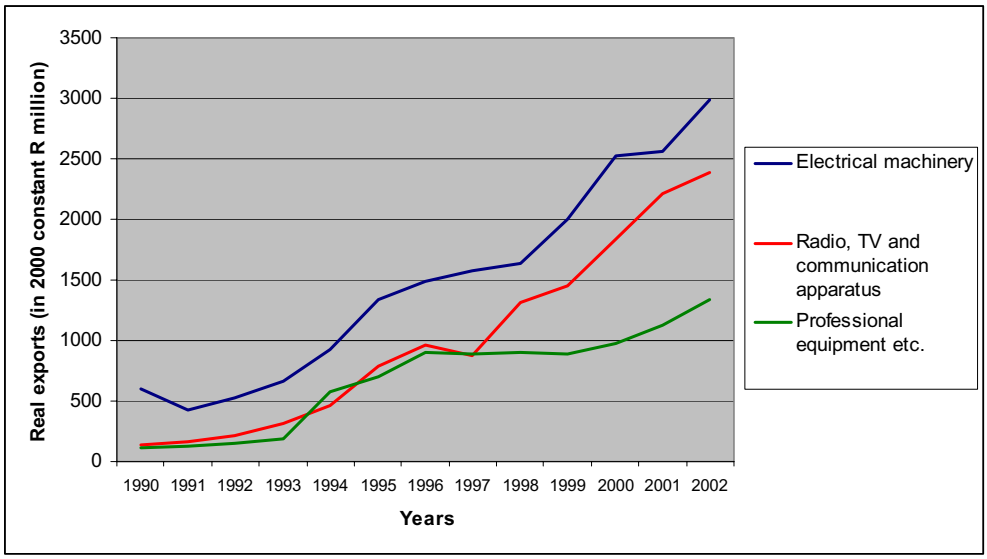
Figure 52: Trends in real exports from 1990 to 2002

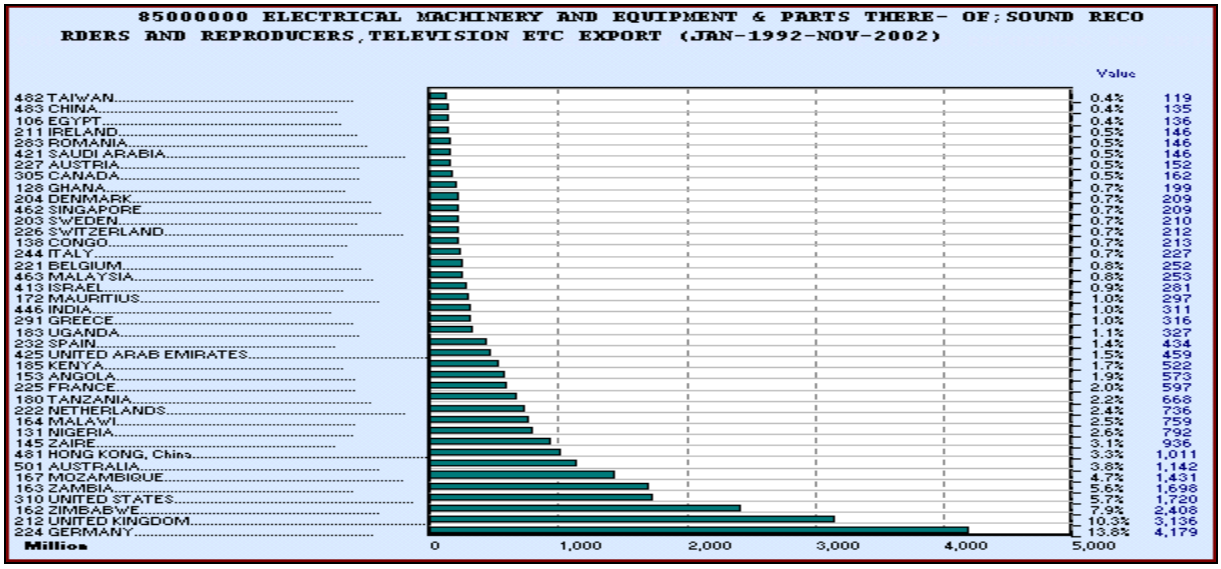


Source: IDC, 2003

As Figure 53 shows, exports of electrical machinery are fragmented across a variety of countries. Interestingly, although the traditional trading partners Germany, the United Kingdom and the US are represented amongst the top 5, African countries are increasingly destinations for South African exports. These figures correlate with observations made by respondents in the interviews and the survey[20] that since 1994, Africa has become an increasingly important market for South African manufactured products.

[20] Although the responses to the survey would indicate that Africa is a more significant market than is reflected in the official data.

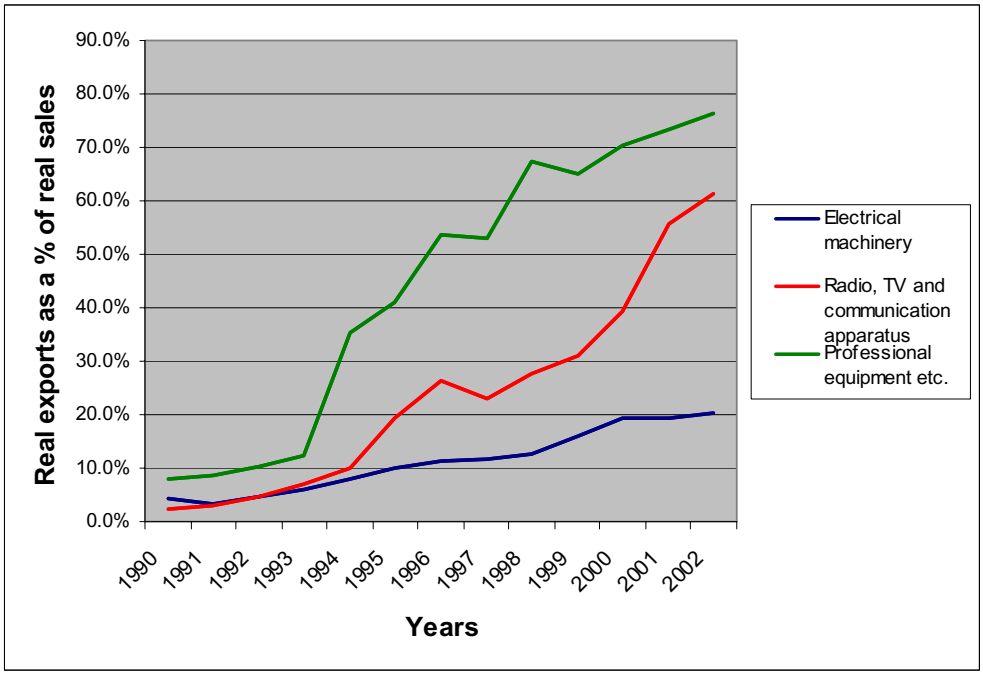
Figure 53: Exports of electrical machinery and equipment



Source: dti 2003

While the electrical machinery sub-sector enjoyed strong growth in absolute sales, it is the professional equipment and radio; television and telecommunications sub-sectors that have become most significantly focused towards export markets, as illustrated by Figure 54. In contrast, the proportion of electrical machinery exports as a percentage of sales has grown much more slowly.

Figure 54: Exports as percentage of total sales



Source: IDC, 2003

Despite the fact that exports constitute a relatively high percentage of sales for the professional equipment and radio, television and communications sub-sector, Figure 55 shows that the majority of companies in the electronic engineering sub-sector did not export in 2002. This may indicate that a few highly competitive companies with sophisticated international marketing relationships are leading the growth in exports while the remainder of companies are constricted to the more intense rivalry of the domestic environment. The data presented in Figure 55 and Figure 56 is consistent with that of Figure 54 above and confirms that the majority of the electrical machinery and components sales are made on the domestic market.

Figure 55: Exports contribution to turnover electronic engineering

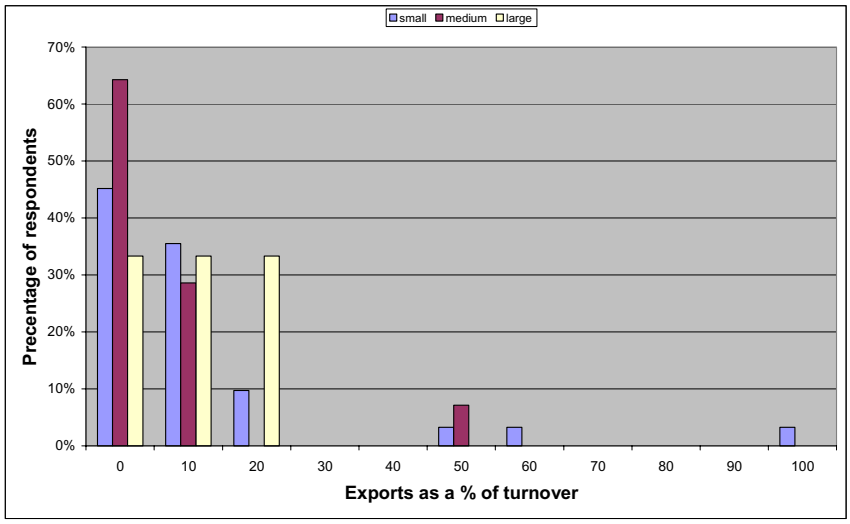
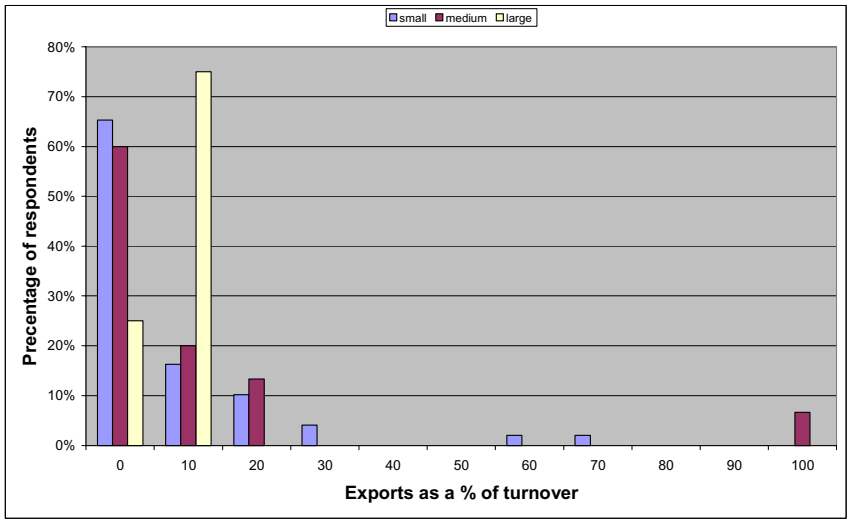


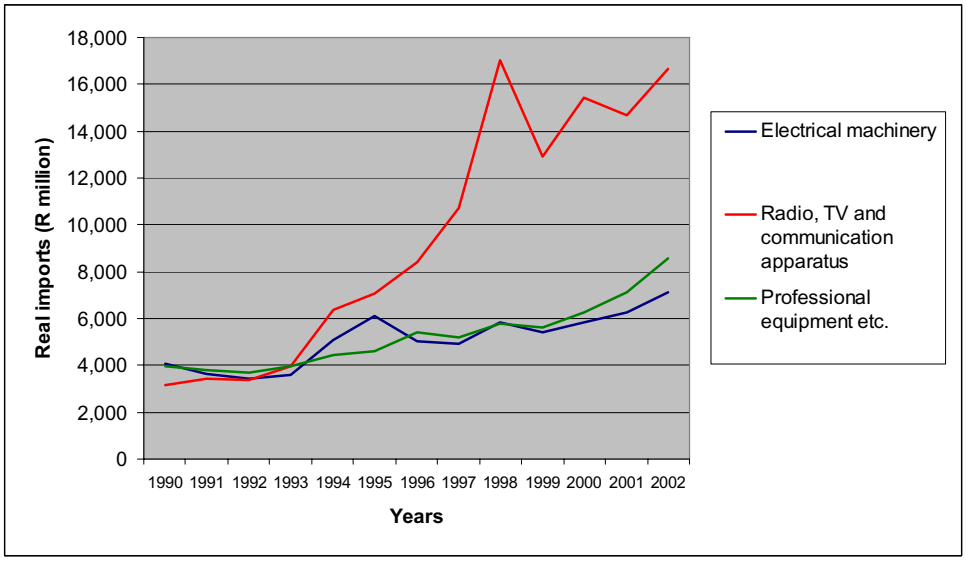
Figure 56: Exports contribution to turnover electrical engineering during 2002



Indeed, it is only strong export growth in the professional equipment and radio, television and communications sub-sectors that have underpinned their growth, as domestic real sales have remained relatively static. Only the electrical machinery sub-sector has managed to stave off a dramatic decline in domestic sales over the period. This is a positive factor, as the electrical machinery sub-sector constitutes the largest source of revenue and employment in the sector. Nevertheless, as demonstrated in Figure 57, import levels have increased in the electrical machinery sub-sector and have not been offset by increases in exports, resulting in the declining balance of trade reflected in Figure 58. While it is impossible to infer causality from the correlation, it is important to note that these trends have occurred at the same time as employment losses within the electrical engineering sub-sector.

Import levels have increased the most dramatically in the radio, television and communications sub-sector, with professional equipment and electrical machinery experiencing relatively lower import growth rates.

Figure 57: Real import trends from 1990 to 2002



Source: IDC, 2003

As reflected in Table 20, seven countries account for 62% of all electrical machinery imports.

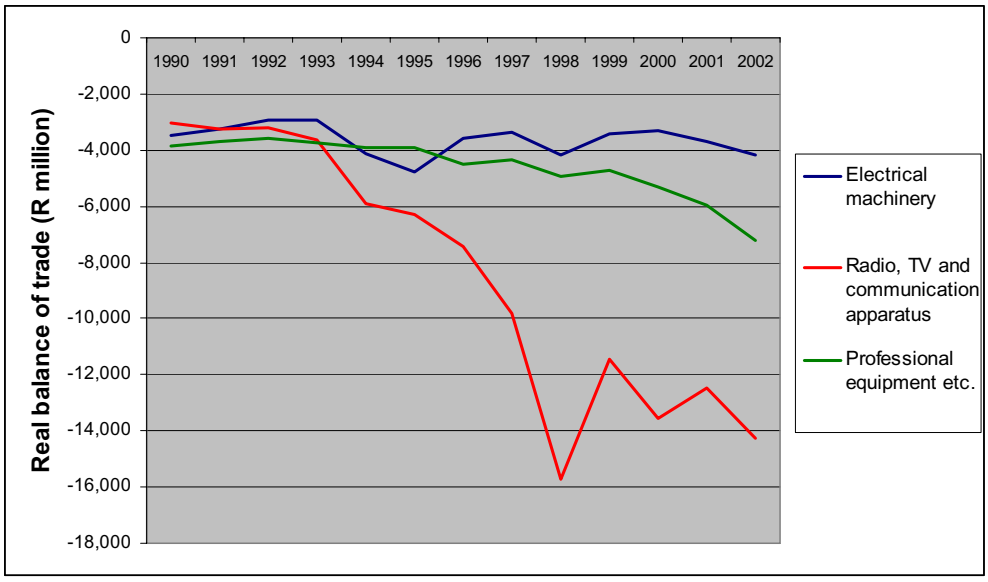
Table 20. Major sources of imports into the South African electrical machinery sub-sector

COUNTRY	% OF TOTAL IMPORTS
China	4.4
Italy	4.9
Japan	6.1
France	6.5
USA	11.6
UK	11.7
Germany	16.9

Source: dti 2003

Relatively low import penetration in the electrical machinery sub-sector, increasing real sales and increasing exports has meant that it has been able to maintain the best, albeit still negative, balance of trade of the three sub-sectors, as illustrated by Figure 58. Professional equipment's balance of trade is relatively worse but radio, TV and communication equipment's balance of trade has worsened dramatically from 1990 to 2002.

Figure 58. Real balance of trade trends from 1990 to 2002



Source: IDC, 2003

2.2.6 Investment

Between 1990 and 1994, fixed capital investment dipped at a slow but steady rate across the sector, however a gradual recovery since then has meant that the sector's fixed capital investment has declined by 0.9% over all three sub-sectors between 1990 and 2000.

The quantitative study found the incidence of capital investment within the sector to be fairly high, with 87.3% of all companies surveyed, investing in capital equipment during 2002. In the next 12 months, the investment will continue at high level, decreasing slightly with 71.1% of the companies expecting to invest in new machinery in the next 12 months.

Table 21. Ratio of investment in new machinery expressed as a function of turnover for 2002 by company size

	Investment in new machinery/turnover (%)
Small companies	3.7
Medium-sized companies	3.4
Large companies	3.0
Overall average for sector	3.0

2.3 Conclusion

Section Two has served to review the performance of the electronics and electrical engineering sector. The increasing levels of import penetration and declining balance of trade from 1990 to 2002 underpin the job shedding that has occurred in the sector.

The above analysis shows that the sector has been able to largely protect its share of the domestic market, experiencing only a moderate decline in revenues from that market (Figure 87). Simultaneously the sector has been able to considerably grow the absolute value of its exports (Figure 23). As a result, exports have come to account for an ever-increasing percentage of each sub-sector's sales (Figure 54), while production volumes have closely mirrored sales trends.

Examining the sub-sector trends reveals that electrical machinery manufacture is the lynchpin of the sector and accounted for the majority of the sales and employment growth in the sector between 1990 and 2002. Its strong growth has been driven both by its ability to service domestic demand as well as to expand into export markets. In contrast, the radio, television and communications sub-sector has grown almost entirely on the back of exports, to the extent that exports now account for almost 50% of the sector's sales.

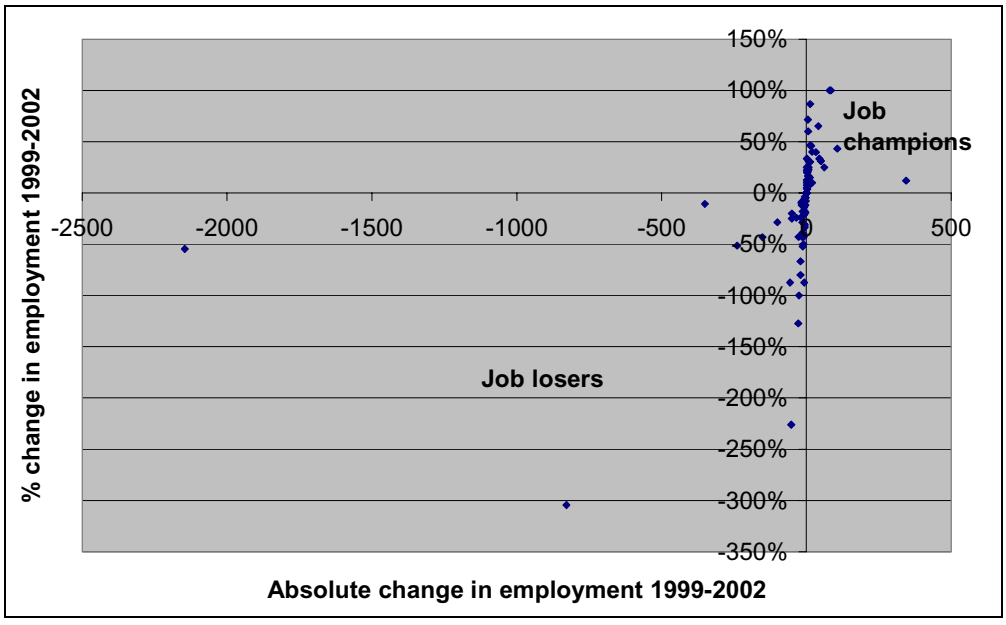
We now turn to explaining what the key drivers of this performance have been.

3 DRIVERS OF EMPLOYMENT TRENDS

The preceding section has shown that both the electronics and electrical engineering sub-sectors shed employment from 1999 to 2002. This was primarily driven by a reduction in the number of permanent employees in both sectors. In the electronics sub-sector the number of casual, temporary and sub contracted workers increased and although the electrical engineering sub-sector shows an opposite trend at a sample level with respect to these work categories, this was driven by two large companies, while the remainder of the sample experienced a gradual increase in such workers. Thus atypical employment, as is the case with the rest of the metals and engineering industry, is on the increase in this sector.

It is important to understand both the trends of job loss and job growth, as they point to potential strategies that may be strengthened by the social partners. A more detailed understanding of how job creation and destruction was distributed amongst the companies in the sector can be gained from Figure 59. The figure shows that much of the job loss was underpinned by downsizing in a few large companies, while job creation was more widely dispersed with many companies making incremental increases in the size of their workforces. The picture reflected in Figure 59 was confirmed in the qualitative research, where respondents pointed to the fact that several large companies that had risen under the import replacement industrialisation strategy of the 1970s and 80s and had either ceased to exist completely (this was particularly the case in consumer goods manufacturers) or had transformed themselves into service companies with considerably lower levels of employment.

Figure 59. Absolute change in employment versus % change in employment from 1999 to 2002

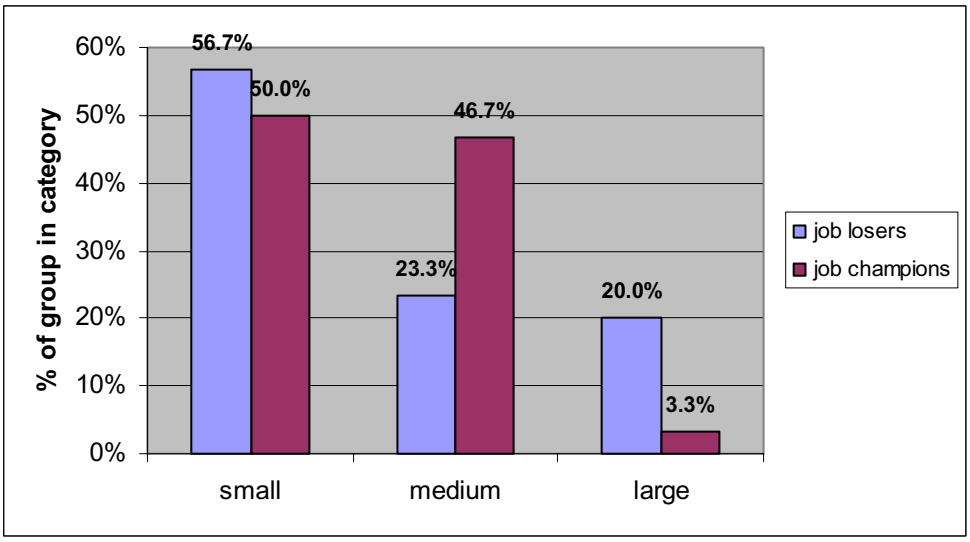


In an effort to move beyond the generic drivers of employment creation and destruction we took a closer look at companies gaining and losing employment. The companies falling into the upper quartile of the above graph were grouped as “job champions”, while the bottom quartile were termed the “job losers”. The following section compares these two groups with a view to elucidating factors which drive and inhibit employment creation

3.1 Profile of job champions and job losers

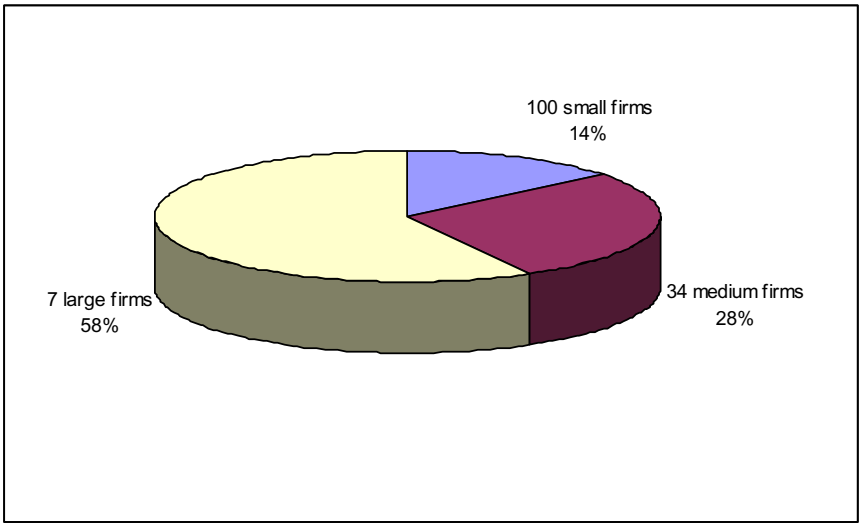
A critical component of understanding the drivers of employment trends is identifying what sort of companies have gained and lost employment. The quantitative survey results reflected in Figure 60 show that the majority of job champions are small and medium sized companies. This is unsurprising, as the majority of the companies in the sector are either small or medium.

Figure 60. Contribution to job creation among job champions, by company size



Conversely, large companies were more likely to be job losers over the past 3 years. This trend is particularly worrying when one considers that large companies account for a substantial proportion of jobs in the sector; the quantitative survey showed that large companies constitute the majority of employment in the sector while small and medium companies together account for 42% of the total employment in the sector. Thus a strategy for employment creation must take cognisance of the needs of these large companies as continued job loss would impact negatively on the future growth of the sector.

Figure 61. Percentage contribution to overall employment in the electrical and electronic sample, by company size



Job champions and job losers are distributed across the turnover spectrum and as such, there is little to indicate that companies positioned in certain revenue brackets are experiencing more pressure than others. There was also no differentiation between job champions and job losers with respect to profitability or their propensity to outsource. However, outsourcing job champions were more likely to outsource non-core activities, while job losers tended to outsource core activities such as aspects of manufacture. This is consistent with the strategy adopted by some companies, namely to focus on research, development and innovation while outsourcing final assembly or manufacture.

Figure 62. Relative importance of factors inhibiting competitiveness between job champions and job losers

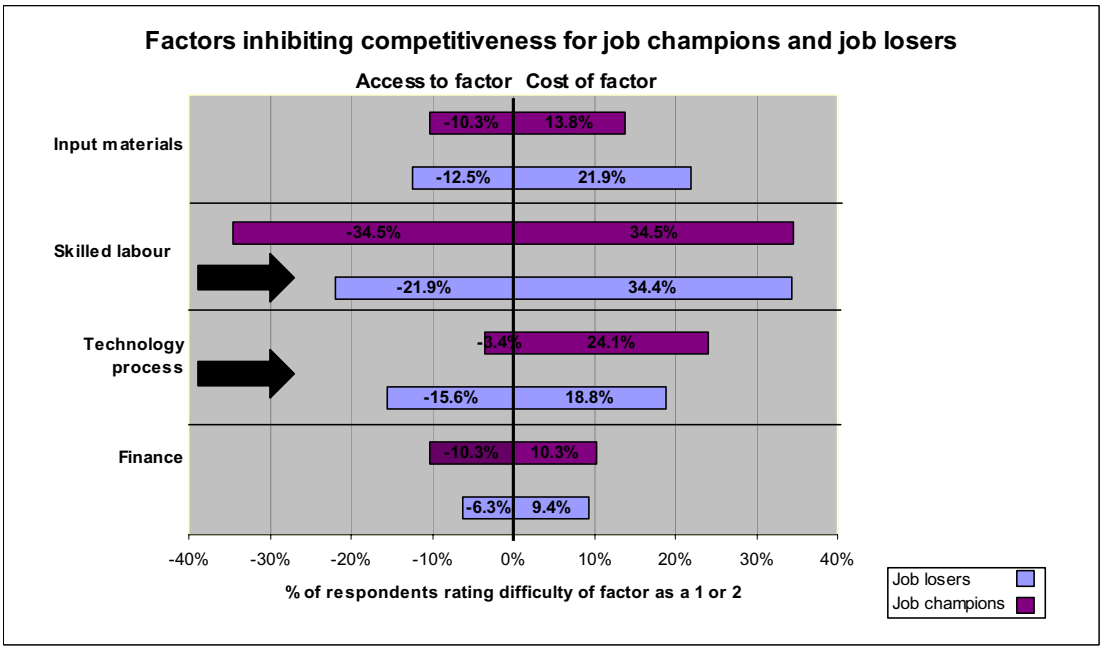


Figure 62 depicts job champions' and job losers' views on the relative importance of various factors that inhibit their competitiveness. Perhaps, the first point to note about these firm's responses are that the cost of a factor is consistently viewed (with the exception of access to skills by job champions where it is equal in importance) as a greater impediment than access to the factor. In some senses it is a self-evident response however, when viewed in the context of the other survey data, it provides greater insight. The analysis above showed that the sector is experiencing a decline in the Rand value per unit produced – reflected by production volumes growing in relation to sales. This in turn results in pressure on margins and means that costs are more likely to be top-of-mind for employers. Worryingly, is the fact that these cost pressures may translate into pressure on employment numbers over the medium-term. Thus, although this sector may not be a priority within the overall structure discussed in the overarching section, it nevertheless should not be ignored as that may lead to employment declines off-setting the gains made elsewhere.

As can be seen from Figure 62, both access to and the cost of skilled labour constitutes a primary constraining factor for both job losers and job champions. Thus, it is clear that skills development continues to constitute a primary weapon. This finding is consistent with the competitive model that has been adopted, at least in the electrical engineering sub-sector that has focused both on increasing the design component of the product as well as flexibility of both the product and process. In other words, companies serve customer needs modifying their processes to deliver more quickly (using shorter runs, the addition of a value-adding service) or by being able to customise their product according to customers' needs. Both types of strategy require that companies have access to competent product and production design engineers and artisans.

The above section has provided an overview of the drivers of employment creation and destruction in the sector by considering the 'best' and 'worst' performers. We now turn to examining each of the factors that has driven the trends discussed in section 2, in greater detail.

3.2 Employment drivers

As outlined in the methodology section of this report, a two-phased approach was adopted, which combined survey and detailed qualitative interviews. The qualitative interviews have enabled us to identify various drivers of each sub-sector and are discussed in detail below.

3.2.1 Domestic market demand

Despite rapid export growth in the electronics sub-sector, the bulk of the electrical machinery and components sub-sectors and therefore the entire electronics and electrical engineering sector; sales have been static on the domestic market over the course of the last 3 years. It

is imperative that an employment creation strategy take cogniscance of this necessitating that it addresses the maintenance and stimulation of domestic demand.

Tariff liberalisation

Increased import penetration into the South African economy has had a dramatic effect on the employment levels of the certain sub-sectors within the electrical and electronic engineering sector.

The radio, television and communications sector was most hard hit by the combined effect of:

- Dropping tariff barriers. The majority of products within the electronics and electrical engineering sector are now zero rated, while few enjoy tariff protections of between 5% and 20%
- A decline in parastatal spending in general, in particular in telecommunications
- A shift in government and parastatal procurement strategies

While the decline in parastatal spending undoubtedly had a negative effect on the sector, it was the combination of decreasing tariff barriers and parastatal procurement strategies that had the most detrimental effect on employment levels in the sector. The combined effect was to remove any incentive for equipment suppliers to locate their manufacturing capabilities in South Africa. Accordingly, major multinationals have steadily downsized their South African manufacturing operations of large volume items, resulting in the closure of once significant employers in the sector. This is consistent with the survey results that show that large manufacturers are over-represented in the job losers' category. For instance, both Telephone Manufacturers of South Africa and Alcatel; companies that enjoyed tariff protection and relatively stable contracts with parastatals, had a combined employment of over 4 000 people in the early 1990s. The changing industrial environment combined with increased competitive pressure has resulted in both companies shedding the majority of these jobs and the ultimate closure of Alcatel.

The effect of tariff liberalisation on the radio, television and communications sub-sector is clearly evidenced by the dramatic increase in the value of imports- the imports in this sub-sector grew the most significantly across all three sub-sectors. However, it is important to note that this dramatic increase was not solely driven by tariff liberalisation but also by the emergence of a rapidly growing cellular telephone market. The cellular market was undoubtedly central in the dramatic growth in imports from 1995 onwards, and was also partly responsible for some employment growth in the radio, television and communications industry.

Tariff liberalisation had similar effects in other parts of the sector, in particular where companies were producing fairly standardised products. Domestic manufacturers were simply incapable of competing with foreign competitors that typically operated large-volume runs of fairly standard items, which allowed them to obtain significant economy of scale benefits. Imported products led to job loss and quickly displaced these domestic manufacturers. Thus Alstom, a producer of lamps and an employer of over 1000 people was closed four months after the dropping of tariffs on its major product lines. Today, South Africa has no domestic lamp manufacturing capability. It would appear that most producers of mass, standardised products have been displaced by multinational imports over the course of the 1990s. It was noted in the qualitative research that high volume, low value-added business was viable ten years ago, but is not feasible for today's business environment.

Bezuidenhout also notes that import penetration has increased dramatically within the household goods sector and that the prospects for employment creation are negligible[21]. He speculates that the South African manufacturers that have been able to maintain their levels of employment, have done so because the household appliances market is relatively small and the costs of transporting fully assembled white goods serve to provide some level of protection to the domestic market. This trend is mirrored in parts of the electrical components sub-sector, where companies compete on their ability to service domestic original equipment manufacturers that require delivery of small batches of components with relatively short lead-times. These peculiarities, which ultimately derive from the structure of a relatively small domestic market, have afforded some protection to South African manufacturers.

However, it would appear that the effect of tariff liberalisation on the electrical machinery and components sector was less dramatic, as this industry exhibited the lowest levels of import penetration in the sector, despite the fact that the sub-sector is in fact the largest when measured in terms of sales value. This is underpinned by the skill and flexibility of domestic manufacturers working in this particular industry. Nevertheless, Figure 57 shows that import penetration in this sector has grown over the past 3 years, while employment in the sector has decreased over the same period, after remaining reasonable static for the much of the 1990s.

Figure 58 shows that the balance of trade has progressively worsened over the period for all industries within the sector, with the value of imports having steadily increased since the start of tariff liberalisation and in 1996, surpassing the value of sales of domestically manufactured goods. However, it is encouraging to note that the real value of electrical machinery sales has increased markedly since 1999, while Professional equipment has done the same, albeit at a much slower rate. In contrast, radio, TV and communication apparatus has experienced

[21] Interview.

a slow decline in real sales since 1999, which is reflective of the high levels of import penetration in the industry. This trend may hold the possibility of domestic manufacture being displaced by imports, holding potentially negative consequences for employment creation. Indeed, some respondents emphasised the declining margins from general manufacturing. They pointed to a strategy that focused on more service-oriented offerings, entailing increasing importation coupled with continued manufacture of niche products for export markets. The net effect of this strategy will be a continued displacement of local manufacture over the short-term, although some jobs may be retained in service and refurbishment parts of the sector.

While the industrialisation strategy, WTO obligations of the South African government prevent a return to some form of import replacement strategy, it is clear that the protection of the domestic market is a critical part of any strategy to maintain employment. Linked to growing import penetration has been both a decline in government spending as well as increased international sourcing by government, often at the expense of local manufacturers. It is to this issue that we now turn.

Government and parastatal procurement

In a comprehensive assessment of the electronics and electrical engineering sector, Phillips and Xaba (2002) note that much of the job creating potential of the sub sector came from its close relationship with parastatals and government, as well as consistent levels of demand in the following sub sectors.

- The local defence electronics industry benefited from a large defence budgets and sanctions that prevented the South African government from importing most military hardware and systems

- The radio, television and communications sub-sector benefited both from long-term ‘cost plus’ contracts with telecommunication parastatal, as well as high tariff barriers.

The dissolution of these two sets of conditions resulted in the demise of much domestic manufacturing capability within those two industries. Indeed one respondent noted, “...the domestic defence industry is dead”.

As discussed above, the decline in parastatal procurement coupled with increasing exposure of the electronics sub-sector to international competition was a key driver of job loss. However this decline was partially offset by opportunities created by the introduction of cellular telephony. Indeed after 1996, the sub sector started to experience some increase in sales after a precipitous drop during the 1990-94 period. The liberalisation of the telecoms

market, in particular the introduction of the cellular network operators[22] was a key driver of growth within the radio, television and communications sub-sector. This effect was experienced in two ways:

- Firstly, notwithstanding the decline in spend in parastatal telecommunications and the downscaling of many manufacturers supplying into the state monopoly, domestic sales stayed more or less static in absolute terms over the 1990s, indicating that manufacturers found other domestic sources of demand. Most of that demand came in the form of electronic equipment associated with cellular base stations.[23]

- Secondly, as cellular networks expanded in Sub-Saharan Africa, South African manufacturers were able to increase their exports to 61% of total sales in 2002 from a base of exports constituting 2% of total sales in 1990 (Figure 54).

Transtel and Easitel's preparations for their role in the soon-to-be-licensed Second Fixed Line Network Operator has seen continued demand for telecoms infrastructure related products such as cabling. Telecoms exports into Africa are continuing, although sentiments indicate that the market is reaching saturation. It is estimated that the telecoms equipment market approximately 40% of what it was in 2000 (Moneyweb, 2002). Interviewees anticipated that future telecoms work - outside of that related to the second network operator - was most likely to be oriented towards service and refurbishing of existing networks.

The electrical engineering sub-sector enjoyed some growth as a consequence of Eskom's electrification drive during the mid to late 1990s. This drive created requirements both for products associated with the electrical grid as well as circuitry in the domestic environment. This in turn stimulates demand for household appliances.

Notwithstanding the notable decline in defence expenditure, the arms procurement deal has provided some impetus to the sector with the surviving defence manufacturers managing to grow their revenue. Grintek has increased its domestic defence related revenue by over 10% from R202 million in 2001 to R223.63 million in 2002 (Grintek Annual Report, 2002). Reutech, South Africa's other major defence manufacturer experienced a decline of 6% in revenue over the same period however the CEOs report noted that such decline was expected. Both Grintek and Reutech are positioning themselves for increasing export orders in niche areas. Indeed Grintek dramatically increased its defence-related export earnings from R214.02 million in 2001 to R294.25 million in 2002.

[22] An interviewee estimates that this liberalization was responsible for a 300% increase between 1994 and 2002 in the telecoms related side of the business.

[23] Interview

The increased investment in public infrastructure holds promise for stimulating the employment potential of the sector. However this promise is only likely to be actualised if government department and parastatals actively pursue a domestic sourcing strategy.

3.2.2 Export markets

Export market growth has been an important contributor to the sector's ability to retain employment. This is particularly true in the electronics sub-sector where growth in the African telecommunications market meant that companies were able to off-set losses in the domestic market by growing exports into SADC and Africa. However as Figure 23 shows, the sector has generally been growing exports since 1994. The importance of the African and SADC markets after 1994 to exporting companies cannot be overstated. Of the exporting firms that were surveyed, most of their exports were destined for the African market. 77% of small companies'; 57% of medium companies' and 66% of large companies' exports were destined for Africa and the SADC region.

However it is important to note that exporting companies are still in the minority among the MEIBC members surveyed (as shown in Figure 55 and Figure 56). In this context, it seems likely that a more proactive strategy to increase exports across the sector would be beneficial. This will be discussed in more detail below.

3.2.3 Skills

The sector is well endowed with skilled design engineers who have been able to use intellectual property to both develop and customise products to meet customers' unique needs. This skill, coupled with relatively low labour costs, has enabled South African companies to compete in the export market. These skills competencies are witnessed both in the companies and the products that have underpinned the growth of South African exports. There are several examples of companies that have a strong export orientation:

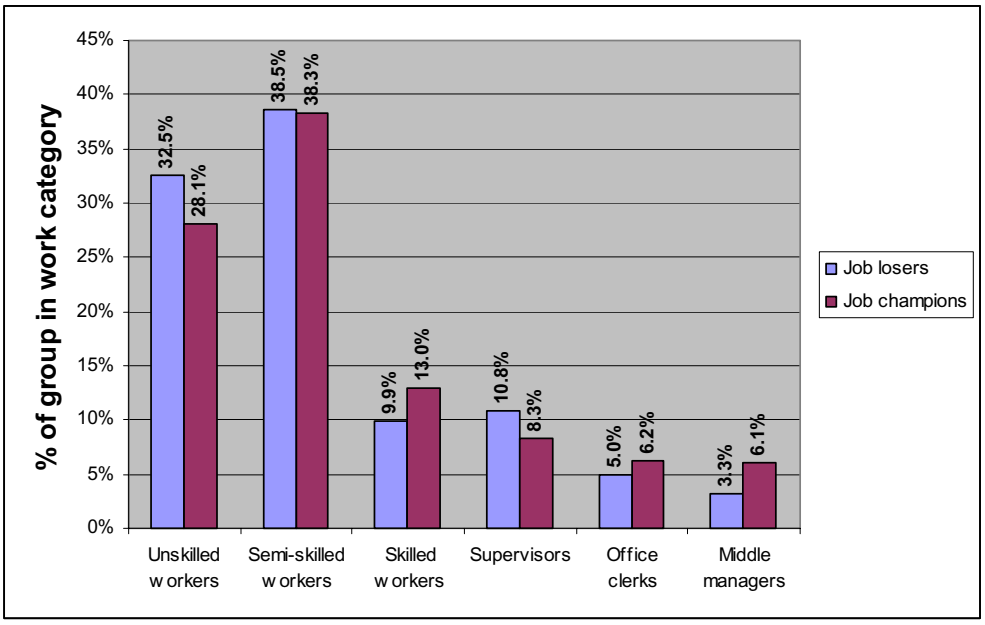
- CBI supplies a wide range of components that are utilised in a diverse array of applications from the Chinese railways' signalling systems to Ericsson 3G handsets
- UEC is a globally competitive exporter of digital set-top box products, with their exports to the Middle East and North Africa alone outstripping their entire domestic market, despite their dominant position in the SA market
- Tellumat and many other domestic companies are leading suppliers of pre-paid electronic metering systems

This skill base has given South African manufacturers the capability to move into niche value-added markets. South Africa has been able to compete in the 'lower-volume, high design

business' on a three-fold basis; competitive cost of highly-skilled design capabilities; competitive labour costs associated with assembly and a focus on products in which there are limited economy of scale advantages, thereby avoiding direct competition from large-scale multinational producers. One interviewee summarised it as follows, "We are very competitive in certain product ranges – those that are designed, customised and have relatively low labour input".

The availability of skilled workers, in particular engineers and artisans, has been critical to the job creating potential of the sector. As can be seen in Figure 63, job champions are characterised by a greater proportion of skilled workers than is the case for job losers. In addition to this they also exhibited relatively higher levels of middle management, which may underpin their employment growth. In contrast, job losers were characterised by relatively higher levels of unskilled and semi-skilled workers than job champions. These results suggest that companies in the sub sector should strive toward higher complements of skilled workers and management, which is in line with the skills and knowledge intensive nature of this sub sector globally.

Figure 63. Breakdown of workforce profile among job champions and job losers within the electrical and electronic engineering sub sector



3.3 Company strategies

Defence electronics, which forms part of the broader electrical machinery sub-sector, has enjoyed strong sales, driven both by increased domestic sales and export sales. This trend reflects the sub-sector's ability to compete across the spectrum given its positioning in lower

volume manufacture. The experience of the defence electronics sub-sector contrasts dramatically with the other two sub-sectors that have seen sales being driven primarily by considerably increased export sales. However, all three industries are targeting niche markets, a fact which is reflected in the increasing emphasis by small and medium companies on products with a relatively high design component. Electrical machinery's focus on highly designed, differentiated product offerings positions the industry to compete in smaller markets while the radio, TV and communication and electronics players have been able to build specific competencies in particular high-volume products, for example in the production of car aerials.

As mentioned above, exports are increasingly an important contributor to the sector's performance (but especially radio, TV and communication apparatus). South Africa's position as one of Africa's more powerful manufacturing economies appears to have facilitated this as many manufacturers have grown their exports into Africa.

Analysis conducted by Kaiser and Associates has concluded that South Africa enjoys a comparative advantage in the industrial, power and security electronics markets – areas that are supplied by the electrical machinery sector. Kaiser and Associates' market analysis led them to conclude that the countries listed in Table 22 provide strong potential for the export growth of the sector.

Table 22: Opportunities for the electrical machinery sector (Kaiser and Associates 2003)

Market	Country
Industrial electronics	USA, U.K., Canada
Security electronics	UK; Germany and France
Power electronics	USA; Hong Kong (SARC) and China.

All respondents emphasised that the sector's future growth would depend on companies' ability to compete successfully in two areas:

- Niche products that customised or low-volume and are therefore not sensitive to economy of scale advantages
- Exports

Consequently, manufacturers that have been able to compete successfully after trade liberalisation are characterised by:

- A positioning in markets that are relatively low volume
- Products that are based on unique R&D capabilities or can be customised to customer requirements
- Servicing of the domestic market.

Note that some manufacturers have also been able to compete by serving relatively small domestic markets which international manufacturers cannot profitably service, due to low volumes or specific domestic customer demands – be they OEMS or final consumers. However this latter category is particularly vulnerable to being displaced by importers, who can aggregate the products required by consumers and deliver the same level of service flexibility currently offered by domestic manufacturers. In the instance of the two other strategies, access to intellectual property (either through in-house R&D or technology sharing agreements) is the primary driver of these characteristics.

Thus the electronics and electrical engineering sector has evolved from a provider of multiple products to a more focused sector targeting niche domestic and international markets with product and service offerings. This is consistent with the interviews in which employers stressed the ability to deliver unique solutions to customer requirements as the primary source of competitive advantage.

3.4 Process and product innovation

Section 3.2. and Section 3.3. established that both the skills endowment of South African manufacturing and company strategies have incorporated aspects of both process and product innovation. While in some respects these may be regarded as independent issues, they are in fact inter-related. As in the plastics conversion sector, companies have been able to leverage abilities for process and product innovation. By way of example, some companies have developed strong engineering, design and tool-making capabilities allied to fairly labour-intensive assembly methods. Accordingly, when customers have required modifications to their standard products, these companies have been able to win the order as they:

- Were able to design the required changes
- Were not constrained by their capital equipment and were able to rearrange or train the people in the production process to deliver the modified product.

It is in this context that companies have identified both increases in product innovation and processes efficiencies to be critically important to the sector's future (see Figure 65).

3.5 Conclusion

The above section has reviewed the key drivers in the electronics and electrical engineering sector. While the drivers are fairly generic, the level and nature of their impact has been contingent on the structure and products of each sub-sector.

Undoubtedly tariff liberalisation and changing procurement polices have had a dramatic effect on import penetration, which has in turn impacted on domestic sales across the sector. It appears that much of the decline has come from the demise of large enterprises located in high-volume products that were produced in South Africa largely because of high levels of tariff protection and preferences given to domestic manufacturers. Much of this employment was displaced as manufacturers were compelled to close in the face of increased competition. This has been partially offset by two factors.

- The telecommunications roll-out both domestically and in Sub-Saharan Africa has created employment, although this opportunity is forecast to decline over the medium-term.

- The ability of small and medium companies to leverage their skills and R&D competencies to offer low-volume, customised products or unique products that have a specific application for South Africa and other developing countries, such as pre-payment meters.

Although the official sources show static employment levels during most of the 1990s, there has been clear decline since 1999 and it is to understanding what the key barriers to employment are, that we shall now turn.

4 IMPEDIMENTS TO EMPLOYMENT GROWTH

Section 3 above reviewed the major drivers of employment growth within the electronics and electrical engineering sectors. The following section reviews the responses to the survey in which employers were asked to identify impediments to employment creation.

4.1 Bolstering domestic demand

4.1.1 Addressing import penetration

The increasing levels of import penetration and concomitant decline in the sales of domestic manufacture will undoubtedly cap the ability of South African manufacturers to grow employment by servicing primarily the domestic market. This was reflected by the fact that over 75% of the sector felt that there was some need for the raising of domestic tariffs. However, this sentiment cannot be taken as advocacy for a return to a highly protected domestic market. Rather it reflects a sense of tariffs being too low, removed too rapidly or in some instances removed in a fairly uncritical fashion across the board.

From the analysis presented above, it seems that there is little to be gained from raising tariffs on those product lines that are mass-produced elsewhere in the world:

- In the first instance, South Africa simply does not have the economies of scale to be able to compete adequately
- Secondly, these products are often produced by global firms and form part of international production and supply networks
- Finally much of the employment (as well as the manufacturing capability) in the sub-sectors producing those products has already been lost

However, there is undoubtedly merit in facilitating some level of protection for the electrical engineering sub-sector where:

- The bulk of the sector's employment rests
- The majority of the sub-sector's sales are derived from the domestic market
- The sub-sector is currently faced by increasing levels of import penetration

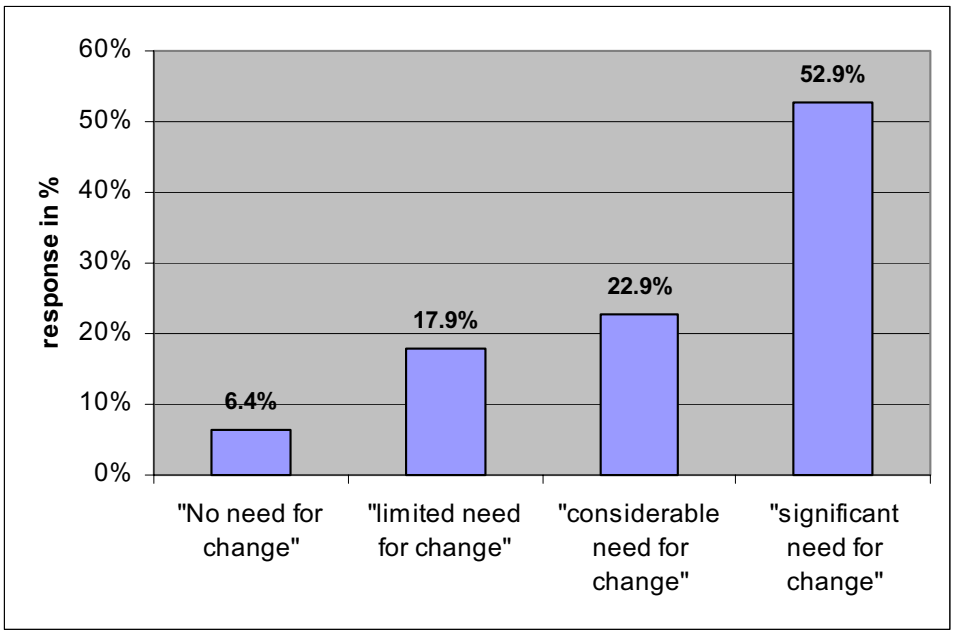
4.1.2 Government procurement

Although the recently announced government and parastatal procurement contracts may add a much-needed boost to the sector, they will only do so in the context of a concerted effort to support domestic manufacture. Given the current high levels of import penetration coupled to company strategies to import high value mass-produced technologies, these 'procurement injections' may not have the desired effect on domestic manufacture sector. Critically, there are some companies that compete only because of their ability to service the domestic market flexibly – a function that might easily be filled by importers, thereby displacing domestic manufacture.

4.2 Export markets

Although almost all respondents emphasised the importance of exports for their continued growth and survival – a factor reflected in the statistical analysis presented in Section Two – they have also emphasised that exporting is "not an easy business". As indicated in Figure 64, identifying and accessing new markets has been a primary constraint facing South African manufacturers in growing the export sales.

Figure 64. Perceived need for change with respect to export market and competitor intelligence



In order to overcome these constraints, some companies have entered into strategic partnerships with international companies or alternatively acquired international assets in