capital absorbing projects. However, in the context of a sophisticated capital market such as exists in South Africa and cash-rich financial institutions looking for solid investment opportunities, there seems to be no reason why strong companies (such as the subsidiary referred to in the previous paragraph) should not be able to raise capital on their own account, but for the desire of their

controlling shareholders to retain control. Indeed, in a situation where the conglomerates generally trade on the JSE at a discount to their underlying asset values and the operating subsidiaries at a premium to their asset values, it is likely that the operating subsidiaries may be able to raise equity and loan capital at *lower* cost than their conglomerate shareholders.

In summary then, where access to capital is concerned a view from several of the operating subsidiaries emphasised a serious problem in raising investment funds from a location within a conglomerate umbrella. Their membership of a conglomerate denied them direct access to the capital markets and other independent sources of finance, effectively leaving them to compete for funds in an 'internal' capital market, dominated by an opaque logic.

The record would suggest that the conglomerates are willing to use their financial resources to prevent a subsidiary from going under. In a comprehensive review of the performance of South African conglomerates, Gerson was able to find only one case of a conglomerate permitting an operating subsidiary to go bankrupt.¹³ Whilst, under particular circumstances, the willingness of a conglomerate to defend its subsidiaries is positive, this does feed into a general and strong criticism of conglomeration, namely, that a highly diversified conglomerate is effectively freed from the constraints of competing in any single product market and, hence, will tend to support failures in order to protect its reputation. Moreover, where the operating subsidiaries are able to rely on a cash-rich conglomerate head office they are freed from the constraints of the capital market. Gerson's evidence bears this out.

What of the claim that conglomeration enables the sharing of costly overheads, infrastructure, and scarce managerial and technical resources?

The responses here are difficult to evaluate partly because of an embracing ideology of decentralisation of decision-making—all insisted on the importance of company management being responsible for its own sphere of operation. Moreover, a fear that co-operation would be seen as collusive—and the line here is admittedly thin—may have played a role in the interviewees' reluctance to identify intra-group co-operation.

But, for all that, the claim on the part of the head office not to interfere in manufacturing activities was borne out. However, particularly where the highly diversified groups are concerned—and degree of diversification tended to distinguish the conglomerate-controlled groups from the independent groups—it is clear that the group executives were, for the most

13 Gerson, J. 1992.

part, completely unfamiliar with the business of their subsidiaries. Hence, a necessity (borne of ignorance) was presented as a virtue (decentralisation). As one group executive candidly acknowledged: 'at the level of the management of the operating companies [the group board] doesn't know the industry'. This latter assessment was strongly shared by the subsidiaries' executives.

The manufacturing groups provided a uniform basket of services in the area of shared overheads to their operating subsidiaries. Common services included a treasury function, insurance, public relations, group benefits, tax advice, and an industrial relations consultant. These services were not much valued by the operating subsidiaries. A CEO of a large operating subsidiary responded to the question 'what services do you get from your group head office?' as follows:

None. They do have some services, but we don't use them, don't need them. We attend their seminars now and again but on the whole we don't get services from them. They don't add value to the business.

Indeed, it is what the operating subsidiaries of the conglomerates do not share that is most revealing. Hence none of the groups interviewed co-ordinated or facilitated export marketing on behalf of their subsidiaries. Personnel exchanges between the various companies were rare and coincidental and, in our sample, occurred only in the case of some financial and accounting personnel. None claimed to co-ordinate the purchase of inputs and none demanded intra-group sourcing of inputs. None of the conglomerate-linked groups co-ordinated R&D on behalf of their operating companies.

One of the groups was asked to characterise its management philosophies along a spectrum from 'portfolio management' to 'shared activities' and, whilst it claimed to be more than a portfolio manager, it was unable to specify its role more narrowly—the executive interviewed did agree that the relationship of his corporation to its operating subsidiaries was analogous to that of the relationship between the group and its controlling shareholder, a pyramid company controlled by one of the mutuals.¹⁴

In our view, what is revealed here is not unintelligent management but an emphasis on diversification conditioned by a particular form of corporate governance. Groups, within this governance system, are constructed not because of the activities that they may share, but because of the imperative to spread risk—in short, the imperative of a portfolio investor rather than that of an entrepreneur.

14 The categories 'portfolio management' and 'shared activities' are drawn from Porter, M. 1987. 'From Competitive Advantage to Corporate Strategy', in *Harvard Business Review*, 87, 3 (May–June).

2.4 THE INDEPENDENT MANUFACTURING GROUPS

Different conclusions emerged from our examination of three other large groups. Whilst insistence on the operating autonomy of company management was consistent with that outlined above, the evidence of shared activity was very strong. Apart from the usual shared overheads already enumerated, we also found that exporting was co-ordinated. In one case the purchase of inputs was centralised. Another group maintained a large R&D capacity on behalf of all the group companies, while a third group frequently co-ordinated the activities of several of its operating units in the tendering for and servicing of its contracts.

When asked to characterise their management philosophies along the spectrum from 'portfolio management' to 'shared activities', one of these groups identified its role as that of 'co-ordinator' of the activities of its subsidiaries. The group executive's view of his corporation was confirmed by the CEO of one of its major subsidiaries, who perceived the co-ordinating activities of the conglomerate as being largely responsible for the strong recovery made by his company in the period since its absorption into the group. In particular, the relationship forged by the group head office between two of its operating subsidiaries with similar markets, technologies and vertical links in the value chain, was cited as the key factor underpinning the recent successes of both operating subsidiaries. This would seem to be a clear example of 'shared activities'.

Another of the three groups in question identified the facilitating of sharing amongst its units as the managerial activity of the conglomerate in relation to its subsidiaries. Interestingly, the executive interviewed was sceptical that this role would be maintained in the event that the corporation was fully absorbed into the structures of the conglomerate that already held a large, though minority, stake in his group.

The location of the manufacturing groups along this spectrum tends to be confirmed by the precise nature of the review and monitoring processes employed by the head offices. In general, the benefits of the review and monitoring carried out by the group head office are most difficult to identify. As already noted, the conglomerates and the groups located within their structures tend to employ narrow financial criteria. These review criteria, and the corporate incentive structures that accompany them, emphasise the isolation of the business unit from the other members of the corporate stable. Shared activities—that may add cost to one business unit in order to advantage another or the corporation as a whole—are

discouraged by review criteria and an incentive structure that emphasises the financial returns of individual business units.

In the independent groups, the interaction between the subsidiaries and the head office tended to be considerably more rigorous. One group executive acknowledged that the standard monthly reporting requirement imposed on the management of the operating subsidiary was extensive and extremely time consuming, but necessary if the group head office was to participate meaningfully in the affairs of its subsidiaries. Another made constant reference to the intense 'feedback' that it provided to its subsidiaries. One of the executives interviewed specifically recognised that accounting evaluation tended to privilege individual company performance above contribution to the group. To overcome this, the accounting evaluation was interpreted flexibly so that, if the wider interests of the group dictated that a particular company under-perform in formal accounting terms, then this could be adjusted in the group review process in order to demonstrate the 'true' contribution of the subsidiary obliged to bear the cost of the subsidy to the group. Financially-based evaluation of the performance of individual assets does not disappear in this formulation; it simply ceases to be the sole criterion.

2.5 CONGLOMERATES GROUPS VERSUS INDEPENDENT GROUPS

What underpinned the distinctive managerial practices of these two groups?

There were two related differences. Firstly the independent groups tended to be less diversified than those within the conglomerate stables. The 'core competence' of a group of companies is—as in two of the independent groups interviewed—sometimes easily apparent. Hence, of these, one controlled activities in the same broad sector of the economy; the other employed broadly similar technological inputs across the range of activities that it controlled.

The third company was larger and tended to operate across a wide sectoral range. However, the management of this company identified an ability to grow small enterprises as its core competence, a competence developed from experience gained in the management of individual construction sites and projects. And, indeed, in relatively diverse areas of engineering, construction, and the provision of a range of services, this company demonstrated an unusual ability to invest in relatively small undertakings—undertakings that may well have had

difficulty raising funds independently—and to enhance their performance by purposefully interfacing them with the activities of other companies within the group.

The conglomerate groups, on the other hand, are highly diversified. Some identified a unifying theme but this was often so broad—consumer markets, for example—as to be meaningless. One also had the strong impression that the definition was derived *post hoc* rather than as a result of a clear prior strategy—the executive of one of these groups described his group’s acquisitions strategy as ‘opportunistic’, determined by whether an available asset represented a ‘good buy’, judged on its financial returns rather than by its fit with the rest of the group’s assets. Several of the conglomerate groups specifically maintain a general division which comprises those acquisition that do not fit into existing divisions. There is, however, even amongst these groups, a recent discernible tendency to greater specialisation.

We should note that the tendency towards specialisation in the activities of the corporate groups, is greater amongst the mutual-dominated groups than in the case of the family-dominated conglomerates. This is partly explained by the relative size of their holdings. SA Mutual and Sanlam are able to achieve diversification of their portfolios via holdings in a range of manufacturing groups; the family-dominated conglomerates are more restricted and hence tend to diversify within particular groups. This partly explains why Sanlam and Mutual have led the unbundling process.

The degree of diversification observed amongst the conglomerate groups is not meant to suggest that there are not a small number of highly diversified groups outside of the conglomerates, or that there are not relatively focused groups within the conglomerates. However, as a general rule of thumb, the conglomerate groups tended towards high levels of diversification. The crucial factor underlying these levels of diversification is the mode of corporate control, the particular governance structure that distinguishes the conglomerate groups from the independent groups.

Two of the three independent groups in question were actively managed by their owners, members of the founding families. As in the case of the conglomerates, the families secured control of the groups by means of listed pyramids. Both groups had experienced rapid growth, with the larger of the two growing by a combination of acquisition and internal growth, the other growing almost entirely through internal growth. However, the groups had remained highly focused, thus enabling the active managerial participation of their

owners. This combination of owner *and* managing executive underpins the entrepreneurial character of these group—these are not portfolio investors, they are entrepreneurs.

However, whether these groups will survive in their present form is extremely doubtful. Aside from the obvious problem of inheritance, the underlying requirements of further corporate growth will push both groups into closer relations with the large institutions and into rapid diversification. In each group one of the conglomerates has a large minority shareholding. The relationship between the one group and its conglomerate minority is close, with the group CEO represented on the board of the conglomerate holding company and the conglomerate represented on the board of the group in question. It is clearly a matter of time—possibly the death or retirement of the founder—before this group is absorbed into the conglomerate's industrial arm.

The second independent group has purposefully linked up with an institution with a particularly strong reputation for non-intervention in the operations of its subsidiaries. The institution has a significant minority stake in the group. It was, until recently, a well-focused group with a remarkable growth record that is almost entirely internally generated. However, it has recently used its considerable cash reserves to acquire a controlling stake in a highly diversified manufacturing group that has remained independent of conglomerate links.

This acquisition has been strongly criticised and is widely perceived as an unexpected stumble on the part of entrepreneurs with hitherto impeccable records. But with hindsight it appears inevitable. The group could simply not reproduce its growth rates—and hence the value of its paper—without entering the world of mergers and acquisitions. At best this acquisition will place great pressure on the current owner/managers to reproduce their strong managerial engagement. At worst, its difficulties in absorbing its new acquisition will force the independent group into an increasingly closer relationship with its cash-rich institutional backer. If this is the path followed, then this independent group will simply be constituted as yet another manufacturing holding company within the conglomerate stable.

Control of the third group has recently been assumed by one of the conglomerates. Until then the group had been owned by a particularly inactive shareholder, with the group effectively controlled by its managers. The financial requirements of a big acquisitions programme drove it into the stable of one of the conglomerates. Suffice it to say that the executive interviewed was at pains to stress how carefully the management had

secured managerial autonomy before agreeing to the sale of ownership to the conglomerate.

There are two policy-relevant lessons to be gleaned from these experiences:

Firstly, what each of the positive experiences has in common is dilution of the power of ownership by management. Whilst the ideology and romance of 'entrepreneurship' has tended to emphasise the fact of ownership, it is inextricably linked with active management. In the four conglomerate-dominated groups the managerial role of the owners is relatively insignificant given the scale and diversity of the operations, and will become increasingly insignificant as the founders retire or die. In the smaller or more focused independent groups, it is strong, active management—sometimes combined with ownership—that is the distinguishing feature.

What distinguishes the South African owner-dominated groups from their dynamic Swedish, German, Korean or Japanese counterparts, is the absence, in South Africa, of a countervailing power. Swedish ownership structures are highly concentrated, but strongly countervailed by the power of the State and the trade unions. Germany's owners are constrained by the power of the banks as well as the institution of co-determination and the authority that this extends to the unions in particular. Korea's strong owners are disciplined by an exceptionally powerful and interventionist State, while in Japan, owner-power is significantly moderated by the salience of a multitude of other links—trading and technology links between companies, lifetime employment, and long-term contracts with suppliers and customers.

In South Africa, ownership is uncontested. Our research confirms that this underlies conservative, risk-averse investment strategies; it underpins managerial practices that undervalue inter-firm sharing and co-operation, and privilege narrow financial assessment criteria. Policy cannot, within the giant conglomerates, attempt to reconstruct the owner-managers of the past. But policy can attempt to ensure a wider spread of stakeholder control of the corporate economy, a governance system that drives manufacturing performance, as opposed, merely, to shareholder value.

Secondly, we are, to a significant extent, describing the limits of an equity-based as opposed to a debt-based investment regime. South Africa, Britain and the US share equity-based systems; German, Japanese and Korean corporations are deeply rooted in debt-based investment regimes.

There are policy measures that may impact on the relative strengths of debt versus equity financing. For example, macro-

economic policy and tax regulation favour equity over debt as a source of corporate finance, and this requires re-examination. In general, though, policy intervention is unlikely to change South Africa from an equity to a debt-based investment system. We are, however, persuaded that, even within the confines of an equity-based system, there is a capacity for a more productive form of corporate governance.

2.6 POLICY AND CONCENTRATED OWNERSHIP

The interlinked objectives of our policy proposals are, firstly, to encourage greater specialisation in the composition of the South African manufacturing groups; secondly, to deconcentrate ownership, to effect a greater spread of ownership; and thirdly, to facilitate broader stakeholder participation in corporate control.

Leading South African corporations, partly prodded by a desire to stay ahead of a new government committed to action in this area, but also by increasing investor and managerial disaffection with highly diversified conglomerates, have initiated action that is already leading to greater specialisation in the portfolios of several key groups. 'Unbundling' is the name given to this process.

The conglomerate centre that has taken the most substantial steps in this direction is Sanlam, initially through Gencor, its mining and industrial arm. Gencor has broken itself up by passing its share in the non-mining corporations it controls to its ultimate shareholders. Via this process, Gencor has shrunk from a R20 billion mining and industrial conglomerate, to a mining and minerals group of slightly more than half of its value immediately prior to the unbundling exercise. Sanlam's effective 50% plus controlling interest in Gencor—in its new guise as a relatively focused mining and minerals corporation—has reduced to approximately 30%, and its share in other assets presently controlled through Gencor has reduced in similar proportion. A second large Sanlam-controlled group, Murray and Roberts, has recently formally announced the intended delisting of the pyramid through which Sanlam control of this group is effected, and has rationalised its holdings in co-operation with Malbak, another Sanlam-controlled manufacturing group.

Recently the giant Barlow Rand group, the manufacturing group controlled by SA Mutual, unbundled its holdings into three relatively focused manufacturing groups, Barlows, Reunerts and CG Smith. SA Mutual continues to hold an unsailable controlling interest in each of these newly constituted groups.

JCI, the Anglo American mining and manufacturing group, has recently announced its intention to unbundle. It intends to retain its core mining interests while spinning off control of its media and manufacturing interests. This is significant in the light of the dogmatic opposition to unbundling initially articulated by Anglo.

Policy intervention should reinforce this process. In particular, it should prohibit the listing on the JSE of pyramids as well as the use of other control devices—cross shareholding and non-voting shares. Although company legislation and JSE regulations had limited the use of these devices in respect of new listings, no attempt had been made to extend the limitations retroactively, leaving existing control structures unaffected by the prohibition. However, recent action by the JSE, which we discuss below, has reversed this trend against the use of control devices.

Policy in this area may be complex. For example, when is a corporate structure simply designed to affect control and when is it designed to co-ordinate the activities of the operating units that it controls? Whilst it is important that this distinction be drawn, our view is that the authority responsible for monitoring this should err on the side of identifying a corporation that receives in excess of a specified portion of its revenue in the form of dividends, as a control structure. There will also be grey areas where cross shareholding is concerned—where a manufacturer and a key supplier own small equity stakes in one another, this may simply underpin a long-term trading relationship. Again this has to be viewed pragmatically. Certainly where two control structures hold shares in one another, the objective is simply tightened control and should be subject to the proposed prohibition.

Regulations that encourage or enforce unbundling must be accompanied by a supportive tax and macro-economic environment. Of particular concern here are exchange controls. Although we accept that exchange control reform will not be driven by corporate governance considerations, we would simply urge that these controls be applied flexibly. In particular, where a corporation divests itself of non-core interests, exchange controls should not inhibit efforts to deploy the receipts of the unbundling in order to acquire offshore assets within the chosen area of specialisation. For example, Gencor's acquisition of Billiton is a significant step towards becoming a focused international minerals and energy giant, and should not be impeded by the application of exchange controls.

A firm of Johannesburg stockbrokers has attempted to calculate the impact of the delisting of pyramid companies. Reading

organograms G2 and H2 alongside the 'pre-delisting' organograms demonstrates the effect of a delisting of key Anglo and Rembrandt pyramids. The impact is twofold: firstly, to substantially reduce the power of the controlling shareholder (the Rembrandt organograms indicate this clearly); secondly, to leave the portfolios with the top companies holding minority, non-controlling positions in companies previously under their control (the Anglo/AMIC organograms provide clear evidence of this). Either, the conglomerates will offload the stock of companies in which they hold a minority interest, or they will have to construct control coalitions with other minority shareholders. In the first, and most likely, instance, both specialisation and a measure of deconcentration is promoted; in the second instance, one more likely to be contemplated by the large institutional investors than the family-dominated conglomerates, control is deconcentrated. In both instances the weakening of the controlling shareholder will enhance the authority of management of the operating subsidiaries.

The second set of policy measures is concerned with extending ownership, and exercising, more effectively, existing ownership rights.

There are several developments aimed at extending ownership. The unions have long considered using their assets and, particularly, those of their members in the form of pension and provident funds, to extend union and worker influence via the acquisition of ownership shares. NACTU, a union federation, has recently taken a significant ownership stake in a conglomerate recently formed by a consortium of black businessmen. COSATU is considering a large stake in the same company, and several of its affiliates have taken stakes in a similar venture. COSATU is considering the formation of an investment company. The Community Growth Fund uses its investable resources, partly gleaned from union-controlled pension funds, to influence the strategies and policies of corporations in which it invests.

The most significant developments in this area are associated with two consortia of black business leaders already referred to. One consortium, led by well-known community figure, Nthato Motlana, has acquired control of Metropolitan Life from Sanlam. The second, led by senior Anglo American manager, Donald Ncube, has acquired African Life from Anglo-controlled Southern Life.

In the Metlife case Sanlam has sold part of its controlling share of a life insurer, Metropolitan Life, to Methold, a newly registered company controlled by a consortium of black

businessmen. The purchase of this share was financed by the Industrial Development Corporation (IDC). Methold has since acquired significant media and telecommunications interests. Methold will change its name—to New Africa Investments—and be listed on the JSE. Control of Methold will be held by an unlisted company—Corporate Africa—in turn controlled by the consortium of black business people led by Nthato Motlana.

The Metlife arrangement is an instance of pyramiding leveraging black ownership and has been seized upon in order to lend a measure of 'political correctness' to calls to retain these control structures. Hence, the JSE has relaxed the limitations its listing regulations imposed on the use of pyramids and low-voting shares. The decision is dramatically presented as 'an attempt to defuse a potentially explosive political situation and to meet the requirements of the new SA'. The JSE President states:

We are acutely aware of the high concentration of power in the country and the lack of liquidity on the JSE, as well as the unpopularity of pyramid structures and limited voting shares in other countries. But black empowerment and the emerging black entrepreneur often cannot succeed without some form of pyramid.¹⁵

Finance Week has characterised the JSE's position as 'a setback for corporate democracy', a move designed to privilege 'particular élites' with 'minimal empowerment benefit for the black community at large'.¹⁶ Effectively, the pyramid form will be strengthened as a device to leverage some black control, whilst it is simultaneously deployed in its time-honoured role of securing the dominance of a small number of (white) shareholders over the lion's share of the corporate economy.

We are not persuaded by the argument that effectively sanitises pyramid companies in the name of black empowerment. Equity considerations aside, it serves to entrench a system of corporate governance that underpins poor manufacturing performance. The appeal of this argument should, however, not be underestimated. It is enormously strengthened if institutions like the unions start to take advantage of the potential to leverage a small ownership stake into corporate control.

The debate around pyramids does serve to focus attention on the question of ownership, including the acquisition of corporate assets that come into play as a result of the unbundling process.

One possible route to extending ownership, a more fruitful route, in our view, than the retention of pyramiding, is to acknowledge that the two giant mutual societies, Sanlam and SA Mutual, will remain major owners of corporate equity. The

15 *Business Day*, 28 July 1994.

16 *Finance Week*, 21–7 July 1994.

corporate governance debate has focused attention on the role of institutions *qua* owners. This is clearly an important issue in South Africa. However, where SA Mutual and Sanlam are concerned, a prior question concerns the control of these institutions.

As mutual societies they are owned by their policy-holders but are controlled by their managers. The policy-holders of these vast institutions represent a significant spectrum of South African society. Their boards comprise a number of executive directors drawn from the ranks of senior management. The non-executive directors are recruited from the senior ranks of the corporations controlled by the two institutions, and include a smattering of community notables, usually retired businessmen or civil servants.

The control of these institutions should be re-examined. At the very least, there appears to be grounds for insisting, in co-determinist fashion, that the policy-holders be represented on a supervisory board to which the executive directors are accountable. If the policy-holders are too diffuse and disorganised to appoint a representative supervisory board, then, as with a quasi-public institution like the IDC, responsibility may be given to the Cabinet, or even Parliament, acting on the advice of an appropriate minister.

The large institutions will, by their very nature, remain risk-averse, conservative investors. We do not envisage that a change in control will shift the core character of their portfolios. However, incorporating the full range of their policy-holders into the control equation, will inject additional criteria into their investment activity. Given the scale of their operations, even the possibility of a marginal shift in the composition of their portfolios and in the criteria used to evaluate performance will exercise a significant influence on the recipients of their resources.

Our final set of policies seeks to strengthen non-owner stakeholder participation in corporate control. There are a range of possibilities here including a change in the identity and powers of non-executive directors, the possibility of instituting the German distinction between supervisory boards and management boards, legislating multi-partite decision-making that obliges firms to incorporate unions or, where appropriate, consumer groups and environmental groups, in corporate decision-making structures.

The corporations have responded to the demand for greater stakeholder participation by admitting black business and community leaders to non-executive positions on the boards of many major companies—to date there is not one black

executive director on the main boards of any of the six conglomerate centres. Consideration has been given in corporate ranks to following the Cadbury Committee recommendations that favour strengthening the role of non-executive directors.

We are not confident that the authority of non-executive directors or their ability to represent non-owner and non-manager stakeholders will be sufficiently strengthened by a simple change in the identity of the individuals appointed to these positions. The proposal that designated board portfolios—ranging from Board Chairperson through to key positions on sensitive committees, for example those dealing with audits and directors' remuneration—be reserved for non-executives, is an important step forward.

We would strongly favour institutionalising the position of the non-executive directors in a parallel board structure similar to that of the supervisory boards in the German co-determination system. The management board would, as is presently the case in a strong shareholder regime, represent the interests of the controlling shareholder and the senior executives. The supervisory board would be constituted so as to best represent the range of stakeholder interests—workers and their unions, minority shareholders, affected communities, consumers and environmental concerns.

There are a number of possible forms through which this could be institutionalised, but more research is required. Essentially we are seeking a mechanism to ensure the accountability of the controlling shareholder and senior executives to the range of interests affected by the activities of the corporation.

The capacities of a supervisory structure as proposed are as great as the information at its disposal. Arguably, the most important mechanism for enhancing stakeholder power is to be found in *strengthened corporate disclosure requirements*. Reporting requirements are generally conceived as being a check imposed by the shareholders on the management of the corporation. Even within this limited conception, South African reporting requirements are widely perceived to be extremely lax. While there may be a case for strengthening financial reporting requirements—there is no reason why these should not accord with international best practice—it is important that reform in this area looks beyond the interests of shareholders.

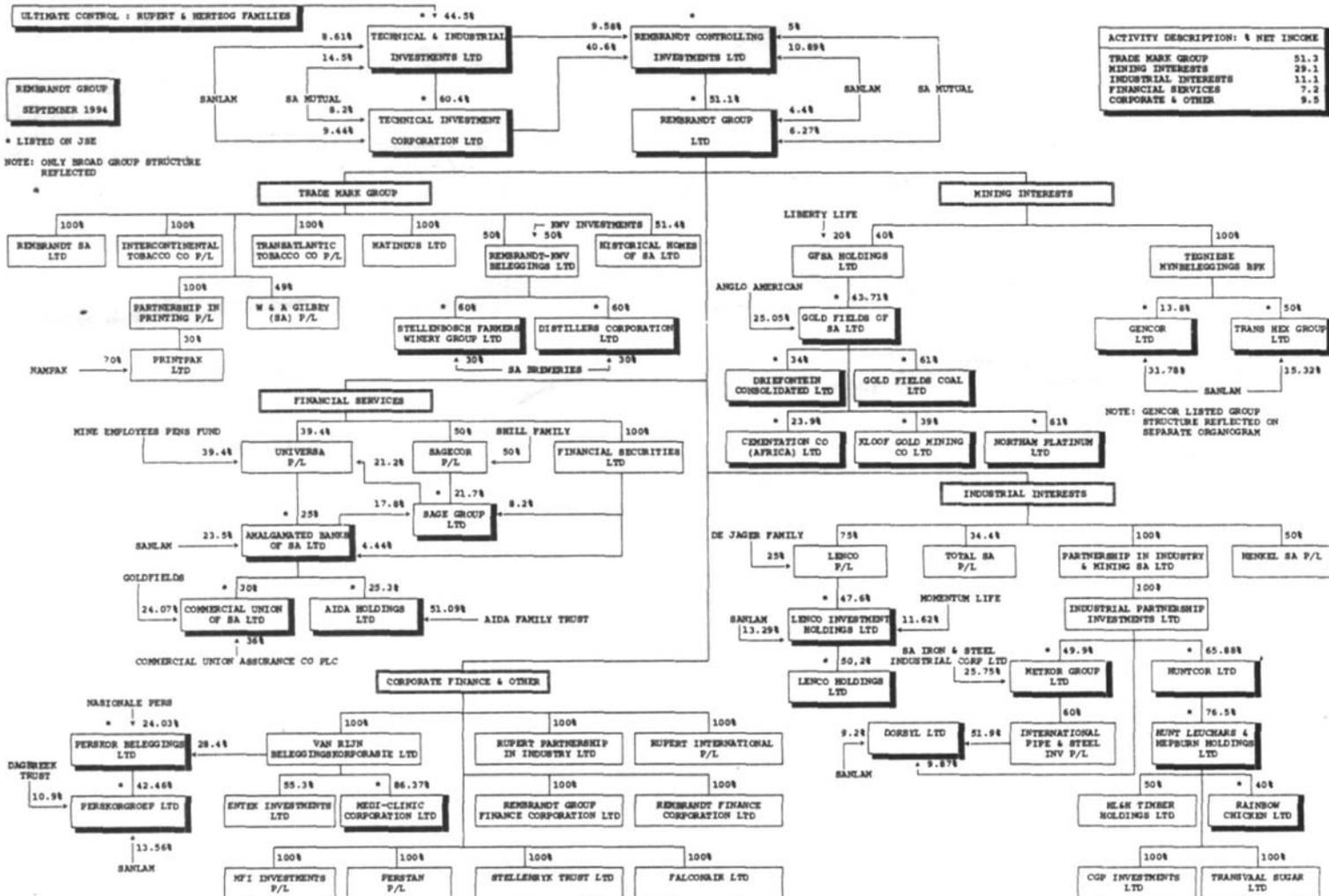
A requirement that companies report, for example, market share, export volumes, employment figures, industrial relations practices, R&D expenditure and product development, and corporate social responsibility programmes, takes managerial accountability out of the narrow realm of the shareholder and,

in the process, effectively reports to the range of other corporate stakeholders. This will underpin a movement away from a corporate governance system solely concerned with financial performance, with 'maximising shareholder value', to one that Peter Drucker has characterised as concerned 'to maximise the wealth-producing capacity of the enterprise'.¹⁷

17 Drucker, P. 1991. 'Reckoning With the Pension Fund Revolution', in *Harvard Business Review* (March–April).

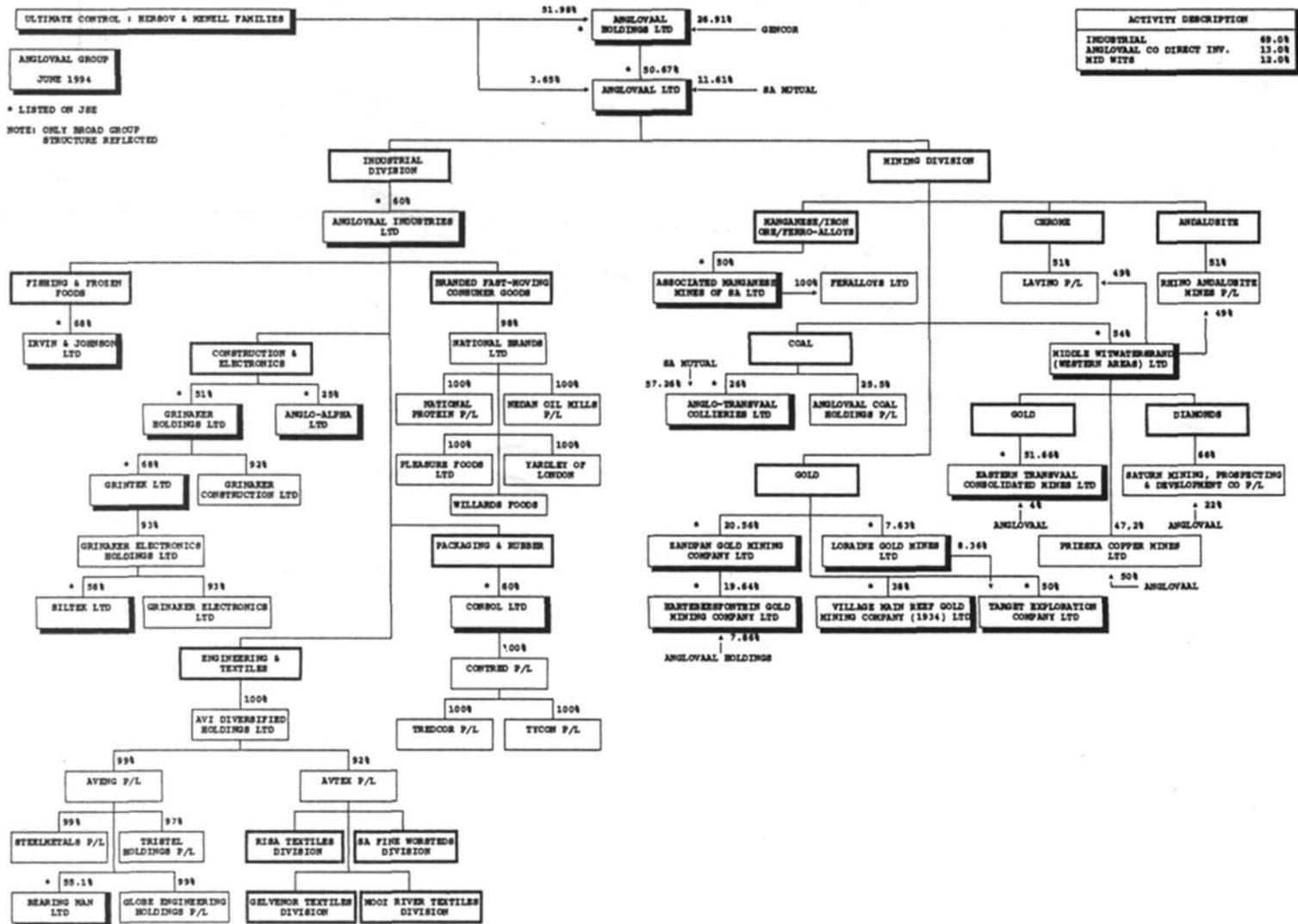
ORGANOGRAM B REMBRANDT GROUP, SEPTEMBER 1994

Source: McGregor, R. 1995. *McGregor's Who Owns Whom*. Johannesburg: Purdey Publishing



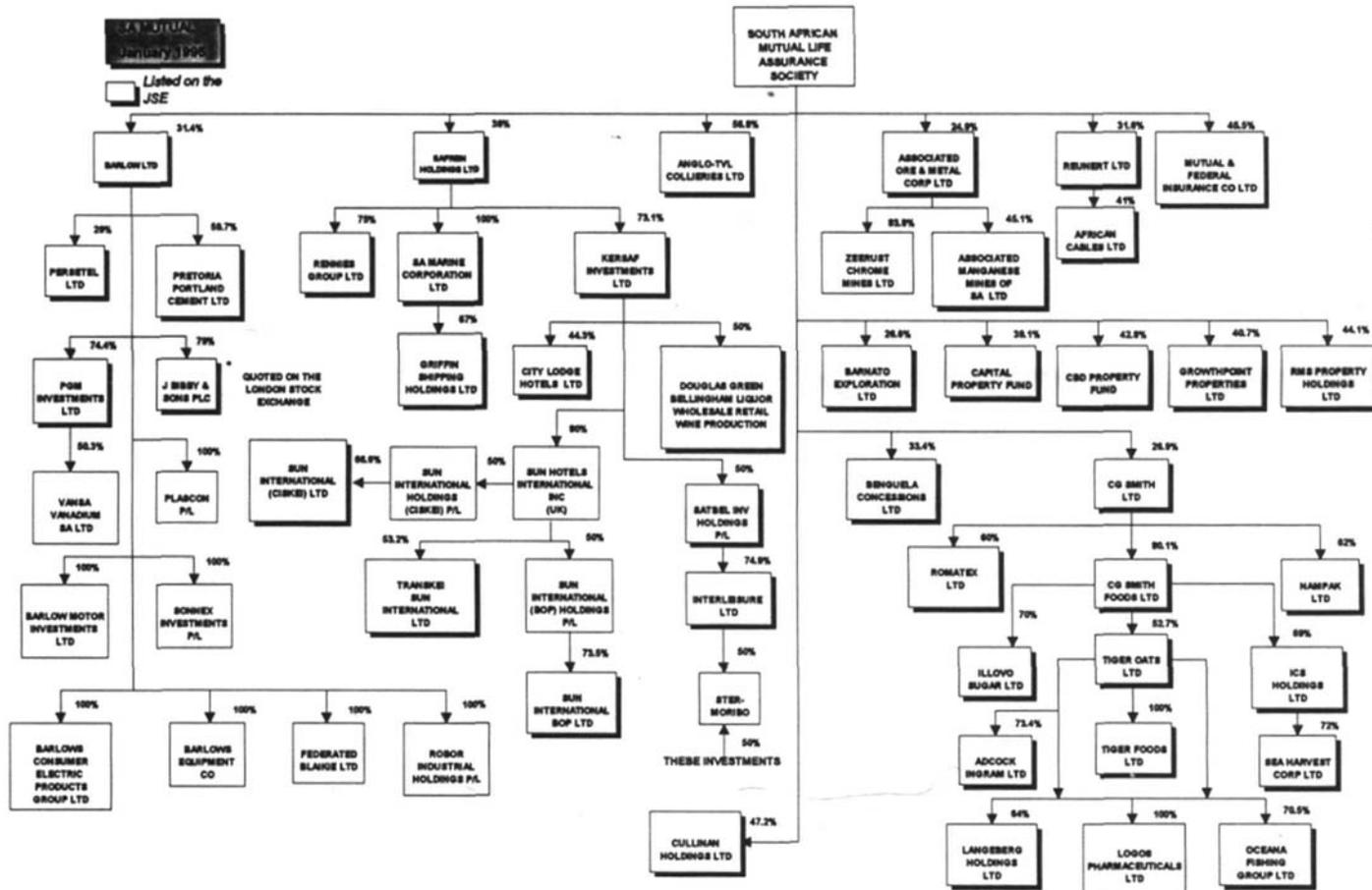
ORGANOGRAM C ANGLOVAAL GROUP, JUNE 1994

Source: McGregor, R. 1995. *McGregor's Who Owns Whom*: Purdey Publishing



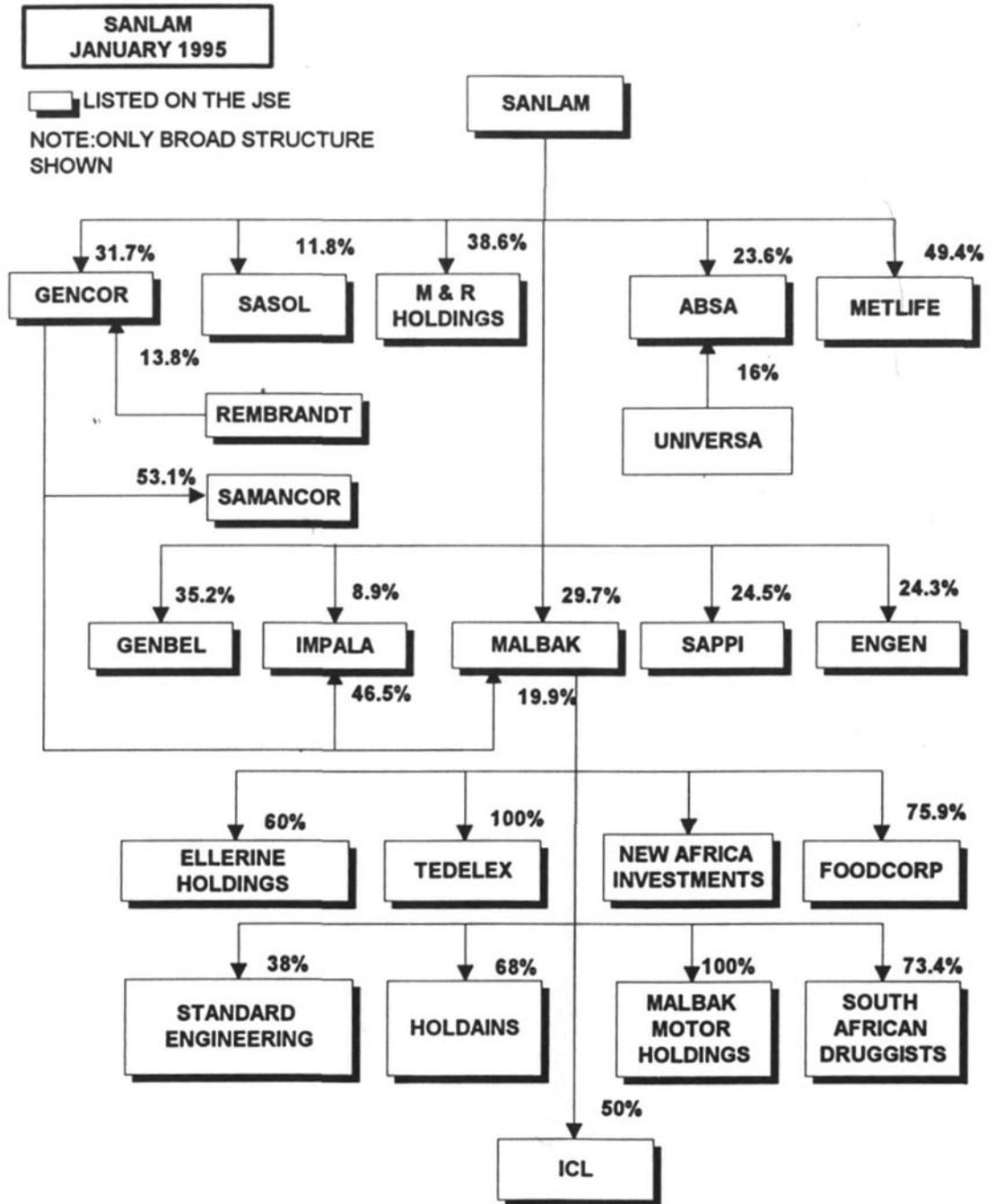
ORGANOGRAM D SA MUTUAL, JANUARY 1995

Source: McGregor, R. 1995. *McGregor's Who Owns Whom*. Johannesburg: Purdey Publishing



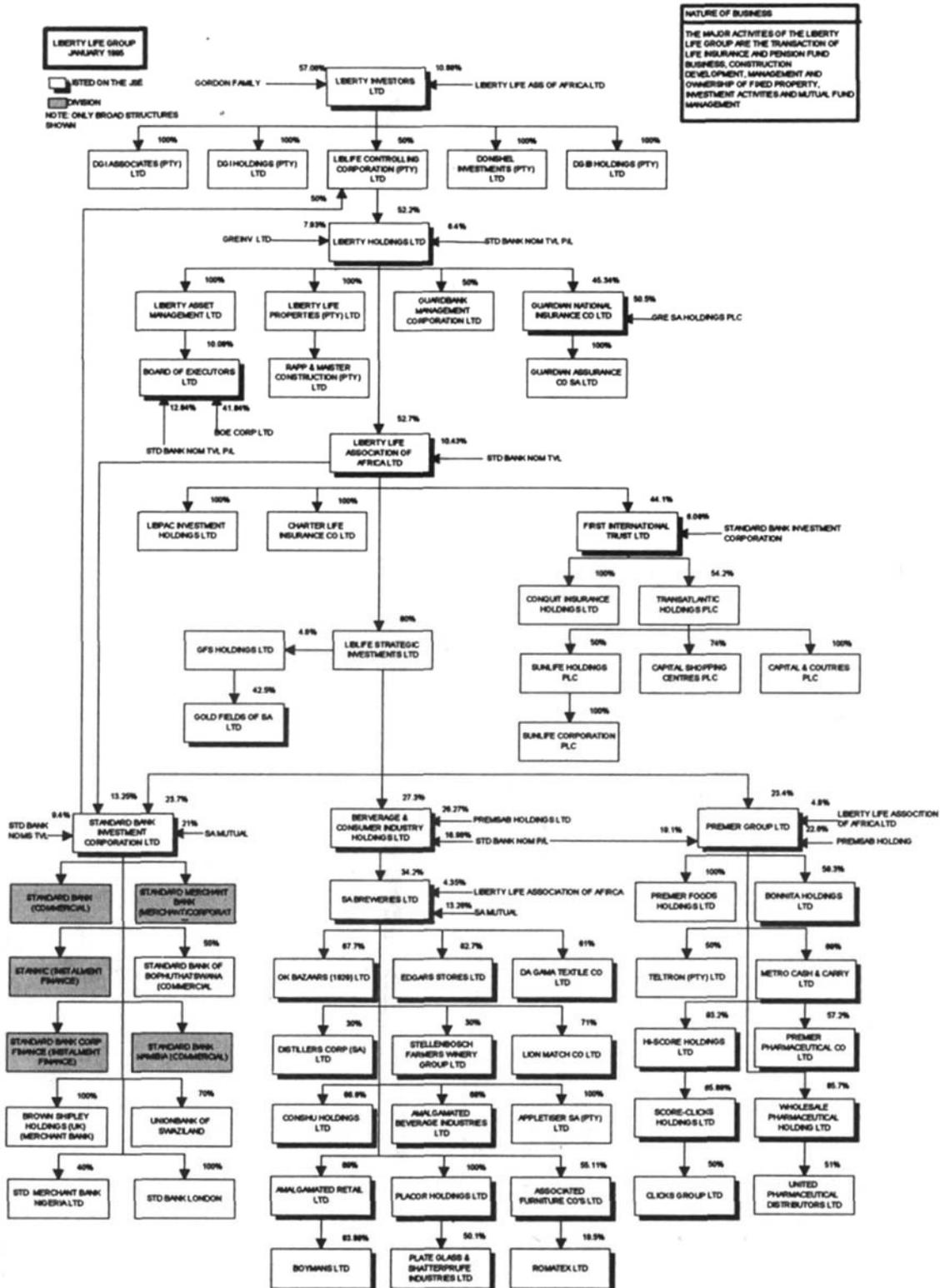
ORGANOGRAM E SANLAM, JANUARY 1995

Source: McGregor, R. 1995. *McGregor's Who Owns Whom*. Johannesburg: Purdey Publishing

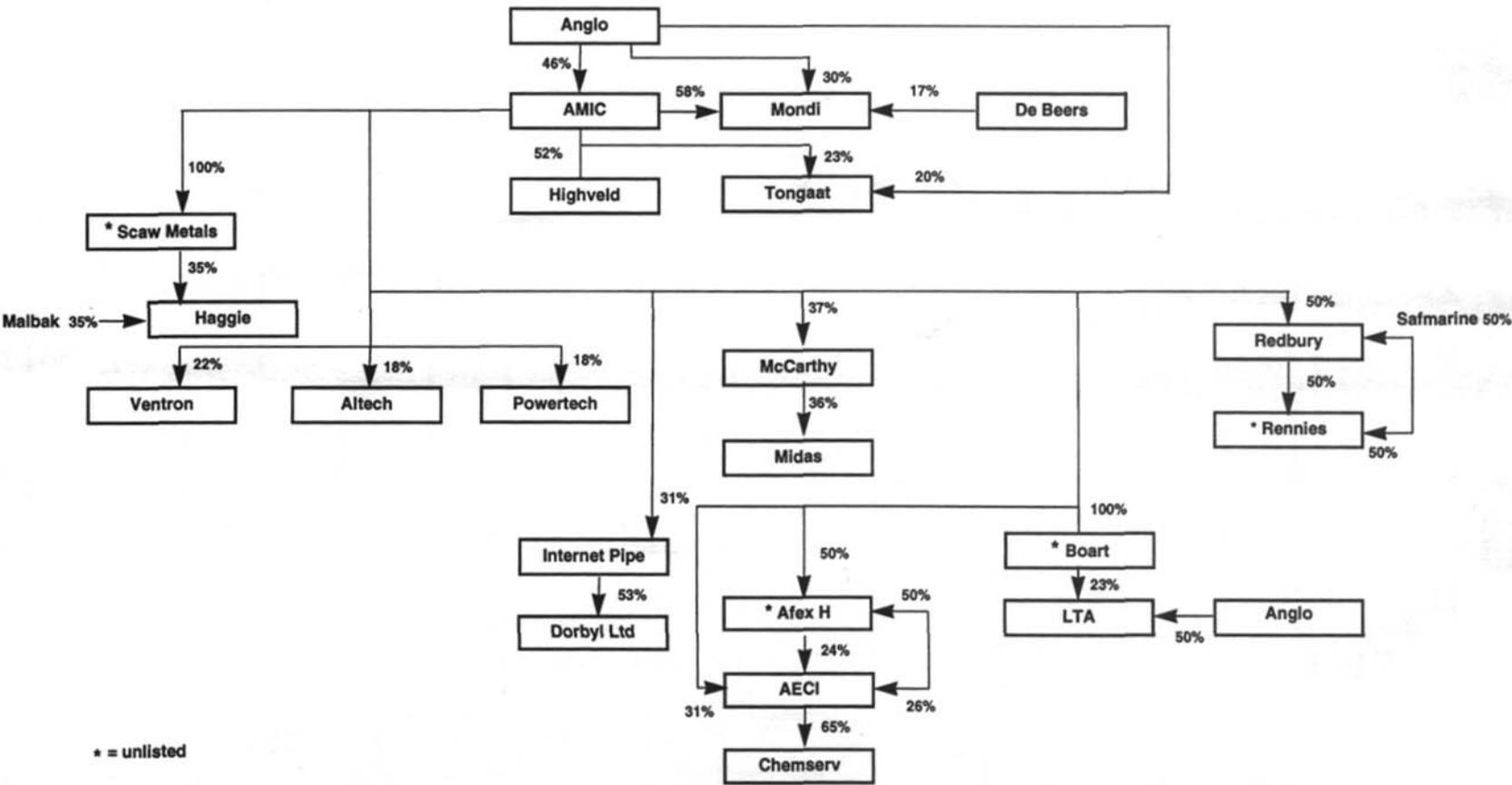


ORGANOGRAM F LIBERTY LIFE GROUP, JANUARY 1995

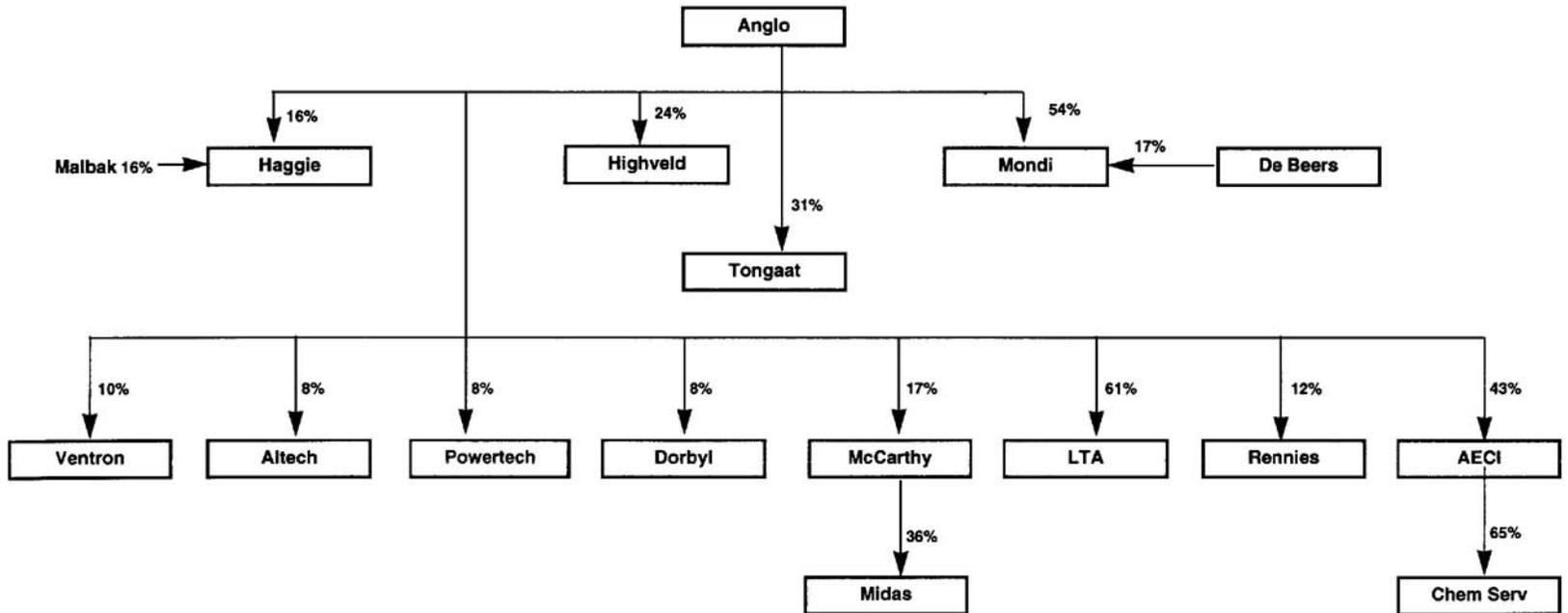
Source: McGregor, R. 1995. *McGregor's Who Owns Whom*. Johannesburg: Purdey Publishing



ORGANOGRAM G1 ANGLO AMERICAN CORPORATION—SUMMARISED ORGANOGRAM, 1992. (Excluding mining and certain direct holdings.) *Source:* McGregors Online and Kaplan & Stewart

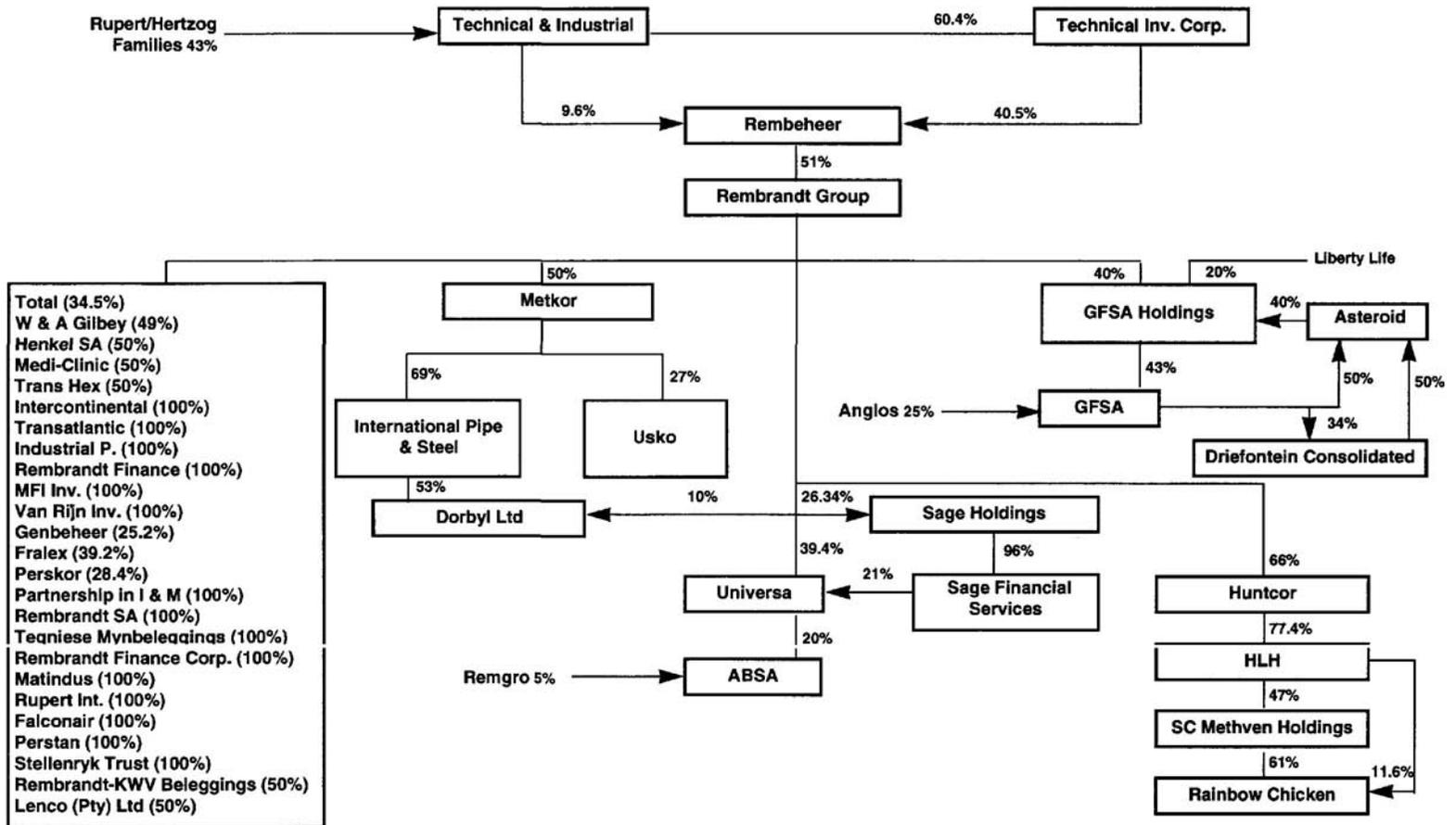


ORGANOGRAM G2 ANGLO AMERICAN CORPORATION—SUMMARISED ORGANOGRAM, 1992. (After elimination of control structures, including Amic.) *Source:* Kaplan & Stewart



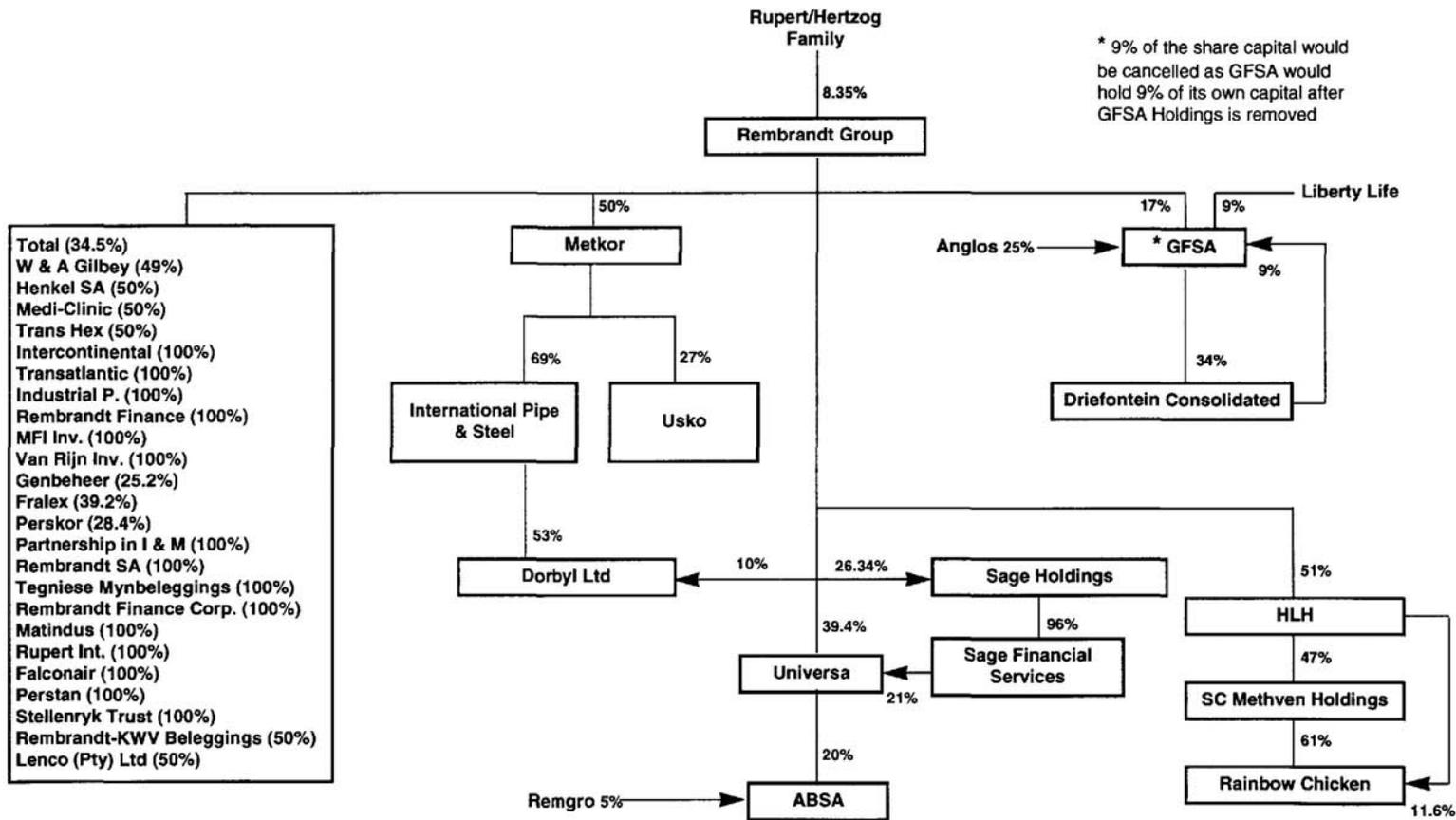
ORGANOGRAM H1 REMBRANDT GROUP—SUMMARISED ORGANOGRAM, 1992

Source: McGregors Online and Kaplan & Stewart



ORGANOGRAM H2 REMBRANDT GROUP—SUMMARISED ORGANOGRAM, 1992. (After elimination of control structures.)

Source: Kaplan & Stewart



HUMAN RESOURCE DEVELOPMENT & WORKPLACE INNOVATION: AN INTELLIGENT PRODUCTION STRATEGY FOR INDUSTRIAL REGENERATION

AVRIL JOFFE

INTRODUCTION

Human resources are an essential capability for industrial efficiency. Our research shows that substantial changes are required to the organisational structure of production if firms wish to sustain long-term productivity improvements. However, international evidence suggests that the effectiveness of these new organisational technologies is dependent upon the level of training and skills at all occupational levels. This training and enskilling is required to allow jobs to evolve from being narrow and task-oriented to being multi-dimensional in all levels of the corporate hierarchy. As the managing director of Corporate Intelligence outlined to South African business in June 1993: 'Assembly-line work disappears, functional departments lose their reason for being, managers stop acting like supervisors and behave more like coaches, and workers focus more on the customer's needs and less on those of their bosses.'¹

While the crucial importance of training and education is acknowledged, this chapter argues that human resource development is the product of a much wider set of interventions—it includes the corporate governance systems and work organisation, industrial relations, remuneration and other incentive systems. A central conclusion of the ISP is that the key to successful industrial regeneration is a form of corporate governance and industrial relations which taps latent skills and human capacities. This accords with current thinking in the United States, Japan, Europe and many of the successful newly-industrialising countries. This requires both significant investments in human resources and a structured, continuous engagement of labour in corporate decision-making. This, in turn, necessitates the transformation of our industrial relations system.

Section one of this book outlined South Africa's poor manufacturing performance and the profile of industry. We argued

1 *Business Day*, 23 June 1993.

that industrial restructuring and industrial upgrading was required if companies and industries are to compete successfully in domestic and international markets. These points are premised on the empirical observation that the pressures of price competition or shrinking mass markets are causing companies, particularly mass producers, to upgrade product design and quality, to increase product variety and to be more sensitive to customer needs. Given South Africa's wage structure, it is imperative to embark on a programme of productivity enhancement to allow local companies to compete in these markets, both globally and domestically. This chapter examines the policies necessary for this industrial regeneration.

The essential argument is that our human resources, forms of work practices and industrial relations systems are inadequate to meet the demands of industrial regeneration. In particular, the spotlight falls on the narrow skills profile in manufacturing firms; rigid and authoritarian work practices and an undeveloped system of collective bargaining—particularly at the plant level. The first section outlines the nature of the problem in these three areas. Section two proposes a set of principles—called an Intelligent Production Strategy—to achieve a high-performance work organisation in our companies which is also sensitive to the interests of both management and labour. Section three outlines the institutional arrangements necessary to support this set of policy proposals while section four examines the implications of these policy measures for sequencing, staging and financing.

1.1 THE SKILLS PROFILE IN SOUTH AFRICAN MANUFACTURING FIRMS

The profile of skills in South African manufacturing is based on taylorism—the separation of skills and knowledge from the workers in the production process and strict demarcations between tasks. This system was designed initially for mining and basic manufacturing. The skill requirements of manufacturing firms have consequently been shaped by these principles.

Literacy and Basic Skills

Today, South African manufacturing firms are constrained by poor basic skills (approximately 45% of adult blacks cannot read or write) and task-specific production skills. The Household Electrical Durables Industry sector researcher found, for instance, that workers tend to remain at specialised,

**1 LOW
PRODUCTIVITY,
POOR GROWTH**

repetitive tasks in fabrication, assembly, testing, and packaging.² The management and work organisation practices which are developed and implemented in individual firms, also inhibit the recognition of the acquisition of skills where some workers, for instance in the TV branch, 'learn to use a variety of electronic assembly and testing equipment'. This on-the-job learning is also not recognised in terms of job grading practices, as is the case in some white goods plants visited in Australia and New Zealand.

This skills profile is, in part, due to educational levels attained in the broader South African society. The proportion of the economically-active population which is functionally illiterate (standard 4 education or lower) is 35% or 11.6 million according to the 1991 Census data. The mean educational level of the work-force in South Africa is only 7.1 years.³ Compare this to 60% or more of the working-age population with more than an upper secondary education or a vocational qualification in Austria, Canada, Germany, Japan, Sweden, Switzerland and the USA.⁴

It appears, however, that in manufacturing, the position is slightly better. For instance, ISP research in the paper sector, using a sample of seven pulp, paper and board mills, reveals that the majority of hourly-paid employees have educational qualifications of between standards 6 and 9 (53%), while 29% has standard 10 and above. We found that, increasingly, companies are beginning to insist on a minimum educational level of standard 8 for new employees. Companies report that their better-educated workers (standard 5 and above) tend to be employed in direct production, while others are placed in support or indirect jobs, distribution, etc. A beverage company (South African Breweries)⁵ reported that 36% of its work-force had less than standard 4, but that these workers were mainly in distribution. Most, if not all, semi-skilled operators on the line in this company had educational qualifications between standards 6 and 8. This is similar to a large clothing company based in Cape Town (Seardeell) which reported that 90% of its work-force had standard 5 and above. Similarly, a large packaging company (Nampak) reported that between 25% and 33% of its 18 500 strong work-force had educational levels of between standards 4 and 7; 40% of the work-force had standard 8 and above. Most of these companies had introduced extensive adult basic education (ABE) programmes for their work-forces. As a company in the iron and steel industry (Iscor) reported, the results in terms of productivity improvements were, although not recorded, immediate.

Generally South African firms show a lack of investment in

2 See Baumann, T. 1993. 'The Household Electrical Durables Industry in South Africa'. A report presented to the Industrial Strategy Project (May).

3 Pillay, P. 1993. 'Human Resources Development in South Africa'. Report prepared for the Industrial Strategy Project, South Africa, p. 30.

4 Wurzburg, G. 1992. 'Skill Formation and Human Resource Management: Australia's Place in the International Race'. Paper delivered to Summit 100, Sydney Technical College, p. 135.

5 A number of companies were interviewed by a four-person task committee (including Avril Joffe), in the first half of 1994, as part of a research study conducted by the National Manpower Commission. See NMC 1995. 'Union-Management Co-operation With a View to Enhancing Productivity as a National Goal'. Discussion paper.

human resource development. While they spend, on average, 1% of the payroll on training, the equivalent figure in OECD countries is 4% to 7%. Notable exceptions are those companies which can achieve economies of scale, such as Eskom and Transnet (investing above 5%), as well as companies who have come to believe that a commitment to human resource development is a key to their competitive position. A highly-competitive paper company, Carlton Paper, for instance, states that 'fundamental to any process to World-Class Status is a commitment to the belief that the company's greatest resource is its people ... A corporate strategy for change is therefore anchored in its strategy for human resource development'.⁶ Similarly, South African Breweries spends 4.6% of its payroll on training.

There are indications that both management and trade unions increasingly are recognising the possible relationship between investment in human resource development and the workers' commitment to productivity improvements. Examples include Pick 'n Pay (a large retail chain-store) which has signed an agreement on increased flexibility in exchange for training; Nampak's record of agreement for union involvement in their drive to world-class status; Carlton Paper's codetermination agreement, and Murray and Roberts's (an engineering company) process of democratisation and employee empowerment.

Artisanal Skills and Training

South Africa's vocational training system is designed exclusively for artisans, technicians and professionals. Government bodies responsible for training include the Department of Manpower, the National Training Board, nine regional centres (with 62 satellite campuses and 65 mobile centres), 1 417 employer training centres, and 26 industry training boards.⁷ Only artisan training is nationally accredited and therefore portable across firms and industries. This artisanal training has operated as a block release system in which apprentices spend 12 weeks at a technical college (under the auspices of the Department of Education) and engage in practical work in plants (under the auspices of the Department of Manpower). This sharp separation between theory and practice is in contrast to the dual system found in other countries (for example, Germany and Switzerland). Here, up to two days per week are spent in colleges and three to four days per week in companies.

A small percentage of our work-force is trained to the level of artisan—less than 10% in manufacturing in 1985.⁸ Compared to our trading partners, this is extremely low: 60% of the

6 These comments are made in a document entitled 'Enabling Our Human Resources to Take the Company to World-class Status'. Employees report, however, that training is mostly in the areas of first aid, safety and quality training.

7 This system is well described in 'Towards a Unified Technical and Vocational Training Sector: Report and Recommendations of the Technical and Vocational Education and Training Sector Review' (October 1990), undertaken on behalf of the Commission of the European Communities (CEC), Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ), the Kagiso Trust, and the UK Overseas Development Administration (ODA). This report is known as the TVET Report.

8 See Hindson, D. and Crankshaw, O. 1990. 'New Jobs, New Skills, New Divisions—The Changing Structure of SA's Workforce', *South African Labour Bulletin*, 15, 1 (June), pp. 23–31.

German manufacturing work-force, and 30% of the British, have completed qualifying examinations at the artisan level.⁹ While decades of training legislation based on race ended in the early 1980s with the passing of the Manpower Training Act, the majority of artisans are still white: 68% of a total of 234 000 (1989 figures). Nevertheless, there has been some increase in the number of African artisans: while Africans accounted for less than 2% of all apprentices and artisans during the 1970s this figure has increased to 5.8% (artisans) and 13.8% (apprentices) during the 1980s (See Table 1).

The bulk of African artisans and apprentices in manufacturing are located in the building sector. They are found in only limited numbers in the more technologically-advanced metal

TABLE 1 DISTRIBUTION OF ARTISANS AND APPRENTICES BY POPULATION GROUP 1981–9. EXPRESSED AS A PERCENTAGE

	COLOURED	AFRICAN	ASIAN	WHITE
ARTISANS	17.5	5.8	4.1	72.6
APPRENTICES	17.5	13.8	4.1	68.6

Source: Manpower Survey (until 1987); Central Statistical Service (since 1987).

and engineering occupational sectors. The dominant position of whites within all other sectors has remained unchanged.¹⁰

The past decade has thus seen a radical shift in the racial composition of the work-force. Figures for the metal industry show this starkly. While white workers have moved 'up the occupational ladder' and out of semi-skilled operative work, the number of African men in semi-skilled jobs increased from around 40 000 to around 111 000, and the proportion of black artisans rose from 11% in the period 1969–79 to 21% in the period 1981–7.¹¹

The South African professional electronics industry has a particularly acute problem with respect to technical skills. This is reflected in management comments in the industry (see Table 2).

Beyond the world of work, it appears that investment in education and training is inappropriately directed. It is racially biased and skewed towards the tertiary level. Within the tertiary education system there is little movement from technical colleges to technikons, or from technikons to universities. It is a highly-fragmented system. The key problem affecting technical education¹² is that most Africans matriculate without mathematics and science¹³—less than 2% of African matriculants

9 Prais, S. J. 1981. 'Vocational Qualifications of the Labour Force in Britain and Germany', *National Institute Economic Review*, 98 (November).

10 Lundall, P. and Kimmie, Z. 1992. 'Apprentice Training and Artisan Employment: Changing Numbers—But Maintaining "Job Reservation"', *South African Labour Bulletin*, 16, 6 (July/August).

11 Hindson and Crankshaw, 1990, p. 31.

12 See AS&TS/JCSS/SAVI, 1993. 'A Contribution Towards Developing an Education Policy for Technology',

TABLE 2 TECHNICAL SKILLS IN PROFESSIONAL ELECTRONICS

SKILL LEVEL	COMMENTS FROM MANAGEMENT
LOW SKILL	Shortage of technically-literate, secondary-level school leavers; poorly developed problem-solving skills: schools are poor at training in lateral thinking. Matriculants perform poorly in practical applications.
TECHNICAL	Inadequacies in qualitative supply of technicians: it is not the qualifications (but) a matter of commitment and being prepared to do things properly.
TOP TECHNICAL	Constraints on obtaining experienced engineers with specialist knowledge.

passed mathematics in 1990. The result is that post-secondary education in science and technology is more racially discriminatory in outcomes than other post-secondary education. This severely limits the number of people able to embark on science and engineering training.

The ratio between university and technikon students is imbalanced: while 308 000 students were at 21 universities in 1991, only 104 000 students were at 13 technikons. By comparison, Taiwan, with a population half the size of South Africa's, has 42 universities and 75 technikons.¹⁴ South Africa has only eight technicians for every ten engineers. South Korea, by contrast, has 200 technicians for every ten engineers. Nevertheless, South Africa still has fewer graduating engineers per year per million of population (43) than South Korea (655), Taiwan (350), Egypt (186) and Algeria (92), although more than either Nigeria (7) or the Sudan (13).¹⁵

Market Failure in Human Resources Investment

It is important to note that this underinvestment in human resources is not a peculiarly South African problem. Much has been written about market failures in human resource investment. There are a range of market failures within the human resources-industrial relations axis to which we are responding:

At the micro-level of the firm there is widespread underinvestment in enhancing human capabilities. This is despite international evidence that a high correlation exists between higher levels of productivity and high levels of investment in vocational training.¹⁶ This underinvestment arises for a number of reasons:

- ◆ Individual companies are unlikely to achieve the economies

Associated Scientific and Technical Societies of South Africa, Joint Council of Scientific Societies, South African Engineering Association, discussion document, 20 March 1993. This policy document is extensively reviewed in the ISP sectoral study on the professional electronics industry. See Goode, R. 1993. 'An Industrial Strategy for the Electrical Distribution Equipment Industry and the Professional Electronics Industry'. Report submitted to the Industrial Strategy Project.

13 Pillay, 1993, p. 38.

14 'A Survey of Asia's Emerging Economics', *The Economist*, 16 November 1991, p. 19.

15 AS&TS/JCSS/SAVI, 1993.

16 *World Development Report*, 1990/91.

of scale needed to justify the training investment, and have little or no incentive to form networks to lower unit costs of training. In addition, individual companies tend to concentrate on workplace-specific, as opposed to general skills and training.

- ◆ Individual companies fear that a portion of the benefits from the investment are lost to the external market as workers move to higher paying or more rewarding jobs in other firms: this is particularly evident for those workers who have national qualifications, such as artisans.

- ◆ Enhancing skills increases the bargaining power of workers and therefore challenges the power of management.

- ◆ Investing in human resources has short-term costs but only medium- to long-term pay-offs. This reflects the way capital markets and institutions constrain management's time horizons to focus on short-term results.

A comparison between American corporations and those in Japan and Germany shows that, in the latter two, the nature of financial institutions, capital markets and corporate governance underpins a long-term commitment to human resources and workplace innovations. As Kochan and Osterman¹⁷ point out with respect to Japan, 'the underlying goals and behaviour of management are not shaped by some invisible hand of the market as neoclassical economics might suggest but by the combined nature of the financial markets, governance structure, and distribution of influence or power within the management hierarchy. In Japan, these three factors produce firms that do not maximize short-run shareholder value but pursue long-term joint gains for shareholders and employees'. Rigid labour markets in which mobility is low further encourages such long-term investments in human resources.

The recommendations of the ISP begin from a premise that investment in human resource development is fundamental to achieving the productivity enhancement that manufacturing requires, but equally important, that without this investment there is little incentive for workers to support productivity initiatives and development. As Bowles and Gintis suggest, a framework can be outlined which sheds light on the problem of underinvestment.¹⁸

The desired future (bold scenario) is available if both management and workers agree and each side has sufficient guarantees of the good faith of the other.

The narrow skills profile documented in this section has been determined by a rigid and authoritarian form of work organisation based on the traditional distinction between direct and indirect labour on the shop-floor. This supply of skills, in turn, continues to shape and endorse this form of work organisation.

17 Kochan, T. and Osterman, P. 1993. 'The Mutuals Gains Enterprise: Human Resource Strategies and National Policy', draft manuscript, MIT Sloan School of Management.

18 Bowles, S. and Gintis, H. 1993. 'An Economic Strategy for Democracy and Equality', Department of Economics, University of Massachusetts, Amherst, USA.

TABLE 3 COMPANIES' AND WORKERS' BEHAVIOUR

WORKERS' BEHAVIOUR	COMPANIES INVEST MUCH	COMPANIES INVEST LITTLE
Much support for productivity development	Companies invest in human resource development & workers commit themselves to productivity improvements	<i>Companies invest little in human resource development but expect a high commitment—conflict results. Workers reluctant to give much support for productivity development without greater employer commitment</i>
Little support for productivity development	<i>Companies invest much but workers do not co-operate: sub-optimal productivity. Companies unlikely</i>	Little is invested and productivity remains low

1.2 WORK ORGANISATION IN SOUTH AFRICAN MANUFACTURING FIRMS

In South African manufacturing industry, work organisation is characterised by a racially-entrenched division of labour and strict, highly-paid, but largely unskilled supervision. In this taylorist system, all planning decisions are taken by management. This results in intense supervision levels and provides little incentive to management to acquire and deploy enhanced skills.

The hierarchical form of work organisation in manufacturing industry generally, is bolstered by large earnings differentials, both within the work-force (between labourer and artisan), and between management and workers. Currently, in the metal sector, which is governed by industrial councils for different sectors,¹⁹ a labourer earns 45% of the artisan's rate of pay in engineering, 60% (on scheduled rates) in the automobile sector, while in the motor sector, labourers earn 16% of the artisan's rate of pay (this sector includes poorly-paid pump attendants, and it also has a weak industrial council). Compare this to South Korea, where production workers receive up to 80% of the artisan equivalent rates of pay.

These differentials are repeated for artisans and foremen, engineers and managers. In South Africa, a line manager receives between 10 and 20 times the wage of a production

¹⁹ The industrial council system is a legislative framework for employers' organisations and trade unions to establish institutions for centralised collective bargaining. The establishment of and participation in an industrial council is voluntary. As a result the industrial council system is diverse and uneven: from national industrial councils, regional and local councils and councils with limited jurisdiction. This system is well documented in Godfrey, S. 1992. *Industrial Council Digest: Statutory Institutions for Centralised Collective Bargaining in South Africa, 1979–1992*, Industrial Relations Project, Sociology Department, University of Cape Town.

worker. Line managers in Britain or Australia, by contrast, can expect to earn between 1.5 and 2.5 times that of a production worker.

Table 4 indicates the percentage differentials reflected by the range of earnings received by entry-level production workers, up to management levels, in manufacturing.

Within the management hierarchy, differentials are also high: the human resources executive takes home just over half of the chief executive's income. This reflects the numerous layers of managerial hierarchy found in manufacturing companies, although some companies are attempting to shed a number of layers: a division of Nampak has, for instance, reduced its

TABLE 4: AVERAGE EARNING DIFFERENTIALS IN MANUFACTURING EXPRESSED AS PERCENTAGES

	ARTISAN	FOREMAN	ENGINEER	MANAGER
WORKER	36	25	23	17
ARTISANS	—	70	64	49
FOREMAN	—	—	91	70
ENGINEER	—	—	—	77

Source: Sunday Star, 30 May 1993; COSATU interviews (production figures)

levels from seven to four. The layer which is usually shed first is that of supervisor, as team work takes root on the shop-floor.

Racial and gender differentiations in earnings remain a feature of industry: there are differences of the order of 10% between black and white workers within skilled positions, and 15% in unskilled ones.

Lean Production and Worker Participation in South Africa

World-class manufacturing promoted by the Japanese auto industry during the 1970s—in the form of lean production—is held up by many South African manufacturers to be the vision of the future. Many have introduced green areas, quality circles, suggestions boxes, briefing sessions and the like (whether the earlier version called Quality of Working Life Programmes—originating both from Elton Mayo's experiments at the Hawthorne, Illinois plant of Western Electric in the 1930s, and from the application of the Japanese quality circle [QC] in the Anglo-Saxon world—or the Total Quality Management of the 1980s and 1990s, used to describe the essence of the Japanese management system). However, these

Japanese-style participation schemes enjoy only limited success since they are usually led by supervisors who freely admit that they do not believe that workers have insights to offer. These perceptions are, in addition, overlaid by racial distinctions (white supervisor: black worker) which result in intense hostilities and resentment on the shop-floor. Workers are cynical about these schemes, believing that their ideas will not be taken seriously. A study of a plant in the white goods industry in the household electrical durable sector found paternalistic labour relations: consultation with the work-force was conducted in a strictly top-down manner, and the supervisors ran the green area meetings.

While elements of lean production—such as better work organisation, more efficient R&D processes, less bureaucracy (flatter hierarchies), qualified workers, higher levels of motivation and better management—are essential to achieve productivity gains, research conducted by the ISP suggests that one should question the social consequences of lean production. In many South African companies, a hierarchical managerial style, together with conflictual relations on the shop-floor, results in some of the elements of lean production being misinterpreted:

- ◆ Multi-skilling is understood to mean worker interchangeability (that is, multi-tasking). In this context, there is little or no commitment to training.
- ◆ New technologies are utilised to both intensify and enhance surveillance and control rather than improve quality, reduce waste, and enhance efficiency.
- ◆ Cost reduction focuses on the use of subcontractors, and temporary or part-time workers rather than on enhancing multi-factor productivity and on improving work organisation.
- ◆ Workplace decision-making is seen as a mechanism to bypass trade union representation rather than part of the democratisation of the workplace and of achieving decentralised competence.

In short, it is a pressurising paradigm. Despite some possible short-term advantages for management, this is ultimately a conflict-ridden path. Restructuring to achieve lean production has, in South Africa, come to be associated with displacement, rationalisation and retrenchment.

Lean production is not ideal, even from a management point of view, since it results in a number of productivity paradoxes or ambiguities:

First, the more the intensity of labour is increased, the more supervisory or guard-labour is required, and the more resistance will result. Since the resistance of workers adversely

affects the innovative potential of the firm, any gains in productivity will be short term. As Carlton Paper has written, 'the corporate lifestyle is driven (and dictated) by the management world-view and the largest remuneration packages (personal wealth) belong to that group. The interface between the "empowered" management group and the "committed-to-equality" work-force group sets up intricate "vicious circles" and often unpredictable side-effects (with counter effects).' This distributive conflict makes productive co-operation difficult.

Second, since there is no real skill acquisition, continuous improvement—or *Kaizen*—is further obstructed. Two examples illustrate the ambiguity of South African management on the relationship between world-class manufacturing and workplace empowerment. An engineering company highlights the problem of restructuring, worker empowerment and unemployment in a striking way. This company has been through an impressive process of democratisation, introduction of team work and the identification of skills upgrading. However, it was adamant that this had to be preceded by another exercise to ensure the company became 'lean and mean'. As the group personnel manager argued, 'our experience has been that most of our companies have been 20 to 30% overstaffed and my guess is that many/most South African companies are exactly the same.' So once a retrenchment process had occurred, the company felt able to reorganise its relationship with its employees. A further example is a packaging company, which, having recently signed a codetermination agreement, announced its intention to downscale its warehousing without first having consulted the union. It would appear that agreements signed at head office between top management and the leadership of the union are not followed through at plant level. This highlights the gap that exists within the management hierarchy about a commitment to these processes. Significant evidence of this can be found in many companies in South Africa.

Third, since managers feel they need to hold on to power, improving quality, productivity and customer service—all of which depend on empowerment and trust—is short-lived. A number of companies interviewed argued that they wanted to be world class and needed their work-forces to commit themselves to this process. Yet, they failed to consult with their work-force over changes to staffing levels or layout, introduction of machinery or team-work, scaling down of certain of their activities, or investment in literacy and skills training. As a management consultant has argued 'managers need to review how they think as much as what they think about.'²⁰

Work organisation and skill deployment in manufacturing

20 Cited in *Productivity South Africa*.

firms in South Africa are, in summary, characterised by segmentation and Taylorism. This work organisation is quite different to that implied by the Japanese manufacturing strategies, which are popular amongst management in South Africa (however limited and piecemeal their implementation). The new manufacturing strategies, evident in many overseas firms, question management formation and work allocation. They also question traditional versions of corporate governance, human resource management and industrial-relations systems.

In addressing these interpretations of lean production, we can conclude that there are both opportunities and risks associated with lean production. German trade unions promote an alternative called 'intelligent production'.²¹ NUMSA, the metal workers' union in South Africa, has argued that the local auto industry has simplistically lifted Japanese lean production arguments. The argument lies not only in whether 'lean production' is *transplantable*, but whether it is *desirable*.²² A Massachusetts Institute of Technology (MIT) study on the auto industry, claims that lean production requires less effort and results in an enhanced working environment.²³ This has been rejected by studies of Japanese transplants in North America, as well as earlier studies in Japan.²⁴ International empirical research and case-studies have confirmed our opinion that the model is not suitable for copying by societies characterised by (or, as in the case of South Africa, wishing to be characterised by) 'strong and unified trade union representation; self-confident, critical-minded and highly-qualified workforces; high-quality working conditions, and a tradition of human-oriented values; the principles of social equality and unified labour contracts; developed consciousness of social and ecological responsibilities'.²⁵

Rigid and authoritarian forms of work organisation will not be addressed simply by the adoption of new production techniques or participation schemes developed in other countries. These forms of work organisation, in which workers are treated as a cost to be minimised rather than as an asset, raise a number of issues. These include the lack of involvement of workers in production-related issues, the intensely conflictual relations between unions and employers more generally, and an industrial relations system which provides little incentive for co-operation.

1.3 PLANT LEVEL GOVERNANCE AND COLLECTIVE BARGAINING

Our current industrial relations system is characterised by adversarialism. It is, as with the skills profile, both an outcome

21 See Roth, S. 1992. *Japanization, or Going Our Own Way?* Dusseldorf: Hans Bockler Stiftung.

22 The experience of the CAMI workers (a joint venture between Suzuki and General Motors) in Ingersoll, Canada, illustrates these ideas forcefully. See Robertson, D., Rinehart, J., Huxley, C., Wareham, J., Rosenfeld, H., McGough, A. and Benedict, S. 'Japanese Production Management in a Unionised Auto Plant', CAW-Canada Research Group on CAMI, manuscript.

23 Womack, J.P., Jones, D.T. and Roos, D. 1991. *The Machine That Changed the World: The Story of Lean Production*, The Massachusetts Institute of Technology, Motor Vehicle Program. New York: HarperPerennial.

24 On North America, see Berggren, C., Bjorkman, T. and Hollander, E. 1991. *Are They Unbeatable?* Stockholm: Royal Institute of Technology; On Japan, see Kamata, S. 1982. *Japan in the Passing Lane*. New York: Pantheon.

25 Roth, 1992. See both Roth, 1992 and Robertson *et al.* for case study evidence.

of the hierarchical and rigid mode of organisation, as well as reinforcing this work organisation. The industrial relations consequence has been a 3.3 million-strong labour movement divided by both race and skill: a combination of white craft unions, white Afrikaner industrial unions, and the predominantly blue-collar, industrially-organised, independent trade union movement.

The establishment of national industrial unions was given impetus by the formation of COSATU in 1985, with its policy that affiliates amalgamate to establish one union in each major industrial sector. There are currently 1.3 million workers represented in approximately 14 affiliates in the COSATU federation, representing, almost exclusively, blue-collar workers. The other blue-collar federation (NACTU) is smaller, with 300 000 workers in 17 affiliates. The majority of artisans are organised into predominantly white craft unions or industrial craft unions dominated by white, so-called 'coloured' and Indian workers (such as the South African Typographical Union, the National Union of Furniture and Allied Workers' Union). The majority of white-collar workers in the private sector are either unorganised or are members of unions affiliated to the Federation of South African Labour Unions (FEDSAL).

COSATU, FEDSAL and NACTU have recently agreed on the broad priorities of labour, including trade-union unity, reconstruction and development, industrial strategy, collective bargaining, minimum wages and trade-union capacity. This agreement between the federations reflects their belief that political affiliation should not be allowed to obstruct worker unity. This unity will be important for the success of any industrial restructuring project.

The dominant labour relations trend of the 1980s has been escalating tensions, conflict and a lack of trust on the shop-floor. There has been little evidence of labour and management working together in a co-operative or innovative manner, especially at the plant or enterprise level—except in a few companies. On the one hand, employers have been intent on either avoiding or minimizing the influence of unions. On the other hand, workers and their trade unions view managerial initiatives with suspicion, as retrenchments and redundancies characterised the 1980s. In addition, workers face racism on the shop-floor, and intense supervision and policing of the production process, with little or no decision-making power on the shop-floor. Job loss causes anger and resentment and contributes to the on-going lack of trust between the parties. In this way, productive co-operation loses out to adversarial conflict. As a human resource director in the paper and packaging

industry claimed: 'they pretend to work and we pretend to pay.'

The racism on the shop-floor and lack of promotion opportunities for black workers is partly attributable to the previously immutable ideological construct of 'white workers equal skilled workers'. This has been fiercely defended by white craft unions in spite of these having seen their technical skills fragmented over the years in exchange for higher wages. However, white unions (organising white production workers, such as Yster en Staal, MWU) are showing signs of splitting with their English-speaking craft colleagues (such as those in affiliates under the Confederation of Metal and Building Unions). Until recently, white workers have been able to use both their organisational and political power to entrench their privileged status and maintain their high wages: workers at the lowest level in the auto industry receive 60% of the artisan's rate of pay. However, artisans seldom remain at this minimum, driving their wages higher by high levels of labour-market mobility. This reflects the inefficiency of South African internal labour markets. One company in the metals sector, for instance, reported turnover rates for their artisans to be as high as 50% during boom periods. This has resulted in the actual differential being 45% of the artisan's rate. As Ben Nicholson, Director of the Confederation of Metal and Building Unions argues, the fully-qualified artisans 'are the versatile people, they can go anywhere, do anything'.²⁶

The craft unions will not, however, be able to protect their job demarcations or exclusive access to skills in the longer term. New technologies and work organisation requirements will reinforce their loss of white political power. These changed realities for white workers are reflected in the fact that three affiliates (the South Africa Society of Bank Officials, the South Africa Broadcasting Staff Association, and Transnet Salaried Staff Union) of the white-collar Federation of South African Labour Unions (FEDSAL) are exploring the option of affiliation to COSATU. More importantly, the range of skills required on the shop-floor will increasingly need to be generalised to the work-force as a whole, as demanding work organisation requires that all workers have polyvalent skills which can be exercised in a flexible manner.

There is a poorly-developed system of wage regulation. This results in intense distributive conflict, both in industrial councils (where they exist) and, most usually, on the shop-floor. There are a number of problems with the current structure of industrial councils. Currently, key sectors of manufacturing—for example, paper and pulp, and chemicals—do not have

26 Interview with Ben Nicholson in *South African Labour Bulletin*, 17, 2 (March/April 1993).

employer bodies, so that unions in these sectors do not have bargaining partners. In addition, only a few of the industrial councils are truly industrial in the sense that they cover an entire industry across the country. Only recently, clothing employers and SACTWU agreed to establish a single national industrial council after bargaining at five regional industrial councils. While some councils have very wide jurisdiction (such as the Steel and Engineering Industries' Federation, SEIFSA), others are extremely narrow (such as the automobile and textiles councils). The overwhelming criticism from employers is that industrial councils are bureaucratic and inflexible, especially with respect to SMEs. Labour too shares these concerns. A number of difficulties can be noted:

- ◆ Large industrial councils are bureaucratic and fail to perform their functions;
- ◆ Their jurisdiction is excessively narrow;
- ◆ There is a crisis of representation on many councils (due to the Department of Manpower policy which insists on a formal majority of employers as the basis for representation);
- ◆ Industrial councils have no coherent policy for small business or labour brokers which results in rigid enforcement, blanket exemption or the failure to police;
- ◆ Industrial councils follow a pattern established over the last 50 years and are currently outdated;
- ◆ Representation is not proportional on many councils.²⁷

Despite the adversarial context, a number of agreements have been entered into on the plant-floor which provide for flexibility in exchange for greater decision-making. A few, usually well-positioned, companies are recognising the correlation between workplace organisation, productivity, and enhanced decision-making and participation of employees as they embark on processes to enhance their ability to compete in the global market. The agreements in such companies begin to suggest that co-operation around production issues is possible and will, in all likelihood, be a negotiated agreement, with both gains and trade-offs on both sides.

In the major centralised bargaining sectors, demands have been tabled which highlight, on the one hand, employers concern over questions of wage restraint, productivity and affordability. Trade union concerns for poor productivity performance is, at times, overshadowed by pressure from their members to preserve jobs and improve wages and working conditions. A number of significant agreements (mining, metal, auto, clothing and textile) have been entered into. These suggest the emergence of forms of co-operation and joint decision-

²⁷ Outlined by Cheadle and Kettledas in a document prepared for COSATU policy discussions on collective bargaining. See Cheadle, H. and Kettledas, L. 1993. 'Centralised Bargaining', in COSATU Labour Market Institutions Conference (March).

making between the trade union movement and employer bodies. It should be noted that many of these are not industrial councils but fora (with tripartite representation) *specifically* set up to address industrial policy issues (mining, auto, textile). However, though these agreements are not unambiguous, they certainly suggest the potential of labour's involvement in economic policy formulation. This can be seen, for instance, in the report of the Panel and Task Group for the Clothing and Textile Industries (representing business, organised labour and the Government) recently (28 March 1994) presented to the Minister of Finance. This report proposes a range of supply-side measures, a trade policy and provision for displaced workers to achieve, *inter alia*, objectives of international competitiveness, labour-demanding growth, equity for all stakeholders, and affordably-priced goods to consumers. In the textile industry, more specifically, this co-operation has spilled over to plant-level with a 'progressively more stable industrial relations environment' evident in the early 1990s as management began to recognise the common interest and purpose between themselves and the trade unions.²⁸

At the macro-national level, equally significant developments have occurred. These range from the qualified participation of the labour movement in State advisory bodies such as the National Manpower Commission (NMC) and National Training Board (NTB) (where it has participated in shaping labour law, human resource development, tripartite institutions, and education and training), to the initiation of the tripartite National Economic Forum (NEF) where economic policy and industrial restructuring were negotiated. The establishment of the National Economic Development and Labour Council has recently been announced to replace the NMC and NEF.

Managements' response to poor manufacturing performance and adversarial relations on the shop-floor has been to embrace some of the strategies of lean production, as well as to establish structures of worker participation such as 'quality circles', 'suggestion schemes' and 'participative management'. Trade union responses to workplace change, world-class manufacturing, or total quality management programmes, have been mixed. These include:

- ◆ Defensive and militant opposition, or what has been called a 'hands-off' approach;
- ◆ Pragmatic scepticism of management initiatives which are seen as mechanisms to retrench workers or adopt flexible working practices;

28 Maree, J. 1993. 'An Industrial Strategy for the South African Textile Industry', report submitted to the Industrial Strategy Project; and Maree, J. and Godfrey, S. 1993. 'Weaving Together an Industrial Strategy and Industrial Relations in the South African Textile Industry', unpublished results.

◆ Adversarial (or strategic) participation which suggests that workers should participate in managerial decision-making processes, but that this should be done through collective bargaining.²⁹

It is the third response to worker participation schemes which has been proposed by some of the COSATU affiliates. The success of the Industrial Strategy Project's proposals and policies to enhance productivity and improve the performance of the manufacturing sector depends on the ability to win the cooperation of the work-force and the labour movement, as well as of management and employer bodies. The ISP proposals suggest a way in which to promote such a response—with due regard to the current state of labour-management relations.

It is clear that a fundamental reorientation of the workplace, skills profile, training and education system, and system of industrial relations is required if South African manufacturing firms are to achieve high-performance and participative work organisations. While a number of far-reaching principles and policies are suggested in this chapter, it is important to identify and acknowledge the structural obstacles in the way of a fundamental reorientation. This will assist in the design of appropriate measures to move companies towards high-performance work organisations. Obstacles include:

◆ *The decline in training investment.* During the 1980s the number of apprenticeship contracts registered declined (from 14 497 in 1982 to 8 184 in 1987), while in 1986 only 7% of the economically-active population was engaged in some or other formal training course. This compares most unfavourably with training efforts elsewhere. In Germany, for instance, 60% of the work-force has completed apprenticeships, with approximately 80% of all German firms having a minimum of 20 employees participating in apprenticeship programmes.³⁰ As a training manager in the pulp and paper industry commented to the ISP paper sector researcher: 'the lack of training in this industry is chronic—its almost a crime against humanity'.³¹

◆ *The limited availability of formal training and the lack of integration of training programmes.* In the clothing industry, the sector researcher found that certificates are offered mainly at the technical and management levels, while courses offered to machinists by the Clothing Industry Training Board are of short duration (6 weeks for basic training and 4 weeks for specialist training). Table 5 illustrates this comparatively.³²

◆ *The substantial distance between those in control of the strategic direction of South African manufacturing and the shop-floor.* This distance is reflected in the unusually large earnings

29 These views were outlined by an American trade unionist—Scannell, R. 1993. 'Adversary Participation in the Brave New Workplace: Technological Change and the Bakery, Confectionery, and Tobacco Workers' Union', in Adler, G. and Suarez, D. *Union Voices: Labor's Responses to Crisis*. New York: State University of New York, p. 79. The idea of adversarial participation has found appeal amongst unionists in South Africa. See Ntshangase, W. and Solomons, A. 'Adversarial Participation: A Union Response to Participatory Management', in *South African Labour Bulletin*, 17, 4.

30 Daly *et al.*, 1985, pp. 87–8.

31 Cited in Bethlehem, L. 1993. 'Pushing Paper—The South African Paper Sector and Industrial Strategy for the 1990s'. Report submitted to the Industrial Strategy Project.

32 See Altman, M. 1993. 'Tinker, Tailor, Tailor's Son... Developing the SA Clothing Industry'. Report submitted to the Industrial Strategy Project.

TABLE 5 CLOTHING MACHINIST TRAINING IN SOUTH AFRICA, GERMANY AND THE UK

COURSE	EMPLOYMENT IN SECTOR	NUMBERS TRAINED	LENGTH OF TRAINING
SOUTH AFRICA	113 000	289	1–10 weeks
GERMANY	220 000	6 600	2–3 years
UK	230 000	520	2–3 years

Source: Altman, 1993.

differentials at all levels of South African industry and the complex interaction between skill, hierarchy and race. The history of job reservation, segregated technical training, and the lack of facilities for training black technicians are all important factors in perpetuating racial divisions across skill categories.

◆ *The switch from science and technology to business management and commerce in technikons.* All 15 technikons have recently reported that their intake in science and technology is dwindling.

◆ *The short supply and lack of preparedness of trainers.* Trainers tend to be industrial relations personnel or people who left the trade years before and are in touch only with the old technologies (of both the embodied and disembodied types). The consequence is that some courses have not been revised or updated since the 1950s.

◆ *The technical training currently provided (especially apprenticeships) reflects rigidly-defined job demarcations:* this is contrary to the integration and enlargement of skills necessitated by the new technologies and organisational practices.

◆ *The lack of recognition of existing skills acquired on the job or through prior learning.*

◆ *The negative attitude of managers to the training potential of workers and their career-path requirements.* Currently the majority of companies are unwilling to promote people past supervisor level.

◆ *A grading system which discourages skills improvement.* In the clothing industry, for instance, the researcher found that a machinist performing one function is paid equivalent rates of pay to a multi-skilled machinist.

◆ *Poor capacity and organisational competencies on the part of both management and trade unions to manage the relationship between co-operation and conflict.*

The incentive system of this skills' profile, form of work organisation, and industrial relations system is such that the market determination of resource allocation, particularly in times of economic stress, such as have occurred during the past decade, results in

- ◆ Immediate short-term speculative profits;
- ◆ Training specific to particular machines and achieving narrow multi-skilling rather than broad based skill for future changes;
- ◆ Cost cutting, cuts in conditions, and contracting out;
- ◆ Little or no investment in design, research, and development;
- ◆ Little innovation and an under-utilisation of the skills of the work-force; and,
- ◆ A move off-shore to low wage countries (and within the borders to low-wage and/or non-union areas) and a decrease in value-added production at home (although it appears that this is more evident in the textile, clothing, and footwear industries than in metals or foodstuffs).

Workers and their trade union representatives, not surprisingly, are extremely sensitive about industrial restructuring proposals which could worsen working conditions, lower labour standards and threaten jobs. International evidence suggests that, while high-performance work organisations are leaner than their predecessors, bloated operations, managerial hierarchies and undifferentiated products will result in a company being outcompeted. It is clear, then, that the co-operation of workers is essential for long-term productivity gains and that their lack of approval for such proposals, as well as their mistrust of management's intentions, are problems which management will not be able to ignore. The solution is not to abandon the adoption of production techniques which may improve productivity, but to do so in a context of an 'intelligent system of production stamped with a socially harmonious character.'³³ The ISP has developed a set of policy principles which, we believe, addresses the critical issue of productivity in the context of work organisation, skill upgrading, plant-level governance and collective bargaining. The details of this system are outlined below.

2 AN INTELLIGENT PRODUCTION STRATEGY

The route to productivity-enhancement being promoted by the ISP has a broad strategic perspective of economic and industrial change. The ISP has developed a set of policy principles—loosely termed an ‘Intelligent Production Strategy’³⁴—to increase productivity and promote efficiency. The Intelligent Production Strategy draws together the separate components of human resource development, work organisation, skill upgrading, the remuneration system, as well as plant-level governance and collective bargaining. These have social and political institutional implications. The Intelligent Production Strategy draws together this nexus through four inter-linked principles:

- ◆ Constant skill acquisition.
- ◆ Reorganising work along team lines.
- ◆ Broadening the notion of productivity.
- ◆ Democratic practices in the workplace.

The term ‘Intelligent Production Strategy’ refers to the three-fold requirement of

- ◆ *Intelligence*: skills, knowledge and informed decision-making capacities;
- ◆ *Production* which is efficient and flexible: this includes team-oriented work organisation, flexibility, job design and broad-banding of grades; and,
- ◆ *Strategy*: this highlights the need for management and labour to jointly plan, implement and monitor the new production techniques and the associated requirements necessary to move toward more demanding, quality product markets.

2.1 CONSTANT SKILL ACQUISITION

Constant skill acquisition involves the establishment of a nexus between skills, grading, training and wages, and attaching a fixed wage-relativity to a given skill. The nexus operates through a career structure within each industry. The lowest paid workers can, through the provision of nationally accredited training modules, progress along a ‘career path’.

The grading system currently in place needs substantial modification for this career-path to be established. The following changes are necessary:

- ◆ The large number of grades should be reduced by broad-banding existing grades with similar skill levels into a broad skill level classification for the industry.
- ◆ Grades should be redefined according to skills rather than tasks.

34 This agenda has been drawn, *inter alia* from the Australian experience—see Curtain, R. and Mathews, J. 1990. ‘Two Models of Award Restructuring in Australia’, in *Labour and Industry*, 3, 1 (March); the German experience—see Roth, 1992; and international commentators—see, for instance, Kochan, 1992. Insight into the policies and implementation of an Intelligent Production Strategy has also been gained from discussions with trade unionists and management in South Africa.

- ◆ The grades should be structured in order to enable career progression through the establishment of benchmarks linked to agreed national streams and qualifications.
- ◆ Assessment methods should be introduced to recognise prior learning and experience with a view to regrading.
- ◆ Wage levels, associated with each level of skills for each industry, must be set.

Wage levels can then be defined 'not by engineering technologies or manufactured products, but by competence in a definite quantity of core and specialisation skill... This approach lends itself to a single wage outcome for any specialisation within one qualification level.'³⁵

This skills-wage nexus was originally developed to achieve an internationally-competitive, high-skill, high-wage economy in Australia. In a modified form, it currently forms part of the proposals put forward by NUMSA in its collective bargaining fora.

The developments in work organisation and the fact that industry will need to promote more in-house and industry-wide training points to the inadequacy of the debate on South Africa's educational system. It is not focused in relation to the development of a globally-competitive industrial sector. Industry's needs will primarily be met in the realm of vocational skills and the upgrading of current skill levels on the shop-floor. This has implications for the balance between training for professionals and for the direct work-force, as well as for the types of education and training which are provided to production workers.

A vicious circle is in evidence. The combination of poor quality schooling and 'crowding' into low-paid unskilled and semi-skilled manual occupations results in the inability to translate educational skills into practical tasks, and the consequent lengthening of the time required for such learning. The nature of these jobs is such that there is little scope for human capital investment to be rewarded.³⁶ In addition, international experience suggests that considerable investment in advanced technologies has failed to produce promised and expected productivity gains.

There is a need to link training and human resource management to corporate strategies to increase or maintain economic competitiveness. There is currently a low priority accorded to human resource issues in corporate decision-making (evidenced by the current income differential between human resource executives and chief executive officers in some companies). However, merely increasing training expenditures risks treating only the symptoms since it is seldom the 'cause'

35 Ewer, P., Hampson, I., Lloyd, C., Rainford, J., Rix, S., and Smith, M. 1991. *Politics and the Accord*. Australia: Pluto Press, p. 138.

36 Pillay, 1993, pp. 12, 13.

of the lack of competitiveness. A different decision-making dynamic is required which places technology, skills and competencies, and work organisation in the even broader and deeper context of supervision and management.

The reason for upgrading workers' skill is to have a workforce which is able to operate in the ever-demanding work environments which characterise differentiated product markets. In a country such as South Africa, where there are large numbers of adults with low levels of initial education, the education and training proposals should concentrate on supporting lifelong learning. There are dangers in stressing industry training at the expense of more general, non-vocationally-oriented education. The inseparability of lifelong learning and further education and training was emphasised at a recent OECD Intergovernmental Conference on Further Education and Training of the Labour Force: 'the ability to learn off the job reinforces the ability to learn on the job, and vice versa'.³⁷ The ANC and COSATU have committed themselves to the idea that education and training is not for the young alone, arguing that 'education and training should continue throughout a worker's life to enable him/her to keep pace with technological change and develop his/her abilities'.³⁸ The implication for public policy is that the continual improvement and innovation of work needs a skilled and motivated work-force.

2.2 REORGANISATION OF WORK

Reorganising work with a view to the de-taylorisation of work organisation is the second requirement of the Intelligent Production Strategy. This should be a consequence of the abandonment of restrictive work practices associated with narrow skills and strict job demarcations. This de-taylorisation of work organisation extends beyond the shop-floor. It should erode the traditional distinction between direct and indirect labour through the establishment of teams and promote co-operation between different functions or departments (such as production engineering, sales, product design and marketing). The shop-floor should be involved in these cross-functional teams. This can lead to working conditions that deliver more interesting and rewarding jobs while promoting greater efficiency. This form of work organisation can be diffused through industrial agreements which 'mandate employers to enlarge and enrich job definitions'³⁹ such as the current proposals to broadband job grades, put forward to the employer bodies by NUMSA. These proposals specify the reduction of the number of job grades in the industry from 15 to between 5 and 7, and the redefinition of these grades according to core competencies.

37 Wurzburg, 1992, p. 130.

38 COSATU, 1991, 'Congress Policy'; and ANC, 1994, 'Policy Framework for Education and Training'.

39 Streeck, W. 1992. *Social Institutions and Economic Performance: Studies of Industrial Relations in Advanced Capitalist Economies*. London: Sage Publications, p. 19.

Reorganisation of work is also intimately connected to training. For instance, ISP research in the footwear industry confirmed earlier findings of the National Productivity Institute that production managers appear to be most lacking in the skill and competence needed to re-organize production on the shop-floor. Hence, production and supervisory training are seen as critical by the Footwear Industry Training Board.⁴⁰ Less hierarchical structures, such as team work, impact directly on productivity. The ISP paper sector researcher found that in the Finish Kaskinen paper mill, where machine operators were organised into permanent work-teams, with no hierarchies and no supervision, and where workers arranged their own work methods, output increased rapidly.

2.3 BROADENING THE NOTION OF PRODUCTIVITY

Broadening our notion of productivity is essential to understanding the source of poor productivity performance. Productivity extends far beyond labour productivity. The International Labour Office, for instance, emphasises 'the importance of studying the productivity of all the enterprise and of not confining the application of work study to the productivity of labour alone'.⁴¹ This may include the areas of purchasing, stock-keeping, distribution, customer service, marketing and research. Labour productivity contributes a proportion to the total productivity of an enterprise. Multi-factor productivity measurements need to be combined with management's ability to make the necessary materials and tools of sufficient high quality available on time, to systematise the work flow in a rational manner, and to avoid unnecessary movement of work in progress and any bottle-necks.

Performance measurements (such as planned and unplanned downtime and inventory levels) often indicate a host of productivity-related problems: these include speed of response to customer needs, quality problems, poor scheduling, lack of house-keeping, absenteeism and communication problems. These are all relevant to the measurement of productivity.

This policy recommendation, to broaden the notion of productivity, is endorsed by our sector findings: the sector researcher into household electrical durables found that none of the South African plants was able to estimate its capital productivity, choosing rather to use various measures of labour productivity as the basic yardstick. The research suggested that 'most plants visited were only beginning to take performance measures, or did not want to divulge them.' Where there were

40 See Ismail, F. 1993. 'An Industrial Strategy for the South African Footwear Subsector'. Report submitted to the Industrial Strategy Project

41 ILO, 1970. *Introduction to Work Study*. Geneva.

clear measured productivity improvements, these were due to a very rapid decline in the size of the work-force. A white goods consumer electronics company (based in Natal and the Eastern Cape) reduced its number of employees from 560 in April 1992 to 470 in early 1993, and was planning a further staff reduction of between 100 and 150 in the latter part of 1993.

In addition, sensitivity to the social determinants which impact on productivity would assist in enhancing productivity and increasing efficiency. These determinants include those relating to

- ◆ The hierarchical and racial character of work organisation. This manifests itself in low job satisfaction among workers, racial animosity, racist and incompetent supervision, limited participation in job allocation and work design, and attempts to undermine the unions, all of which increase the potential for conflict on the shop-floor.
- ◆ A lack of emphasis on skills or promotion possibilities resulting from training. Associated with this is a reluctance to pay for skills obtained, or multi-tasking to avoid having to enhance skills.
- ◆ Social problems often beyond the control of management, such as poor transportation and inadequate housing.

Broadening the notion of productivity to include these variables which impact on productivity would assist in redefining what is meant by productivity-wage bargaining. It would allow both management and the work-force to view productivity-related wage increases as arising out of changes to work organisation and improvements to performance efficiency, rather than a result of reducing labour costs. Labour costs are most often reduced through retrenchments, wage restraint, loss of benefits, contract labour, factory closure and relocation to cheaper wage areas, and longer hours or the redefinition of overtime as ordinary working time. The productivity gains which result from these strategies are questionable.

2.4 DEMOCRATIC PRACTICES IN THE WORKPLACE

Democratic practices in the workplace are needed if productivity-enhancement is to occur. A decentralised structure of decision-making is necessary for there to be a co-operative and skilled approach to the design of products and processes. This requires that worker rights are acknowledged and respected, and unions are treated as joint partners in designing and overseeing innovations in work organisation and human resource practices. Information disclosure by management, as well as

the ability of management to mobilise information held by the work-force, are critical components of this decentralised competence.

The importance of democratising the workplace is winning respect among the management personnel in some key South African companies such as Carlton Paper, PG Bison, Eskom, Murray and Roberts Engineering, South African Breweries, Nampak, Volkswagen, Rotek, and a range of others. Companies attempting to implement practices which move them to world-class status are recognising that production must be seen as both a consultative and co-operative project. A small appliance manufacturer in the household electrical durables industry, for instance, sought a partnership with its work-force through the representative structures of the trade union in order to gain support for its restructuring programme. The result was a negotiated restructuring process rather than a dictated one, and it produced positive results. As the sector researcher explains: 'it has attacked the waste and high overheads associated with bloated middle management, over-supervision and formal quality control. It has subsequently turned over all three tasks to the work-force. This has not only saved money but has created a situation of relatively greater mutual dependency within the firm.'

The involvement of the union in restructuring by a company in the paper sector confirms the assumption made here that restructuring is more likely to succeed if the union is fully involved from the outset. Recently, a large paper and packaging company (Carlton Paper) and the blue-collar union organised in the company, PPWAWU, signed an agreement on code-termination. The parties to the agreement were discussing the details of this agreement at the time of writing. What is noteworthy about this agreement is the lack of clarity from either party as to how to translate this agreement into concrete structures and practices. This lack of clarity reflects, on the one hand, the uniqueness of such an agreement for South African manufacturing companies, whilst on the other, indicates the hostility that has shaped industrial relations in the past. Both management and the trade union are sensitive about losing touch with their constituencies.

Where we did find evidence of sophisticated worker participation through formal, structured management—shop-steward committees—many of the companies indicated that these had resulted in productivity dividends. As one company said, these structures result 'in a better relationship as employees are kept updated and informed on a continuous basis on progress, problems and the overall business requirements.'

A Framework for Co-operation Around Productivity

This holistic approach (involving constant skill acquisition, reorganised work practices and democratic structures in the workplace) is to be distinguished from piecemeal attempts, increasingly popular in South African management circles, to selectively introduce elements of a Japanese 'lean production' strategy. Essentially the problem lies in treating total quality management as a 'smorgasbord', taking only what appeals to management and ignoring the rest—most often the meaningful training programmes or real attempts at union consultation. The shop-steward representatives in a components manufacturing company in the auto industry argued that these quality circles are 'a waste of time because the supervisors don't think we have anything useful to say and we don't think they will listen to any of our suggestion. It's better to take our ideas to the shop-steward committee meetings. We just ignore these quality circles. Our suggestions are not credited here.'⁴²

Various initiatives have also been taken by companies in the paper and pulp industry, over the last few years, to address their manufacturing inefficiencies. The ISP sector researcher argues that these Japanese-style worker-participation schemes are 'unlikely to succeed until they attempt a more thorough restructuring of workplace relations, and until they involve trade unions as critical and independent players in the organisation of production.'

The four elements of the Intelligent Production Strategy reinforce one another and provide a framework for co-operation between management and labour on the improvement of productivity. A number of policy implications can be outlined for companies:

1 *Put human resource considerations high on the agenda in corporate strategic decision-making and governance processes, and do so in such a way that employees are regarded as legitimate stakeholders in the corporation.*

2 *Combine any investment in new hardware or embodied technology with investments in human resources and changes in organisational practices (job design, work organisation, layout, team working). If training and education, personnel and industrial relations practices are designed in such a way as to capture and utilize skills which are continually upgraded, the full potential benefits of investments in technology can be realised.*

3 *Attach economic reward for workers to the resulting enhanced productivity—through gain-sharing schemes. Gain-sharing is preferable to bonus schemes for individual workers, since it underlies the co-operative nature of work, builds team effort and avoids fostering divisions between groups of workers in the workplace.*

42 Quoted in Black, A. 1993. 'An Industrial Strategy for the Motor Vehicle Assembly and Component Sectors'. Report submitted to the Industrial Strategy Project.

4 *Replace managerial hierarchies and intense supervision levels with a structure for decentralised decision-making.* A guaranteed voice for workers will not only contribute to democracy in the workplace, but in communicating their strategic thinking to worker representatives, management will go some way to generate trust between itself and workers. As Rogers and Streeck have so eloquently argued, 'trust between management and workers is central for good economic performance under modern technological and market conditions. For firms to decentralise production decisions, managers must trust workers not to misuse their increased discretion. For workers to contribute to efficiency, they must trust management not to exclude them from the benefits of their effort.'⁴³

By increasing the provision of training, management will admittedly face higher overall labour costs (although this will be offset by increased savings in supervision as responsibility devolves) and, therefore, be under pressure to use this more highly-skilled labour more efficiently. This, in turn, often influences technological decisions leading to the automation of simple unskilled tasks. Management has an incentive to find increasingly more efficient ways of deploying higher levels of skills. This has not only work organisation and industrial structure implications, but it also has consequences for the nature of industrial relations: lower valued products become less attractive and are automated or (more likely) sent either into the rural areas of South Africa or off-shore, leading to potential job loss or job displacement. The latter could result in the need to retrain workers to acquire new jobs, adjustment mechanisms for this relocation, or to potentially conflictual industrial relations. It is to the institutional arrangements necessary for industrial restructuring that we now turn.

43 Rogers, J. and Streeck, W. 1994. 'Workplace Representation Overseas: The Works Council's Story', in Freeman R.B. (ed.), *Working Under Different Rules*. New York: Russel Sage, p. 106.

3 INCENTIVES, OPPORTUNITIES & CONSTRAINTS

The policy principles suggested by the Intelligent Production Strategy will not necessarily be achieved by persuading employers and workers, or their representatives, that these are in their collective long-term interest.

While South African industry has been shown to be performing poorly, there are clearly significant exceptions. The problem is that these practices, both at the plant level and the sectoral level, have not diffused to the majority of companies in the manufacturing sector. This is despite the fact that they do appear to offer firms and industries considerable gains. This market failure suggests that public policy could play some role in diffusing these desirable practices more rapidly and with

greater depth.

It is to social and political institutional arrangements that we must look to provide the appropriate opportunities and constraints necessary to elicit changes to the traditional responses of both parties.

German institutional rigidities provide an apposite example of how 'institutional constraints may create opportunities to move an economy into diversified quality production'. These institutional rigidities, while foreclosing adjustment to price-competitive markets, have enabled firms to make the more difficult adjustment to the 'demanding high value-added, diversified, quality production strategies'.

The elements of these institutional rigidities found in Germany are as follows:

a) A system of wage determination which keeps wages higher and differentials lower than would be determined by a freely-functioning labour market. This, in turn, encourages investment in training and retraining as a mechanism to enhance productivity to match these wages.

b) Collective agreements, codetermination and legislation serve to impose high employment stability which forces firms to increase internal flexibility (through redeployment which encourages investment in training and retraining). This results in greater identification of workers with the firm and enhanced co-operation which is 'necessary for flexible organisational decentralisation of competence and responsibility'.

c) Rules which oblige employers to consult with their workforces, and reach consensus, which serve to insulate both management and labour from opportunistic pressures; a training system which results in more trained workers with broader skills than required by immediate product or labour market pressures.

d) Collective agreements, union-inspired government programmes and codetermination, which result in a system of rules which limit managerial prerogative in the design of jobs and the organisation of work.⁴⁴

What this example suggests is that a relatively highly-regulated labour market could allow and even encourage restructuring up the value chain rather than restructuring towards low wage, low productivity forms of production. Indeed, if the Intelligent Production Strategy is to succeed in promoting enhanced productivity, the strategy requires supportive labour market policies in which

- ◆ differentials are lowered
- ◆ training investment is increased

⁴⁴ This example has been taken from the work of Streeck, 1992, p. 31.

- ◆ rules are defined which oblige management to consult with their work-forces and
- ◆ trade unions are involved at the macro-policy and micro-economic level in economic policy and industrial restructuring.

COSATU has been involved in the formulation of economic policy and, in particular, industrial restructuring. This involvement has been premised on the need to move South African firms out of their low-wage, low-skill, low-productivity vicious circle in which they are out-competed by the second-tier Newly Industrialising Countries (Malaysia, Indonesia, Taiwan, Philippines) and China. On this basis, the larger, more organised affiliates have been involved in tripartite restructuring fora in their industries: mining (National Union of Mineworkers, NUM), clothing and textile (South African Clothing and Textiles Workers' Union, SACTWU) and the motor manufacturing and electronics sectors (National Union of Metal Workers of South Africa, NUMSA). Issues discussed in these fora include a greater investment in human resources; decision-making potential for workers in companies; involvement of workers in production related issues; time-off for shop-stewards to be adequately trained for these new tasks; ensuring the availability of social security and public funds for the adjustment period and for job-creation schemes; and, acceptance of the union as a key stakeholder in industry.

However, a number of questions need to be asked about this co-operation:

- ◆ Will the concerns tabled and issues raised in these fora continue to be addressed or does this depend on labour and management always agreeing to co-operate?
- ◆ Does the co-operation rely on the goodwill of management and labour or on their respective bargaining strengths?

This chapter suggests that agreements to co-operate at national, sectoral or enterprise level have a potentially short time-frame. It is therefore necessary to devise incentives and establish institutional arrangements which do not rely on the temporary goodwill of management or on the current desire of unions to be involved in decision-making.

An active role by government is necessary, for instance, to change the environment to produce widespread diffusion of human resource innovations. In practice, the most viable way of redressing the past underinvestment in general education is a structured programme involving government, business and labour committing resources, expertise and direction. An institutional framework needs to be set up in such a way as to collectivise the responsibility in this regard. Multi-employer

bargaining between centrally co-ordinated unions and employer organisation, such as exists in Germany and Sweden, allows for a mechanism to ensure that all firms invest in training and that this training meets uniform standards.⁴⁵

3.1 INCENTIVES TO PROMOTE CO-OPERATION

a) *Combine capital investments with investments in human resources, but also with changes in organisational practices* designed to speed the implementation and utilisation of the new equipment. Kochan, in citing this evidence from the 1980s in the USA, argues that 'investment incentives should encourage enterprises to invest in both hardware and human resources and put in place the governance and human resource practices required for these investments to reach their full potential.'⁴⁶ Underlying these proposals is the premise that investments aimed at raising the qualification level and competence of the work-force (and, by extension, the potential work-force) is the most important investment for insuring a company's strategic position when competition intensifies and innovation cycles shorten. It is therefore necessary to link labour and human resource policy to macro-economic policies designed to foster sustained improvements in productivity.

b) *Provide career-paths in which workers can achieve training and gain skills which are portable to other sectors.* The abandonment of restrictive work practices resulting from narrow skills and strict job demarcations can lead to working conditions that deliver more interesting and rewarding jobs.

c) *Provide employment security and rewarding (through pay) skill upgrading and improvements in productivity.*

d) *Change patterns of ownership within companies through employee share-ownership schemes* which provide for employee rights to nominate or elect representatives to their corporate boards of directors. Kochan suggests that 'tax credits for ESOPs or deferred profit sharing should only be provided if employees are provided equivalent representation on corporate boards of directors, in a fashion that is consistent with how other investors and financial stakeholders gain representation on corporate boards.'⁴⁷ The Australian experience has not, however, been positive in this area. The South African experience of employee share-ownership schemes, while limited, has also not caught the imagination of either management or labour groupings. The reasons are numerous and relate to workers' inability to influence decisions, the lack of consultation with workers and their representatives before implementation of such

45 See both Streeck, W. 1987. *Industrial Relations in West Germany: A Case Study of the Car Industry*. London: Heinemann, and OECD/Ceri, 1990. *The Expanding Learning: Enterprise in Sweden*. Stockholm: Swedish National Board of Education.

46 Kochan, T. 1992. 'Principles for a Post-new Deal'. Employment Policy Working Paper, Alfred P. Sloan School of Management, Massachusetts School of Technology, Cambridge, Massachusetts, p. 24.

47 Kochran, 1992, p. 27.

schemes, the possible preference for benefits other than shares, such as housing and, finally, the fact that in large organisations, share ownership schemes are far removed from actual performance.⁴⁸

e) *Insist that franchise agreements be accompanied by training of local people to operate and maintain the technology.* There is a potential (especially given the current policy debate on education and training and its scope for implementation in the government of national unity) to formulate policy that prioritises human resource development of the work-force.

3.2 INSTITUTIONAL ARRANGEMENTS

The heart of our policy proposals lies in developing institutional arrangements. Appropriately designed, these will support the diffusion of the progressive, productivity-enhancing practices contained in the Intelligent Production Strategy. Two central institutional arrangements are necessary to support the implementation of this strategy.

First, establish a coherent national education and training system—including a national qualifications' authority and a national standard setting body—and provide access to the education and training system to those outside full-time employment.

Second, reorganise the industrial relations and collective bargaining systems to provide for multi-tiered bargaining, particularly plant-level structures for workplace democracy and involvement in decision-making.

These two institutional arrangements are elaborated below:

3.2.1 A *national education and training system* which links schooling, post-school non-compulsory education, adult education, tertiary education and corporate training into a coherent human resource development policy is required. This would be achieved by integrating the education and training systems by means of a) a common system of governance (planning, coordination, finance and administration) and b) a common certification structure (formally recognising that competency has been achieved or demonstrated to a particular standard). This should allow portability of skills and engender flexibility in the provision of learning with ease of entry and exit.

This is what is meant by integration: to link different parts of the education and training system, in a formally structured way, to overcome both fragmentation and duplication, as well as to remove barriers to learning. This integration should include:

⁴⁸ See report of the National Manpower Commission, 1992.

- ◆ *racial integration* (to abolish the racial administration and delivery of education and training);
- ◆ *systems integration* (to establish linkages between different parts of the training system and between the education and training system); and,
- ◆ *labour market integration* (including programmes for unemployed people and technical college courses currently under the Department of Manpower).⁴⁹

While the ISP views an enhanced commitment to human resource development as a key factor in improving manufacturing competitiveness, a blanket and unfocused increase in educational investment will be an insufficient response to the challenges of industrial competitiveness. Apart from the neglected importance of changing the mode of work organisation, there are macro-economic constraints to such a blanket response.

Initial education and training typically precedes employment. However, given that 45% of blacks cannot read or write, initial education and training must be prioritised, both through the formal education system and work-related training and education programmes. While general education will provide a base for future generations, the current work-force will be unable to respond to skill enhancement without the provision of adult basic education (ABE). Without this attention to basic literacy the South African economy will remain on a low-skills trajectory and its competitiveness will depend on undercutting low-wage countries.

For this reason, we argue that the focus should be on skill acquisition and ABE for the incumbent work-force and other adults, outside of employment, who were deprived of basic schooling, rather than on a blanket and unfocused investment in general education. This will require flexibility of the system, such as modular-based education and training programmes to facilitate multiple entry and exit points in accredited courses. Both formal education and adult education are important as basic requirements of the changing nature of work organisation. This non-vocational education is more geared to critical thinking, problem solving and creative and innovative skills for lifelong learning. Wurzburg suggests that 'workers with low levels of initial education and training are precisely the ones who participate least in this process of skills renewal.' If the focus of attention for these workers were purely on skills development and vocational training, this would 'not only fail to undo what happens in initial education and training, they actually compound the effect of low levels of initial education and training.'⁵⁰

49 Detailed recommendations on the future of the education and training system are reflected in a range of policy initiatives, including the preliminary report of the National Training Board, 1994. 'A Discussion Document on a National Training Strategy Initiative' (April); the range of documentation available from the Centre for Education Policy Development (including 'A National Qualification Framework', The ANC's 'Policy Framework for Education and Training' (1994), and COSATU's participative research project, August 1993 report on 'Consolidated Recommendations on Adult Basic Education and Training'. I have drawn substantially both from these documents and from involvement in these policy initiatives.

50 Wurzburg, 1992. 'Skill Formation and Human Resource Management', p. 116.

Although young working-age people comprise a large proportion of the population, by international standards, the South African labour-force still has low levels of initial qualifications. It is likely to remain this way well into the twenty-first century. The ISP, therefore, endorses the proposal made by educationalists, the ANC and COSATU, that ABE and general education be developed in an integrated manner toward a general education certificate equivalent to ten years.

Part of establishing a nationally-coherent system involves restructuring the National Training Board. The National Training Board could set frameworks for training, develop occupational certifications, and set competency standards for each industry. This labour market reform requires a closer interaction and articulation between post-school education and training. Accreditation (in which an authoritative body signifies that courses meet appropriate curriculum contents, standards and methods) and articulation (the process by which different institutions of learning—schools, colleges and universities—inter-connect with one another by enabling the ‘exit point’ qualifications of one to be recognised as the ‘entry point’ qualification to another) is required between different levels of learning.

A system of structured, national training is needed, with national competency standards set for each industry. Such a national standards framework should cover both universal core skills and a wide range of specialisations, and specify the level of competency to levels of skill. These standards would then inform the learning outcomes to be achieved in the curriculum for all accredited courses and the levels of skills to be acquired and recognised in skills grading systems. This core/specialisation approach to skill standards makes it possible to locate the progress of an individual within the national system.

As industry restructuring proceeds the portability of skills becomes important for workers. The skill-wage nexus then requires that unions ‘demand ever-increasing access to training for their members (which has a direct wage benefit) and require payment of the appropriate relativity for that skill. Whether employers choose to utilise that skill may remain a managerial prerogative, but should they not, they will be faced with a “forced” investment from which no return flows. The pressure to realise some return may thereby prompt changes in market or product strategy, and reorganisation of work to deploy the reservoir of skill generated by union demands.’⁵¹

These principles, now being adapted by COSATU, echo those established around skills and training in Germany, Sweden and, interestingly, the Asian Newly Industrialising

51 Ewer *et al.*, 1991. *Politics and the Accord*, p. 151.

Countries.⁵² The evidence from the former two countries suggests that industry level bargaining and national level tripartite co-ordination are important in securing improved skills and training.⁵³ A distinctive feature of Sweden's active labour policy, and one with important lessons for South Africa, is the training available—by the Labour Market Board—to workers displaced by structural adjustment.

3.2.2 Trade unions, industrial relations and collective bargaining systems

Contrary to standard economic thinking or, indeed, to the popular wisdom of South African employers, institutionalised conflict has been found, in the comparative literature, 'to be an indispensable condition of supply-side restructuring towards advanced forms of demand'. Similarly, worker involvement in decision-making and participative governance has been found to make a significant difference on financial performance measures.⁵⁴

Managing the complex relationship between this conflict and the co-operation that pertains to the process of production may well principally be the task of management, but the system of industrial relations and collective bargaining practices can set the required parameters by imposing constraints and offering opportunities to both management and labour. It is in this way that the workers' contribution to efficiency or management taking a longer-term view will be ensured. As Streeck argues 'the formal institutionalisation of worker-participation rights—moving such rights outside of the discretion of the parties involved, and especially that of the employer—can contribute to the growth of trust. While trust is an intangible resource that cannot itself be legislated, legislation can ensure against the self-interested short-term actions that destroy trust and can foreclose options whose mere exploration may undermine trust for a long time. This is what strong legislation does.'⁵⁵

Drawing on the lessons from comparative experiences, the ISP believes that a coherent collective bargaining system is required to cope with the diversity of industries. It should meet the need for flexibility with respect to the system of bargaining, including both the level of bargaining and the range of issues to be bargained. This, we believe, will be achieved through the development of a *multi-tiered system of collective bargaining* (national, industrial, sectoral, and enterprise) with appropriate frameworks set by each layer in turn. The argument for this multi-tiered system of collective bargaining is as follows:

Firstly, enterprise-level bargaining (either at the company or plant level) is required for the central project of altering and

52 It is noteworthy that the benchmark for the training systems developed in the Asian NICs has been the German vocational training system. The National Education Policy Investigation report outlines their strategy. NEPI, 1992, *Human Resources Development*. Cape Town: Oxford University Press.

53 On Germany, see Streeck, W. 1984. *Industrial Relations in West Germany: A Case Study of the Car Industry*. London: Heinemann; Lane, C. 1990, 'Vocational Training and New Production Concepts in Germany: Some Lessons for Britain', *Industrial Relations Journal*, 21, 4 (Winter); and Mahnkopf, B. 1992. 'The "Skill-oriented" Strategies of German Trade Unions: Their Impact on Efficiency and Equality Objectives', in *British Journal of Industrial Relations*, 30, 1 (March). On Sweden, see Schober-Brinkmann, K. and Wadensjo, E. 1989.

'Contracting Forms of Youth Training and Employment in Sweden and West Germany'. Swedish Institute for Social Research Discussion Paper 11/1989; OECD/CERI *ibid.* and Standing, G. 1988. 'Training, Flexibility and Swedish Full Employment', in *Oxford Review of Economic Policy*, 4, 3 (Autumn).

54 For the former, see Streeck, 1992, p. 31. The evidence for the latter has been collated by McLagen, P. 1995. 'South Africa and the Global Shift in Governance'. Paper presented to the ITISA Democracy and Work Workshop (March), Midrand, South Africa.

55 Streeck, 1994, p. 107.

reorganising outmoded forms of work organisation. This, we believe, will secure the productivity-enhancement that is central to the restructuring project. For this to occur, it will be necessary to develop (preferably in legislation) workplace institutions of industrial democracy (such as joint shop-steward management committees or workplace forums) to oversee and monitor these developments at the enterprise level, as well as cross-functional teams and flatter hierarchies for operational efficiency and flexibility. At this level productivity-linked wages could be negotiated.

Secondly, since the decentralisation of wage bargaining is not desirable, either from an equity viewpoint or for favourable macro-economic outcomes, there is a need to connect enterprise-level bargaining with a centrally (nationally) determined wage system. This would go some way to distance the shop-floor from conflict over distributive issues (particularly wages). This level (or the sectoral level) would need to consider the skills-wage nexus, as well as appropriate grading systems and industry standards for education and training.

Thirdly, that some form of reconstruction accord, accompanied by a multi-partite institution, is necessary at the national level in order to pursue policies which ensure wage and price stability, labour market responsiveness and the integration of policies concerning labour, employment, education and training, and trade and industry. This could be the responsibility of the recently-announced National Economic Development and Labour Council. This body will be concerned with the range of issues previously covered by the NMC, such as labour market policy and labour legislation, and the National Economic Forum (NEF), macro-economic policy, industrial policy, and public works programmes.

The following section firstly specifies each of the various levels of this bargaining system and outlines the range of issues that could be covered at each level and, secondly, suggests policies to achieve the objectives established for each level of bargaining.

3.3 THE BARGAINING SYSTEM

1 The National Level

Since an important conclusion of the ISP is the centrality of labour and human resource policies in broader national economic and social policy objectives and strategies, it is necessary to provide coherence to the range of employment issues, labour law, work organisation and human resource policies suggested

by the Intelligent Production Strategy. The National Economic Development and Labour Council is in a position to address this co-ordination and articulation. Such issues were previously dealt with, in an unco-ordinated manner, by the National Manpower Commission, the National Training Board, the Departments of Education and Training, the system of industrial councils, the National Economic Forum, and regional economic and development fora. Labour-market issues, previously considered by the National Training Board will also be addressed by this overarching council. The National Economic Development and Labour Council opens the way for a social accord between the major stakeholders in society, both to implement the Reconstruction and Development Programme and to base economic policy decisions on negotiated compromises.⁵⁶

2 The Industrial or Central Level

The industrial or central level of bargaining is critical to the success of the Intelligent Production Strategy, since bargaining at this level is a precondition for proactive, strategic involvement of trade unions in restructuring, workplace change and productivity improvements.⁵⁷ Currently, this is the level where industrial council negotiations occur. These cover traditional collective bargaining issues (including the determination of the minimum wage applicable to each job grade and across-the-board increases). Despite intense opposition from some quarters of management, there is a strong case to be made for centralised bargaining. In addition to the one mentioned above, these include the following inter-related arguments:

- ◆ It regulates the labour market: establishes basic minimum wages and labour standards and thereby prevents undercutting.
- ◆ It is a more efficient means of bargaining.
- ◆ It promotes equalitarian objectives amongst the employed work-force by countering wage drift.
- ◆ It provides economies of scale for medical and retirement benefits.
- ◆ It provides a mechanism to attach a fixed wage relativity to each grade and set a minimum wage for each level of skill in a particular industry (based on percentages of artisan skill quantities and wages).

There are a number of issues to be considered:

- a) Is legislation recommended to establish industrial fora in unregulated sectors? There are a number of alternate

56 More research and consultation is needed on whether this council should adopt an incomes policy and what it should consist of.

57 These reasons have been suggested in research conducted by the National Labour and Economic Development Institute, NALEDI (COSATU's research arm), into rationalisation of sectors, centralised bargaining and flexibility. See Baskin, J. 1994. 'Centralised Bargaining and COSATU: Defining the Sectors and Designing a Flexible System'. Discussion paper RR 07/94 (June). These reasons concur with both the ISP research, as well as a recently-tabled document from the NMC task committee (with representation from both labour and employer bodies) into union-management co-operation; see Joffe, A., Vermooten, O. with Brummer, A. 1994. 'Proposed Recommendations of Task Group on Union-Management Co-operation with a View to Enhancing Productivity'.

mechanisms available to encourage employers to establish representative bodies and to bargain industrially.

- ◆ Incentives can be extended to employers to organise themselves at industry level and bargain with labour. One such incentive derives from the expected productivity improvement flowing from the flexible work practices and enhanced skill levels of the work-force achieved through the nexus of skills, wages, grading and training. Since this nexus can only be bargained for industry as a whole—given the need to set industry standards which fall within the national qualification framework—unorganised sectors will be denied access to these likely benefits to work organisation.

- ◆ Self-regulation via collective bargaining, or state regulation via wage determination should become the only two mechanisms available for the setting of wages and conditions of employment. This proposal suggests the Department of Labour play an active role in extending agreements, as defined by the Labour Relations Act, and in restructuring the Wage Board (with tripartite representation) to effectively carry out its original intention to regulate terms and conditions of employment where no collective bargaining structures exist. Rather than be faced with the prospect of wage determinations established by the Wage Board, employers may prefer to sit down with labour and negotiate a wage outcome sensitive to the interests of both parties.

This is clearly a sensitive area. However, while a rigid, inflexible industrial relations system is as undesirable as pure 'self governance', the ISP does not believe it is possible to move to a high-productivity growth path without an active labour-market policy, and without a degree of labour-market regulation. Detractors are more likely to appreciate this as soon as they interact with potential collective bargaining partners in a forum designed to discuss the competitiveness of their sectors. Interviews with management in a variety of sub-sectors revealed that those companies in sectors which were governed by industrial council agreements (iron and steel, clothing and textile), were satisfied with negotiating wages centrally for reasons of efficiency, economies of scale and wage stability. Companies in sectors not covered by industrial councils (paper, beverage, chemical) believed that the extension of the system to their particular industry would be detrimental to their competitiveness. The question to be asked is whether negotiating wages in industrial councils also removes distributive conflict from the company/plant level? This is important if we are to take seriously the observation that conflict over distributive issues (essentially wages) at the company or plant level hinders

the ability of both parties to co-operate around issues of production, and co-operation is essential for competitiveness.

b) How should the poor representivity and institutional capacity of industrial councils be addressed? The ISP suggests that improving the institutional capacity of industrial councils is critical to the programme of industrial restructuring. This can be achieved in a number of ways:

- ◆ Extend the jurisdiction of industrial councils to include engagement in the formulation of industrial plans. This would be advantageous to both parties since it would secure the commitment of their respective constituencies to this restructuring and thereby help avoid industrial conflict.

- ◆ Enable industrial councils to play a role in the education and training proposals discussed earlier, either in relation to existing sector education and training boards, or in constituting themselves as industry training boards for the purposes of the Manpower Training Act.

- ◆ Foster co-ordination between industrial councils and the Department of Trade and Industry (or the National Economic Development and Labour Council) to develop capacity in the areas of trade, international markets, technology, human resource development, marketing, etc.

- ◆ Enhance the organisation and representivity of parties to the industrial relations system and, where necessary, upgrade their professional and technical expertise. This would ensure the success of industrial bargaining since it would assist effective negotiation and adherence to agreements.

c) How could institutional flexibility for particular companies, sub-sectors or regions be ensured? This is required if the industrial relations system is to offer opportunities as well as impose constraints on the parties participating. A creative response to the bureaucratic and cumbersome style of industrial councils' operation would involve moving away from complex and rigid agreements towards the setting of 'realistic' minimum floors aimed, as the NALEDI report argues, 'at avoiding the extremes of labour exploitation'. An argument against this is that it reduces the incentive for key actors, particularly union members in well-paying enterprises, to participate at this level of bargaining. This has led to an argument (by certain sections of the labour movement) that actual wages, rather than only minimum wages, should be negotiated centrally. It seems clear from our research that for employers to 'buy-in' to centralised industrial bargaining, a realistic minimum floor, set industrially, and the possibility of productivity-related wages at the enterprise level, are two of the necessary conditions for

participation in the system.

This proposal should also go some way to accommodating the needs of small and medium enterprises. Industrial Councils could include a range of schedules which cover the specific requirements of sub-sectors, regions and non-metropolitan areas. This would lower the barriers to entry of this regulatory framework. Specific proposals include that industrial councils

- ◆ become more user-friendly, able to act as one-stop institutions handling all employer payments in a simplified and streamlined manner (such as the collection of employment-related taxes, levies, etc.). One form and one payment would simplify the administrative work needed for compliance;
- ◆ establish an exemptions policy and practice such that exemptions or applicability of special conditions to registration of SMEs are linked;
- ◆ are not punitive where survivalist micro-enterprises are concerned;
- ◆ establish a dispute resolution capacity;
- ◆ for a limited time period, make some concessions to SMEs in the start-up phase and make simpler, more basic schedules for certain categories of SMEs.

d) How should the scope of industrial sectors be determined? Trade unions and management have expressed concern that current bargaining units are ineffective, covering either too broad and diverse an industry, or with excessively narrow jurisdiction. Already the National Training Board recommendations, as well as research by NALEDI, have identified the need to determine adequately the industrial sectors and then merge and/or rationalise existing councils in order to plan and structure industry-wide bargaining fora. The ISP endorses the proposals of NALEDI which suggests effective bargaining units for sectors and their respective industries. Their recommendations include approximately 40 broadly-based national fora, registered as industrial councils and forming the legal centre of the system. These bargaining fora would be spread across 11 industries. These proposals were still, at the time of writing, being considered by the respective parties. The metal union, for instance, has argued that there should be one industrial council for the 'motor vehicle industry' which would include the automobile assemblers (the national bargaining forum for the automobile industry), component manufacturers (currently covered by both the motor and the iron and steel industrial councils), tyre manufacturers and vehicle body builders (currently covered by the iron and steel industrial council). The exclusion from this particular industrial council,

as currently organised, would be service, petrol and retail which would constitute a separate council.

3 The Sectoral Level

Where necessary, bargaining or discussions may be needed at the sectoral level within a specific industry (such as automobiles within the metals sector). This could assist in managing the adjustment process of restructuring within that sector through establishing sectoral partnership and adjustment funds. It is envisaged that this more specific level is better suited (than more broadly-defined industry groupings) to deal with the range of issues associated with industrial policy such as tariffs, skill requirements, grading systems and sector-specific training programmes.

Activities at the industrial level must interface with pertinent sectoral initiatives, for example the restructuring initiatives in the clothing and textile, electronics and automobile sectors, and the industry and education training boards. Here, South African manufacturing may yet count itself extremely fortunate that many of its key sectors are governed by centralised collective bargaining arrangements. Certainly, the ability to diffuse more productive forms of work organisation throughout the engineering industry is enormously enhanced by the agreements reached between NUMSA and SEIFSA, as well as between NUMSA and AMEO (the Automobile Manufacturers Employers' Organisation).

These auto and engineering agreements effectively establish the conditions, across the industries in question, for the introduction of new forms of work organisation that would otherwise have been almost impossible to achieve on a plant-by-plant basis. They set out to achieve this by introducing into the collective bargaining framework the concept of a nexus between wages, training, grading and work organisation, that involves, *inter alia*, a reduction in the number of grades in the engineering agreement from thirteen to five, adding two grades above artisan level, as well as a graduated reduction in wage differentials such that the wage gap between labourer and artisan is narrowed to 60% of the artisan's rate of pay. This is bolstered by proposals on training and retraining, and proposals aimed at achieving a more flexible bargaining system, at the company or plant level, whilst upholding the importance of industry-wide, centralised bargaining, particularly in a period of rapid change. This establishes a clear career path for all workers. The NUMSA proposals also address the fact that, in reality on the shop-floor, hidden behind the label of 'unskilled' (black) work, is an extensive body of unrecognised skill. These

this would be to, over time, facilitate convergence of wages in a particular industry. The experience in the clothing industry is that industry bargaining determines percentage increases over and above the minimum wage, for example, a 10% increase on R100,00 is R10,00. But at plant level wages are increased by the actual rate, that is, if the actual wage is R130,00 the increase would be R10,00 rather than R13,00. The clothing industry employers argue that, in this way, centralised bargaining on wages takes competition out of wages.

The problem of wage drift results whenever multi-level bargaining occurs. A study surveying the experience of centralised wage bargaining and macro-economic performance in OECD countries⁵⁹ has suggested, in support of the above experience, that because industry negotiations in Germany are about minimum wages rather than actual wages, this results in the combination of industry bargaining with low inflation. Here, minimum wage increases agreed at the industry level act also as guidelines for the actual wage increases.

How would this level of bargaining be structured or ensured? Legislation needs to consider different forms of governance that enhance greater worker involvement in company decision-making, from workplace forums to participation on boards of directors.

The current labour relations legislation (Labour Relations Act, LRA) needs to address the requirements for bargaining at the enterprise level. The proposals identified here for collective bargaining at the enterprise level suggests a framework (preferably endorsed by legislation) which provides for the inclusion of employees in corporate governance and strategic decision making. The LRA is silent on plant-level bargaining except for works councils—long discredited because they were used to avoid recognition of shop-stewards and their unions in the early 1970s. The recently released draft LRVA negotiating bill makes provision for workplace forums at the plant/company level, with rights of consultation on some issues and joint decision-making over others. The ISP believes this provision is essential to successfully implement the proposed nexus of work reorganisation, human resource development and skill formation required for flexibility and competitiveness.

59 Calmfors, L. 1993. 'Centralisation of Wage Bargaining and Macroeconomic Performance: A Survey'. Organisation for Economic Co-operation and Development, Economics Department Working Papers, 131. Paris.

Policy Implications for Trade Unions and Company Management

Policy implications arising from the proposal to establish multi-tiered bargaining are numerous. The trade union movement, for instance, needs to reflect on its current structure and organisation and assess whether it is conducive to an

shop-floor operatives within the teams.

b) Agreements between management and union representatives could include the nature, extent and selection of education and training to be embarked upon within the framework set at the industry levels. These could include productivity 'trade offs' and schemes such as those implemented by the Clothing Industry Training Board. This allows for mechanisms to be designed to facilitate a relationship between skill acquisition and training and organisational change: a co-operative programme (as developed by the CITB)⁵⁸ could be introduced in which workers who undertake training programmes are required to develop factory-based projects which improve productivity. As the ISP sectoral researcher on the clothing industry wrote, 'these projects would tie training to work organisation at all levels: the suggestions may be broad or narrow...the activity would encourage problem solving for workers and would show employers how workers can actively contribute to organisational change and productive efficiency.'

c) Provision should be made for productivity bargaining at this level. This proposal for productivity-based wage bargaining needs to be understood in the context of an overall wage-policy framework in which wages are negotiated at two levels: minimum rates per skill categories for the industry and productivity-based rates at enterprise level. This would allow workers to receive a financial incentive for contributing to the improvement of productivity through 'gain sharing' concepts. As a NUMSA document on bargaining outlines: 'the plant level of bargaining allows workers in industries that are in cyclical upturn to take advantage of a company's increased profitability/ productivity while not putting pressure through national negotiations on companies or sectors not in this position.' More importantly, it provides an opportunity for shop-stewards to participate in complex negotiations around work organisation and skill issues. It would require workers, through their representatives, being party to decisions about the measurement of productivity, having access to financial information to assess the gains made, and agreeing on the financial distribution resulting from productivity improvement.

It is quite clear, then, that the interests bargained at the enterprise level are specialized and more qualitative than those at the industry or sectoral level.

One of the difficult points to be considered is the potential for enterprise bargaining to further intensify wage drift (that is, real wage increases in excess of the ones agreed at higher levels of bargaining) between well-paid, well-organised workers and poorly-paid workers in weaker sectors. One way to overcome

58 The CITB's youth management development programme operates along these lines although it is only directed at middle-management positions. This concept could equally be applied at all levels.

this would be to, over time, facilitate convergence of wages in a particular industry. The experience in the clothing industry is that industry bargaining determines percentage increases over and above the minimum wage, for example, a 10% increase on R100,00 is R10,00. But at plant level wages are increased by the actual rate, that is, if the actual wage is R130,00 the increase would be R10,00 rather than R13,00. The clothing industry employers argue that, in this way, centralised bargaining on wages takes competition out of wages.

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⁵⁹ Calmfors, L. 1993.

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Policy Implications for Trade Unions and Company Management

Policy implications arising from the proposal to establish multi-tiered bargaining are numerous. The trade union movement, for instance, needs to reflect on its current structure and organisation and assess whether it is conducive to an

active engagement in industrial restructuring issues on the shop-floor and in national fora. Questions of capacity and human resource infrastructure will be highlighted as demands are made for sophisticated plant-level negotiations over work design, productivity enhancement, and codetermination. Both unionists and managers are going to require increased skills and expertise. The trade union movement will need to facilitate on-going shop-steward education on a sector basis around work organisation, grading systems, skills and training and manufacturing performance. A number of companies pointed out that management was also poorly equipped to deal with new production techniques, work organisation, performance measurement and worker involvement, and would require enhanced skills and greater levels of training on such issues. Sector Partnership Funds could be fruitfully applied for the purpose of enhancing such skills for both parties.

The above represents a detailed set of policies which, over the medium to longer term, are designed to integrate the requirements of a high-productivity manufacturing sector with the education and training systems, and the collective bargaining and remuneration systems. To this latter end, the National Training Board has released a set of recommendations which, together with the work of the previous National Manpower Commission, specify the details and implementation of an integrated training and education strategy. However these strategies need to be integrated with the policies suggested by the Intelligent Production Strategy. These include human resource development, industrial restructuring (including enterprise-level considerations), an active labour market and labour legislation.

Nevertheless, the ISP firmly believes that immediate productivity gains are possible from the reorganisation of work, the recognition of skills in the highly experienced manufacturing work-force and the fostering of co-operation between management and labour. Rather than wait for policy recommendations or legislations from the new government, the tripartite fora or other bodies, management and labour can begin to set the frameworks and reap the benefits which will flow from the Intelligent Production Strategy.

4.1 INITIATING THE PROGRAMME

In the short term, the ISP wishes to focus labour market interventions on questions of work organisation, payment, reward

4 SEQUENCING AND FINANCING

and incentive systems, and industrial relations, given that these produce more rapid results than do education and training systems. In other words, labour productivity does not have to wait (and cannot wait) until the next generation of workers has undergone education and training. However, training and education systems (the proposals around grading and training) should acknowledge the necessity for short-term solutions focusing on those workers already in employment. The ISP research indicates that our present human resource capacity is capable of meeting the challenges of a high-value manufacturing strategy. A number of strategies are necessary to realise this claim.

First, it is clear from our sectoral studies that a short-term thrust designed to unlock the skills and experience from the hierarchical and authoritarian forms of work organisation will substantially enhance productivity. The ISP studies, especially those undertaken in the clothing, automobile and household electrical durables industries, confirm the significant productivity gains that attach to changes in work organisation. ISP studies, as well as other more recent examples,⁶⁰ also show, however, that in a stagnant economy the productivity gains from work reorganisation often results in job loss.

How, then, should these productivity gains be realised? It essentially involves devising the incentives (including remuneration, grading systems and improved flexibility), the forms of supervision and the production organisation, necessary to deploy these skills. A workplace organised along these lines is characterised by team-work and reduced hierarchies, with a de-emphasis on the quantity of supervision and an emphasis on leadership and coaching.

The cases cited above, as well as others mentioned earlier such as the codetermination agreement at Carlton Paper, the worker participation agreement at PG Bison, and the remuneration and grading systems agreed by the National Bargaining Forum of the Automobile Manufacturing Industry, indicate that workers, their trade unions and managers are capable of successfully realising the productivity gains achieved elsewhere by improvements in work organisation. The agreements struck in the auto and engineering sectors to formally link wages, grading, training and work organisation have resulted in the following benefits: the employers won a commitment to greater flexibility and co-operation, at enterprise level, for restructuring in line with 'world-class manufacturing' while, in exchange, the union got an undertaking from the employers to train workers in line with the new qualification framework, and to pay them for the skills they acquired. NUMSA members

⁶⁰ *Finance Week*, 25 November–1 December 1993.

agreed that once they had acquired additional skills, they would use these skills flexibly and would not defend old job classifications.

Second, and associated with the above, is the importance of reviewing the elaborate grading system, currently characterised by a detailed and rigid hierarchy of tasks, which obstructs more productive forms of work organisation in general, and the flexible deployment of labour in particular. In selected plants in the manufacturing subsectors covered by the project, we found the number of job grades to be extremely high: 15 in engineering; 21 in paper and pulp, 19 in packaging, and 24 in the clothing industry. The clothing sector researcher found the grading structure in clothing firms to be further complicated by pay relativities that reflected neither skill nor complexity of work. A Grade B employee, earning R221,50 per week, for instance, could be involved in a variety of functions, from bow making to chasing goods on the floor, cooking in the canteen and embroidering by hand or machine, to working as a factory shop-assistant. The grading systems used in manufacturing (Paterson, Peromnes, Hay, Industrial Council and a variety of in-house systems) are complicated, job specific and task based. They are normally based on defined job descriptions so that prior learning and knowledge, and shop-floor experience are often not taken into account when grading occurs. These grading systems have been further complicated by market wage levels, race, gender, seniority, favouritism and merit systems.

The immediate policy proposal that suggests itself is to redesign the grading system so as to allow for the flexible deployment of labour. The ISP proposals on constant skill acquisition suggest a number of mechanisms to achieve this, such as reducing the large number of grades (by broad-banding existing grades with similar skill levels into a broad skill-level classification for the industry); redefining grades on the basis of skill; structuring the grades to enable career progression (through the establishment of benchmarks linked to agreed national streams and qualifications as outlined by the National Qualification Framework of the National Training Strategy Initiative); introducing assessment methods to recognise prior learning and experience with a view to regrading and, finally, establishing a wage framework. These policies would effectively reduce the wage differentials between lower- and higher-skilled workers, eliminate narrow job categories defined by task-specific grades, thus allowing for flexibility and giving workers an incentive (together with the workplace empowerment proposals) to commit themselves to work

reorganisation and productivity-enhancing strategies.

Third, the diffusion of these innovations to work organisation, human resource development and democratic practices in the workplace would be enhanced by making available experts and professionals, specialised in the field of work organisation and human resource development, to help design and oversee these changes at the company level. This should be partially funded and endorsed by a tripartite institution. The policy implication here would be for a body such as the National Economic Development and Labour Council—or a restructured National Productivity Institute—to maintain a register of approved consultants for use, on request, particularly by those small and medium-sized enterprises which lack resources. A set of guidelines could be drawn up by such a body, outlining those issues which impact on productivity and which would require attention by the consultants. A further policy recommendation could entail the provision of a consultant's report on work organisation prior to the disbursement of financial supports by bodies such as the Industrial Development Corporation and the Small Business Development Corporation.

In this way, both management and trade unions would have contributed to the guidelines which would assist the respective parties at plant-level to participate in, and finally endorse, the consultant's recommendations.

While these three proposals are comprehensive and far-reaching in their implications, they are not unattainable. They resonate, as we have seen, with proposals submitted by NUMSA to its employer counterpart, SEIFSA, which essentially recast the operation of the incentive structure on the shop-floor.

4.2 FUNDING SOURCES AND ALLOCATION

A critical issue that needs policy recommendation is the source of financing for this qualification system and skill-based training and education system. It is clear that employers will only invest more if there is a mechanism to promote high standards to ensure quality (such as a National Qualification Framework) and that this investment leads to productivity improving practices. The work of the ISP is concerned with industry so that the following principally addresses the pre-tertiary segment of the education and training system.⁶¹ There are a number of options which could be explored.

The first is tax expenditure to relieve companies of the financial burden of training. The Plastics Industry Training Board (PITB) has recently thrown its weight behind tax incentives.

61 The Education Policy Unit finance task team at the University of the Western Cape has addressed the funding of the compulsory schooling segments and educare segments, inclusive of the costs of school education, classroom construction and renovation, school-feeding scheme and intergovernmental finances and educational financing, while the National Training Board finance and incentives task team has addressed the non-compulsory, pre-tertiary education and training segment.

The chairperson of the PITB argues that rebates for money spent on accredited training would 'make training an inexpensive necessity, rather than the costly luxury it is often seen as'.⁶² However, others have questioned the success of such an option. As Donaldson argues, 'tax exemptions are not efficient vehicles for supporting training: they do not benefit infant firms who need training and they encourage extravagance by profitable businesses.'⁶³ This view was endorsed by a number of companies interviewed on this matter. South African Breweries, for instance, argued that, rather than tax incentives to train, there should be disincentives if companies do not train. They argued against blanket legislation, but insisted that there should be guidelines, since legislation is able to specify quantity but is silent on the quality of training. South Africa used to grant tax incentives to encourage training. Until September 1984, under the South African Income Tax, companies were allowed 200% of their expenses on training of employees. This was reduced to 150% between September 1984 and July 1990, and has subsequently been done away with. In addition, as Donaldson points out, the fiscal authorities are committed to eliminating 'tax expenditures' wherever possible.

A second mechanism to generalise and increase expenditure on training is a training levy (calculated as a percentage of the payroll). This could be a useful mechanism through which to accumulate general funds. Many countries have accepted this. For instance, Australia has a national training fund of 0.5% of the annual wage bill. This is subject to increases to the OECD average (4.5%–4.8%) over an unspecified time period. Clinton's administration in the USA has suggested a figure of 1.5% of the annual wage bill. Sweden also operates a training levy.

A third, and preferred, option is to increase investment by the private sector in human resource development by means of industry-negotiated agreements between labour unions and employer federations. Examples of this bargaining between centrally co-ordinated unions and employer organisations can be found in Germany and Sweden. This ensures that all firms invest in training and that this training meets uniform standards. These agreements may include expenditure on in-service training; eligibility and financial contribution to external training; and paid education and training leave, in which the company agrees to a set number of paid days and the workers take the same number of unpaid days. Such an agreement could specify that education and training programmes comply with the National Qualification Authority and give portable and credible qualifications, as well as address the question of wages and employment security—as workers generally fear

62 *Business Day*, 4 May 1994.

63 Andrew Donaldson cited in the NTSI Discussion Document, 1993, p. 168.

that increased skill will lead to fewer workers. In specifying these issues, such agreements would hopefully encourage greater levels of investment. As the National Training Strategy Initiative argues, 'without a single national framework to encourage productivity-enhancing investments in human resource development, it is likely that enterprise "rationality" will dictate that "I will not invest but hopefully someone else will".'

There are precedents here, as contained in the ILO conventions (for example, 140 'Convention concerning paid education leave', and 142 'Convention concerning vocational guidance and vocational training in the development of human resources'). A tax rebate and training tax are other instruments that could be looked at in bargaining.

The ISP supports the recommendation arising out of the National Training Strategy Initiative (NTSI) Finance and Incentive Task Team that the sectoral level 'should be encouraged to put in place agreements which flesh out the productivity-enhancing dimensions appropriate to the sector. For instance, incentives and regulations which link human resource investments to investments...such as start up manufacturing firms and firms integrating negotiated new products and negotiated new technologies and work organisation changes into their operation, firms that produce products or services that replace imports.'⁶⁴

Special public funding arrangements would need to be specified for labour market programmes, including the unemployed.

The allocation of funds for education and training should, as the NTSI suggests, be linked to targeted criteria such as:

- ◆ Supporting training in firms or sectors which would be otherwise unlikely to provide adequate training (including micro-enterprises, SMEs and targeted programmes for reconstruction and development);
- ◆ Providing some preference to projects which direct resources to historically under-supported groups (such as women workers and front-line blue-collar workers);
- ◆ Giving preference to projects which incorporate workplace transformation objectives among the project goals;
- ◆ Linking funds to South African Qualification Authority (SAQA) accreditation—since accreditation addresses the question of quality, relevance, credibility and efficiency.

64 National Training Strategy Initiative, 1994, pp. 153–4.

CONCLUSION

The Intelligent Production Strategy raises enormous challenges to both organised labour and managers of capital. The central question for the trade union movements is whether it has the capacity in terms of organisation, education, research and leadership to pursue such a strategy of industrial renewal? On the other hand, will management be able to overcome deep opposition to 'interference' with its prerogatives and shift its view to regarding workers as a valuable resource and trade unions as legitimate stakeholders in the economy? A key incentive for management is the competitive pressure of sophisticated product markets. But it is the social and political institutional arrangements which offer most scope to employers. They provide opportunities and obligations to employers to consult with the work-force, to enlarge and enrich job definitions, to decentralise decision-making and to invest in skills and training. As Streeck has argued, 'being forced to invest in expensive skills, firms find themselves further induced to move into non-price-competitive markets for high value-added products; use new technology in a way that makes the most of its potential for flexible retooling; adopt an organisation of work that allows workers to use discretion; and comply with a regime of employment protection that also protects their human resource investment.'⁶⁵

The Intelligent Production Strategy has the possibility of overcoming a number of objections to current worker-participation schemes, voiced by both management and labour. These include poor training; multi-tasking rather than multi-skilling; little consultation with the trade unions; little responsibility taken by workers for productivity improvements; cuts in conditions; privileging the elimination of waste in production rather than striving for quality in product and in ensuring quality workplaces; offering few rewards and providing a limited form of participation, as schemes are developed in isolation from broad strategic direction of the company. The Intelligent Production Strategy can overcome these objections only if it is adopted comprehensively, with all its inter-linked aspects.

The Intelligent Production Strategy is a strategic framework for worker/trade union and management co-operation in productivity-enhancing strategies in companies. It allows workers to participate and engage with issues of substance in the company. The Intelligent Production Strategy offers a mechanism for this participation to translate into greater democracy in the workplace. In this situation labour is empowered through the education and training process, the procedures for consultation, information sharing and negotiating agreements, and

65 Streeck, 1992, p. 34.

through the role played by independent worker organisations. It offers management a mechanism through which to involve workers in the decisions that ultimately impact on productivity, and thereby ensures that the company succeeds in meeting the challenges faced by domestic and international competition.

ENSURING TECHNOLOGICAL ADVANCE IN THE SOUTH AFRICAN MANUFACTURING INDUSTRY: SOME POLICY PROPOSALS

DAVID KAPLAN

Technological advance is the major factor in the creation of higher paying and more productive jobs. Moreover, technological advance is critical to achieving the greater product variety, quality and customisation which has an ever more pervasive impact on the competitive position of nations and firms. Recognition of the growing importance of technological advance, combined with a broad consensus that, if left to the market, investment to secure technological advance will be less than optimal (see below), have led governments everywhere, over the last decade or so, to adopt far more comprehensive and forthright policies with respect to technology. Such policies are particularly characteristic of the successful Newly Industrialising Countries (NICs).

In South Africa, the deliberations of a government study group, in 1985, resulted in a White Paper which urged that government adopt a comprehensive technology policy consistent with an overall policy for industrial development.¹ However, since then, the Department of Trade and Industry (DTI), which has overall responsibility for technology policy, has had six different Ministers; added to this, an Advisory Council for Technology, established in 1988 to assist government to finalise a technology policy, was abolished in 1990. The net result is that, 'despite a gestation period of some 10 years South Africa has *no comprehensive Technology Policy*.'²

This chapter surveys macro and micro data in order to identify the major factors which currently constrain technological advance in South African manufacturing industries. Based on this analysis, a comprehensive set of policies, designed to advance technological development, are outlined. While there is detailed macro data on South African technology expenditures and outputs, and the Industrial Strategy Project studies have provided considerable micro data on individual industrial sectors, there are still important gaps, particularly in our

INTRODUCTION

- 1 'White Paper on Industrial Development Strategy in the Republic of South Africa', 1985. Pretoria: Government Printer.
- 2 Garbers, C. F. 1993. 'The National Science and Technology System: Structure and Policy'. Mimeo (October). (Emphasis added.)

understanding of the factors which determine technological development at company level. This chapter should, therefore, be seen as indicating policy directions, the precise details of which are dependent upon further empirical investigation.

1 THE ROLE OF TECHNOLOGY POLICY

Technology policy aims to create wealth by increasing output through the effective exploitation of technology. To this end, technology policy has three principal concerns:

- ◆ to enhance national capacities for invention and innovation;
- ◆ to ensure access to international technology, and
- ◆ to enhance the diffusion of new and appropriate technologies and technological best practice.

While the success or otherwise of technology policy is determined by its impact on wealth creation, the exploitation of technology to create wealth will necessarily also be conditioned by many factors which lie outside the sphere of technology policy. Local firms, for example, may have considerable technological capacities but be severely constrained in translating these into better performance because of a lack of finance, marketing skills, or access to complementary inputs.

The most critical agents in exploiting technology to secure increases in output are firms. An analysis of the factors which constrain the technological performance of firms, and how these factors might be ameliorated is, therefore, the first step in developing a successful technology policy. The next step is to identify the policy instruments that are available to ameliorate these constraints and to assess their likely effectiveness. The final step is to identify the resources available to support policy intervention—financial, administrative and technical.

The market requirements for ever more rapid product innovation, and consequently the increasing knowledge-intensity of production, have led to a quantum leap in investments on the part of firms everywhere, in order to enable them to enhance their technological performance. But, while the market exerts increasing pressures on firms to make such investments, these remain discretionary. There is a broad consensus to the effect that, left to the market, such investments on the part of firms would be less than optimal.

Large and positive externalities, lumpy investments, the presence of strong uncertainty, and weak or absent markets for technology and key inputs, all restrain investments on the part of firms, ensuring that market failure is ubiquitous. However, the mere identification of a market failure is not sufficient to

justify a policy intervention. The likely costs and benefits of intervention would also have to be assessed. Where possible, policy intervention should seek to improve the functioning of markets and, by being directed to the source of the market failure, minimise further market distortions.

2.1 INPUTS

South Africa currently devotes R2.8 billion (approximately \$US 0.8 billion) to all types of R&D. This represents fractionally more than 1% of GDP. In South Africa, business expenditure on R&D, and overall expenditure on R&D as a share of GDP, is higher than in some of the Latin American countries, but lower than in the successful Asian NICs.

2 THE MACRO PICTURE: INPUTS AND OUTPUTS

TABLE 1: FORMAL TECHNOLOGICAL EFFORT: SELECTED COUNTRIES AND SOUTH AFRICA. ALL AS PERCENTAGE OF GDP

COUNTRY		R&D TOTAL	R&D IN PRODUCTIVE SECTOR	R&D FINANCED BY PRODUCTIVE ENTERPRISES
S. KOREA	1987	2.30	1.50	1.90
TAIWAN	1986	1.10	0.70	0.60
S. AFRICA	1989/90	0.86	0.36	0.48
SINGAPORE	1984	0.50	0.20	0.20
MEXICO	1984	0.60	0.20	0.005
JAPAN	1985	3.50	2.40	2.70

Source: World Bank, 1992. World Bank Support for Industrialization in Korea, India and Indonesia. Washington DC: Operations Evaluation Department, World Bank. South African data from the Department of National Education (DNE).

Over the past decade or so, total R&D spending has shown a pronounced tendency to decline. (Although the 1991/2 figures show a very considerable increase, this reflects a far more comprehensive coverage of the survey of local R&D, particularly of the business sector. It is widely held that R&D expenditures declined further in 1991/2). R&D has declined more rapidly than capital expenditure and R&D personnel as a percentage of the work-force has also declined. This is in sharp contrast with most of the NICs.

TABLE 2: RESOURCES DEVOTED TO FORMAL R & D 1979/80–1989/90

YEAR	TOTAL R&D EXPENDITURE	BUSINESS R&D EXPENDITURE	TOTAL R&D PERSONPOWER	BUSINESS R&D PERSONPOWER
	1985 RAND MILLIONS		PERSON YEARS	
1979/80	641.8	225.3	15 178	N/A
1981/82	777.6	303.3	14 650	N/A
1983/84	955.8	470.3	15 993	6 770
1985/86	973.8	373.9	19 510	7 196
1987/88	904.7	373.5	20 556	7 257
1989/90	924.0	342.2	18 175	5 009
1991/92	1 108.0	510.0	22 223	8 481

Source: DNE, *Resources for R&D*, 1991/2.

In addition, South Africa performs poorly in terms of human resources committed, that is, the number of scientists and engineers engaged in R&D expressed as a proportion of the labour-force.

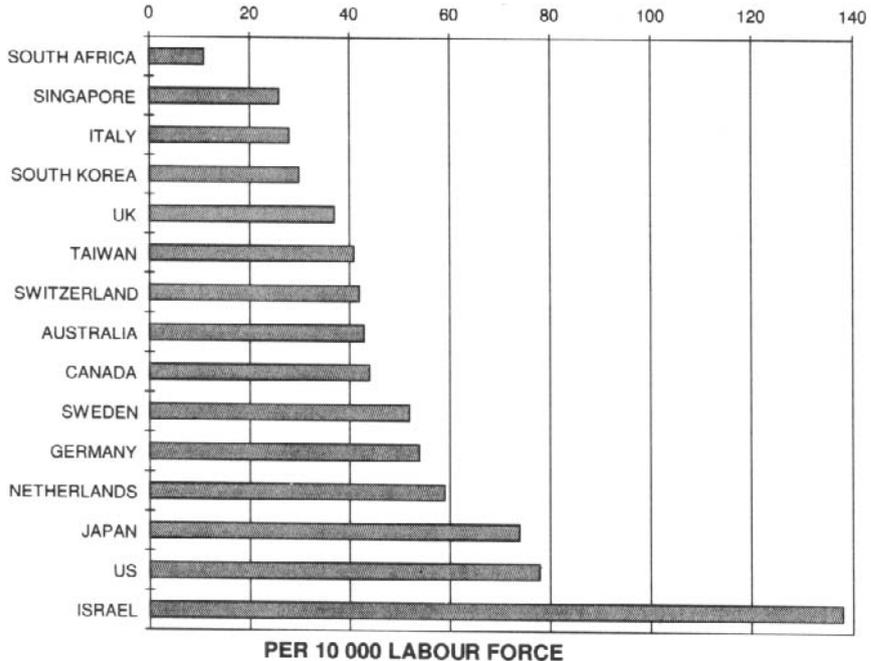


FIGURE 1 SCIENTISTS AND ENGINEERS ENGAGED IN R&D PER 10 000 LABOUR FORCE. Source: *Financial Times*, London, 18 April 1994, p. 20; DNE, *Resources for R&D*, 1991/2.

South Africa has significantly fewer scientists and engineers compared to many other countries. In 1988, South Africa had under 3 000 scientists and engineers per million population, compared to Korea 8 706 (1986), Singapore 15 304 (1980) and Brazil 11 475 (1980). This gap is increasing.

Moreover, in contrast to the Asian NICs, many of the

resources devoted to technological development in South Africa can be described as "mission-oriented", that is, focused on radical innovations needed to achieve clearly set-out goals of national importance.³ The goal has been 'strategic'—defined as limiting the degree of foreign pressure that could be exerted on the apartheid regime, by establishing capacities in certain key areas. Most important have been technological developments in respect of atomic energy and armaments. It is not possible to calculate precisely the importance of R&D expenditure in these areas, but R&D directly in armaments exceeds R290 million (or more than 10% of total R&D expenditure), and 22% of the business sector's expenditure on R&D.⁴ A recent authoritative report on the defence industry put the total expenditure on all types of defence research and development at R420 million per annum.⁵ It is not clear how this figure was derived, but it represents approximately 15% of South Africa's total expenditure on R&D. Government has invested heavily in atomic energy, culminating in the provision of highly-enriched uranium for nuclear weapons and South Africa's nuclear power plant. The Atomic Energy Corporation (AEC) currently employs over 3 000 people, the largest single concentration of high-level skills in the country, and can be compared with a total of 22 223 person years devoted to total R&D in South Africa in 1991/2. Over the past 26 years, over R14 600 million has been invested in atomic energy (more than total national R&D). While the R&D component of this expenditure is not known, it is certainly considerable. Atomic energy and armaments together therefore absorb a considerable part of the resources currently invested in R&D. Apart possibly from a few areas related to minerals processing, armaments and atomic energy are currently the areas of greatest national technological capability.

2.2 OUTPUTS

R&D expenditures are an imperfect measure of technological effort. They underestimate effort in small firms, incremental technology and the enhancement of production technology. Output measures are, in principle, more significant but, in practice, they are difficult to compile. The following should be regarded as 'proxies'.

The number of patents of South African origin, registered in the United States of America per annum, is currently approximately 120. South African patents increased by 63% between 1976 and 1989 (the total number of foreign-origin patents rose by 75%), but this figure has declined since then.

- 3 Ergas, H. 1987. 'Does Technology Policy Matter?', in Guile, B. and Brooks, H. (eds.), *Technology and Global Industry*. Washington, DC: National Academy Press.
- 4 In 1991/2, the Defence Department contributed R97 million directly to R&D; a further R51 million was allocated by the different branches of the armed forces to 'technology retention projects', and R&D to the amount of R100 million was supported by capital projects. A further R30 million was contributed directly by Armscor itself, and R13 million by Denel. Garbers, C.F. 1993, p. A13-16.
- 5 Transitional Executive Council, Subcouncil on Defence 1994 (April), National Policy for the Defence Industry. Prepared by the Industry Working Group. Executive Summary, point 7.

In the period 1963–75, South Africa was the seventeenth largest country of origin for patents registered in the USA, but by 1989 South Africa was the nineteenth largest country. In 1963–75, South Africa accounted for 0.34% of all foreign patents registered in the USA but this figure had dropped to 0.29% by 1988–9.

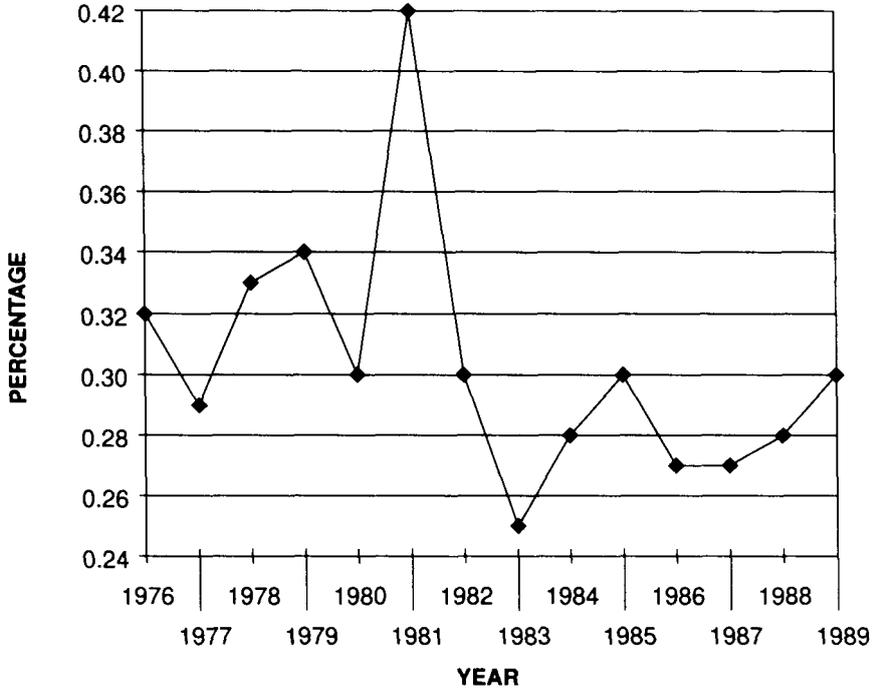


FIGURE 2 SOUTH AFRICAN PATENTS AS A PERCENTAGE OF ALL FOREIGN PATENTS REGISTERED IN THE USA. *Source:* US Patent Office, *All Technologies Report*, 1990.

The number of patents granted to South African companies in the USA rose more rapidly than did expenditure on R&D by South African companies. However, the average number of citations per South African patent is low and has declined significantly, at least since the late 1970s.⁶

Domestic patents are a weaker indicator of technological output. National differences in patenting procedures and requirements make comparative assessments problematic. Nevertheless, South Africa ranks ninth out of 30 major countries, ahead of the Asian NICs and some of the industrialised countries, in the number of its domestic patent applications.⁷ Patents for local inventions rose in the 1980s (although this stabilised after 1987), while foreign patents tended to decline. In 1980, patents of local origin made up 38% of the total registered domestically; by 1988 these made up just over 50% of the total.

South Africa's *scientific output* is relatively high, although it

6 Foundation for Research Development, Scientometric Advisory Centre 1990. *South African Science and Technology Indicators*. Pretoria: Foundation for Research Development, p. 84

7 Gernholtz, R. 1990. *A Basic Guide to the Law of Patents*. Cape Town: Allegretto, p. 11.

has declined since 1987. If scientific output is proxied by the share of South African publications in the Science Citation Index, and technological output by the share of South African patents in the USA, in the 1970–88 period, South Africa contributed five times more in science than in technology. Compared to a number of NICs, South Africa has a higher scientific output as well as a higher output of patents (with the exception of Taiwan), but a lower patents : science output ratio.⁸

South Africa's *trade balance* in commodities which are high or medium technology is negative. High technology goods show a declining trend. The medium technology industries trade deficit is reasonably constant, but only one category (non-ferrous metals) registers a positive balance. South Africa has a trade surplus in low technology industries, but this largely comprises ferrous metals.

South Africa's *technological balance of payments (TBP)*, which measures all payments for proprietary knowledge and know-how, is in persistent deficit, with payments substantially in excess of receipts. The gap between payments and receipts has been widening over time.

The macro data on technology outputs and inputs suggests *four major conclusions*:

- (i) While there is a reasonable overall investment in formal technological effort, a significant proportion of that investment is 'mission' rather than 'market' oriented. Moreover, this investment is declining significantly, particularly when compared to the successful NICs.
- (ii) Science output are high. However, this is now declining.
- (iii) Technology outputs are significant, but are much less impressive than science outputs. Technology outputs are also showing a tendency to decline.
- (iv) South Africa performs comparatively poorly in terms of human resources committed to technological development, and the situation is deteriorating.

Within the context of an industrial policy which aims for a manufacturing industry which has more, higher value-added activities and which envisages enhanced competitive pressures on South African firms in both the domestic and the export market, two first order policy priorities are strongly suggested:

- (i) Reverse the decline in the commitment of resources to formal technological effort.
- (ii) Ensure that scientific advance is more effectively translated into technological applications.

In addition, the limited training of scientists and engineers must be addressed. But this is a longer-term problem and

8 Pouris, A. 1991. 'Identifying Areas of Strength in South African Technology', in *Scientometrics*, 21, p. 28.

has to be met primarily through policy changes in tertiary education.

3 THE MICRO PICTURE: TECHNOLOGY AT FIRM LEVEL

South African manufacturing firms are typically characterised by a pronounced separation of the R&D department from the rest of the enterprise. In most large firms, the R&D department is solely responsible for product and process innovation. ISP researchers came across very few attempts on the part of management to facilitate incremental technological changes emanating from the shop-floor, or elsewhere in the organisation. (However, there were some examples, notably in chemicals and iron and steel, and these proved to be quite successful.) Furthermore, R&D departments are generally characterised by high levels of disciplinary and functional specialisation and stratification.

There are very few examples of co-operative R&D projects between local firms. Few conglomerates have a centralised R&D function for the group. There are cases, for example in transport equipment, where two companies which produce similar products and are located within the same conglomerate structure have no interchange with regard to R&D.⁹ At the other end of the size spectrum, while there are pronounced patterns of locational agglomeration, this seldom results in small and medium enterprises sharing scaling costs such as design and marketing. Industry associations are ubiquitous, but they are rarely concerned with raising the productivity or enhancing the technological capacities of their constituent firms.

In many sectors, particularly in consumer goods, the South African market is sophisticated and characterised by discriminating buyers. Quality, standardisation and prompt delivery times are insisted upon. At the same time, a number of sectoral studies found evidence of a tendency to high mark-ups and a reluctance to initiate and support long-term technological advance in supplier firms in favour of securing short-term low costs of supply. This is more particularly so where there are high levels of concentration at the retailing end, such as in clothing and household electrical durables.

In broad terms, the innovatory activities of most South African manufacturing firms can be characterised as classically Fordist: a reliance on formal R&D located in functionally-divorced and highly-stratified R&D departments; limited incremental technological change; no organisations of industrialists seeking to advance the technological capacities of the sector as a whole; arms-length relationships between suppliers and

⁹ Rustomjee, Z. 1993. 'The Engineering Sector in South Africa.' Mimeo, Industrial Strategy Project, University of Cape Town, p. 142.

customers, and very few inter-firm linkages.

South African manufacturing companies also have very weak links with the research activities of the universities. The universities are primarily responsible for the high levels of scientific output noted earlier, but business provides only 10% of the funding for research conducted at the tertiary level, and university science rarely finds any commercial application.¹⁰ A study of some two dozen firms which had won national design awards strongly indicated that these firms relied upon their own efforts and received very little support, direct or indirect, from any link with the universities.

The same study also suggested that the innovative activities of many local manufacturing firms are not linked with the science councils. With only two exceptions—significantly, the two largest companies in the sample—firms received no support from any of the science councils. In some sectors, however, manufacturing firms have developed quite significant links with the science councils. For example, links between the CSIR and the major chemical companies have been close, and the Council for Mineral Technology (MINTEK) has developed productive links with the mineral beneficiation companies. The South African Bureau of Standards (SABS) is able to certify and verify product standards for a wide range of manufactured goods—this is accepted in the most demanding of export markets. Its services are long established and widely utilised by South African manufacturers, particularly as they expand into new export markets.

With the establishment, in 1988, of the system of 'Framework Autonomy and Base Line Funding' for the management of the science councils, the government subsidy to the science councils was fixed so that they had to secure additional funding from 'the market'. In fact, state allocations to the science councils have fallen steadily in real terms and all of the science councils have become ever more dependent on the market for their funds. The CSIR—the largest of the councils with a focus on industry—secures less than 50% of its income from the parliamentary grant. This is one of the highest ratios of contract income to state funding when compared to similar institutions located in other countries.¹¹ The already well-established, well-resourced and generally technologically-sophisticated companies have been able to establish effective links with the highly market-oriented science councils. However, the much larger number of smaller and less technologically-resourced firms who enjoy very limited market power, have been mostly bypassed. In effect, the market orientation, on the part of the science councils, has reinforced and complemented existing

10 A survey of the characteristics and sources of over 200 significant South African innovations concluded: 'There was strong evidence of a failure to commercialise significant university-led inventive abilities.' Philips, B. 1990. 'Innovations in South Africa: A Basis for Technological Policy Guidelines', in *Science and Public Policy*, 17, 1 (February), p. 32.

11 '...our ratio of State funding to contract income places us second amongst the top contract income earners (just behind TNO, the Dutch national research organisation).' Garrett, G. G. and Clark, J.B. 1992. 'Science and Technology in Transformation in South Africa', in *Transformation*, vols. 18–19.

market distortions.

South African manufacturing firms tend to be strong in terms of production capabilities and also quite effective at making the necessary adaptations to production in order to utilise local inputs and raw materials. But they tend to be very much weaker in securing quality of product, in customising products and, generally, in product innovation. This combination of strengths and weaknesses is characteristic of inward-oriented regimes elsewhere where markets exert less competitive pressure on firms.¹² In addition, an inward-oriented trade regime has discouraged firms from developing specialised and focused product ranges. As a result, R&D expenditures of local firms typically are spread over a very wide product range.

However, the ISP also found considerable intra-sectoral variation in the technology performance of firms. Many sectors had a number of firms which were close to international best-practice and were clearly far more technologically advanced than the bulk of firms in the sector. As well as being generally more technologically advanced, these firms place far more emphasis on enhancing product quality and product innovation. Many of the firms in the manufacturing sector who have the most developed technological capabilities are the most active in export markets, although this is not universally the case. At the sectoral level, while the picture is not altogether clear and the relationship is a complex one, it does appear that, those sectors which are more engaged in exports, generally spend more on R&D. The telecommunications equipment industry, for example, has recently become far more export-oriented as a result of declining domestic orders and has been enhancing its technological capacities.¹³ Over 56% of South Africa's R&D industrial expenditure is located in the sectoral category of fabricated metal products and machinery; this is also the sector of greatest export and productivity increase.

The intra-sectoral spread of technological performance suggests that considerable emphasis should be placed on policies which seek to raise the technological capacities of the more lag-gard firms to those approximating national best-practice. It also suggests that outward-orientation generally tends to stimulate firms' technological efforts, as well as alter the character of these efforts, so as to place more emphasis on product quality and product innovation in order to create products which are more attuned to the needs of discriminating customers.

There are a very few areas in which South African firms have achieved leading-edge status in technological development. This has occurred in those industries in which (a) South Africa is a leading international producer and where local

12 Lall, S. *Learning to Industrialize*. London: Macmillan.

13 Kaplan, D. (forthcoming). 'Out of Africa. Some Recent Developments in the South African Telecommunications Equipment Industry', in Noam, E. (ed.). *Telecommunications in Africa*. Oxford: Oxford University Press.

conditions have necessitated major on-going innovation—principally in some mineral extraction and beneficiation processes (such as pyrometallurgy)—or where (b), for ‘strategic’ reasons, South Africa has developed along a different ‘technological trajectory’ from that pursued internationally and therefore has been unable to obtain the technology abroad—principally in oil from coal synfuel production. In these areas, South African firms have tended to invest more heavily in developing their technological capacities and have become technology exporters.

Elsewhere, however, South African firms have tended to devote comparatively few resources to developing in-house technological capacity and the importation of foreign technology has been critical. Particularly since the mid 1980s, when significant equity disinvestment on the part of many foreign companies occurred and, at the same time, payments for royalties increased significantly, South African firms have acquired foreign technology primarily by means of licensing. The number of new licence agreements entered into by South African manufacturing industry at the end of the 1980s was well in excess of 200 per annum. This is comparable with South Korea which also relied heavily on licences for technology importation and where, during the period 1962–84, a little over 3 000 technology contracts (or 150 per annum) were approved.¹⁴ Licensors of technology to South African manufacturing firms are drawn predominantly from Europe and the USA.

In some sectors, local firms have been selected to undertake R&D, in conjunction with their foreign licensors, in order to adapt and develop products intended for export markets. A prime example is the telecommunications equipment industry, where both Alcatel and Siemens have declared their intention to utilise local companies to adapt and develop products specifically for the African continent. Generally, however, technology licensed from abroad tends to be import saving rather than export generating, reflecting the inward-bias of South African manufacturing firms. An analysis of 142 new agreements covering seven industrial sectors, for the year 1988/89, showed that local licensees justified technology importation on the basis that it saved on imports rather than generated additional exports. Projected import saving exceeded projected export earnings by a very large margin.¹⁵

South African firms have generally acquired good operational capacities in respect of imported technologies. Even in complex technologies, South African firms are, for the most part, able to commission and operate imported production processes successfully, and frequently to exceed name-plate

- 14 Enos, J.L. and Park W.H. 1988. *The Adoption and Diffusion of Imported Technology. The Case of Korea*. London: Croom Helm, p. 41.
- 15 For econometric evidence, see Scerri, M. 1993. ‘The Determinants of R&D Activity Within the Context of the South African Manufacturing Sector’. D. Comm. thesis, Department of Economics, University of the Witwatersrand, p. 163

TABLE 3 BROAD ANALYSIS OF NEW AGREEMENTS ENTERED INTO IN 1988/9 BY INDUSTRIAL SECTOR

INDUSTRY	AGREEMENTS	AVERAGE ROYALTY	IMPORT SAVINGS	EXPORT EARNINGS
CHEMICALS	44.0	5.7	11.0	0.55
ELECTRICAL MACHINERY	21.0	5.0	202.0	6.9
FABRICATED METAL PRODUCTS	26.0	5.6	47.8	6.9
CLOTHING	15.0	3.6	10.0	0.005
MACHINERY EXCEPT ELECTRICAL	19.0	5.0	14.2	5.2
MOTOR VEHICLES	14.0	5.6	95.0	40.0
INDUSTRIAL CHEMICALS	3.0	5.4	16.5	0.3

Note: The data are for new agreements registered in 1988 and 1989. Royalty level calculations are approximations—simple arithmetic averages. In some cases the royalty was not clearly specified and, in a number of cases, there were also ‘front-end’ charges of specific amounts. These were estimated and included in the total.

Source: Department of Trade and Industry, (no date) Register of Licence Agreements. Pretoria: DTI

- 16 For example, in state-of-the-art gas phase polymer production, the local licensor was able to achieve an output of 10% above the name-plate capacity within 18 months. A synfuels plant, similarly, was stretched to 120% of its design capacity. Crompton, R. 1993. ‘The South African Commodity Plastics *Filiere*, History and Future Strategy Options’. Mimeo, Industrial Strategy Project, University of Cape Town, pp. 44, 106.
- 17 For plastics, see President of the Plastic Federation of South Africa, in *Engineering News*, 5 February 1993, p. 30; Crompton, R. 1993, p. 145. For auto components, see Black, A. 1993. ‘An Industrial Strategy for the Motor Vehicle Assembly and Component Sectors’. Mimeo, Industrial Strategy Project, University of Cape Town, p. 82. For paper tissue and paper disposable products, see Bethlehem, L. 1993. ‘Pushing Paper—the South African Paper Sector and Industrial Strategy for the 1990s’. Mimeo, Industrial Strategy Project, University of Cape Town, p. 100.

capacities.¹⁶ However, licence agreements entered into by South African firms do not generally lead to the transfer of innovation capacities—the ‘know-why’ necessary, not merely to operate the technology, but to effectively assimilate, adapt and finally transform the imported technology. Licence agreements frequently contain express provisions which retard the local firms’ abilities to develop their own technological capacities. This reinforces an existent tendency for local firms to passively rely on technology import rather than develop their own capacities. Therefore imported technology tends to displace rather than complement local innovation capacities.

Reliance upon technology from abroad has other adverse consequences for local firms:

- (i) Royalty fees are high and royalty payment often exceed a company’s expenditure commitment to in-house R&D.
- (ii) As a condition of licensing foreign products and processes, local companies are often required to make use of the licensor’s proprietary items.
- (iii) Most significantly, restrictive clauses in licence agreements are often a major factor in restricting exports. This is particularly evident in auto components, paper products and plastics.¹⁷

By way of example, Table 4 relates to the consumer durables division of one of South Africa’s largest industrial companies. The Table indicates the character and prevalence of restrictive clauses. In addition, the limited company expenditure on own R&D, the absence of training and the tendency to continually renew agreements, all indicate a passive reliance on overseas licensors on the part of the local firm.

While there are significant exceptions, South African

TABLE 4 SOME FEATURES OF LICENCE AGREEMENTS ENTERED INTO BY ONE OF SOUTH AFRICA'S LARGEST MANUFACTURING COMPANIES

NUMBER OF AGREEMENTS	8
EXPORT RESTRICTIONS	5 (2 others unclear)
EXPRESS TIED PURCHASING CLAUSE	1
LENGTH OF AGREEMENT 10 YEARS OR LONGER	6 (2 others unclear)
ROYALTY ON SALES: AVERAGE	3.125
ADDITIONAL FRONT-END CHARGES	2 (2 others unclear)
R&D EXPENDITURE AS A % OF TURNOVER (FOR THE GROUP)	0.32
NUMBER OF LICENCE AGREEMENTS ENTAILING TRAINING	0

Source: Calculated from the Department of Trade and Industry (DTI) (no date) Register of Licence Agreements Pretoria: DTI

manufacturing firms, over a wide range of sectors, from household consumer durables to transport equipment, tend to reproduce the characteristics of foreign products and to do so with technology which is very similar to that employed in the original market of the technology supplier. There is, as a result, little evidence of conflict between licensor and licensee and relationships, once established, tend to be of long duration.

In conclusion, a number of characteristics of technological development, or the lack of it, on the part of South African manufacturing firms have been outlined:

- (i) The Fordist nature of technological effort means that it is localised rather than generalised throughout the firm and technological links with other firms are weak.
- (ii) Links between firms and tertiary education generally and, in many instances, with the science councils are weak.
- (iii) Technological capacities are employed far more effectively in adapting production methods to local conditions than in enhancing and adapting products so as to meet the needs of the market.
- (iv) A high reliance on technology imports, primarily via licensing, results in generally good operational capacities but a passive approach to the acquisition of 'know-why', manifest in low levels of expenditure and a weak development of innovative capacities at the firm level.

These prevalent characteristics are, however, not universal. Within most sectors there exists considerable variation in the technological performance of firms, with some firms (generally a few) exhibiting considerable technological capacities extending to a substantive capacity for innovation.

4 PROMOTING TECHNOLOGICAL CAPABILITIES

At the micro or firm level, low levels of expenditure directed to advancing in-house technological effort, particularly with respect to product innovation, and passive reliance on technology importation, are clear indications that South African manufacturing firms currently are not highly motivated to enhance their own capacities for technological innovation. A major thrust of policy must be to increase the pressures and offer incentives to firms to invest in developing their own innovative capacities. No amount of prodding by government, designed to enhance such technological effort on the part of manufacturing firms, will be successful in the absence of a far stronger demand, on the part of local manufacturing firms themselves, to acquire such technological capacities in-house.

This section outlines a number of policies whereby government can influence both the demand for, and the supply of, technological effort at company level. The policies proposed here are compared and contrasted with current government policies (or lack of them).

4.1 THE MACRO ENVIRONMENT

The willingness of companies to invest in developing technological capability, as with any investment, is powerfully conditioned by the broader operating environment in which they exist. The macro-economic environment and competitive pressures on firms significantly affect the perceived returns from investment in the acquisition of further technological capability. These factors constitute the demand side of technological development and have a major impact, on both the magnitude and the character of a company's innovatory activities. While it is difficult to assess precisely, it is clear that a number of factors currently exercise a significant disincentive effect on the demand for the further development of technological capability on the part of South African manufacturing firms.

At the level of the macro-economy, a stable, high-growth environment provides both the incentive (*inter alia* from market demand for new products; production demand to economise on and enhance productivity of scarce productive factors and inputs; rapid investment in new capital equipment), and the financial wherewithal for investment in enhancing technological capability. For almost two decades, in comparison to other successful industrialising countries, South Africa's macro-economic growth has been poor, and manufacturing growth, in particular, has been very limited and particularly volatile, especially in many key (capital goods) sectors.

Political instabilities and exogenous shocks have made for

further obvious uncertainties.

Many of these issues can only be addressed incompletely, if at all, through policy. But the establishment of a competitive environment is certainly influenced by policy. A competitive environment is critical in influencing a company's decision to invest in developing its technological capabilities. With respect to the prevalence of competitive pressures on firms, *competition on the domestic market*, at least in a large number of manufacturing sectors in South Africa, is limited and distorted. Typically the companies which dominate many sectors of South African manufacturing are linked to one of the major conglomerates and, therefore, are not under the sort of competitive pressure on the domestic market, either from local firms or, in many cases, from imports which would enforce ongoing technological change and investment in new capabilities. Indeed, secure technological links with foreign licensors often further reinforce the position of dominant firms in the domestic market.

With regard to the *export market*, the limited engagement in exports by most South African manufacturers blunts a further potent spur to innovation, that is, competition on international markets. Learning through exporting—establishing the capacity to ascertain and produce to the requirements of the most discriminatory buyers on international markets—has been very circumscribed. Lack of a capacity to design and develop quality-differentiated products retards exports which, in turn, further retards the development of technological capabilities and hence further exports.

Thus, an inward-oriented trade regime, combined with high levels of market concentration, have been major factors inhibiting the development of technological capacities within local manufacturing firms. A more export-oriented trade regime, import liberalisation, and the promotion of competition on the domestic market—while not within the ambit of technology policy *per se*—will be critical in order to enhance the technological capacities of South African companies.

At the same time, it is important to recognise that significant and sudden exposure to competition, particularly via trade liberalisation, will also undermine technological capacities in existing firms. A managed phasing-in of liberalisation is therefore preferable. More especially, where local firms are capable of technological learning and of reaching international levels of efficiency, temporary protection may be granted in order to allow such firms the time necessary to accelerate their technological learning. Infant industry protection must, however, be highly selective, limited in duration, and occur only in the context of strong levels of competition.¹⁸

18 Lall, S. 1993. 'Building Technological Capabilities: Lessons from Asian Experience'. *Asian Development Review*, 11, 2.

Trade liberalisation and policies designed to promote competition need to be buttressed by a range of other measures designed specifically to encourage companies to invest directly in enhancing their technological capacities.

4.2 DIRECT GOVERNMENT SUPPORT FOR INNOVATION AT THE FIRM LEVEL

Until recently, there was no direct governmental support for firm-level R&D. In 1989, government began a programme to directly fund up to 50% of certain specified costs incurred by firms in the electronics sector in the development of new products—the Innovation Support for Electronics (ISE). Government declared the ISE to be very successful. Evaluation of the first projects suggested favourable results in terms of exports, effects on encouraging ongoing R&D, and in terms of contributing to government tax revenue.¹⁹

In April 1993, the government decided to extend the ISE to all branches of industry under the title, Support Programme for Industrial Innovation (SPII). This included a programme to develop human resources, called Technological Human Resources for Industry (THRIP), in conjunction with training institutions. In 1993–4, R117 million was allocated to the SPII, including nearly R7 million for THRIP. The SPII is currently the government's major programme to support innovation in local manufacturing industry.

The original justification for supporting innovation in local electronics firms was a growing nett trade deficit in electronics products. The objective was to identify and promote new technology in order to aid import replacement and/or export achievement. The support scheme was, in fact, a highly-selective or targeted policy—applicable only to the electronics industry. The declared 'success' of the scheme was then used to justify its extension to manufacturing industry *en toto*, that is, to make the scheme non-selective. What has determined this response is the firmly-entrenched belief that government cannot and should not 'pick winners'. In fact, the exercise of some degree of selectivity in governmental programmes of support for technology development is unavoidable. The issue is the appropriate mode and level of governmental intervention, recognising that inevitably costs and risks are entailed.

There is now clear evidence that R&D undertaken in some industrial sectors has large positive spill-over effects. This has been shown in the UK,²⁰ for example, and now there is evidence that this is also true for South Africa.²¹ R&D undertaken in certain industrial sectors—electronics and machine tools, for

19 Department of Trade and Industry, 1992 (May). *Innovating Growth*. Pretoria: Department of Trade and Industry, p. 9.

20 Geroski, P. 1991. 'On Productivity Growth', in *Economic Journal* (November).

21 Scerri, M. 1993, p. 167.

example—impact positively upon technological advances in other industrial sectors. These technological externalities reinforce the overall argument for the provision of state incentives for R&D, and, more particularly, that such incentives should be sector specific.

Policy

The SPII should be made sector specific. It should target support to those industries where R&D expenditures are likely to impact positively on technological advances in other industrial sectors.

4.3 FISCAL INCENTIVES FOR R&D EXPENDITURES

Government support for innovation in the private sector is very limited. The SPII is the only direct support that government gives for innovative activities in business. Indirect governmental support has been forthcoming in the form of local tender preferences, but this is limited and has been declining. As a result, government currently funds a small fraction of business R&D (approximately 3%)—which is much lower than for all the OECD countries, except Japan.²² Since some 15% of business funds for R&D are spent in the public sector (almost equally in the government and tertiary sectors), there is a net flow of funds from the private to the public sectors, which is highly unusual.²³

For tax purposes, R&D expenditure is treated as an ordinary business expense. Many countries now resort to encouraging business investment in R&D through fiscal support and indications are that such programmes are quite successful.²⁴ There is evidence to suggest that companies in South Africa would respond positively to such an incentive and increase expenditure on R&D.²⁵

In the context of sharply-declining investments in the development of technological capabilities at the firm level, the current low levels of state support for innovation in the business sector, the need to expand manufactured exports, and indications that such support is likely to be effective, it is necessary to explore measures by which government could provide further direct incentives to innovatory expenditures at the firm level.

Policy

An incremental tax credit scheme should be instituted whereby firms would receive a tax credit for any additional R&D spending.

22 Organisation for Economic Cooperation and Development (OECD) 1990. *Main Science and Technology Indicators*. Paris: OECD. Table 35.

23 'South Africa is the only country of which the Mission is aware in which there is a net flow of direct financing of R&D from the private sector to the public sector.' International Development Research Center (Canada), 1993 (July). 'Towards a Science and Technology Policy for a Democratic South Africa'. Mission report. Ottawa: IDRC, p. 51.

24 A recent assessment for the US which now allows a tax credit for business R&D spending concluded that '...the additional [R&D] spending stimulated in the short run was about \$2 billion [1982 \$] per year while the foregone tax revenue was about \$1 billion [1982 \$] per year.' Science Policy Research Unit, University of Sussex, 1994 (January/February). *Innovation, Tax and R&D Policy*: Conference at Institute of Fiscal Studies, 7 January 1994, in *SPRU's News*, 2, 2, p. 6.

25 Scerri, M. 1993, p. 163.

4.4 A FUND FOR DEVELOPING TECHNOLOGICAL CAPACITIES AT THE SECTORAL LEVEL

We noted earlier that inter-firm links between South African manufacturing firms, which are designed to develop technology, are very weak, and that while industry associations are operative at a sectoral level, they are very rarely concerned with upgrading the technological capacities of their members.

A more liberalised trade environment would undermine the traditional principal activity of the industry associations—namely lobbying for tariffs. Government policy could encourage industry associations to develop co-operative relations amongst their constituent companies. This could be done by providing a fund which sector-level associations could access for projects to enhance the technological capacities of the sector as a whole. Access to this fund could be made dependent on securing broad support from all of the industry stakeholders—thus strengthening tripartite consensual policy formulation.

Policy

There is a need for a government fund to develop technological capacities at the sectoral level.²⁶ This fund could be accessed by industry associations, with the support of other stakeholders, and could be utilised to enhance the technological capacities of all firms in the sector.

4.5 PUBLIC SECTOR PROCUREMENT POLICIES

Historically, government has given local producers in a number of important industries, preferential treatment. For example, since 1958, under a series of long-term agreements, the public telecommunications network operator has purchased equipment exclusively from local suppliers. This also entailed measures to encourage product design and development. In effect, the network operator paid for all approved product development work. However, despite its declared objective, there are clear indications that this did little to encourage the development of technological capabilities in the industry. In many ways, it both limited and distorted product development.²⁷ In the past few years the telecommunications network operator has reduced orders, and the whole system of long-term agreements is likely to be replaced by short-term contracts when these agreements expire in early 1995. Recently, in response to this 'threat' to guaranteed markets, the established telecommunications equipment producers have expanded their

26 A similar fund has been proposed for Ontario, Canada. Government of Ontario, 1992 (July). *An Industrial Policy Framework for Ontario*. Toronto: Government of Ontario.

27 Kaplan, D. 1990. *The Crossed Line. The South African Telecommunications Industry in Transition*. Johannesburg: Witwatersrand University Press.

exports massively. Moreover, this export expansion has been accompanied by increased investments in R&D.

Government support for innovation in industry through public-sector procurement policies has recently been substantially reduced—from a maximum of 35% accorded to the electronics industry (with a maximum incentive for full local design of 20%) in 1992, to a maximum of 10% applicable to all industry (with a maximum incentive for local design of 5%) as from April 1994.

Public-sector procurement policies have been aimed at self-sufficiency, that is, maximising local production across a broad range of products. This has been done by allowing across-the-board price preferences. Such a system has not been effective. However, more focused public procurement could be a potent policy to facilitate the development of technological capabilities in local firms.

Policy

The current system of public procurement, which entails generalised price preferences, should be replaced by a system of public procurement which gives a price preference in respect of domestic products only when it is evident that South Africa has the potential to become a cost-effective international producer.

Inter alia, new investments, linked for example to the Reconstruction and Development Programme (RDP), which require 'home-grown' products and which could provide a domestic market platform from which exports could be developed, should be identified. Government should signal its intention to call for tenders in these defined areas at an early stage. Product specifications should conform with world standards, be subject to performance requirements, and tenders should be for a limited period only.

4.6 PROMOTING AND STRENGTHENING LINKS BETWEEN FIRMS AND THE TERTIARY EDUCATION INSTITUTIONS AND THE SCIENCE COUNCILS

Research at technikons is very limited. The universities currently receive the bulk of their research funding directly from government and they function autonomously with regard to their research programmes. This divorce from business, plus a complex web of internal culture and promotion based on publication in academic journals, has reinforced the 'academic orientation' of the universities. There have, thus far, been no systematic attempts by the government to ensure that

university research finds any commercial application.

With respect to the science councils, links with those who enjoy less market power and/or who are more costly to service, notably SMEs, is weak. In addition, the institutional mechanisms to ensure that the science councils make adequate provision for the longer-term requirements of technological capacity-building are lacking. The first issue is addressed in the chapter on SMEs in this volume. The second issue is addressed later in this chapter in the proposals to change the present national S&T management system.

Policy

There is a need to ensure that tertiary-level research does not function in isolation, but rather is brought into close contact with potential applications. This could entail *inter alia* increased financial involvement of the business sector in university research, more government support for applications-oriented research, and government support for technological partnerships between the universities and business. There are a number of ways in which government can facilitate and support research programmes which link universities and business—the British Link Programme and the Australian Co-operative Research Centres, are two successful examples.

4.7 THE IMPORTATION OF TECHNOLOGY VIA LICENSING

Local firms wishing to acquire technology via a licence agreement entailing payment to a foreign licensor, are required to submit applications to the Department of Trade and Industry (DTI). The DTI makes a recommendation to the Reserve Bank which then authorises payment. The necessary approval for the payment of licence fees abroad has always been easy to obtain. Only two criteria enter into the DTI's decision on whether or not a particular agreement should be approved. Firstly, the agreement should conform to the DTI guidelines for the payment of royalties. For consumer goods, royalties of up to 4% of the ex-factory selling price, and for intermediate and capital goods, royalties up to 6%, are regarded as within acceptable limits.²⁸ Secondly, the DTI is concerned to limit restrictions that are placed on exports. In the event of agreements including restrictions on the export of licensed products and production processes, firms have been asked to renegotiate this with the licensors. There has been a recommendation that stronger attempts should be made to further reduce export restrictions,²⁹ but, as long as licence agreements fall within the

28 Department of Trade and Industry (DTI), 1989. *Manual on the Establishment or Expansion of Industrial Undertakings in the Republic of South Africa*. Revised edition. Pretoria: Issued by the DTI, p. 6.

29 Department of Trade and Industry (DTI), 1991 (April). 'Report on Technology Policy and Strategy', Draft II. Pretoria: DTI, p. 19.

royalty guidelines, they are almost automatically approved. There is considerable laxity in the application of these criteria, and the prevalence of higher royalty rates than the proclaimed guidelines, and the ubiquity of export restrictions, cast doubt on the efficacy of the DTI's policy in this regard.

In broad terms, current policy with respect to the import of technology via licence agreements is concerned to ensure merely that the royalty is limited, and the only restrictive clauses that are noted, let alone actively discouraged by the DTI, are those relating to exports.

The undesirable features entailed in the licensing of technology from abroad are the result of a complex set of factors. Not all of these are immediately or effectively addressed by policy interventions. But the policy experiences of other countries, with respect to licence agreements, do suggest that a re-orientation of policy could mitigate some of these features.

While there are definite limits to policy interventions in this regard, the evidence is that governments in many semi-industrialising countries with reasonably competent governmental structures, have been successful in reducing royalty payments and also in limiting the extent of restrictive clauses.³⁰ This can be done through direct government intervention in the import of technology and/or, more minimally, by government improving the information that is available to local firms (as to the availability of suppliers, the terms of contracts signed elsewhere, etc.) and in improving companies' selection and negotiating skills. The prevalence of restrictive clauses in licence agreements entered into by South African manufacturing firms and the success of governments elsewhere in limiting their scope, strongly suggests that a far more forthright policy which, at minimum, improves the information available to local firms, as well as their capacities to select and negotiate, is called for in the South African context.

But, more significant, is policy intervention designed to ensure that licence agreements contribute to the development of local technological capacities, particularly innovative capacities. A number of countries have focused their policies on the maximisation of technology transferred rather than the minimisation of the price of transfer.

...paying premium prices for gaining access is precisely the strategy that was adopted by the Japanese and is increasingly being pursued by a select group of NICs [Newly Industrialising Countries], who increasingly are recognising its long term value to their technological development.³¹

There are many examples of firms and countries which have successfully pursued this strategy. Insistence on extensive

30 Hoffman, K. and Girvan, N. 1990. *Managing Technology Transfer. A Strategic Approach for Developing Countries*. Ottawa: International Development Research Center, p. 47. United Nations Conference on Trade and Development (UNCTAD), 1980. *Implementation of Transfer of Technology Regulations: A Preliminary Analysis of the Experience of Latin America, India and Philippines*. Geneva: UNCTAD Secretariat TD/B/C.6/55, 38.

31 Hoffman and Girvan, 1990. *Managing International Technology Transfer*, p. 67.

training provision as a condition of technology transfer, has been of particular importance. Where extensive training has accompanied technology transfer, this has been the outcome of policy measures rather than of untrammelled market processes.

...some positive changes in the conditions and directions of technology transfer may be regarded as being the result of deliberate policy measures. Many developing countries succeeded in expanding their modern manufacturing sectors through a proper combination of indigenous efforts with well-devised, selective technology acquisition programmes. *Wider dissemination of imported technologies have been achieved mostly by insisting on comprehensive training programmes to be included within technology packages.* The expansion of manufactured exports, decrease of royalty rates and elimination of restrictive clauses might also be linked with respective regulatory actions.³²

Blueprints, manuals and even turnkey plants may be sufficient, given the reasonable technical capacity possessed by most South African manufacturing firms, to ensure effective transfer of operating capabilities. However, any licensee seeking to go beyond merely acquiring operating capabilities will require training by a technology supplier in order to gain the licensor's tacit knowledge relating to that particular technology. There are currently few incentives to ensure that training accompanies technological transfer.

Policy

There is a need for more rigorous government policies with regard to technology importation—limiting restrictive clauses entailed in licensing technology from abroad, and/or providing information to local firms, as well as strengthening their selection and negotiating skills. In addition, measures could be taken to encourage the more effective assimilation of imported technology, especially by requiring or encouraging, via fiscal incentives, enhanced training on the part of the licensor.

4.8 AN INTEGRATIVE APPROACH TO THE DESIGN OF TECHNOLOGY POLICY

Currently, government does little to support technology development within manufacturing firms. The SPII is the sole direct support, while indirect support is provided through public-sector procurement.

The overall scope of present policy is, therefore, very limited. There are, for example, by contrast with what is suggested here, no programmes designed to promote technological collaboration between firms, or between firms and the universities

32 Cieslik, J. 1989 (July). 'Regulatory Practices on Technology Acquisition in Developing Countries: An Overview', Technological Information Exchange System (TIES) Meeting of the Heads of Transfer of Technology Registries, Peru, pp. 33–4. (Emphasis added.) Government interventions to enhance effective technological transfer have been particularly successful in Korea, over a wide range of industries. This is documented *inter alia* for iron and steel, synthetic fibres and diesel engines, in Enos, J.L. and Park, W.H., 1988. *The Adoption and Diffusion of Imported Technology: The Case of Korea*. London: Croom Helm.

and science councils; or to encourage industry associations to advance the technological capacities of their members, facilitate the application and diffusion of best-practice techniques, or to encourage the effective assimilation of imported technology.

But of greater import than the narrow scope of the support for technological development is the fact that technological development is not conceived of and determined in relation to broader industrial objectives. There is, for example, no indication, in the recent discussion document on technology, or in any other government statement, of the links between trade reform and technology promotion, and no other policies of government designed to promote industrial development are considered in relation to their potential impact on the promotion of local technological capabilities.

This 'stand alone' conception of technology policy is at odds with the policies followed in the more successful industrialising countries. Technology policy is only effective when integrated and sequenced with other policies—that is, when it is conceived of and implemented as an integral part of a far more over-arching industrial strategy.

Taiwan's experience suggests that developing economies stand a better chance of succeeding in their industrial and trade policy reforms if these reforms are sequenced parallel to an economy's national level of technological competence. *In large measure, the success of Taiwan's science and technology development program can be attributed to the fact that it was formulated within the context of a well-defined industrial strategy.* Taiwan's S&T development program ...was effective because it was closely linked with, and occurred within, the general context of a national economic plan.³³

Not only is policy for technology development in South Africa conceived without reference to broader policies of industrial development, it is also not integrated with policies which are designed to promote science. This policy division is reflected and entrenched in an institutionalised separation between science and technology promotion within government. This institutionalised separation, as well as other features in the government's management of S&T, significantly undermine government's capacity to advance integrated policies for the promotion of technology development.

The set of institutions, regulations and procedures which collectively determine goals, and evaluate and support the contribution that S&T can make to broader national goals, constitute the management system for S&T. Organisational design should be distinguished from policy. Policy is an output of the system. A better organisational design will produce better outputs or

33 Dahlman, C.J. and Sananikone, 1990. 'Technology Strategy in the Economy of Taiwan: Exploiting Foreign Linkages and Investing in Local Capacity.' Mimeo. Washington: World Bank, p. 213. (Emphasis added.) Japan similarly had a very high level of co-ordination between technology and other policies. 'In building up its industrial might, Japan relied heavily on co-ordinated technology, industrial and trade policies to promote key industries.' Office of Technology Assessment (OTA), 1990. *Making Things Better: Competing in Manufacturing*. Washington: OTA, p. 21.

policies. Policy changes are necessarily frequent, particularly where, as in this field, developments are so rapid. Securing a better organisational design will, therefore, ultimately be more critical than deriving, at any one moment, an optimal set of policies.

Organisational design for S&T is a complex issue. No more than a brief sketch of some key principles which should underpin organisational design of the South African S&T system can be undertaken here.³⁴ Once again, these principles are contrasted with the principles which underpin the current system.

The first major principle underpinning the present S&T management system, as noted above, is the separation of the management of science and the management of technology. Until very recently, science and technology were compartmentalised activities, and the Department of National Education had responsibility for science and the Department of Trade and Industry for technology. This institutionalised separation served to reinforce the limited impact that South Africa's science base has had on technological development.

The second major principle underpinning the current system, which thus far has not been altered by the new government, is that 'strategic' research—specifically that related to armaments and atomic energy—is given autonomous status. It is, therefore, separately funded and managed with no reference to broader S&T policies, or the impact of these developments for broader S&T capacities.

The autonomous status of strategic research, in conjunction with the high degree of autonomy granted to the universities, both in respect of their teaching and research programmes, has resulted in South Africa having a highly-fragmented S&T system. Compounding the degree of fragmentation, is the fact that no organisation has oversight of the entire system.

Because no single organisation oversees and monitors the well-being of the system, feedback and control measures are absent, and there are no mechanisms for setting national goals. This, in turn, results in the various S&T performers being denied thematic guidelines for their operations, or any criteria against which they can measure their own effectiveness. Lack of representation at national level has also meant that the interests of S&T have not been represented when national policies have been determined. Policy has, therefore, been made without reference to the likely impact of such policies upon the development of local S&T capacities. Furthermore, the 'lobby' for S&T in relation to the government budget has been limited. This has impacted adversely on government funding for S&T which, as a share of the overall government budget, has been

34 The discussion in this section draws heavily on a detailed report designed to advance proposals as to a desirable management system for S&T. See Kaplan, D. and De Wet, G. 1994 (May). 'Proposals for a Future National Science and Technology Management System in South Africa.' Report produced for the S&T Initiative. Mimeo.

declining for more than a decade.

An effective management system for S&T requires that a co-ordinating 'agency' for S&T be established. This 'agency' should have oversight of the entire S&T system, including science and technology and the research activities of the 'strategic' industries. It should have the task of translating the broad goals laid down by parliament for S&T into operational and thematic goals for the various S&T performers, such as the science councils. It should also represent the 'interests' of S&T at budget time.

Most critically, the 'agency' should ensure that within each R&D performer, and for the system as a whole, longer-term capacity building, linked to enunciated national goals, is being effected. This is especially critical in respect of the science councils. We earlier noted the strong market-orientation of the science councils. Close client/contractor relationships ensure that S&T performers are closely coupled to the needs of their customers. The close coupling of S&T to the needs of manufacturing firms has been a critical feature in the development of technological capacities of the Asian NICs.³⁵ However, precisely in so far as the science councils are responsive to the present needs of their clients, they will have a tendency to make inadequate provision for the longer-term requirements of S&T capacity building, notably in relation to the emerging more generic and more risky technologies. This is particularly likely in the face of declining state support. Developing capacity in the emerging technologies requires a wide range of disciplines and the collaboration of the scientific and technological communities is especially critical here. One of the 'agency's' principal tasks should, therefore, be to ensure that within each S&T performer, and for the system as a whole, longer-term capacity building, linked to emerging technologies and national priorities, is being effected. In the same light, the 'agency' should play a co-ordinating role with respect to the various government departments, ensuring that the activities of each department in regard to S&T are consistent.

A number of important features of organisational design such as ensuring transparency and representation have been omitted from the discussion here. The discussion has focused solely on the desirability of four key organisational design principles:

- (i) The need to combine the management of science and technology;
- (ii) The need to ensure that the 'strategic' industries fall within the purview of the S&T management system;

35 Fransman, M. 1994. 'Inventing an Innovation System for South Africa.' Mimeo. Paper produced for the S&T Initiative Report on Proposals for a Future National Science and Technology System in South Africa.

- (iii) The need to ensure a close coupling of S&T and production;
- (iv) The need for an 'agency' with oversight of the whole system and with a number of important functions of co-ordination.

It is important to stress that it is possible to embody these principles in various institutional modalities. There is no unique organisational solution. There are, for example, a variety of possible locations for the co-ordinating 'agency'—*inter alia* as a distinct ministry, in a directorate within another ministry, or in an 'agency' within the President's Office.

6 GOVERNMENT CAPABILITY AND RESOURCES

There are many examples of government interventions which have resulted in costly failures. This is as true of interventions designed to develop technology as of interventions in other fields. Failure may arise from a complex of factors, including, an inefficient or corrupt administration; insufficient capability to implement complex policies, or because the benefits of intervention may be 'captured' by outside interests. But, as with markets, governments do not succeed or fail absolutely, but by degree. Moreover, performance can improve over time.

Historically in South Africa, government has played a strongly interventionist role. State intervention has been most evident and directed in respect of the 'strategic' industries, notably armaments and atomic energy and, to a lesser extent, in synthetic fuels and telecommunications equipment. More indirect policies to promote technological advance have also been effected in a variety of other industries such as vehicle and diesel engine assembly.

The overall effectiveness of such interventions, and whether this has been an optimal usage of resources, is, of course, open to debate. But, there can be little doubt, at least in terms of the goals set for the targeted 'strategic' industries, namely to develop advanced technological capabilities, that some considerable measure of success has been achieved.

The policies aimed at facilitating technological development in South African manufacturing firms, outlined here, do not, in the main, require extensive additional capacities, either in policy formulation or implementation. They are, in short, well within the demonstrated capacities of government.

For example, ensuring that direct support for company-level innovation and public-sector procurement become more focused requires that the focus be clearly identified. But the resulting policies are likely to be administratively simpler. The

more effective monitoring of technology imports via licensing and support for local licensees, will be the policy most demanding of additional state capacities. But this, too, is not likely to be substantial. Proposals for a redesigned management system for S&T should allow for the more effective utilisation of existent state capacities.

Nor do the policies outlined here necessitate extensive support from the fiscus. Indeed, a more focused support for firm-level innovation will make fewer demands on the fiscus. The other policies—particularly state support for collaborative research between firms and other S&T performers—will require support, but the extent of that support can be clearly determined. Moreover, these policies will indirectly have a positive impact on fiscal revenues. A fiscal incentive for firm-level R&D, for example, should ultimately be a net generator of revenue.

The absence of a technology policy which is comprehensive and well integrated with other macro and industrial policies, and an ineffective management system for S&T, currently significantly retard the accumulation of technological capacities within South African manufacturing firms. This chapter outlined proposals for how these issues could be addressed. More comprehensive and better integrated policies and a more effective organisational framework would, in themselves, make an important contribution to better industrial performance. However, their impact will be limited if firms lack the incentives to make optimal usage of their existing technological capacities or to invest in enhancing these capacities.

The industrial strategy developed in this volume is designed to enhance the incentives to firms to invest in advancing their technological capacities as an important part of raising their overall productivity. The policy proposals outlined here should therefore be evaluated within this broader context.

CONCLUSION