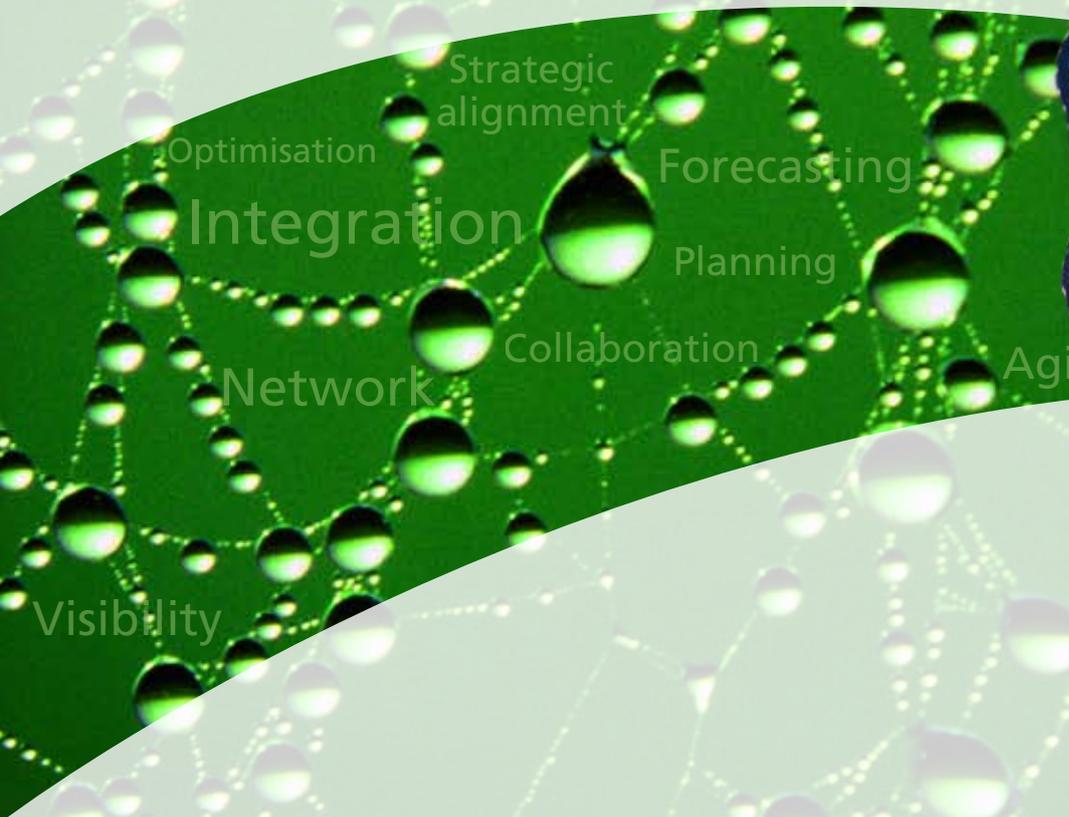


Survey conceptualised and initiated by



Mining Report



Strategic alignment  
Optimisation  
Forecasting  
Integration  
Planning  
Network  
Collaboration  
Agility  
Visibility

*Global Supply Chain Dynamics –  
Measuring the Butterfly Effect  
for South Africa*

**supplychainforesight**

**2009**

## The Butterfly Effect

The newly launched **supplychainforesight** report for 2009, true to tradition for this benchmark piece of South African strategic supply chain research, is right up to the minute in offering insights into supply chain strategy and operations in the global recession and economic crisis.

Last year's research focused on those companies that were earning competitive advantage from their supply chains in a global context of economic growth and market diversity. However, the macro-economic situation in which the research takes place this year could not be more different. The global growth boom was enabled by the building out of global supply chains into an intricately intertwined network of supply and demand all over the world. Now, the global recession means that an industry decision on the other side of the world to put the brakes on growth plans could mean serious consequences for suppliers in South Africa. We've called this the Butterfly Effect – the phenomenon where a small change at one place in a complex system can have large effects elsewhere.

The 2009 **supplychainforesight** survey has been conducted by respected international research company Frost and Sullivan, and continues to be conceived and sponsored by Barloworld Logistics.

In this year's overall report we delved into the impact of the Butterfly Effect in different areas of urgent relevance for SA's supply chains, including the move to localisation, the relationship between business strategy and supply chain strategy, and the latest views of the industry on outsourcing and environmental agendas – all with the trenchant comment and insight the market has come to expect from the research.

Also true to tradition is the quality and depth of the response to the questionnaire with around 250 senior executives and supply chain managers in most of SA's major companies across key industries taking part. This maintains the focus of the research, established over the past six years, on large multinational companies whose strategies shape much of the country's economy.

Each year the research is taken from these key industries and presented back as a focused insight into the industry concerned. As part of this exercise, each key SA industry is compared to the overall view of supply chain management and senior executive viewpoints given in the main report. The 2009 edition of **supplychainforesight** for the mining industry is structured according to many of the key themes and findings that appeared in the main report, but focuses specifically on the following ways in which South Africa's mining supply chains are responding to the global economic meltdown:

- **Short-term mining supply chain objectives and challenges:** Tracking industry trends and strategies, including responses to the economic crisis and the focus on aligning the supply chain strategy with the business strategy.
- **Outsourcing revisited:** An in-depth look at the outsourcing question in the mining industry reveals a new maturity about the reasons for and the value of outsourcing – in accordance with the picture in the overall research this year.
- **Industry investment:** Where the senior supply chain executives in mining are planning to invest in the industry and why.
- **Speaking the same language – Private and Public sector co-operation:** This section addresses a particularly burning issue for the SA mining industry – the challenges presented to the private sector by the public sector's supply chain and logistics initiatives. The research presents the industry view on how inter-modal physical logistics could benefit both sectors.
- **The Real Green issues:** An in-depth look at the levels of awareness and business thinking in SA around sustainable environmentally friendly business practices reveals that South Africa Inc has a long way to go on the issue. This is especially true for the mining industry, which is capital and asset-intensive, and needs to be more aware than most of the impact of its operations on the environment.

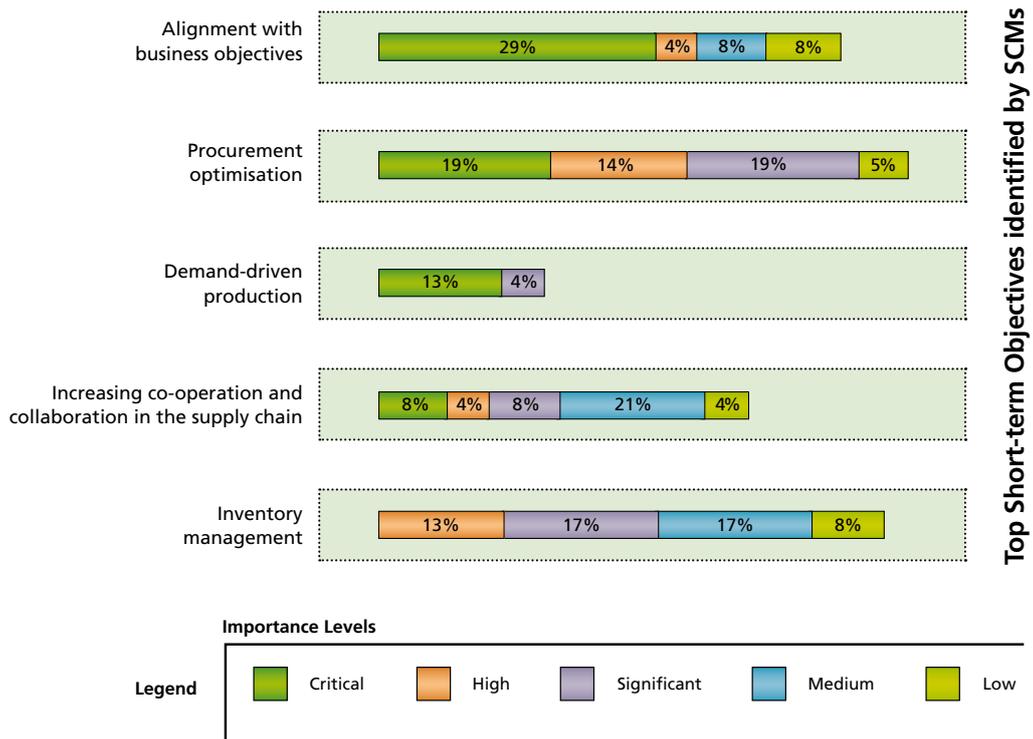


## Mining Objectives and Challenges

In this section we present the trend-tracking section of the survey, which takes place every year and provides our findings with some context – how senior executives and supply chain managers in SA’s biggest mining houses and allied businesses view their supply chain objectives and challenges for the coming year.

The short term (1-2 years) objectives of the mining sector have become realigned to the restrictive market conditions in a very interesting way. A graphic depiction of these objectives can be seen here.

**Fig 1: Key Short-term Objectives of the Mining Sector**



As can be seen, the top five leading short term objectives of the mining industry, in order of first-rank importance, are:

- Aligning the supply chain with business strategy
- Procurement optimisation
- Demand-driven production
- Increasing co-operation and collaboration in the supply chain
- Inventory management

The fourth most popular objective here, increasing co-operation and collaboration, has been an ever-present objective for SA supply chains in the last few years of the research. Like improving planning and forecasting generally, it seems to be an ongoing struggle to achieve, the strategic wisdom of which, however, remains indisputable. As market conditions worsen, it makes perfect sense to focus on a more effective, cost efficient and reliable long-term relationship between supply chain partners on both the supply and demand sides.



The fifth and third-placed choices for mining, inventory management and a focus on demand-driven production respectively, have come from a deepening sense that supply chains can enable a more flexible and responsive approach to market demands, rather than being tied to inflexible production schedules. This is crucial in a macroeconomic climate where cost-reduction and targeted, effective supply is needed. These factors, though in a slightly different order of priority, also feature in the overall report sample. For mining, however, a focus on investment in inventory only in order to meet specific market demand is even more crucial in such a capital intensive industry.

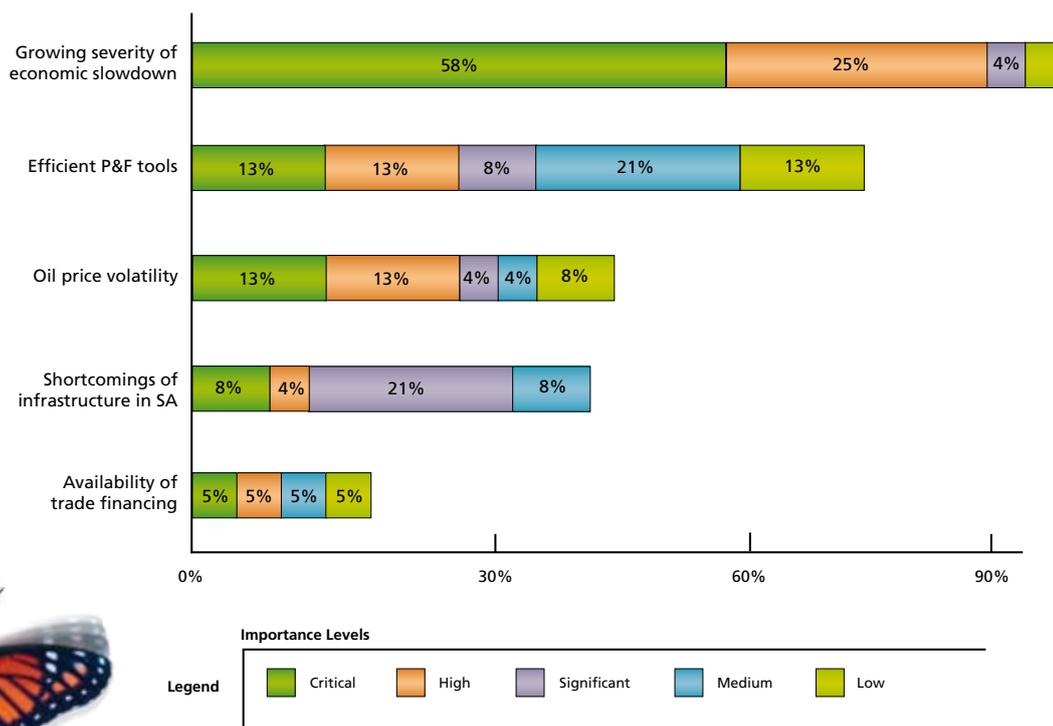
The second ranked objective for mining, procurement optimisation, reflects the overall shift in this year's research away from the globalised sourcing policies of the boom years to a more localised or regionalised procurement pool. The process of more effective, and cheaper, sourcing has become crucial to the survival mode of many mines.

In many ways these objectives are to be expected in the survivalist mode of businesses struggling in the global economy. The top objective overall – for the whole sample, as for the mining industry – is less expected, however. Aligning the supply chain with the business strategy is a move on which **supplychainforesight** focused strongly last year. We suggested then that those businesses which had mastered the strategic deployment of their supply chains to earn competitive advantage in a complex global trading environment, were more likely to have supply chain strategy on the boardroom agenda. In the research report of 2007, a focus on the positive trajectory of global expansion and growth meant that the alignment of strategy was relatively low on the objectives priority list. Now that an urgent economic imperative exists, it seems that alignment between the business and supply chain strategies has at last become seriously significant – better late than never! For the mining industry specifically, this focus on strategy may reflect a need to respond in a sustainable fashion to the extreme volatility in demand for resources globally brought about by the collapse of many currencies and the wholesale rethinking of the use of fossil fuels and other commodity resources.

The top five challenges to the industry, in order, are seen as follows:

- Growing severity of the economic slowdown
- Efficient planning and forecasting tools
- Oil price volatility
- Shortcomings in infrastructure in SA
- Availability of trade financing

Fig 2: What Challenges are Shaping the Strategies of the Mining Sector?



As would be expected, the financial crisis is the top of mind factor for most supply chains, and the mining industry is no different to the rest of the market in this. The rest of the challenges reflect the difficulties faced by supply chain planners attempting to achieve a more efficient and cost-effective supply chain in the urgent context of a contracting economy. Implementing more efficient planning and forecasting will be, as a result of the financial crisis, more important than ever as businesses try to plan contingencies for any slowdown. The focus on the volatility of oil prices in the industry is explained by its dependence on transportation for its export operations, as well as for manufacturing and extraction. The focus on the shortcomings of infrastructure in SA as a challenge for the industry is much more of a burning platform for mining than for others – this does not feature as a top five challenge in the general report. Of course, mining is far more dependent, as an export focused industry, on the rail, road and port infrastructure than most. We drill down into this issue later in the report.

Interestingly, the global economic crisis seems to have focused business minds on strategy overall. The factors which are seen as challenges are precisely those which would have enabled a more efficient and effective, strategically-driven supply chain when times were good – the focus, for example, on planning and forecasting tools indicates a need to be more cost-effective in investments in supply chain technology, but also indicates a need for greater productivity from less personnel as skills continue to be scarce.

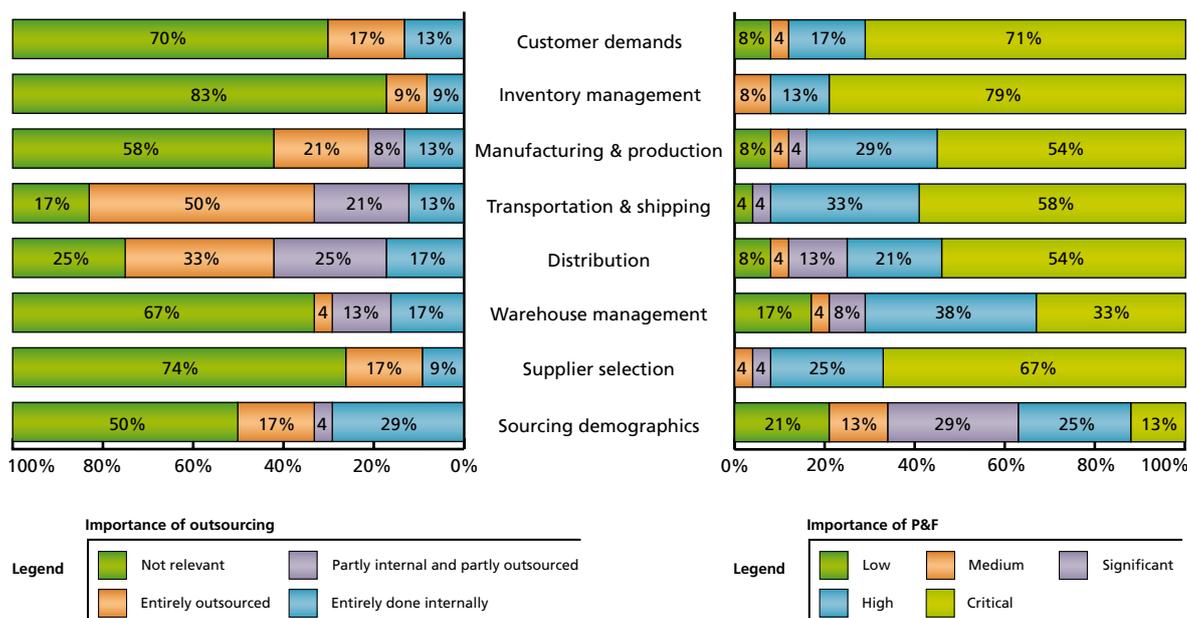
Overall, the objectives and challenges of SA's mining industry for the coming year demonstrate the severity of the economic slowdown, and the urgency of finding strategically-driven supply chain responses to it. In itself, this presents an opportunity – if supply chain thinking does become central to the boardroom agenda, and plays a central role in enabling businesses to survive the recessionary environment, then perhaps supply chain thinking can begin to play the role it should be playing in making SA more competitive and progressive generally as the economy corrects itself.

### Outsourcing Revisited

One noteworthy aspect of last year's overall national research was the growing realisation in large SA companies that the lack of available skills to provide resources to service the growth and diversity in supply chains was harming productivity and profitability. Once more, the most successful companies in that 2008 study were those who were early adopters of 'smart outsourcing', that is, working with supply chain partners who could provide more sophisticated skills and resources for the management of complex global supply chain operations.

There are, however, subtle but significant differences in the attitude of the mining industry to the supply chain outsourcing question.

Fig 3: Customer Demands and Inventory Management seen as Most Important for P&F Activities



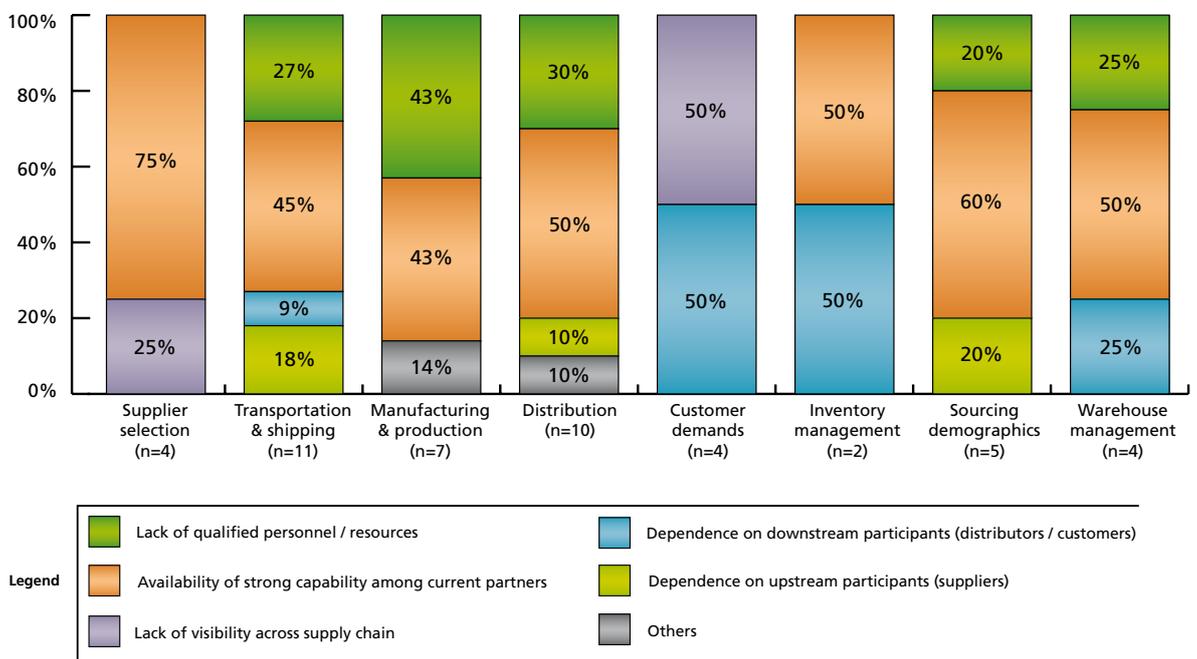


What is clear from this graph is that the industry perceives little strategic competitive advantage in outsourcing, in contrast with a fair proportion of the overall sample. The exceptions, though we can guess that they are not considered to be strategic partnership-type outsourcing arrangements, are in the relatively commoditised – but still strategically important – areas of transportation, shipping, warehousing and distribution. In the key customer-facing arenas of meeting customer demands and managing inventory, the question of outsourcing is ‘not relevant’ for the vast majority of respondents.

The exception to this trend in the mining industry is in manufacturing and production, which is considered a critical area for 54% of respondents, yet 30% of the function is outsourced.

The following graph shows the reasons behind outsourcing decisions – proving the contention that miners are comfortable with the existing outsourcing arrangements in place, and that the response to customer demand – perhaps the most strategically important function of all – is kept entirely away from outsource partners.

**Fig 4: Strong Capabilities of Partners seen as Main Reason for Outsourcing P&F Activities**



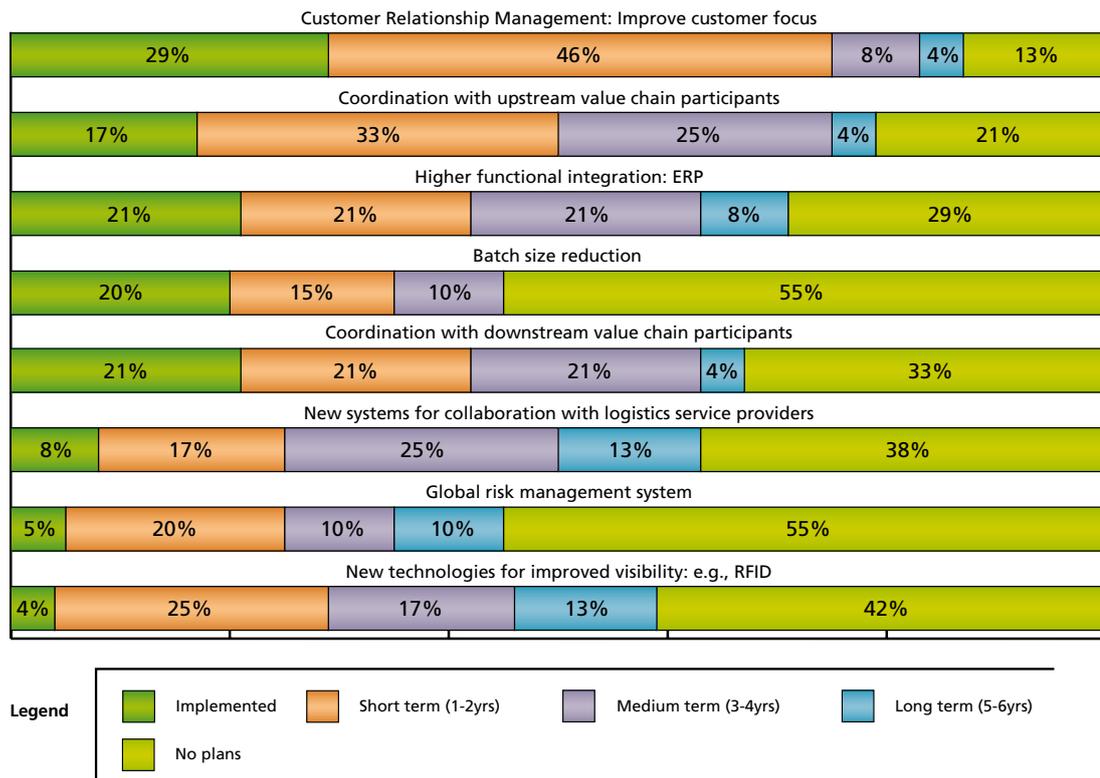
This aspect of the industry's attitude to outsourcing is not in keeping with the overall response in the research, where almost one quarter of all companies felt that outsourcing could help their competitive advantage.

### Industry Investment

The picture on current and short-term industry investment in fact bears out the contention that the internal focus of the mining industry is on properly realising a demand driven supply chain.



Fig 5: Investment Plans in the Short and Medium Term



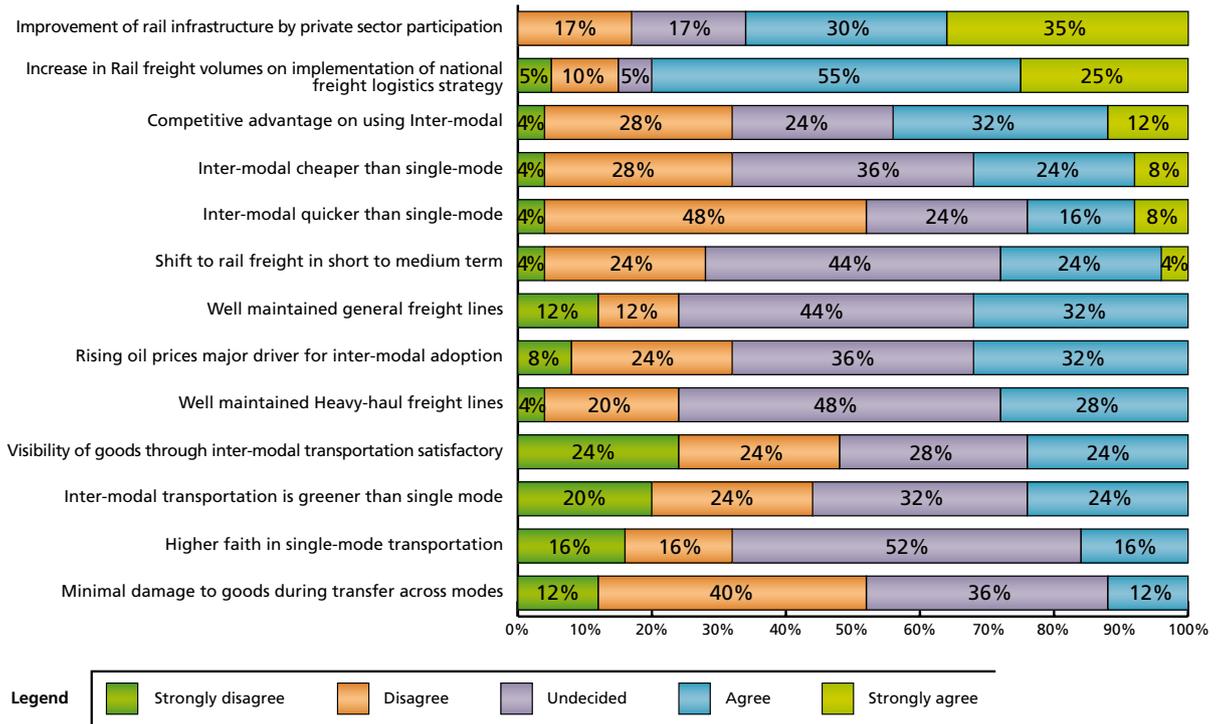
The strong short-term focus on customer demand and upstream collaboration points to the attempt to control cost variables and the risk of excess inventory. It is interesting that more than half the industry respondents have no plans for a global risk management system – despite the industry being at risk from the collapse of the globalised financial system and its physical supply chains!

### Speaking the same Language: Public and Private Sector Co-operation

It is a truism of the SA physical logistics landscape that the private sector on one hand, and the parastatal and public sector organisations controlling the national road, rail and port infrastructure do not see eye to eye on how it is run and how efficient it should and could be. This has been a feature of the research over the years, and there still seems to be little meaningful dialogue or progress on exactly what industry requires from the infrastructure, and very little effective communication from the public sector about planning, implementation and capacity.

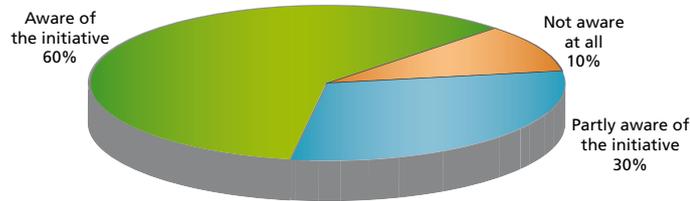
In the general research report for this year, a massive 7 in 10 businesses believe private sector development will help improve infrastructure and help to increase the efficiency and cost of national freight. As is also to be expected from private sector supply chain professionals, more than 1 in 2 believe in multi-modal transportation. More than 40% of businesses in the general sample disagreed that South African freight and heavy-haul lines are well developed and maintained. This is the only area in which the mining sector disagrees slightly from the general picture, with only 24% of the industry thinking so.

**Fig 6: Mining Sector's Outlook Towards Inter-modal Transportation**



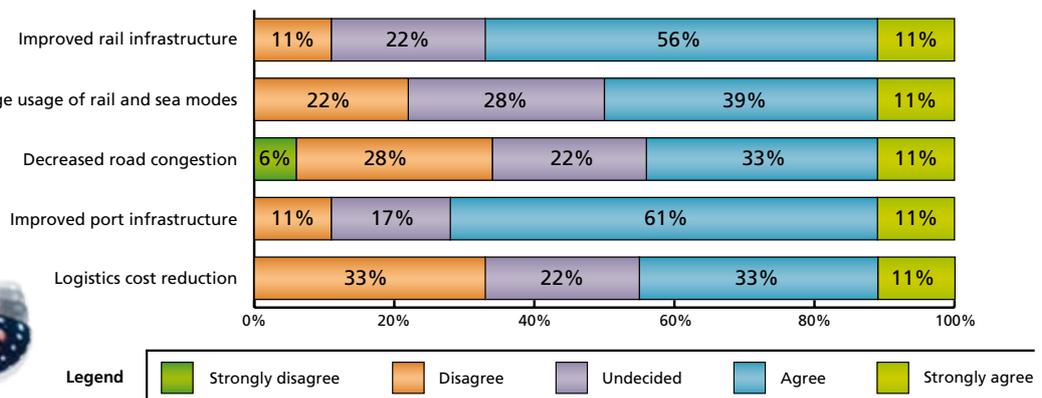
Since the industry's export focus places it more than most at the mercy of the country's physical logistics infrastructure, the opinion of the mining sector on the efficacy of Transnet's investment in infrastructure is worth looking at.

**Fig 7: Awareness and Perceptions of the Initiatives by Transnet**



Of those who are aware of Transnets' investment plans, the following is the industry views on the effects of such investment.

**Fig 8: Views on effects of Transnet Investment**



90% of the mining sector is aware of Transnet's plans to inject investment into SA infrastructure – higher than the general response sample, with 6 in 10 believing this will improve SA road and port infrastructure, as opposed to 8 in 10 of the general sample. Unfortunately, as with the general sample, miners do not believe this will reduce costs due to better inter-modal connectivity. More strategic dialogue is still needed – not only about what industry requires to facilitate inbound and outbound supply chains better, but also on what skills and strategic planning the private sector can offer in co-operation with the public sector's infrastructure initiatives in the country, from dam-building and housing construction to the Gautrain.

### The Real Green Issues: The Environment and Economic Sustainability

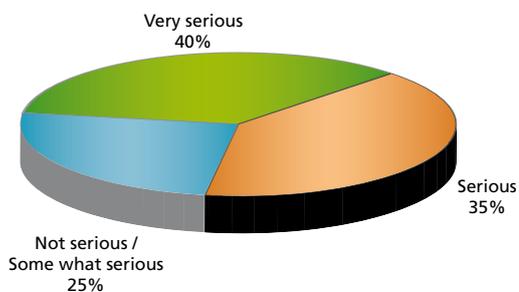
The debate in the SA market, such as there has been, around environmentally-friendly business practices has largely been confined to the Corporate Social Investment (CSI) agenda. This section of this year's research sought to drill down into the awareness and attitudes among SA supply chain practitioners and senior executives about the environment and sustainability. With the business tide moving in the direction of the Obama administration's strong new stance on reversing the impact of global trade on the environment, the time is right to start a strategic business dialogue about doing business in a more environmentally friendly SA.

Of course, the current priorities of cost reduction and business survival militate strongly against moving green business practices up the agenda, but this section of the study uncovered some interesting views.

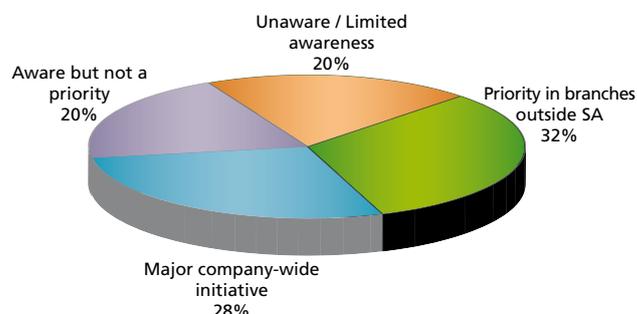
The way in which the issue of climate change and sustainable environmentally friendly business practice is understood in the mining sector is a crucial litmus test of how it will be seen and responded to in SA industry generally. Since there is no way that the mining sector can do business without impacting on the environment, measures designed to compel businesses to do so more responsibly will impact mining immediately. How do they themselves see the issue?

**Fig 9: High Awareness to Sustainability Seen Contrary to Its Low Priority In Short-term Objectives**

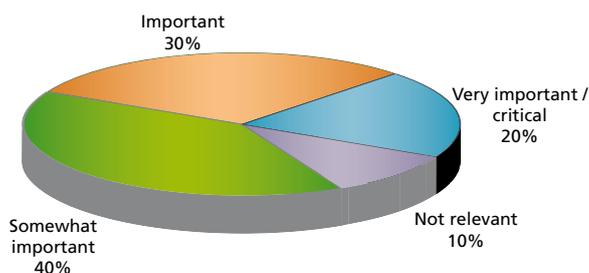
**End-user's perceptions on the seriousness of climate change**



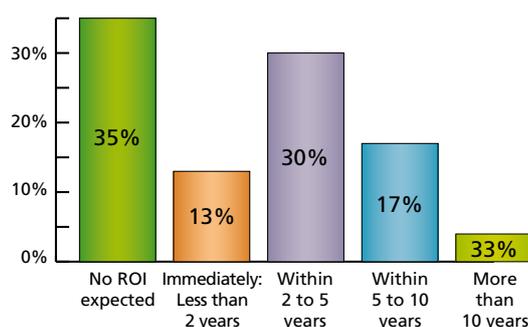
**Awareness about the issue of "green footprint"**



**Importance of an "environment-friendly" supply chain**

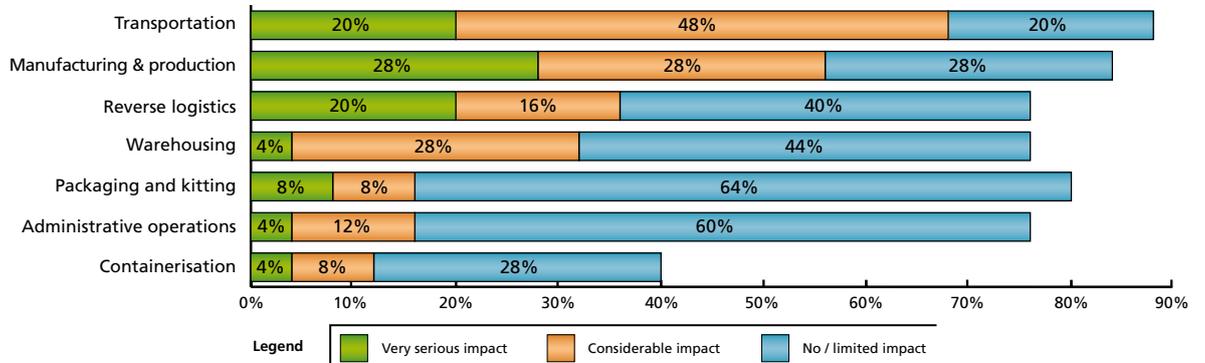


**ROI expected duration**



As with the general research sample, 75% of the industry sees climate change as serious or very serious. Perhaps more tellingly, 50% see the concept of an environmentally friendly supply chain as being important and very important to their organisation, as opposed to 70% for the general sample. As we can see, fully a third of all businesses do not see any ROI emerging from sustainability initiatives.

**Fig 10: Though the Carbon Footprint is not Measured, Companies are Aware of the Processes Contributing to it**



Overall 7 in 10 businesses in the sector feel that transportation efficiency and waste reduction (including waste in manufacturing processes) will have the greatest benefit on the environment – even though they haven't measured their own carbon footprints.

When quizzed about which initiatives were being implemented or planned in the short-term to reduce carbon footprint in the industry, it is surely no accident that the top strategies for doing so are those intended to meet the stated short-term business objectives for the mining industry's supply chain – cost reduction and inventory management in the supply chain (transportation efficiency, the use of lean logistics and procurement optimisation in the shortening of the global supply chain) and the alignment of business and supply chain strategies (outsourcing and distribution network optimisation). This speaks of an industry view that does not see advantage in environmentally sustainable business practice in the short-term, but sees strategic advantage in using supply chains to achieve such sustainability in the longer-term.

**Fig 11: Outsourcing, Lean Logistics and Use of RFID seen as the Most Effective Methods for Reducing Carbon Footprint**

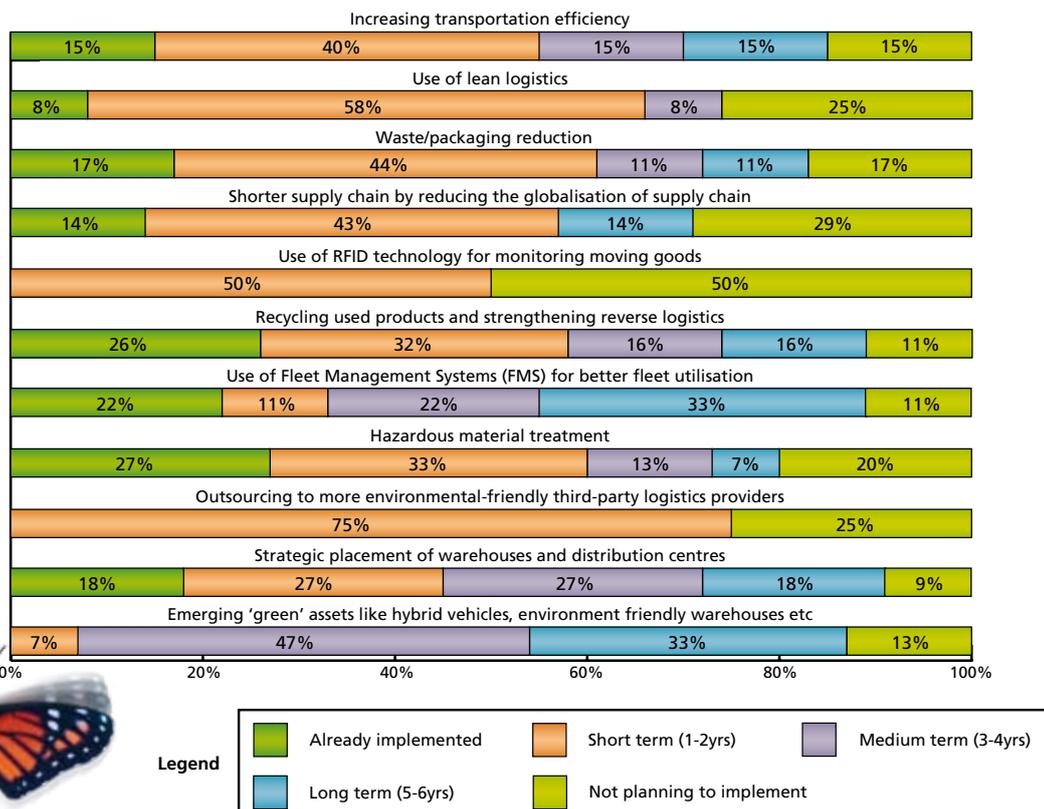
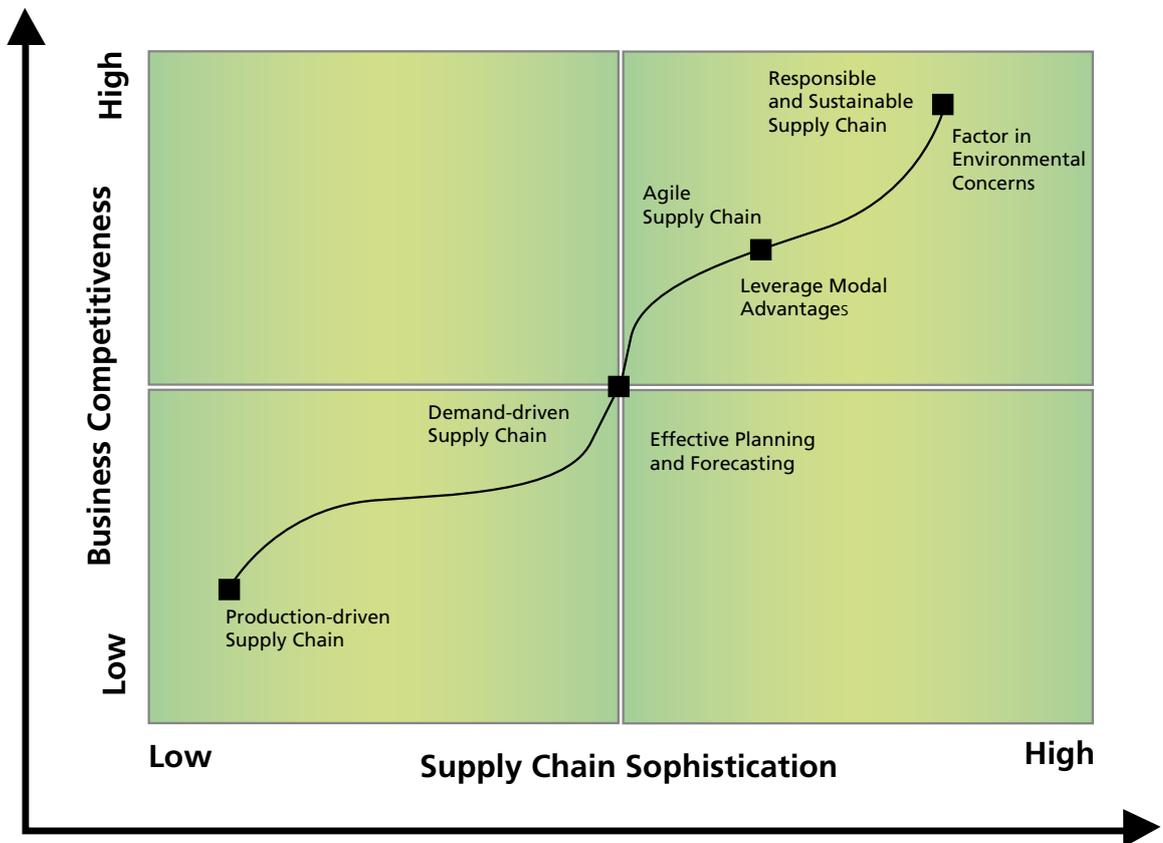


Fig 12: The Ideal Supply Chain



In an ideal economic environment the trajectory of successful supply chain strategy, and therefore successful business practice, would look something like this. Achieving the 'responsible' supply chain balance in the upper right quadrant, between profitability and sustainability in a world where most resources are thinly stretched, is no mean feat.

It is far more difficult in an environment like today's, where survival is the watchword and the potential for failure is the compelling event that drives most businesses on. The world's explosion in cross border and international trade and consistent growth over the past few years has been shown to be fragile at its heart. And yet, the Butterfly Effect – say, for example, the sub-prime housing crisis in the US bringing down a global financial network intricately linked by information-based supply chains – can be combated and contextualised.

For the SA mining industry, the more things change, the more they stay the same. A positive outcome of the crisis for the local industry may be a more long-term view of strategic alignment between the business and its supply chains – which may in the longer term stretch into a more environmentally sustainable sector. In the short-term a more collaborative attitude to outsourcing may be in the offing as ways are sought to further reduce costs, and to manage and optimise inventory in an even more volatile global economy.

Finally, though it is not a new issue, it is even more critical that ways are sought to bridge the communications gap between the mining sector and the public sector, particularly around investment in physical logistics infrastructure. In the survivalist mode of the global economy at the moment, the future of SA's mining industry may depend on it.



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