KwaZulu-Natal Automotive Industry Strategy Report

Compiled by:
Justin Barnes (BA Hons, MSocSci, PhD [Natal]), and
Tamryn Hartogh (BCom. Hons [UCT])

Benchmarking and Manufacturing Analysts SA
For the KwaZulu-Natal Provincial Government's
Department of Economic Development

16th July 2009

Benchmarking & Manufacturing Analysts
1st Floor, 8 Old Main Rd, Hillcrest 3610
PostNet Suite #10139, Private Bag X1005, Hillcrest, 3650
South Africa
Tel: +27 (0) 31 765 3870, Fax: +27 (0) 31 765 3873
admin@bmanalysts.com
www.bmanalysts.com

Contents

Foreword

This KwaZulu-Natal automotive industry strategy report has been compiled for the KwaZulu-Natal Provincial Government's Department of Economic Development (DED) as an integral part of its provincial priority sector strategy development process. The automotive industry has been recognised by the provincial government as key to the development of the KwaZulu-Natal economy, and therefore a focus sector for future growth and development. This report therefore represents an important input into the provincial automotive strategy development process.

As a strategy report, its intention is to (a) present salient macro, meso and micro level findings from the extensive research completed, (b) outline the provincial automotive industry's numerous strengths, weaknesses, opportunities and threats, and (c) provide a set of recommendations pertaining to the development of the provincial automotive industry through to 2020. The report is therefore both descriptive and analytical.

Benchmarking and Manufacturing Analysts SA (Pty) Ltd (B&M Analysts), as the service provider commissioned to support the DED in its development of a provincial automotive strategy, is responsible for the content and production of this report. The authors of the report acknowledge that a team of consultants at B&M Analysts supported its compilation. The contribution made by Mr. Sean Ellis, Mr. Thabani Shale, and Ms. Elaine Reddy, is hereby acknowledged. Whilst every care has been taken to ensure the accuracy and integrity of the data and analysis presented in this report, B&M Analysts and its staff members take no responsibility whatsoever for decisions derived from its content.

List of acronyms used in report

ADT	Articulated Dump Truck
AGOA	African Growth and Opportunity Act
AIA	Automotive Investment Allowance
AIDC	Automotive Industry Development Centre
APDP	Automotive Production and Development Programme
CBU	Completely Built Up
CKD	Completely Knocked Down
DAC	Durban Automotive Cluster
DFA	Duty Free Allowance
EU	European Union
FTA	Free Trade Agreement
FY	Financial Year
GCC	Global Credit Crisis
GGP	Gross Geographic Product
HCV	Heavy Commercial Vehicle
HSRC	Human Sciences Research Council
IMV	International Multi-Vehicle platform
JIT	Just-In-Time
JOP	Japanese Outreach Programme
KZN-DED	KwaZulu-Natal Department of Economic Development
LCV	Light Commercial Vehicle
M&A	Mergers and Acquisitions
MIDP	Motor Industry Development Programme
MNC	Multinational Corporation
MVA	Manufacturing Value-Added
NAACAM	National Association of Automotive Component and Allied Manufacturers
NAAMSA	National Association of Automotive Manufacturers South Africa
PAA	Productive Assistance Allowance
PDI	Previously Disadvantaged Individual
PGM	Platinum-Group Metals
PI	Production Incentive
ppm	parts per million
R&D	Research and Development
ROI	Return on Investment
SA	South Africa
SAABC	South African Automotive Benchmarking Club
SIB	Southern Industrial Basin
SUV	Sports Utility Vehicle
SVI	Small Vehicle Incentive
TEI	Tertiary Education Institution
TPS	Toyota Production System
US(A)	United States (of America)
VAA	Volume Assembly Allowance
WCM	World Class Manufacturing
WTO	World Trade Organisation

Executive summary

- The unprecedented contraction in global and local vehicle demand defines the current tumultuous state of the KwaZulu-Natal automotive industry. However, short term crisis should not detract from the industry's major growth opportunities to 2020. Given strong recent production growth in KwaZulu-Natal and the national government's finalisation of the replacement of the MIDP in 2013 with a WTO compliant APDP, the automotive industry can substantially contribute to the provincial economy's development. Whilst the industry is likely to experience a difficult 1-3 year period, there is an opportunity to develop a vibrant KwaZulu-Natal automotive industry, capable of manufacturing 347,888 vehicles by 2020, contributing R30 billion in GGP to the economy.

Global automotive industry analysis

- Motor vehicle production is considered 'the industry of industries', as it has multiplier effects into a wide range of other manufacturing- and service-related sectors. However, the industry is presently undergoing a profound transformation that is impacting on its global geographical spread, the nature of products manufactured, and the financial returns it delivers to its shareholders. As a mature industry, the industry offers developing economies major development opportunities, albeit in an exceedingly difficult global trading environment destabilised by the global credit crisis.
- This pressure will almost certainly have been transferred to 2nd and 3rd tier suppliers. A number of major firms will either exit the industry over the next 12 months, or fundamentally restructure their operations. The most likely candidates in this regard are General Motors, Chrysler and Ford, as well as Mitsubishi.
- Forecasts suggest that vehicle demand will return in the near future, although 2007 output levels will not be breached until 2015. Resultant global production overcapacity will place massive financial pressure on assemblers and component manufacturers over the next few years as they attempt to 'right size' themselves, while contending with fragmenting developed economy markets, new environmental demands, and the emergence of new competitors, principally from China and India.
- The global automotive industry produced 69m light vehicles in 2007, worth US$ 830 billion, making it the world's largest manufacturing sector. However, it is forecast the global industry will contract by 9.9m units (to 59m units) through 2008 and 2009, taking global production back to 2003/4 levels. Global production may even contract to 1998/1999 levels of 51-54m units – a drop unprecedented in industry's history. However, global production is expected to grow again from 2010, suggesting that the industry's crisis is short to medium term in duration, rather than systemic.
- The average net profitability of the world's 15 major assemblers was only 1.8% in 2008. The industry will most likely move to a very large net loss position in 2009 and 2010, with certain firms likely to record losses exceeding 10% of their sales in both years. This is after only Toyota, Honda and Renault generated net profit equal to, or greater than, 5% of their sales in each of their financial years ending 2004 to 2008.
- Component manufacturers have weaker performance than evident amongst assemblers. Almost a quarter of the world's largest component manufacturers made a net loss in their 2008 financial year, with even the stronger performing firms struggling to make more than a 5% net profit. In the context of the GCC, it is almost guaranteed that every major component manufacturer will make a financial loss in 2009.

- Mergers and acquisition activities have proliferated, as both assemblers and component manufacturers search for the ever-elusive scale economies that ostensibly generate margin. The last decade has also seen the emergence of a number of new Chinese and Indian vehicle assemblers at a global level.
- China has grown its output significantly from 2003-7, and is forecast to be the largest vehicle producing country globally in 2015, with over 13m vehicles produced. The USA and Japan, as well as Germany, South Korea, France, Spain and Canada are forecast to produce fewer vehicles in 2015. With the exception of China, the only other vehicle producers presently in the global top 10 that are expected to experience production growth from 2007-15 are Brazil and Mexico. India is however forecast to reach nearly 4.5m units of production (making it to the world's 5th largest producer), whilst Russia will also become a major player producing over 3m units, along with Thailand, at 2.5m units.

Major global market trends

- The global light vehicle market is experiencing fundamental structural changes, driven by changing consumer demand, environmental considerations tied to the rising cost of fossil fuels, and changes to the legislation regarding emission standards in major economies.
- Increased market segmentation is evident in all major developed economies as consumers become more demanding in terms of vehicle purchases that reflect their 'values and lifestyle choices'. The assemblers have attempted to deal with the associated cost-raising implications by building different models off common 'platforms' (common underlying power-train and drive-train technologies).
- Legislation compels assemblers to reduce the carbon dioxide output levels of their vehicles. Severe 2010 targets have been put in place for assemblers in Japan, South Korea and the EU. The projected profile of engine types manufactured in 2015 therefore reflects significant growth in hybrid and electrically powered vehicles, with diesel and petrol powered vehicles growing less impressively, particularly from 2012.

Competitiveness pressures

- Vehicle and component tariffs have been reduced in most economies, although this is not a totally universal trend, with vehicle tariffs in India, Thailand and Taiwan increasing from 1998 to 2008. Comparatively, South Africa has higher tariffs than the USA (6.5% for passenger cars), the EU (10%) and Japan (no tariffs), but lower tariffs than China (30%), India (35-100%), Taiwan (60%), and Thailand (56%).
- Lower tariffs have encouraged the development of global value chains. Assemblers and their major component manufacturers no longer produce in national or regional silos. Vehicle production has a global footprint both in the trade of completed vehicles and in respect of components at each and every link of the automotive value chain. This implies huge cost pressures on manufacturers throughout the value chain.
- Unsurprisingly, then, the automotive industry is considered the most advanced and efficient manufacturing sector internationally. The Toyota Production System (TPS) is particularly venerated, and widely regarded as best practice. These principles have led to Toyota manufacturing its vehicles more efficiently and effectively than its competitors.

South African automotive industry analysis

- The automotive industry (inclusive of vehicle retailing) contributed 6.9% of South Africa's economy in 2007, a 0.4% increase on 1995 levels. In respect of manufacturing only, the

industry generated total sales of approximately R135 billion in 2007, with R75 billion of this relating to vehicle assembly and R60 billion to component manufacture. These output levels created 34,346 assembly and 86,394 component jobs in 2007.

- The South African automotive industry comprises seven major vehicle assemblers, a few specialist medium and heavy commercial vehicle assemblers/boutique manufacturers, and approximately 360 component manufacturers.
- The industry's regional concentration is informed by the location of vehicle assemblers, with most component firms is located in close proximity to BMW (Rosslyn), Nissan (Rosslyn), Ford (Silverton), Volkswagen (Uitenhage), General Motors (Port Elizabeth), and Mercedes-Benz (East London). KwaZulu-Natal is home to the third largest concentration of firms, and the largest South African vehicle assembler, Toyota (142,811 units). Toyota is the only domestic assembler producing volumes close to the minimum assembly threshold for world-scale production, which is considered to be 200,000 units.
- South African assembly is skewed in favour of LCV production, with the greatest proportion of this production linked to the increased output of Toyota Hiluxes/Fortuners. Domestic production constitutes 8.3% of Toyota's total global LCV output.
- The growth in South African production has been accompanied by substantial increases in capital expenditure, and healthier margins in the South African industry relative to international averages.
- South Africa started minor exporting in 1998. From around only 10,000 units exported annually, over 280,000 units were exported in 2008 alone. This is forecast to decline in the short term due to market contraction in the USA, the EU, and Japan. The dominant vehicle exporter in South Africa is Toyota, with almost as many vehicles exported as all of the other domestic assemblers combined.
- Based on January/February sales figures (both down by over 30% on 2008 sales), the South African market may contract to as few as 400,000 units in 2009. This will bring market demand back to 1995 levels – down from the 2006 peak of over 700,000 units.
- The corollary of reduced production for the domestic market when the domestic market was growing is vehicle import growth. Over 600,000 vehicles were imported into South Africa in 2006 and 2007 alone. Another recent negative trend has been the growth of LCV imports – a market segment which was almost exclusively supplied by local vehicle assemblers until 2005. The industry trade balance has thus suffered a deteriorating deficit, reaching nearly R35 billion in 2007.
- From less than R4 billion in 1995, total component exports breached the R38 billion mark in 2007. However, 56% of total exports were derived from the catalytic converter sub-sector. Although catalytic converter exports have grown impressively over the last few years, certain major exporting sub-sectors like tyres and sewn leather products have experienced declining export sales since 2002.

The national government's present policy for the industry: The MIDP

- The key driver of the South African automotive industry's strong export (and import) orientation is the national government's automotive industrial policy, the MIDP. The main instruments of the MIDP have been falling nominal duties combined with export assistance, derived from the ability to offset import duties. While nominal duties on imported vehicles remained moderately high at least in the MIDP's early stages, the ability to rebate import duties by exporting has enabled importers to bring in vehicles at low effective duty rates. Import-export complementation has also enabled assemblers to

use import credits to source components at close to international prices, so declining nominal protection on vehicles has to some extent been offset by reduced protection for components. There has therefore been a significant incentive to assemble locally.

The national government's future policy for the industry: The APDP

- The MIDP will be replaced by a new national automotive policy, the APDP, on the 1st of January 2013. The APDP differs from the MIDP in a number of notable ways:

	MIDP (1995 – 2012)	APDP (2013 – 2020)
Tariffs	Tariff protection reduced consistently from 65%/49% for CBUs and CKDs respectively in 1995, to 25%/20% in 2012	Tariffs will remain constant at 25% and 20% for CBUs and CKDs respectively from 2013 to 2020
Local Vehicle Assembler Allowance	**DFA** – 27% of the wholesale price of locally assembled vehicles rebated against the duty payable on imported components when producing vehicles for the domestic market	**VAA** – 20-18% of the wholesale price of locally assembled vehicles to be rebated against the duty payable on imported components used in vehicle production, irrespective of where vehicles are sold, as long as annual units per plant exceed 50,000
Industry incentives	**Export-linked duty credits** earned – benefits calculated on the value of local materials in the exported product	**Market-neutral Production Incentive (PI)** – benefits calculated on production value added only
Investment assistance	**PAA:** • Only benefits vehicle assemblers and 1st tier suppliers whose investment is linked to a local vehicle assembler • 20% benefit, payable over 5 years (4% per year)	**AIA:** • Benefits assemblers and component suppliers as long as investment is auto focused • 20% benefit, payable in the form of fiscal grant (components) or duty credit (assembler) over 3 years (6.7% per year)

- The biggest change to be affected by the APDP relates to its introduction of a market neutral Production Incentive (PI), which replaces the MIDP's export benefits. This represents a fundamental shift in policy direction. The PI will start at 55% in 2013 and reduce 1% annually until it reaches 50% in 2018. It will then remain at this level to 2020. A CBU adjustment of 80% will be in place for the APDP's entire period to ensure that the level of incentive is equalised when being used to import CBUs and CKDs.
- The new programme will benefit the local industry in general and not only certain exporting sectors, as is presently the case. Importantly, the APDP is focused on incentivising local value addition. This should lead to local auto industry growth at 1st, 2nd and 3rd tier levels, thereby increasing local content in South African assembled vehicles.
- The APDP offers the South African automotive industry policy certainty through to 2020 which should assist with long-term strategic planning. This is particularly important in the face of the industry's long-term investment cycles.
- The programme encourages local vehicle assemblers to produce at least 50,000 units annually, thus providing the local components industry with the opportunity to manufacture at reasonable economies of scale.

Industry projections to 2020

- South African industry projections to 2020 see significant expansion over the next decade, despite the GCC. Production is moreover projected to be more or less equally split for the domestic and export markets, with 659,032 units projected for domestic market consumption and 528,300 for export markets. This will result in substantial manufacturing value added and employment growth. The industry's MVA is expected to grow from around R40 billion in 2007 to well over R100 billion in 2020 (in 2007 Rand value terms). Similarly, employment is projected to grow from 120,940 202,820.

KwaZulu-Natal automotive industry analysis

- The KwaZulu-Natal automotive industry is dominated by the Toyota assembly complex in the Durban Southern Industrial Basin (SIB). With installed capacity of 220,000 vehicles, the plant produced 142,811 vehicles in 2007 (29% of all vehicles produced domestically).
- In addition, Volvo (Sweden) and MAN (Germany) have heavy vehicle assembly plants in the eThekwini Municipal area, although their volumes are insubstantial. Bell Equipment, the capital equipment manufacturer in Richards Bay, is a major purchaser of certain types of auto components, and contributes more positively to the provincial automotive industry. In relation to Toyota's impact, its significance is however extremely small.
- Japanese investment in the provincial automotive components industry is still very underdeveloped, with Toyota subsidiary plants in other global locations having far greater concentrations of Japanese MNC investment.
- The KwaZulu-Natal total provincial vehicle 'parc' was only 1.1 million vehicles or 14.3% of all South African vehicles in 2007. Holding all things equal, the provincial automotive manufacturing industry is proportionately far larger than the share of the provincial market in terms of aggregated national demand.
- Total MVA from the KwaZulu-Natal automotive industry in 2007 can be estimated at approximately R11.6 billion, 90% of which is in the eThekwini municipal area, 5% in Pietermaritzburg, and the balance in the rest of KwaZulu-Natal (Ladysmith, Howick, and Stanger). Approximately half of this MVA, derived from R33.5 billion in sales, was generated from sales into the domestic market, and the balance from exports.
- The growth and development of the KwaZulu-Natal auto components industry is strongly linked to the development of the Toyota assembly plant. KwaZulu-Natal automotive component manufacturers, for example, grew their output 21% on an inflation adjusted basis (i.e. in real terms) from 2004 to 2007.
- The provincial automotive industry shed employment by 10% in the last five months; consistent with broader South African and international trends. However, KZN grew its employment by 19% from 2004-7.
- Average Return on Investment (ROI) and operating profitability levels reveal comparatively strong performance for KwaZulu-Natal component manufacturers, although average profitability deteriorated to 12% in 2007 and average ROI to 23% (6% below the four year average of 29%). KwaZulu-Natal component manufacturers averaged annual capital investment expenditure of almost 5% of sales from 2004-7.
- About 29% of all original equipment components imported into South Africa are likely to be sourced for KwaZulu-Natal vehicle assembly, as this is the provincial share of national vehicle production. Similarly, 14% of all South African vehicle and component imports are likely to be sold in KwaZulu-Natal as this is the province's share of national vehicle sales and the total vehicle parc respectively.
- There are both positive and negative elements to the KwaZulu-Natal automotive component industry's competitiveness performance. Operationally, KwaZulu-Natal firms perform admirably in terms of their quality (outperformed only by Gauteng) and reliability (second only to the Cape), but poorly in terms of cost control performance and flexibility. While provincial investments in product innovation are relatively strong, this is within a context of limited R&D spending typical of a developing economy. As such, the KwaZulu-Natal industry displays the potential for achieving world class manufacturing performance levels, while also exhibiting a number of areas for substantial competitiveness upgrading.

- South Africa as a whole is significantly disadvantaged in terms of its logistics cost structure, making it critical for KwaZulu-Natal firms to at least match international performance benchmarks.

Strategic position of the KZN automotive industry

- Holding KwaZulu-Natal's 2007 position in the South African automotive industry equal through to 2020, the achievement of the national 2020 growth objectives will have substantial multipliers for the provincial automotive industry. Whether the KwaZulu-Natal automotive assembly and components industry prospers to a greater or lesser extent than the South African average is entirely dependent on its ability to build its comparative strengths (S), resolve its comparative weaknesses (W), exploit future opportunities (O), and mitigate emerging threats (T).
- At face value, the substantial growth of the industry reflects positively on the province, but deeper interrogation of the industry's SWOT profile reveals that it is beset by a number of major deficiencies that are likely to undermine its future development if not aggressively responded to in the short to medium term. The industry's Achilles Heel is that its supply-side competitiveness is insufficient to compete internationally without ongoing access to national government incentives - presently in the form of the MIDP (to 2012) and then the APDP (to 2020).

Summary of SWOT analysis findings

Strengths	**Weaknesses**
1. Toyota assembly plant: brand, volumes, parent company's international and domestic market strength 2. Well established auto component manufacturing base 3. Well established inter-firm cooperation via the Durban Automotive Cluster (since 2001) 4. Trade access: Domestic market (Gauteng) and exports (harbour, new airport) 5. MIDP benefits to 2012, APDP benefits to 2020 6. EU-SA Free Trade Agreement 7. Overhead and labour costs (but not universal)	1. Firm-level management, technical skills deficiencies 2. Government costs, skills, bureaucracy, alignment 3. Lack of a JIT infrastructure (no supplier park) 4. Dependence on one vehicle assembler (two platforms) 5. Limited local content in locally assembled vehicles 6. Limited power-train and drive-train technologies 7. Age of capital stock 8. Financial performance of firms (reducing ROIs) 9. Firm operational performance (especially logistics costs) 10. Industry-university linkages – skills and R&D 11. Harbour costs, flexibility and infrastructure
Opportunities	**Threats (provincial only)**
1. Toyota's installed capacity is 220,000 units. Production can be rapidly expanded to this 2. Provision of focused supply side support a. Investment in JIT infrastructure b. Deepened private-public sector collaboration c. Harbour alignment with industry needs d. Engagement with TEIs 3. Development of skills in Government and related institutions 4. Provincial economy's automotive profile 5. Establish Japanese Outreach Programme 6. Focused hybrid/alternative fuel technology R&D for LCVs	1. Short-term: Contraction in demand cripples industry – lose component firms to GCC 2. Industry is 'thinned' out as local content reduces 3. Skills drain makes it difficult to benefit from upswing in domestic and export markets 4. Infrastructure/support institutions fail to improve, or deteriorate 5. Costs of operating in KwaZulu-Natal rises relative to other South African/international locations 6. Toyota no longer views Durban as preferred location for its domestic/regional market presence

Maximising the regional industry's potential to 2020

- If the KwaZulu-Natal automotive industry were to grow in a manner consistent with national projections to 2020, the KwaZulu-Natal industry could potentially grow its GGP contribution from R12 billion in 2007 to R30 billion in 2020. This would equate to a total

of 347,888 vehicles produced in the province. Considering Toyota's installed production capacity of 220,000 units, an additional 130,000 units of capacity will need to be created.

- The low levels of local content in South African assembled vehicles would imply increased imports into the province as a result of growth. KwaZulu-Natal imported about R11 billion worth of components in 2007; this is projected to rise to R26 billion in 2020. This reveals the extent of the industry's localisation opportunities: there is the potential to secure the production of a significant portion of these imports in the province.
- Aggregated employment is projected to grow by 23,992 people, increasing total employment levels from 35,435 in 2007 to 59,427 in 2020.

Prioritising strategic interventions in the KZN automotive industry

- Given the SWOT findings and projections relating to the industry's growth potential to 2020, it would appear critical that the KZN-DED develop a comprehensive framework of strategic interventions to (a) enhance the competitiveness of the KwaZulu-Natal automotive industry, (b) lock Toyota into the province in the long-term, and (c) encourage ongoing investment in the automotive components industry.
- Based on the analysis presented in this report, it is proposed that the KZN-DED, working in partnership with industry stakeholders, focus on the following five priority interventions over the next few years:
  1. Creation of a cost effective JIT infrastructure in support of Toyota
  2. Provision of support to the DAC to expand the depth and ambit of its activities
  3. Facilitation of industry-university linkages within KwaZulu-Natal
  4. Provision of support for technical and artisan skills development in the industry
  5. Creation of a KwaZulu-Natal automotive brand that profiles provincial capabilities

- **Creation of a JIT infrastructure in support of Toyota:** The establishment of the supplier park would increase the province's attractiveness as an investment location. Moreover, the expertise required to establish such a supplier park already exists within South Africa, as the AIDC has managed the establishment of supplier parks in the Gauteng and the Eastern Cape.
- The timeline for the establishment of the supplier park is critical as it should be functional prior to the replacement of the vehicle models being manufactured at the Toyota Durban plant, in order to support higher levels of vehicle production and local content.
- The substantial investment costs will be recovered over the long term, although it is recommended that commercial rates are not applied when attempting to secure tenants for the supplier park. It is imperative that the supplier park be considered part of a long-term provincial industry development process.
- It is critical that established industrial locations are also upgraded to operate more efficiently. The focus of government should be on improving the general infrastructure that automotive manufacturers depend on, rather than only developing separate supplier parks: the provincial automotive industry requires a world class infrastructure to compete effectively, not only pockets of excellence.

- **Capacitate the DAC to develop industry's capabilities:** The DAC has been in operation since 2001 and represents a private-public industry development partnership between the eThekwini Municipality and the provincial automotive industry (over 40 participating manufacturers, including Toyota SA).

- It is recommended that the KZN-DED engage with the DAC to identify areas where programme content can be deepened and expanded to a greater number of firms. Funding of R2.5m, inflation-adjusted annually, will increase the DAC's capacity to facilitate the development of the provincial industry. This support should be focused on (a) 2nd tier supplier development and (b) the development of engineering and technical skills in the KwaZulu-Natal automotive industry.

- **Foster industry-TEI linkages:** It is proposed that the KZN-DED provide R2m to fund the establishment of a Chair of Automotive Development within the engineering department of the University of KwaZulu-Natal. This will re-align the provincial industry's relationship with KwaZulu-Natal's premier centre of higher learning and better align other provincial TEI-industry engagements.
- The Chair should sit on the DAC Executive and therefore stay engaged with the evolving development needs of the automotive industry.
- The Chair should play a major role in coordinating the development of appropriately qualified graduates, the provision of accredited short courses on industry specific development themes, and facilitating applied and advanced R&D projects. These activities could be financed through existing university funding mechanisms, such as the National Research Fund, or through industry contributions. Positive multipliers should emerge from the establishment of the position, to the point where it becomes sustainable on the back of its own activities over a five year period.

- **Skills development at management and technical levels:** Significant focus is required to deepen the management, engineering and technician (including artisan) skills base within the provincial automotive industry. It is therefore proposed that the KZN-DED fund an analysis of the industry's present and future skills needs – in line with its growth projections to 2020.
- Government could then (a) provide bursaries to students to influence the development of their career paths in line with the automotive industry's strategic objectives, and (b) engage with the Department of Home Affairs, to expedite the recruitment of scarce management, engineering and technical skills into the province.
- Resources will need to be allocated on the basis of actual industry requirements. An amount of R9.0 million for the five year period should be sufficient as there are numerous existing initiatives to support skills development in the national automotive industry, and these may simply need to be better coordinated, or supplemented.

- **Establishing KwaZulu-Natal as an automotive brand:** Provincial government should aggressively market itself as Africa's most dynamic automotive producing region. Although branding KwaZulu-Natal an automotive producing region is unlikely to secure short-term benefits, it would ensure an awareness of the industry's central role in the future development of the provincial economy, and impress on potential investors the seriousness with which the province views the automotive industry.
- While TIKZN plays a central role in promoting the industry's investment profile, more resources are required to advance the status of the province as a major automotive producing location. As per the recommended DAC funding model, a 10% inflation adjustment is factored into the marketing budget for the five year period, with the first year recommendation of R1.5 million escalating to R2.2 million in Year 5.

Priority intervention funding requirements

Intervention	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Cluster support	R2.5m	R2.75m	R3.03m	R3.33m	R3.66m	R15.27m
Chair of Automotive Development	R2.0m	R2.0m	R2.0m	R2.0m	R2.0m	R10.0m
Skills development	R1.0m	R2.0m	R2.0m	R2.0m	R2.0m	R9.0m
Automotive marketing	R1.5m	1.65m	R1.82m	R2.0m	R2.2m	R9.17m
TOTAL	R7.0m	R8.4m	R8.85	R9.33m	R9.86m	R43.44m

- Apart from the establishment of JIT infrastructure in support of Toyota's requirements, which is an infrastructure-linked investment, all of the other interventions are strongly institutional in their orientation and will require a significant amount of coordination and ongoing public-private sector engagement to be successful. It is also clear that it will be very difficult to gauge their completion dates, with each of the interventions needing to be sustained long after they are focused on as priority interventions. Five years is therefore deemed the minimum period required to positively impact on the development of the provincial industry through to 2020.
- It is also recommended that the KZN-DED secure additional resources to bolster its ability to effectively interface with the automotive industry. This is a major present shortfall within the department and, if left unresolved, will undermine the critical role provincial government could be playing to support the development of the regional automotive industry to 2020.

Introduction

The KwaZulu-Natal automotive industry is presently experiencing a tumultuous period, with the global financial crisis and associated contraction in global and local vehicle demand weighing heavily on the industry. The extent of the recent crisis is revealed by the financial bail outs that the United States (US), European and Japanese governments have had to provide their vehicle manufacturers in the face of market declines ranging from 25% to 50% over the last few months. KwaZulu-Natal has been directly affected by these global pressures with the province's only major vehicle assembly plant, Toyota in Durban, presently operating only a four day work week, along with almost all of its major local suppliers.

Short term crises in the industry should not however detract from the importance of developing a comprehensive and coherent provincial development strategy for the sector for the period to 2020. Notwithstanding global competitiveness and market issues which are likely to continue buffeting the industry over the next decade, strategic analysis completed at a national level (Barnes and Black 2008a and 2008b) reveals major growth opportunities for the South African automotive industry over the next 11 years. Combined with strong production growth in South Africa since the turn of the millennium, and particularly strong growth in KwaZulu-Natal over the same period, the automotive assembly and components industry certainly has the capability to substantially contribute to the development of the provincial economy. The national government's finalisation of the replacement of the Motor Industry Development (MIDP) in 2013 with a World Trade Organisation compliant Automotive Production and Development Programme (APDP) is particularly important in this regard, as are the recent major investments made in KwaZulu-Natal by leading global automotive players such as Toyota. Whilst the industry is likely to experience an incredibly difficult one to three year period, as domestic and international markets continue to experience subdued demand conditions, and access to credit remains extremely difficult, long term opportunities remain significant.

Given this context, it is critical that the KwaZulu-Natal Provincial Government, and the automotive industry's other regional stakeholders, fully understand the comparative short to medium term position of the KwaZulu-Natal automotive industry in the global and South African automotive landscape, as well as the very real opportunity to develop a vibrant KwaZulu-Natal automotive industry capable of manufacturing 347,888 vehicles by 2020, thereby contributing a full R30.4 billion to the regional economy. To unpack the various elements that contribute both positively and negatively to this opportunity, the report comprises nine sections. Section 1 outlines the research methodology completed for the purposes of developing the provincial automotive sector strategy, whilst Sections 2 through 4 interrogate global (Section 2), South African (Section 3) and KwaZulu-Natal (Section 4) automotive trends and dynamics. Section 5 then considers firm-level competitiveness dynamics amongst KwaZulu-Natal automotive component manufacturers, noting both strengths and major deficiencies in the firm-level profile – relative to automotive component manufacturers in other South African automotive producing regions, and a set of automotive component manufacturers based in Central Europe, a major competitor region to the KwaZulu-Natal automotive industry.

The strategic focus of the report is made unequivocal in Section 6, which considers the strategic position of the KwaZulu-Natal automotive industry at a number of levels. Using a

basic Strengths, Weaknesses, Opportunities and Threats (SWOT) structure, the section details both positive and negative elements of the regional industry's present position, whilst detailing a range of opportunities and threats that need to be either maximised (for opportunities) or confronted (for threats) if the industry's potential through to 2020 is to be realised. This particular focus constitutes the content of Section 7. Based on macro level modeling completed during the course of the development of the APDP in 2008, the section considers the potential profile of the KwaZulu-Natal automotive assembly and components industry in 2020, and its associated contribution to the socio-economic development of the provincial economy. A number of scenarios are considered in this section, with high, medium and low roads identified. Section 8 further develops this focus by considering those priority interventions deemed critical to resolving industry deficiencies and maximizing opportunities. Put bluntly, the successful completion of the five priority interventions is identified as being critical to the realisation of the industry's 2020 growth opportunity. A short conclusion completes the report.

1. Research methodology

The methodology employed to complete the research process comprised two distinct elements. The first related to the completion of extensive secondary research that focused on unpacking key macro, meso and micro level strategic and industry development themes over the last few years, as well as analyses of potential international and domestic industry scenarios through to 2020. The second element focused on primary research encompassing both quantitative and qualitative research methodologies covering macro, meso and micro level industry performance trends, and the strategic views of key industry stakeholders on the development potential of the KwaZulu-Natal automotive industry, as well as their specific observations on its strengths, weaknesses, opportunities and threats.

Each of these methodological elements is unpacked separately below.

1.1. Secondary research completed

The national government's Department of Trade and Industry (the dti) recently completed its customised sector programme for the automotive industry, its review of the Motor Industry Development Programme (MIDP), and its development of the Automotive Production and Development Programme (APDP) for the South African automotive industry. The various input documents compiled for these important national policies were scrutinised in preparation for the development of the KwaZulu-Natal automotive industry strategy, as were numerous academic articles and reports, and consulting reports and presentations, relating to global and South African automotive industry trends. These are referenced wherever appropriate in this document.

In respect of future forecasts relating to the international automotive assembly and components industry, particular reference must be made to PriceWaterhouseCoopers' Autofacts publications, and in respect of South Africa industry forecasts, particular reference must be made to the work of Barnes and Black (2008a and 2008b) during the course of developing their APDP proposals on behalf of the dti.

1.2. Primary research completed

The primary research completed comprised five major parts, four of which were quantitatively focused, and one qualitatively focused. The first part focused on securing performance data on the global automotive industry, with this primarily secured from company-specific annual reports, as well as the international vehicle assembler association website (www.oica.net). The second part then focused on securing South African automotive industry performance data, sourced from the dti, South African Revenue Service, National Association of Automotive Manufacturers in South Africa (NAAMSA), National Association of Automotive Component and Allied Manufacturers (NAACAM), and finally the South African Automotive Benchmarking Club (SAABC). The third part of the primary research attempted to unpack the national data to identify KwaZulu-Natal specific trends and statistics, with the national databases further interrogated, along with the regional Quantec database, which Trade and Investment KwaZulu-Natal (TIKZN) kindly made available for the strategy development process. The Quantec database, whilst clearly flawed insofar as it simply models regional data off the parameters of the national data, was nevertheless useful as a cross reference to the regional data extracted from the other national sources.

The fourth part of the primary research focused on firm-level data extracted from the SAABC. As the service provider to the SAABC, B&M Analysts' was able to extract all of its KwaZulu-Natal specific automotive component manufacturer data pertaining to firm-level financial, operational and value chain performance relative to that of automotive component manufacturers in other parts of South Africa and internationally. This research was critical insofar as it was able to clearly indicate micro-level competitiveness strengths and deficiencies in the regional industry.

The critical data that was generated from the 1st four parts of the primary research was complimented by a round of stakeholder interviews[1] that were completed over the course of March to May 2009:

- Dr. Johan van Zyl, Chief Executive Officer, Toyota SA
- Mr. Henry Pretorius, Strategic advisor, Toyota SA
- Mr. Mkhululi Mlota, Director of Automotives, Department of Trade and Industry
- Mr. Roger Pitot, Executive Director, National Association of Automotive Component and Allied Manufacturers (NAACAM)
- Mr. Brand Pretorius, Chief Executive Officer, McCarthy Motor Holdings
- Mr. Zamo Xaba, Human Resources Director, Kaymac Holdings, and Chairman, Durban Automotive Cluster
- Mr. Basil Cele, KwaZulu-Natal Chairperson, National Union of Metalworkers of South Africa (NUMSA)
- Mr. Mbuso Ngubane, Regional Secretary, National Union of Metalworkers of South Africa (NUMSA)
- Mr. Shunnon Tulsiram, Head, Economic Development Department, eThekwini Municipality
- Mr. Neville Matjie, General Manager, Trade and Investment KwaZulu-Natal
- Mr. Douglas Comrie, Chief Facilitator, Durban Automotive Cluster
- Mr. Johnny Frankiskos, Operations Director, Federal Mogul SA
- Mr. Russell Curtis, Executive Director, Durban Investment Promotion Agency
- Mr. Alex Holmes, Director, Behr SA
- Mr. Christo Roets, Procurement Director, Aunde SA

In addition to the individual interviews that were completed, an industry strategy workshop was hosted on the 30th of March. The workshop ensured that broader industry input was received on the preliminary SWOT findings generated at that stage, with extensive further analysis taking place through April, May and June 2009. This analysis culminated in a presentation of the findings generated to KZN-DED officials on the 23rd of June. Further comments were received from KZN-DED officials during the course of this presentation, and included in the final report.

[1] The questionnaire used in the stakeholder interviews is presented as Appendix A.

2. Global automotive industry analysis

The production of motor vehicles is widely considered 'the industry of industries', largely because it has been the bedrock of the manufacturing industry in the United States of America, Japan, and various parts of Western Europe since the conclusion of the second World War. The importance of the industry is increased by the fact that it comprises a very wide range of production processes and has multiplier effects into a wide range of other manufacturing- and service-related sectors.

Notwithstanding this historical fact, the industry is presently undergoing a profound transformation that is impacting on its global geographical spread, the nature of the products it manufactures, and the financial returns it delivers to its shareholders. As a mature industry, the manufacture of vehicles and components offers developing economies, such as South Africa, major development opportunities – albeit into an incredibly competitive and exceedingly difficult global environment. The various figures and tables presented in this section reveal quite clearly that the major trends and dynamics within the global automotive industry were unfavourable prior to the advent of the Global Credit Crisis (GCC). It is important to emphasise that the severe and unprecedented downturn created by the GCC destabilised the global automotive industry from late 2008, on the back of a high level of industry fragility that has been evident for an extended period of time.

2.1. Profile of the global automotive industry

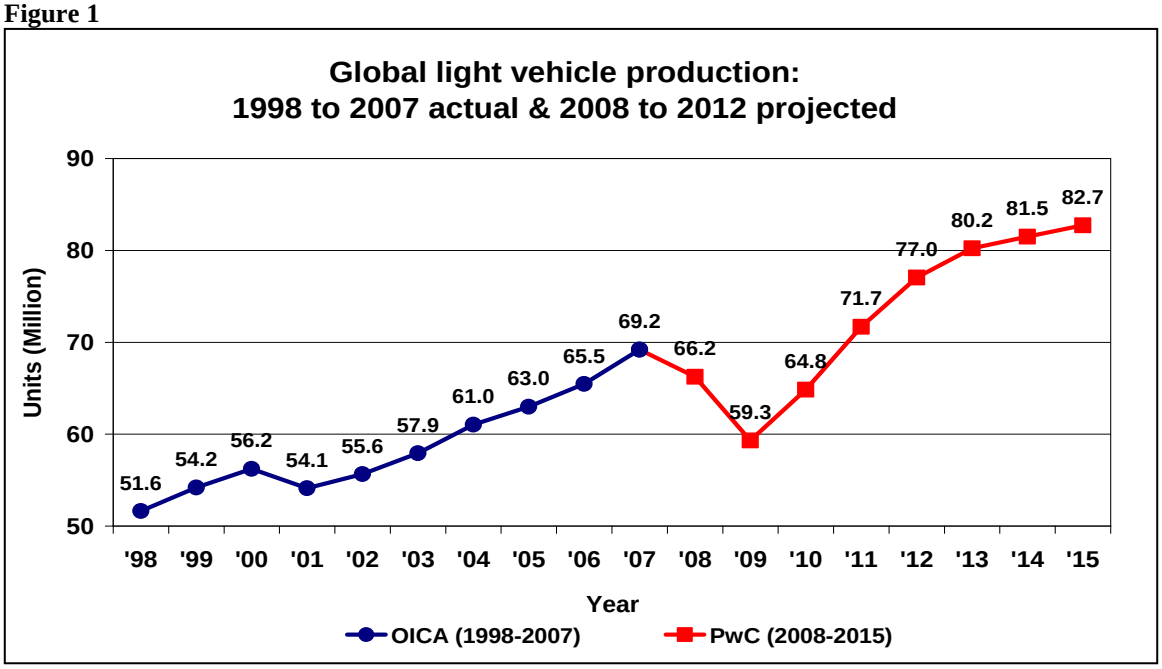
The global automotive industry produced a total of 69.2 million light vehicles in 2007; 3.7 million more vehicles than it produced in 2006. In value terms, 2007 production equated to a total of around US$ 830.4 billion, making it the world's largest manufacturing sector.[2] The industry's growth trajectory from 1998 to 2007 is presented in Figure 1, along with growth projections made by PriceWaterhouseCoopers (PwC) through to 2015. As revealed, whilst the industry experienced growth in production of 17.6 million vehicles from 1998 to 2007, the projections for 2008 and 2009 indicate that a major contraction in the global automotive industry is presently taking place. PwC forecast that the global industry will contract by 9.9 million units (to 59.3 million units) through 2008 and 2009, taking global production back to 2003/4 levels. Whilst this represents a major contraction, production and market sales data reported in various economies through November 2008 to February 2009 suggest that PwC is being far too optimistic. Sales have declined by as much as 40% in certain months in major markets such as the USA and the UK, to 8% in previously strong growth markets like China. Global production may very well contract to 1998/1999 levels of 51-54 million units – a precipitous drop unprecedented in the history of vehicle manufacturing.

The drop in global demand is not however expected to continue beyond 2009, with global production expected to grow again from 2010. PwC, in fact, forecasts 2007 production levels being attained again as soon as 2011. This may be too optimistic, but it does suggest that the crisis besetting the industry is short to medium term in duration, rather than systemic. The year-on-year production trend data presented in Figure 2 displays the expected

[2] This is based on an average production price for each vehicle produced of $12,000 (roughly R120,000 at the beginning of 2009). Including the aftermarket for service parts and vehicle accessories, the total value of vehicle and vehicle-related production would be in the region of $1.2 trillion.

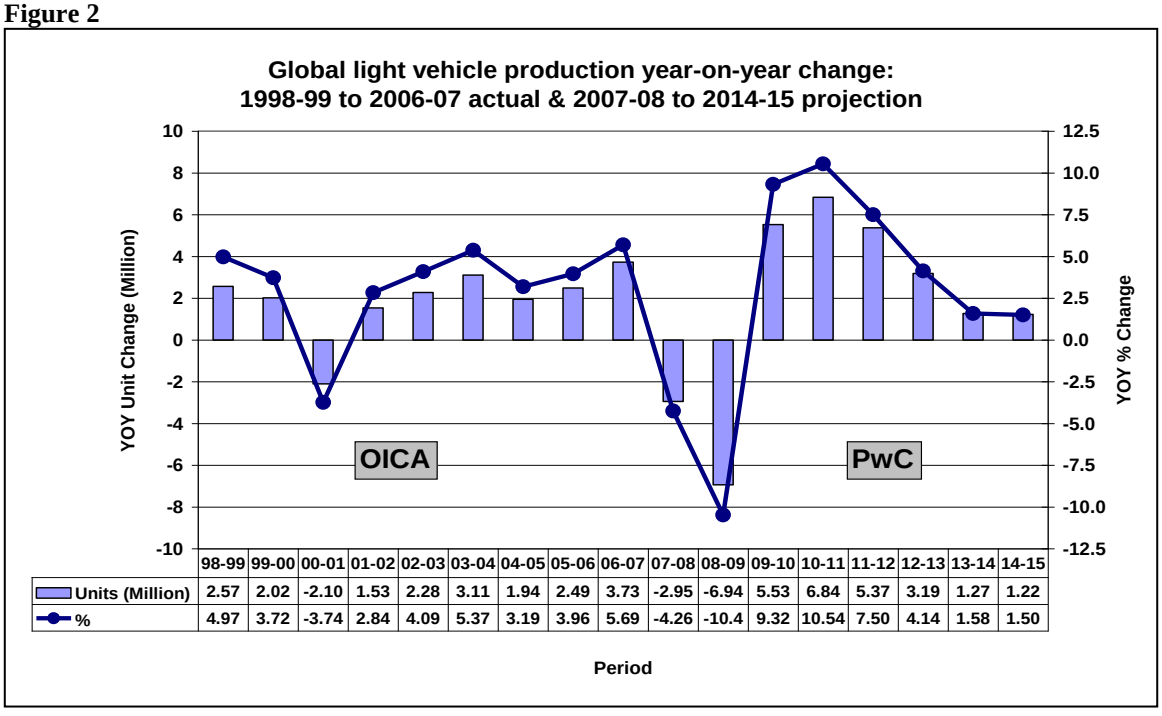
recovery in production through to 2015 and, as revealed, reasonably robust global production growth is expected once the GCC has been resolved.

Figure 1



Source: OICA – Production Statistics (1998 – 2007)
PwC – AUTOFACTS Global Light Vehicle Assembly Outlook 2009 Q1 Release (Updated January 8, 2009)

Figure 2

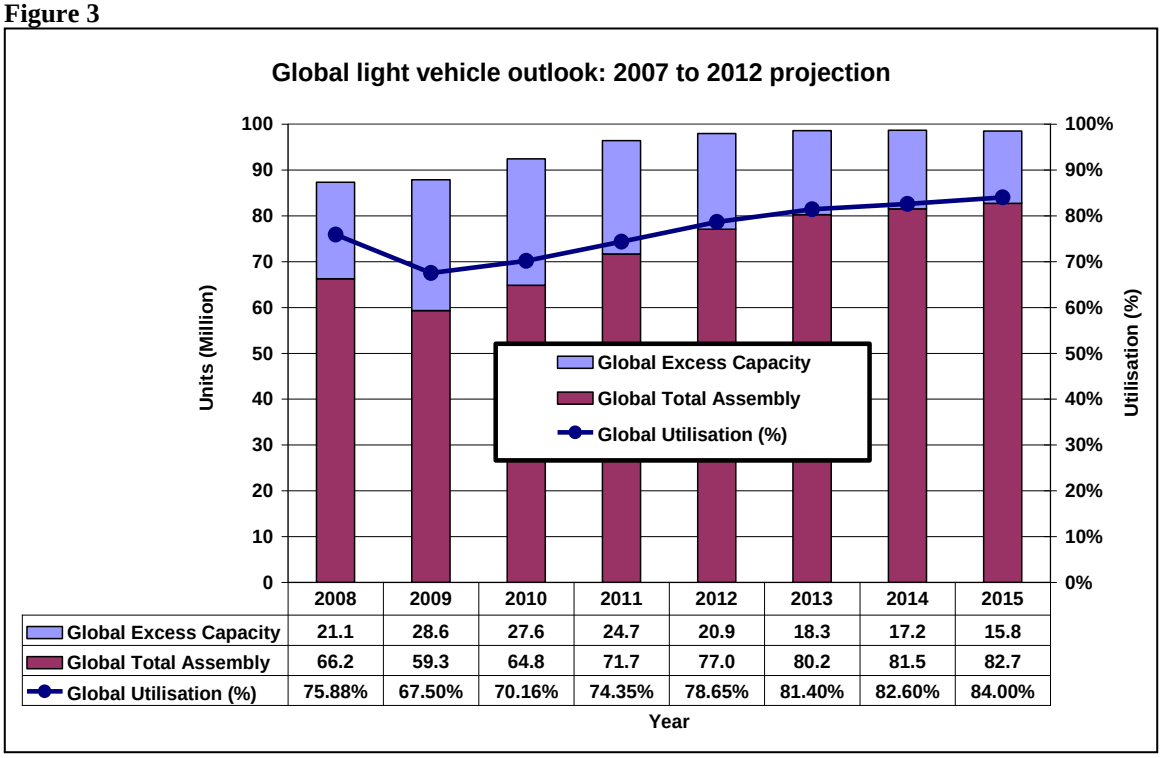


Source: OICA – Production Statistics (1998 – 2007)
PwC – AUTOFACTS Global Light Vehicle Assembly Outlook 2009 Q1 Release (Updated January 8, 2009)

Whilst the industry's production aggregates are impressive, it is important to note that vehicle production capacity has substantially exceeded global vehicle demand throughout

the last few years, with this 'over-capacity' placing severe financial pressure on the multinationals that dominate the industry. The GCC has obviously exacerbated the industry position in this regard. As revealed in Figure 3, global excess production capacity is expected to reach 28.6 million vehicles in 2009, up from 21.1 million in 2008. Whilst this is projected to abate from 2010, production over-capacity of 16.0% is still forecast for 2015. The extent of this overcapacity is illustrated by considering it in relation to South Africa's total vehicle production in 2007 of 474,000 units: In effect, over 60 South African vehicle industries could disappear tomorrow and there would still be sufficient vehicle production globally to meet global market demand!

Figure 3



	2008	2009	2010	2011	2012	2013	2014	2015
Global Excess Capacity	21.1	28.6	27.6	24.7	20.9	18.3	17.2	15.8
Global Total Assembly	66.2	59.3	64.8	71.7	77.0	80.2	81.5	82.7
Global Utilisation (%)	75.88%	67.50%	70.16%	74.35%	78.65%	81.40%	82.60%	84.00%

Source: PwC – AUTOFACTS Global Automotive Outlook, 2009 Q1 Release

2.2. Major vehicle assembler performance trends

The disparity in vehicle demand relative to vehicle production capacity has substantially undermined the financial returns of the multinational corporations (MNCs) that dominate the automotive industry globally, both in terms of vehicle assembly and component manufacture. This is clearly revealed in Table 1, which reviews the performance of the world's major vehicle assemblers for their financial periods ending in 2005 through 2008. As revealed in Table 1, the average net profitability of the world's 15 major vehicle assemblers (who manufacture more than 90% of all vehicles assembled globally – either directly or through joint ventures with nationally owned companies in countries such as China) was only 1.8% in 2008, down from 2.6% in 2006, but above 2005 levels of 1.5%. Whilst none of the major vehicle assemblers have announced their 2009 Financial Year (FY) end performance figures yet, profit warnings that have been released by almost every one of these 15 assemblers over the last few months. This, combined with the substantial bailout packages being negotiated with their respective national governments, suggests that the industry will move to a very large net loss position in 2009 and 2010, with certain firms likely to record losses

exceeding 10% of their sales in both years. For those vehicle assemblers that have been struggling to maintain their output levels over the last few years in the face of global competition, whilst also struggling to generate a reasonable level of profitability, the GCC will prove particularly dire.

Table 1: Financial review of the world's 15 major vehicle assemblers (Financial Year ending 2005-2008) [3]

Indicator	2005	2006	2007	2008
Average net profitability level (before tax) as a % of sales	1.50%	2.57%	2.31%	1.77%
Median net profitability level (before tax) as a % of sales	2.56%	2.40%	2.27%	3.51%
Lower quartile profitability level	1.58%	1.42%	1.18%	1.83%
Upper quartile profitability level	5.32%	5.15%	4.85%	4.73%
Number making more than 5% net profit	5/15	4/15	4/15	3/15
Number making less than 5% net profit, but still profitable	8/15	9/15	9/15	10/15
Number making net losses	2/15	2/15	2/15	2/15

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

The vehicle assemblers most vulnerable to the GCC are identified in Table 2, Table 3 and Table 4. Table 2 indicates the turnover performance of the world's leading vehicle assemblers and, as revealed, only Toyota, Volkswagen, Honda, BMW, Hyundai and Suzuki have experienced consistent turnover growth. A number of vehicle assemblers have, in fact, experienced recent contractions, with General Motors' turnover contracting in 2008, Ford and Mitsubishi in 2007, and General Motors, Peugeot, Fiat and Mitsubishi in 2006.

Table 2: Major global vehicle assembler turnover summary (2006 to 2008) [4]

Assembler	2005-6 % Change	2006-7 % Change	2007-8 % Change	2008 Revenue (US$m)
Toyota	11.17	6.68	27.97	$262,394
General Motors	(0.47)	7.66	(12.65)	$181,122
Ford	3.17	(9.58)	7.70	$172,455
Volkswagen	6.58	12.20	13.54	$150,247
Daimler	–	–	–	$137,142
Honda	12.29	4.86	11.62	$105,961
Nissan	7.78	3.85	6.81	$95,556
Peugeot	(0.18)	2.51	17.12	$83,629
Fiat	(0.81)	13.50	23.48	$80,753
BMW	4.74	7.99	23.91	$77,289
Hyundai	13.70	18.22	6.97	$74,186
Renault	1.05	2.39	7.12	$56,130
Mazda	6.19	4.22	25.00	$34,758
Suzuki	6.14	14.63	30.44	$34,958
Mitsubishi	(2.08)	(2.63)	+25.54	$23,678

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

[3] This data relates to General Motors, Toyota, DaimlerChrysler (2005 – 2007)), Daimler (2008), Ford, Volkswagen, Honda, Nissan, Peugeot, Hyundai, Fiat, BMW, Renault, Mazda, Suzuki, and Mitsubishi. The specific months in which each of the vehicle assemblers' financial years end, do however differ.
[4] Note that wherever parentheses are use in tables, negative values are indicated.

When considering the performance of the world's major vehicle assemblers by the number of vehicles produced (Table 3), it is clear that Toyota, Volkswagen, Honda, Hyundai and Suzuki have been the strongest performers, with consistent output growth over the three year period from 2004 to 2007. Every other vehicle assembler experienced at least one year of declining output in the period, with Ford experiencing output contractions in every one of the three years.

Table 3: Global vehicle production performance by vehicle assembler

Company	2004-5 Change	2005-6 Change	2006-7 Change	2007 Production
Toyota	7.27%	9.17%	3.00%	9,497,754
General Motors	1.48%	(1.89%)	4.75%	9,349,818
Ford	(4.94%)	(3.53%)	(0.33%)	6,247,506
Volkswagen	2.27%	9.11%	10.34%	6,346,222
DaimlerChrysler	4.06%	(4.70%)	–	–
Daimler	–	–	2.57%	2,096,977
Chrysler	–	–	(0.23%)	2,538,624
Honda	6.14%	6.79%	6.60%	3,911,814
Nissan	9.53%	(7.75%)	6.45%	3,431,398
Peugeot	(0.88%)	(0.55%)	2.99%	3,457,385
Fiat	(3.87%)	13.74%	15.61%	2,679,451
BMW	5.82%	(8.78%)	12.78%	1,541,503
Hyundai	11.74%	24.35%	3.73%	3,987,055
Renault	5.87%	(4.75%)	7.08%	2,669,040
Mazda	0.98%	8.45%	(7.85%)	1,286,730
Suzuki	4.80%	10.89%	13.02%	2,596,316
Mitsubishi	(6.83%)	(1.33%)	7.50%	1,411,975

Source: OICA – Production Statistics (2004 – 2007)

The impact of production volume reductions, and the inability of many of the vehicle assemblers to consistently grow their turnover, is presented in Table 4. As unpacked, only Toyota, Honda, Nissan, BMW and Renault have consistently made reasonable net profit levels in recent years, with only Toyota, Honda and Renault generating net profit equal to, or greater than, 5% of their sales in each of their financial years ending 2004 to 2008[5]. Many vehicle assemblers could in fact be accused of destroying wealth, with General Motors, Ford and Mitsubishi effectively making aggregated losses over the four year period. It is however interesting to note here that Ford is the only US-owned vehicle assembler that has not requested financial support from the US-government since the advent of the GCC. Both General Motors and Chrysler have received over US$19 billion and US$7 billion from the US Federal government, respectively, since the last quarter in 2008, to ensure their short-term survival. And yet Ford has indicated it is capable of survival; on the back of the cash it has generated through its consistent downsizing over the last few years.

The extent and depth of the GCC is revealed when considering that even Toyota (the strongest performing vehicle assembler from 2005 to 2008) has recently forecast an operating loss for its global operations for its 2008-9 Financial Year end (although the

[5] Net profit of 5% is widely considered to be the level at which vehicle assemblers are generating a sufficient level of profitability.

company will still achieve a positive net profit position because of its sizeable investment portfolio, and the interest it earns on its large cash reserves, which exceeded $100 billion at the start of the GCC). What is important to note is that this will be Toyota's first operating loss in over five decades! Based on the comparatively strong financial performance of Toyota relative to other vehicle assemblers it is clear that, if Toyota is moving into a loss-making position during the GCC (and beginning to use its cash reserves), then so is every other vehicle assembler. Given the size and global operational scale of the individual vehicle assemblers, as well as their financial vulnerability prior to the advent of global market turmoil from the 3rd quarter of 2008, it is clear that the GCC is going to fundamentally re-shape the global automotive industry over the next couple of years.

Table 4: Global vehicle assembler net profitability levels, expressed as a % of sales

Company	2005	2006	2007	2008
Toyota	6.31%	6.52%	6.86%	6.53%
General Motors	1.45%	(5.49%)	(0.95%)	(21.38%)
Ford	2.03%	1.14%	(7.88%)	(1.58%)
Volkswagen	0.81%	1.18%	2.62%	3.78%
DaimlerChrysler	1.74%	1.65%	2.13%	–
Daimler	–	–	–	4.01%
Honda	5.62%	6.03%	5.29%	5.00%
Nissan	5.97%	5.50%	4.41%	4.45%
Peugeot	3.06%	1.76%	0.12%	1.36%
Fiat	(3.40%)	3.05%	2.22%	3.51%
BMW	5.01%	4.80%	5.81%	5.59%
Hyundai	3.09%	3.91%	1.95%	2.30%
Renault	8.89%	8.14%	7.09%	6.72%
Mazda	1.70%	2.29%	2.27%	2.64%
Suzuki	2.56%	2.40%	2.37%	2.29%
Mitsubishi	(22.37%)	(4.35%)	0.40%	1.29%

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

2.3. Major automotive component manufacturer performance trends

The extent of the pressure that vehicle assemblers are under is made even more explicit when considering the performance of the major automotive component manufacturers supplying them. As the quintessential producer value chain, where a lead manufacturer (the vehicle assembler) governs and manages every facet of the supply chain, Table 5 reveals that the world's major component manufacturers have been severely squeezed by their vehicle assembler customers. In fact, performance among the component manufacturers is fundamentally weaker than evident amongst the weakest vehicle assemblers. Almost one-quarter of the world's largest component manufacturers made a net loss in their 2008 financial year, with even the stronger performing firms struggling to make more than a 5% net profit.

Table 5: Financial review of the world's major component manufacturers[6] (FY ending 2005-2008)

Indicator	2005	2006	2007	2008[7]
Average net profitability level (before tax) as a % of sales	1.01%	0.53%	1.91%	1.11% (3.36%)
Median profitability level (before tax) as a % of sales	2.68%	2.73%	3.12%	2.09%
Lower quartile profitability level	0.46%	(1.58%)	0.78%	0.31%
Upper quartile profitability level	4.98%	3.86%	4.85%	4.02%
Number making more than 5% net profit	5/20	4/20	5/20	4/17
Number making less than 5% net profit, but still profitable	10/20	10/20	11/20	9/17
Number making net losses	5/20	6/20	4/20	4/17

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

The performance of the individual major component firms is further unpacked in Table 6 and Table 7. As revealed, the larger component manufacturers rival the size of the smaller vehicle assemblers, with Robert Bosch (of Germany), Johnson Controls (US) and Denso (Japan) all larger than Mitsubishi in respect of turnover. Robert Bosch is particularly large, at over $68 billion of turnover, although an important portion of this is outside of direct supply to vehicle assemblers, either into the vehicle aftermarket, or outside of the automotive industry altogether.

Table 6: Global supplier turnover performance summary (2005 to 2007)

Company	2005-6 % Change	2006-7 % Change	2007 Revenue (US$ m)
Robert Bosch	17.45	18.29	$68,225
Johnson Controls	17.31	7.41	$34,624
Denso	4.14	12.26	$30,591
Delphi	(2.81)	(2.00)	$22,283
Bridgestone	10.17	18.26	$29,700
Magna	6.00	7.80	$26,067
Aisin Seiki	14.79	18.94	$21,191
Michelin	17.15	14.85	$24,843
Sumitomo	24.72	20.24	$26,078
Continental	19.93	24.54	$24,479
Goodyear	(4.93)	4.76	$19,644
Lear	4.39	(10.34)	$15,995

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

[6] For Robert Bosch (2005-07), Johnson Controls, Denso, Delphi, Bridgestone, Magna, Aisin Seiki, Michelin, Sumitomo, Continental, Goodyear, Lear, Toyota Industries, ZF (2005-07), Faurecia, TRW, Valeo, Eaton, Visteon, and Dana (2005-07). Financial year-ends may differ with 2008 results for certain of the component manufacturers based on January-June or January-September 2008 results.

[7] The 2008 figures are skewed by increased net income for Delphi which reflects the non-recurring gains related to the GM settlements of $5.7 billion. Excluding the impact of the GM settlement gains, the nine months ended 30 September 2008 would have resulted in a net loss of $1.6 billion for Delphi versus a net income of $4.1 billion. This brings the global supplier average net profit down to only 1.11%.

A comparison of the major component manufacturers' turnover and recent growth (see Table 6) relative to their net profitability (see Table 7) reveals that strong sales growth has not always been correlated with strong financial returns. Johnson Controls, the world's second largest component manufacturer has, for example, struggled to generate net profits greater than 3.5% since 2005. In fact, only four major component firms have generated consistently healthy financial returns: Robert Bosch, Denso, Michelin (France), Sumitomo (Japan), and, until 2008, Continental (Germany). None of the large-scale US or Canadian-owned component manufacturer multinationals have been able to generate reasonable margins. This applies to Johnson Controls, Delphi[8] (the world's largest component manufacturer in the late 1990s), Magna (Canada), and Lear Corporation, revealing the close performance ties between the US, European and Japanese automotive supply chains that link what are ostensibly multinationals.

Given the dire performance of the vehicle assemblers since the advent of the GCC, and the exposure of the component manufacturers to these same sets of pressures (perhaps even more directly given the greater scale sensitivity of component manufacturers relative to vehicle assemblers), it is almost guaranteed that every major component manufacturer will make a financial loss in 2009. The only exceptions may relate to the tyre manufacturers (because of the life cycle, and hence replacement nature, of their product), and Robert Bosch, which has substantial revenue sources outside of the automotive industry, as well as access to proprietary technologies that enable it to charge a premium for its products in certain automotive sub-sectors.

Table 7: Global supplier net profitability levels (2005 to 2008 FY ends)

Company	2005	2006	2007	2008
Robert Bosch	5.91%	4.97%	6.15%	–
Johnson Controls	3.31%	3.19%	3.62%	2.57%
Denso	4.74%	5.32%	5.68%	6.07%
Delphi	(10.08%)	(24.03%)	(13.75%)	27.44%
Bridgestone	6.72%	2.85%	3.88%	0.31%
Magna	2.80%	2.18%	2.54%	1.16%
Aisin Seiki	2.55%	2.88%	2.81%	3.39%
Michelin	5.70%	3.50%	4.58%	5.22%
Sumitomo	4.15%	6.21%	6.86%	6.51%
Continental	6.88%	6.75%	6.32%	2.09%
Goodyear	1.16%	(1.76%)	3.06%	1.65%
Lear	(8.08%)	(3.97%)	1.51%	(0.02%)

Source: PwC – Global Automotive Financial Review – August 2006, October 2007
PwC – Will You Handle the Curve? Global Automotive Perspectives 2008
Various Annual Reports

The poor financial performance of the world's leading automotive component manufacturers has perplexed academics, particularly those that had forecast that their importance to vehicle assemblers would increase as they grew in scale, thereby enabling them to demand better prices and service contracts. This would, over time, ramp up their financial returns, and give them added leverage over the vehicle assemblers. Yet, the reality could not be

[8] Delphi was the component manufacturing division of General Motors. It was the largest component manufacturer globally when separated from General Motors in the late 1990s.

further from this expectation. As the major component manufacturers have grown they have become even more vulnerable to the vehicle assemblers' volume shifts and pricing demands, as well as the vehicle assemblers' product innovation requirements, which have substantially increased Research and Development (R&D) expenditure. Most major component manufacturers have therefore generally experienced deteriorating financial performance trends as they have grown. A key reason appears to be the nature of the activities many of the large component manufacturers complete for vehicle assemblers – namely sub-assembly work, where they effectively take responsibility for assembling certain modules prior to final assembly at the vehicle assemblers. The component manufacturers focusing on these activities have secured substantial new business; although without having any proprietary ownership of the core technologies being employed, they are progressively squeezed by the vehicle assemblers on price – to the point where securing any margin is made almost impossible.

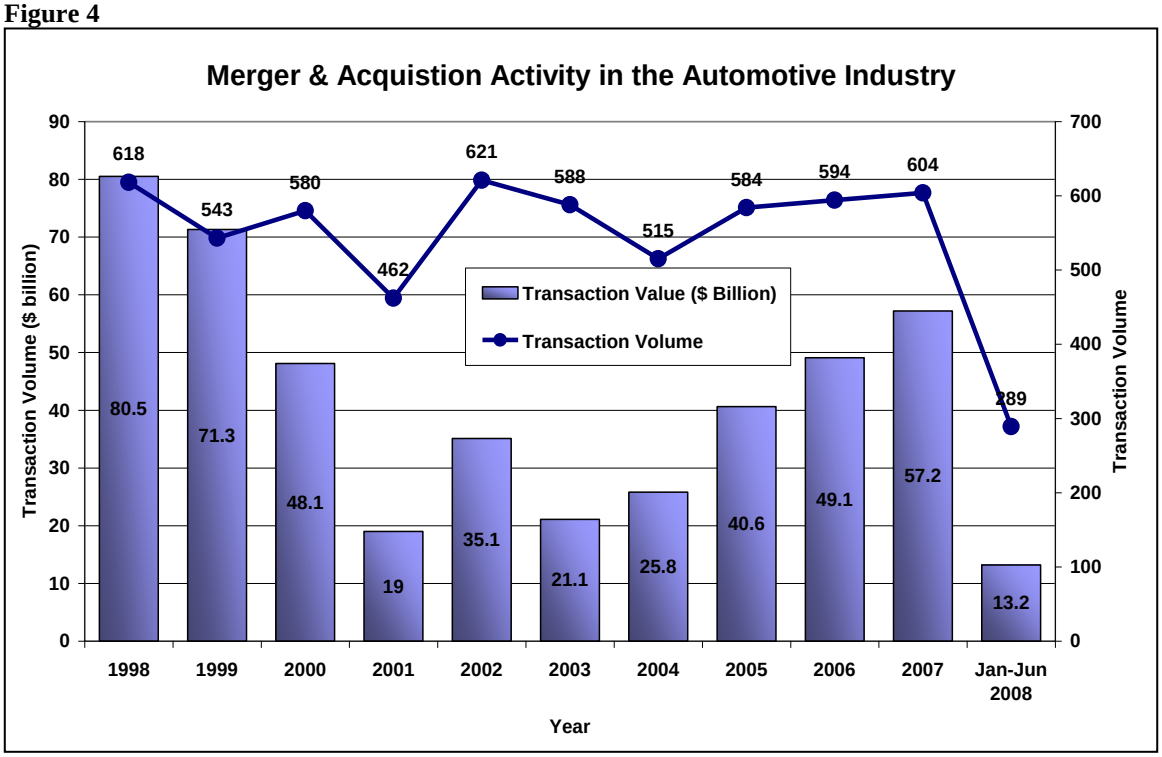
The US-owned vehicle assemblers have been particularly adept at squeezing their suppliers' margins, unfortunately to the detriment of both parties in the value chain – and ultimately the customer purchasing their products, as product quality slips in the face of pricing pressures. It should be no surprise, then, that the most stable major automotive component manufacturers globally either (a) supply Toyota and Honda, who operate long-term, developmental supplier business models (including the use of techniques such as open-book costing, where margins are shared through the value chain), or (b) have intellectual property ownership of key technologies, which vehicle assemblers pay a premium to access[9]. For the majority of component manufacturers, supply into the global automotive industry is therefore extremely difficult, with margins and returns on investment (ROIs) generally poor, and vulnerable to short-term shifts.

2.4. Mergers and acquisitions (M&As)

The financial pressures being faced in the global automotive industry have led to a consistent trend of mergers and acquisitions, as both vehicle assemblers and component manufacturers search for the ever-elusive scale economies that ostensibly generate margin: the automotive industry is a mature industry, where the securing of reasonable returns is extremely difficult to achieve (as revealed above). The extent of merger and acquisition activity in the global automotive industry since 1998 is presented in Figure 4. As revealed, whilst the number of major transactions has ranged from 462 to 618 per year over the last decade, the value of transactions has been increasing again since 2003. As such, the 2007 value of US$57.2 billion is once more approaching the peak transaction values evident in 1998 and 1999 (US$80.5 billion and US$71.3 billion respectively). Major recent M&As include the merger of Daimler and Chrysler in the late 1990s, the breakup of Daimler and Chrysler in 2006/7, and Renault's acquisition of Nissan at the turn of the millennium. Minor divestments have also been taking place, however, with General Motors selling equity in Isuzu and Suzuki, and Daimler in Mitsubishi. Most recently, and as a clear reflection of the troubles besetting the automotive industry, Fiat recently acquired a 35% stake in Chrysler for nothing, except an agreement to share their small vehicle technologies with the troubled American company.

[9] A perfect example of this is Robert Bosch, which holds patents on a wide range of component technologies.

Figure 4



Obtained from PwC – Will You Handle the Curve? Global Automotive Perspectives 2008

Source: Thomson Reuters and other publicly available sources

In respect of developing economy producers, the last decade has seen the emergence of a number of new vehicle assemblers at a global level. The most notable of these are Chinese (Shanghai Automotive Industries, Geely, Chana, Cherry, Grand Wall Motors, etc.), or Indian-owned (Tata and Mahindra). Apart from looking to establish export markets for their products, some of the above have also looked to expand their brand portfolios through the acquisition of under-performing divisions at established vehicle assemblers. Examples of this include Tata's recent purchase of Land Rover and Jaguar (from Ford), and Shanghai Automotive Industries' acquisition of Ssangyong (South Korea).

These vehicle assembly M&A examples are replicated in much larger numbers through the component manufacturer supply chain, with all of the larger multinationals involved in ongoing investments and divestments over the last few years.

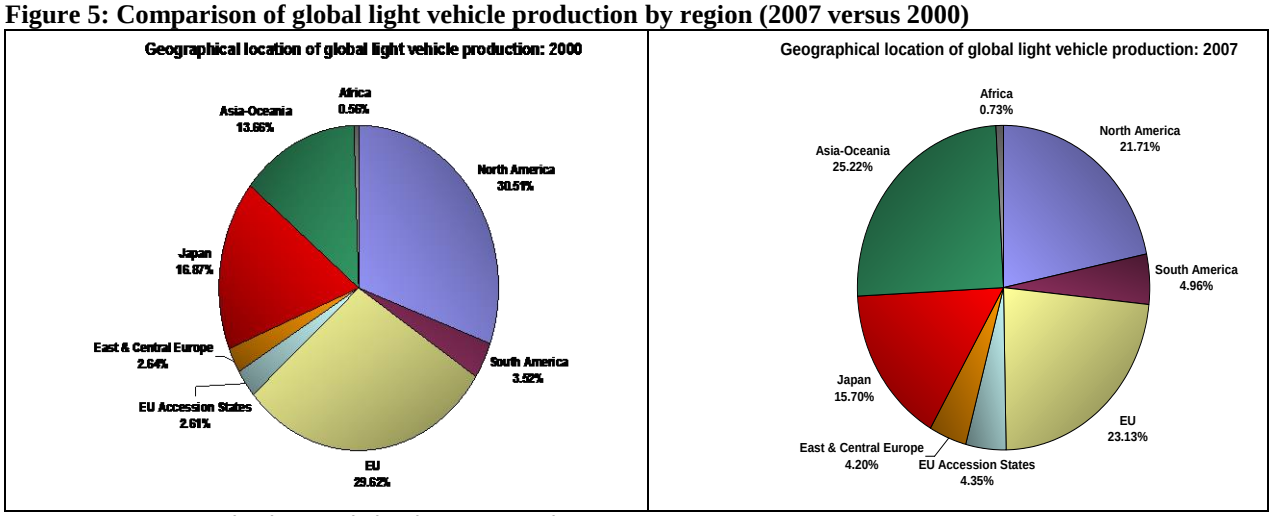
2.5. Geographical spread of production: Trends and forecasts

One of the key drivers of M&A activity, as well as one of the root-causes of the financial difficulties being experienced within the global automotive industry, is the changing global pattern of both vehicle demand and production. As revealed in Figure 5, multinational vehicle assemblers and component manufacturers have had to contend with a fundamental shift in global production, with North America, the European Union, and Japan, reducing their contribution to global output from 77% in 2000 to 61% in 2007. Concomitantly, Asian production has almost doubled its contribution over the period (from 13.7% to 25.2%), with notable gains also evident for South America (3.5-5.0%), the EU accession states[10] (2.6-4.4%), and East and Central Europe (2.6-4.2%). Africa remains unimportant globally, shifting

[10] Principally, Poland, Slovakia, the Czech Republic and Hungary.

its production contribution from 0.6% to 0.7% over the period (with this mainly driven by South Africa, as explored in Section 3).

Figure 5: Comparison of global light vehicle production by region (2007 versus 2000)

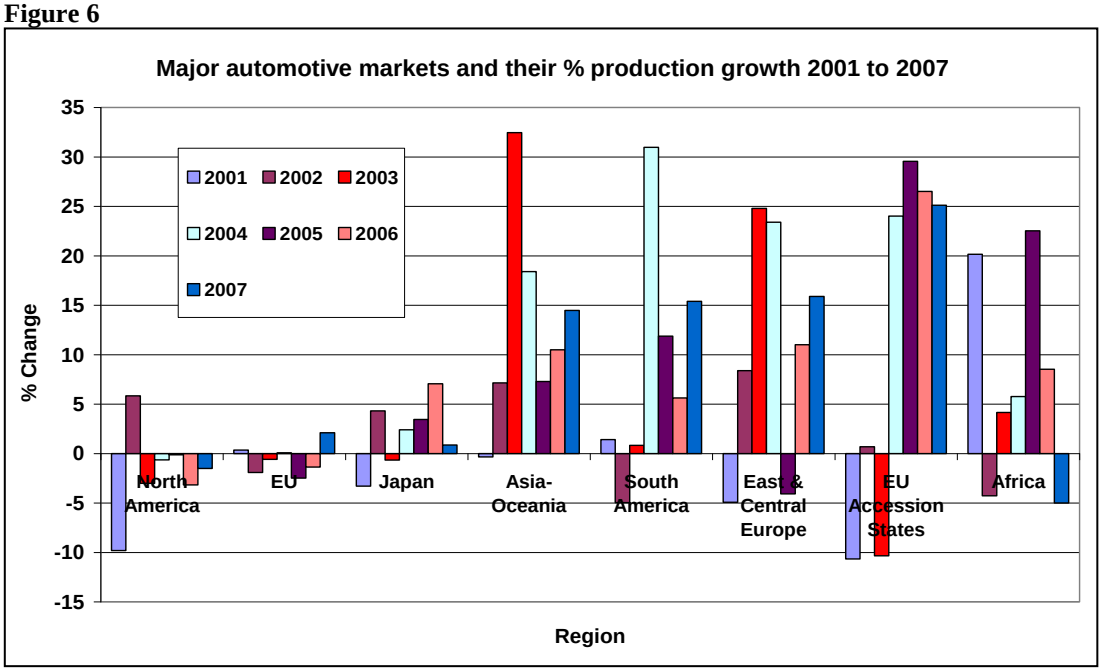


Source: OICA – Production Statistics (2000 – 2007)

The fundamental challenge relating to the shift in production for vehicle assemblers and component manufacturers alike is the speed at which they have had to shift their production capacity in markets experiencing declining demand, or rather no demand growth, to those markets where growth has burgeoned. Too many manufacturers have failed to sufficiently reduce their capacity in North America and the European Union (and to a lesser extent Japan), resulting in excess production capacity at a global level (see Figure 3), while new production capacity has been created in the developing world, and most notably Asia.

The extent of the global shift taking place is further unpacked in Figure 6, which reveals year-on-year production output changes by major automotive region. As highlighted, North America, the European Union and Japan have experienced either declining or very limited production growth since 2001, whilst Asian production has boomed. Other developing economy regions have also performed comparatively well relative to developed economies, although their performance has been far less consistent, with strong performance interspersed with years of declining output.

Figure 6

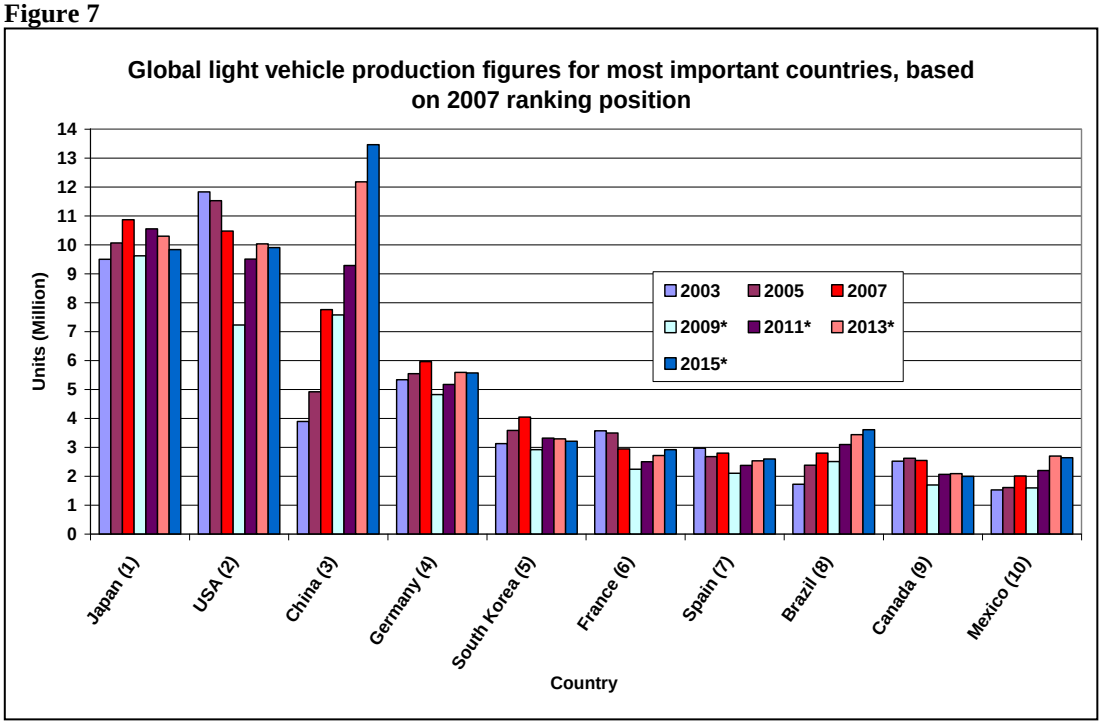


Source: OICA – Production Statistics (2000 – 2007)

When unpacking vehicle production according to individual countries from 2003 to 2007, as well as individual country production forecasts to 2015, notable changes are evident, with a number of important changes projected over the next six years. For example, China has grown its output significantly from 2003 to 2007, and is forecast to be the largest vehicle producing country globally by some margin in 2015, with over 13 million vehicles produced (see Figure 7). This will push the USA and Japan into 2nd and 3rd place respectively, at around 11 million units of production each. Interestingly, notwithstanding the collapse in USA production from 2007 to 2009, production is expected to rebound quite strongly by 2011. Both the USA and Japan are however forecast to produce fewer vehicles in 2015 than in 2007. The next six years are also forecast to be very difficult for Germany, South Korea, France, Spain and Canada – all of whom are projected to have lower vehicle production in 2015 relative to 2007. With the exception of China, the only other vehicle producers in the global top 10 that are expected to experience real production growth from 2007 to 2015 are Brazil and Mexico.

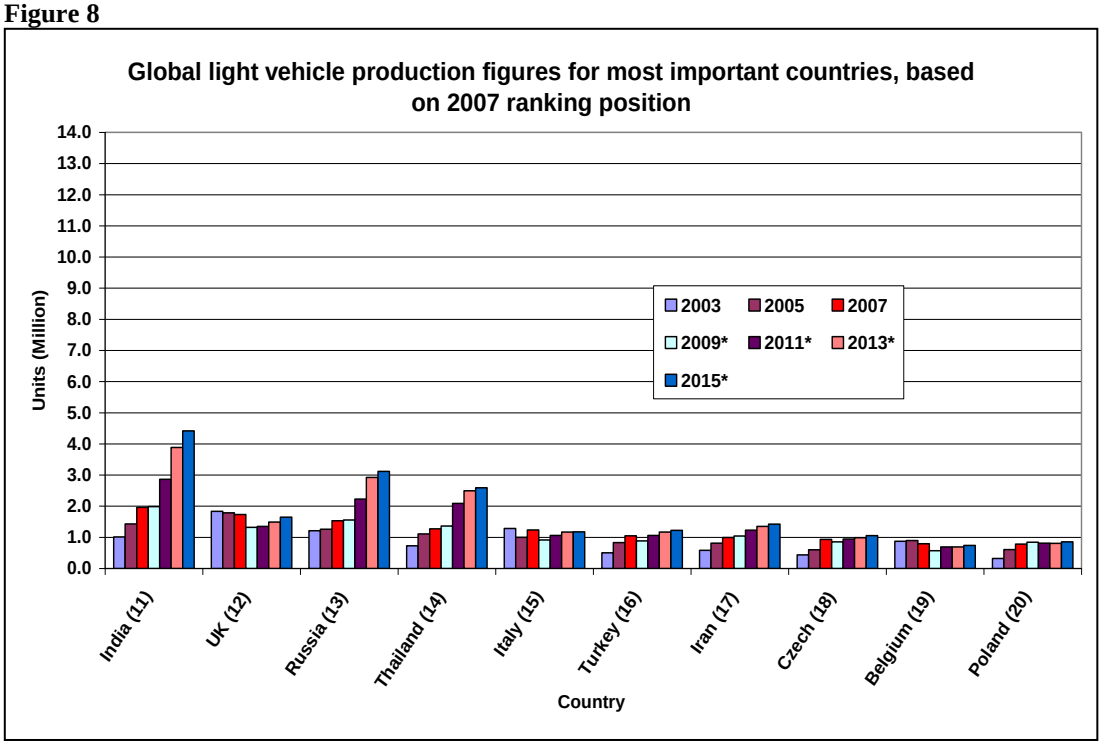
The next tier of vehicle producers, as presented in Figure 8, is expected to perform far more impressively than the present ten major producers. India, Russia and Thailand are forecast to substantially grow their vehicle production to 2015. India is forecast to reach nearly 4.5 million units of production (catapulting it to the world's 5th largest producer), Russia over 3 million units, and Thailand 2.5 million units. For the other countries amongst the top 20 producers there is again a clear split between developing and developed economies, with the UK, Italy, Belgium, the Czech Republic and Poland forecast to reduce, or only maintain production, and Turkey and Iran to continue growing, albeit at relatively slow rates.

Figure 7



Source: OICA – Production Statistics (1998 – 2007)
PwC – AUTOFACTS, Global Light Vehicle Assembly Outlook 2009, Q1 Release (Updated08/01/09)

Figure 8



Source: OICA – Production Statistics (1998 – 2007)
PwC – AUTOFACTS Global Light Vehicle Assembly Outlook 2009 Q1 Release (Updated 08/01/09)

Whilst the medium term global trends unpacked above are critical to understand insofar as they are likely to be the main drivers shaping the opportunities and threats facing the South African (and KwaZulu-Natal) automotive assembly and components industries over the next decade, it is also necessary to reflect on the short term impact of the GCC on the

international automotive industry. This is clearly highlighted in Table 8, which considers the change in light vehicle sales for the full years 2007 and 2008, as well as monthly sales in December 2007 relative to December 2008. As indicated, global sales 'only' contracted 4.4% when considering year-on-year trends, but a far more severe 17.9% when comparing the December-specific figures. The magnitude of the global market crash late in 2008 is therefore very evident.

Even high growth countries, such as China, which experienced annual growth of 6.8% in 2008, experienced a contraction of 8.9% in December 2008 (relative to December 2007). No country or region has therefore escaped the severe downturn in the global automotive industry since the 2nd quarter of 2008, including South Africa, which experienced a substantial reduction in light vehicle sales throughout 2008. It is the extent and pervasiveness of the global contraction in late 2008 (which has continued into 2009) that has crippled so many vehicle assemblers and component manufacturers, particularly those that were only securing limited returns prior to the advent of the crisis – hence the desperate requests for financial support to governments from both European and North American vehicle assemblers.

Table 8: Global and major regional light vehicle sales for the full calendar years 2007 to 2008, and also December 2007 versus December 2008

	Dec 2007	Dec 2008	Change	2007	2008	Change
World	5,532,586	4,541,563	(17.91%)	66,702,585	63,739,690	(4.44%)
North America	1,630,770	1,086,214	(35.79%)	18,855,299	15,857,792	(18.05%)
Western Europe	1,184,737	952,468	(19.61%)	16,854,709	15,386,170	(8.71%)
China	775,099	706,099	(8.90%)	8077559	8,627,739	6.81%
Japan	357,807	300,193	(16.10%)	5,210,490	4,980,263	(4.42%)
Other Europe	486,206	407,061	(16.28%)	4,495,519	4,849,608	7.88%
Mercosur	259,273	212,030	(18.22%)	3,028,215	3,459,182	14.23%
Korea	114,576	86,937	(24.12%)	1,219,726	1,169,404	(4.13%)
South Africa	39,274	29,099	(25.91%)	639,039	498,663	(21.97%)

Source: J.D. Power and Associates – Global & China Monthly Sales Report (December 2008)
NAAMSA

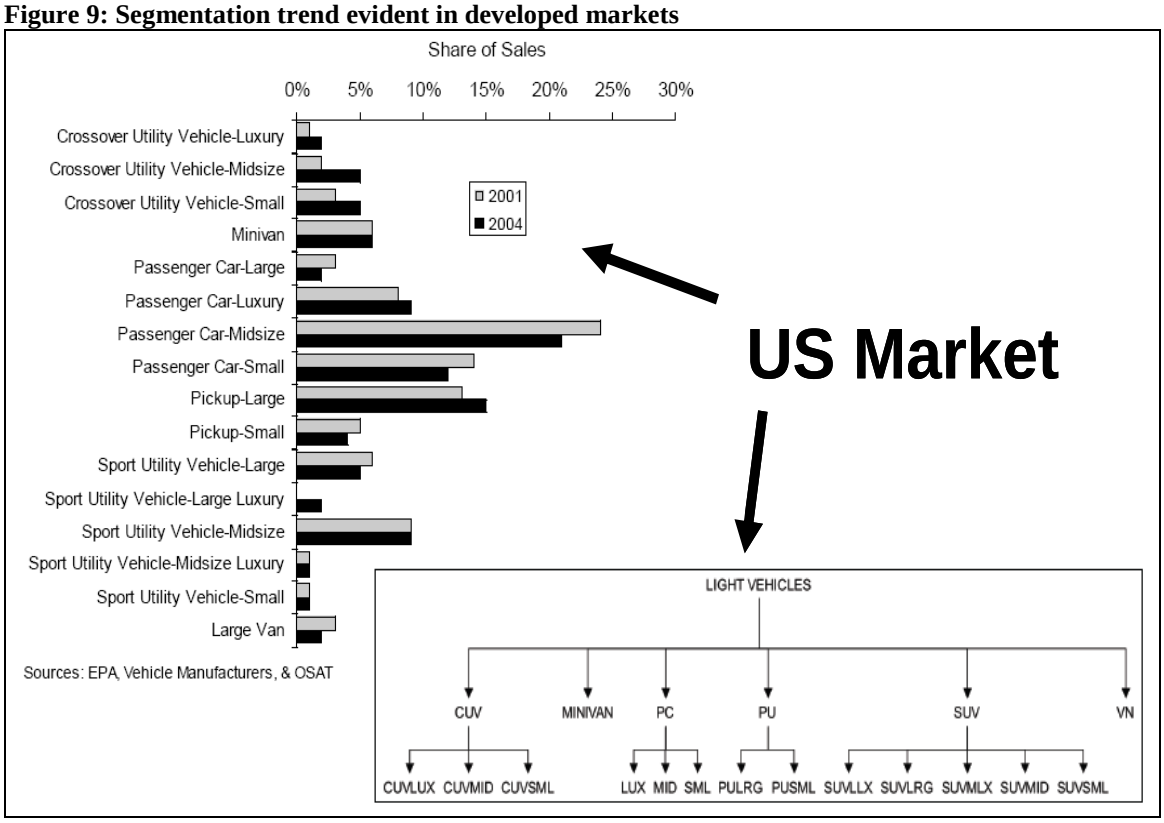
2.6. Major global market trends

The global light vehicle market is experiencing a number of fundamental structural changes, driven primarily by changing consumer demand, environmental considerations tied to the rising cost of fossil fuels (petrol and diesel), and conformance in respect of ongoing changes to the legislation regarding emission standards in various major economies.

The first of these major market trends is unpacked in Figure 9. Focusing on the US market, which until January 2009 was the world's largest, it shows growth in a number of new vehicle market segments (e.g. crossover vehicles and luxury Sports Utility Vehicles [SUVs]) since 2001, with major existing market segments such as mid-size passenger cars experiencing severe contractions. This relates to a market segmentation trend evident in all major developed economies, where consumers have become more demanding in terms of vehicle purchases that best reflect their 'values and lifestyle choices'. Hence, the vehicle assemblers' response by manufacturing a plethora of models in much smaller volumes than

in previous decades – as a means to countering their declining vehicle sales in established market segments. The vehicle assemblers have attempted to deal with the cost-raising impact of this market trend by building a number of apparently different models off common 'platforms' (common underlying power-train and drive-train technologies)[11], but have nevertheless struggled to adapt to the operational demands imposed by manufacturing a wider range of products to secure the same/lower levels of output.

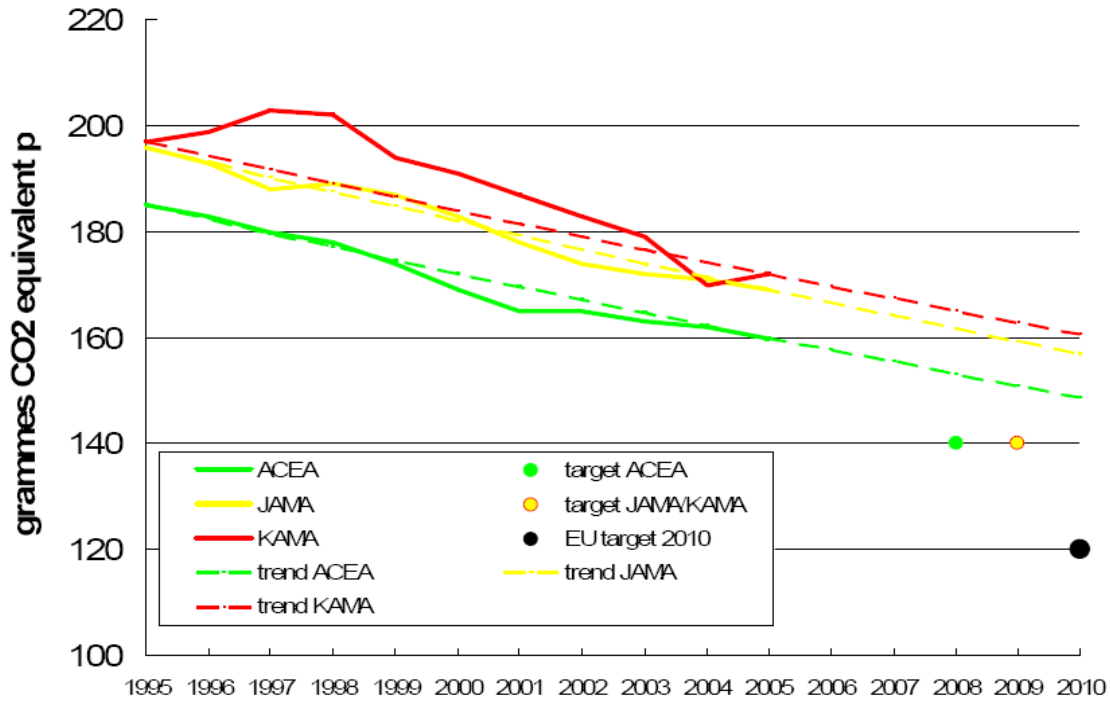
Figure 9: Segmentation trend evident in developed markets



At the same time as adjusting to more discerning market requirements (especially in developed economies), vehicle assemblers have been legislatively compelled to reduce the carbon dioxide output levels of every vehicle they assemble and put on a road. As highlighted in Figure 10, severe 2010 targets have been put in place for vehicle assemblers in Japan, South Korea and the European Union. As shown, firms are struggling to achieve the targets being set, and need to substantially further reduce their CO^2 output levels to achieve their commitments.

[11] For example, Volkswagen builds its VW Golf, VW Jetta, VW Touran, Seat Leon, Audi A3, Audi S3, Audi TT Coupe, VW Beetle, and Skoda Octavia models off a common technology platform. Other vehicle assemblers similarly assemble a range of models off a common platform, e.g. Toyota Corolla/Verso/Auris, Ford Mondeo/Volvo S4.

Figure 10: Car manufacturing association CO^2 commitment



- ACEA (European Automobile Manufacturers Association) includes BMW AG, Daimler-Benz AG, Fiat Auto S.p.A., Ford of Europe Inc, General Motors Europe AG, F. Porsche AG, PSA Peugot Citroën, Renault SA, Rover & Volkswagen AG
- JAMA (Japan Automobile Manufacturers Association) includes Daihatsu, Fuji Heavy Industries (Subaru), Honda, Isuzu, Mazda, Nissan, Mitsubishi, Suzuki and Toyota
- KAMA (Korean Automobile Manufacturers Association) includes Hyundai Motor Company, and Kia Motor Corporation

Source: European Federation for Transport & Environment

The direct implication of vehicle assemblers attempting to achieve the CO^2 targets being set for them by their regional and/or national governments is presented in Table 9 and Table 10. Table 9 shows the projected profile of engine types manufactured in 2015 which reflect continued, significant growth in hybrid and electrically powered vehicles (albeit off a small base), with exclusively diesel and petrol powered vehicles growing far less impressively, particularly from 2012. Table 10 reveals that disproportionate manufacturing growth will also be experienced in the engine displacement range from 661 to 1,600 cubic centimeters (cc), as opposed to larger engine sizes, for both hybrids and conventionally powered vehicles.

Table 9: Projected profile of vehicles manufactured by engine type to 2015

Engine Type/Fuel Type	2009	2012	2015	2009-12 % Change	2012-15 % Change
Combustion/Diesel	13,065,672	16,774,061	18,434,901	28.38%	9.90%
Combustion/Petrol	45,382,635	57,914,655	61,159,150	27.61%	5.60%
Hybrid/Diesel	4,333	156,776	249,794	3,518.19%	59.33%
Hybrid/Petrol	849,118	2,115,968	2,681,535	149.20%	26.73%
Electric	6,867	82,112	144,705	1,095.75%	76.23%

Source: PwC – AUTOFACTS Global Automotive Outlook, 2009 Q1 Release

Table 10: Projected profile of vehicles manufactured by engine displacement to 2015

Engine displacement range	2009	2012	2015	2009-12 % Change	2012-15 % Change
1-660cc	2,033,321	2,609,178	2,612,466	+28.32%	+0.13%
661-1000cc	3,504,618	6,103,207	7,085,951	+74.15%	+16.10%
1001-1600cc	20,848,340	27,402,437	30,164,940	+31.44%	+10.08%
1601-2000cc	13,157,224	16,037,286	17,216,473	+21.89%	+7.35%
2001-3000cc	12,026,974	15,172,540	15,857,992	+26.15%	+4.52%
3001-4000cc	5,067,804	6,611,167	6,776,677	+30.45%	+2.50%
4001-9999cc	2,655,518	2,975,851	2,743,821	+12.06%	(7.80%)
Electric	14,826	131,906	211,765	+789.69%	+60.54%

Source: PwC – AUTOFACTS Global Automotive Outlook, 2009 Q1 Release

By 2015, the shape of vehicle production will therefore be fundamentally different from present, with smaller engine displacement vehicles increasingly dominating, at the same time as alternatively powered vehicles gain a foothold in the market place (especially hybrids), particularly from 2012.

In summary, the global automotive industry is undergoing a pronounced transformation. Market pressures have been severe for a period of time, whilst the GCC has dramatically reduced demand, exposing the vulnerable state of many of the multinational vehicle assemblers and their major component manufacturers. This pressure will almost certainly have been transferred to 2nd and 3rd tier suppliers in developed and developing economies alike, with the next few months likely to be the most difficult in the history of the industry. A number of major firms turning over tens of billions of dollars will either exit the industry over the next 12 months, or fundamentally restructure their operations. The most likely candidates in this regard are General Motors, Chrysler and Ford, as well as Mitsubishi. Forecasts suggest that demand for vehicles will return in the near future, although 2007 output levels will not be breached until 2015, with certain major economies not even achieving this feat. Global production overcapacity will therefore remain, placing massive financial pressure on vehicle assemblers and component manufacturers over the next few years as they attempt to 'right size' themselves, while contending with fragmenting developed economy markets (that encourage diseconomies of scale), new environmental demands, and the emergence of new competitors, principally from China and India.

The changing nature of both vehicle production and consumption has led to a number of analyses of how the industry is likely to evolve over the next few years, with the most prominent of these being Sturgeon and Florida (1999), who categorise global production into five vehicle automotive spaces, four of which they deem viable and one non-viable:

- **Developed, mature economies:** Economies that are high cost to produce in, but where market demand is high in aggregate terms, where high levels of efficiency and technology deployment are evident, and where market access is guaranteed by producing in the economy in which consumption takes place. This categorization includes all of the world's established vehicle manufacturing regions – North America, the European Union and Japan.

- **Protected autonomous markets:** Developing economies where demand growth is strong and where the domestic market's potential is huge, e.g. China and India. The demand in these markets, coupled with high levels of tariff protection, is sufficient to maintain a strong growth momentum.

- **Integrated, peripheral economies:** These are economies where internal demand may not be high, and where demand growth is unlikely to be sufficient to develop an automotive industry, but where comparatively cheap costs, coupled with market access to a developed, mature market, is likely to stimulate the industry. Examples of these economies include Mexico (into the USA), Slovakia, and Poland (into the EU, prior to joining the EU).

- **Emerging regional economies:** This relates to economies where internal demand may be insufficient on a national basis, but where regional agglomerations facilitated by regional trade agreements, creates the basis for a sufficient market to stimulate and sustain vehicle production. Examples include Mercosur and ASEAN.

- **Independent economies:** Sturgeon and Florida (1999) categorise three vehicle producing economies as being particularly vulnerable because they fall outside of the other categorizations, which they deem to be 'viable automotive spaces'. The three economies are South Africa, Taiwan and Australia. These countries markets' are deemed too small to stimulate viable vehicle production, whilst not being large enough to create sufficient demand in the future, nor being close enough to a regional agglomeration or developed market to benefit from any proximity advantages. Sturgeon and Florida (1999) suggest that the prognosis for these industries is rather dire.

2.7. Global trade trends

The comparative position of South Africa in respect of its contribution to exports and imports at a global level is summarized in Table 11. As revealed, the levels of global exporting (US$892.6 billion in 2005) and importing (US$807.7 billion) are at such scale that South Africa hardly features in the statistics. At US$4.4 billion in exports, South African vehicle and component exports pale in comparison to exports from the European Union ($134.2 billion), Japan ($122.9 billion), the USA ($86.0 billion) and Canada ($66.8 billion). Similarly, South African imports of $9.3 billion make up only slightly more than 1% of total automotive product imports internationally, although it is notable that South African importing levels are higher than evident in a substantially larger vehicle producing country like Brazil (imports of only $4.5 billion). The USA is the world's largest importer of vehicles and components by a large margin relative to the next biggest importers, Canada and the European Union (US$205.5 billion versus US$ 57.6 billion and US$ 54.9 billion respectively).

While the growth in South African automotive product trade has been significant in terms of both imports (31%) and exports (21%) for the period 2000 to 2005, it is notable that this same trend is evident for a range of economies, including China, Turkey and Thailand for exports, and China, Russia and Saudi Arabia in respect of imports. Interestingly, in respect of importing growth levels from 2000 to 2005, only Russian growth of 40% exceeded that of South Africa.

Table 11: Leading Exporters and Importers of Automotive Products, 1980-2005

	Value of exports/ imports ($bn)	Share in world exports/imports (%)				Annual % change
	2005	1980	1990	2000	2005	2000-2005
Exporters						
European Union (25)	486.83	-	-	49.9	53.3	11
extra-EU (25)	134.21	-	-	12.4	14.7	13
Japan	122.90	19.8	20.8	15.3	13.5	7
United States	85.99	11.9	10.2	11.7	9.4	5
Canada	66.75	6.9	8.9	10.5	7.3	2
Korea, Rep. of	37.75	0.1	0.7	2.6	4.1	20
Mexico [a,b]	35.38	0.3	1.5	5.3	3.9	3
Brazil	11.97	1.1	0.6	0.8	1.3	21
China [b]	9.96	0.0	0.1	0.3	1.1	44
Turkey	9.36	0.0	0.0	0.3	1.0	43
Thailand [a,b]	7.98	0.0	0.0	0.4	0.9	27
South Africa	4.35	0.1	0.1	0.3	0.5	21
Taiwan	3.82	…	0.3	0.4	0.4	11
Australia	3.52	0.2	0.2	0.4	0.4	10
Russia [a]	??	-	-	0.2	…	…
Argentina	3.05	0.1	0.1	0.4	0.3	8
United Arab Emirates [c]	2.97	…	…	…	0.3	...
Total of 16 listed countries	892.60	-	-	98.7	97.7	
Importers						
European Union (25)	407.54	-	-	41.9	44.1	11
extra-EU (25)	54.91	-	-	5.5	5.9	11
United States	205.45	20.3	24.7	28.9	22.2	4
Canada [c]	57.61	8.7	7.7	7.9	6.2	4
Mexico [a,b,d]	25.14	1.8	1.6	3.4	2.7	5
Australia [d]	15.19	1.3	1.2	1.5	1.6	12
China [b]	13.55	0.6	0.6	0.6	1.5	29
Japan	13.17	0.5	2.3	1.7	1.4	6
Russia [a]	12.90	-	-	0.4	1.4	40
Turkey	11.96	…	0.4	1.0	1.3	15
Saudi Arabia [a]	11.64	2.7	0.9	0.6	1.3	25
South Africa [a,d]	9.27	…	…	0.4	1.0	31
Switzerland	8.52	1.8	1.9	1.1	0.9	6
United Arab Emirates [a,c]	6.05	0.4	0.3	0.5	0.7	...
Norway	5.25	0.6	0.4	0.4	0.6	15
Thailand [a]	...	…	0.8	0.4	…	…
Brazil	4.51	…	…	…	0.5	1
Total of 16 listed countries	807.72			90.7	87.5	

Source: World Trade Organisation

Notes: (a) Includes estimates by the WTO Secretariat; (b) Includes significant shipments through export zones (c) 2004 data, not 2005; (d) Imports are valued f.o.b.

2.8. Competitiveness pressures

One of the major reasons for the substantial growth in automotive trade relates to the general reduction in vehicle and component tariffs across most developed and developing economies. Whilst still one of the most protected industries globally, tariffs have reduced in line with the World Trade Organisation requirements that most countries are bound by. As highlighted in Table 12, this is not however a totally universal trend, with vehicle tariffs into India, Thailand and Taiwan increasing from 1998 to 2008. In comparative terms, South Africa has higher tariffs than developed economies such as the USA (6.5% for passenger cars), the European Union (10%) and Japan (no tariffs), as well as Australia (10%), Poland (10%) and Turkey (10%), but much lower tariffs than evident for China (30%), India (35-100%), Taiwan (60%), Thailand (56%), Malaysia (36.5%), and Mercosur (35%).

Table 12: Tariffs in selected economies

	Tariffs (passenger cars, 1998)	Light vehicle tariffs (2008)
Developed economies		
USA	6.5%	6.5%
European Union	10%	10%
Japan	0%	0%
Protected autonomous economies		
China	100%	30%
India	45%	100%
Korea	7%	8%
Integrated peripheral economies		
Mexico	Low within NAFTA	50%. No duties within NAFTA
Poland		10%
Turkey		10%
Emerging regional economies		
Mercosur	50% (Brazil)	35%
Thailand	50%	MFN 56%, Mean 80%
Malaysia	300%	MFN 36.5%, Mean 50%
Other markets		
Taiwan	35%	60%
Australia	15%	MFN 6.7%, Mean 10%; 0% Thailand; Govt. purchasing preferences for local vehicles
South Africa	54%	29% (declining to 25% in 2012) 7% EU preference

Source: Adapted from Barnes and Black (2008b)

One of the direct outcomes of low tariffs is the development of global value chains within the automotive industry. Vehicle assemblers and their major component manufacturers no longer produce in national or regional silos, with low tariffs enabling the trade of automotive materials (specialist steels and plastics), automotive components at the 2nd tier (forgings, castings, mouldings, and machined components, etc.) and 1st tier levels (sub-assemblies and modules, replacement parts), as well as Completely Knocked Down (CKD) kits and fully assembled vehicles. This is supported by the fact that most economies have lower tariffs on components than fully assembled vehicles. For example, Mercosur has an 18% tariff on components, relative to 35% for vehicles. It is therefore possible for an individual vehicle assembled in the European Union to comprise components from South Africa, Tunisia, China, India, Central and Eastern Europe, South America, North America, Australia and Japan. Vehicle production consequently has a global footprint both in the trade of completed vehicles and in respect of components at each and every link of the automotive value chain.

The industry's global footprint has placed huge cost pressures on manufacturers throughout the value chain. This is due to the transparency of vehicle assemblers when sourcing components across the globe, and hence their ability to target pricing levels for components and sub-assemblies for vehicles based on the best cost locations for those products anywhere in the world. In one of the author's' recent reviews of the MIDP for the Department of Trade and Industry (the dti), it was, for example, very evident that South African vehicle assemblers had real time information on the best source, by geographical location, for each and every product being sourced for vehicles assembled in South Africa. This level of

transparency has driven prices down throughout the supply chain, particularly as most automotive component manufacturers now have to sign price-down performance contracts with vehicle assemblers over the duration of the lifecycle of a particular product. Typically 2-5% per annum, these 5-8 year price-down contracts often leads to firms manufacturing components at below cost at the end of their supply contracts.

The only way a vehicle assembler or component manufacturer can generate a return in the face of such severe pricing pressures is to continuously improve their competitiveness, driving down costs, improving quality, reducing production downtime, improving operational speed and flexibility, enhancing the use of labour inputs, and becoming more innovative in respect of product designs, manufacturing processes, materials used, and finally, the manner in which work is organised. It should not be surprising, then, that the automotive assembly and components industry is widely considered the most advanced and efficient manufacturing sector internationally. Toyota's Production System (TPS) is particularly venerated, and widely regarded as best practice. TPS is based on a combination of Just in Time, Total Quality Management, Total Productive Maintenance, and Continuous Improvement manufacturing principles. These principles have led to Toyota manufacturing its vehicles far more efficiently and effectively than the majority of its competitors; and since the 1980s, has led to the almost universal copying of TPS by the world's leading vehicle assemblers.

3. South African automotive industry analysis

The South African automotive industry (inclusive of vehicle retailing) contributed 6.9% of South Africa's economy in 2007. This represented a 0.4% increase on 1995 levels when the contribution was 6.5%, but a significant decline on 2005 levels when the industry contributed a full 7.5% of the economy (NAAMSA/Response Group Trendline). In respect of manufacturing only, the industry generated total sales of approximately R135 billion in 2007, with R75 billion of this relating to vehicle assembly and R60 billion to component manufacture. These substantial output levels created 34,346 relatively well paid jobs in the assembly industry and 86,394 jobs in the automotive components (including tyres) industry in 2007. Consistent with the global picture presented in the preceding section, the industry is presently under severe pressure, with both export markets, and the domestic market performing very poorly, despite strong growth in recent years. The industry is however supported by a robust industry policy, the MIDP, which will be replaced by the Automotive Production Development Programme (APDP) in 2013, and is forecast to grow rapidly again after the GCC abates. These elements are unpacked below.

3.1. Industry profile

The South African automotive industry comprises seven major vehicle assemblers, a few specialist medium and heavy commercial vehicle assemblers/boutique manufacturers, and approximately 360 automotive component manufacturers, 180 of which can be considered key suppliers to the vehicle assemblers. The seven major vehicle assemblers are all subsidiaries of multinational corporations, as outlined in Table 13, which depicts the change in ownership profile over the last 18 years. Whilst five of the seven vehicle assemblers were either fully South African owned, or South African dominated joint ventures in 1990, a shift to some form of multinational control had occurred by 1998, with all fully foreign owned by 2008.

Table 13: Level of integration of SA based assemblers into their global vehicle 'families' (1990-2008)

Assembler	Ownership: 1990	Ownership: 1998	Ownership: 2008	Ownership: 1990 to 2008
Toyota	100% local (Jhb Stock Exchange)	Local: 72% (JSE), Toyota (Japan): 28%	Toyota: 100%	*SA to MNC*
Volkswagen (VW)	VW AG: 100%	VW AG: 100%	VW AG: 100%	*MNC – no change*
BMW	BMW AG: 100%	BMW AG: 100%	BMW AG: 100%	*MNC – no change*
Daimler	Daimler AG (Mercedes Benz): 50%, Local 50%	DaimlerChrysler (Mercedes Benz): 100%	Daimler: 100%	*Joint Venture to MNC*
Ford	100% local (Anglo American)	Anglo American: 45%, Ford: 45%, Emp. trust: 10%	Ford: 100%	*SA to MNC*
Nissan	87% local, Nissan Diesel: 4%, Mitsui (Japan): 9%	Local: 37%, Nissan: 50%, Nissan Diesel: 4%, Mitsui: 9%	Nissan: 87%, Nissan Diesel: 4%, Mitsui:9%	*Primarily SA to MNC*
General Motors (GM)	100% local (management)	Local managers: 51%, GM: 49%	GM: 100%	*SA to MNC*

The industry's regional concentration is strongly informed by the location of the vehicle assemblers. A regional agglomeration of vehicle assemblers and component manufacturers is, for example, located in the Gauteng (Ekhuruleni, Rosslyn and Silverton) and North West Province (GaRankuwe and Brits), near to, or immediately adjacent to, the BMW (Rosslyn), Nissan (Rosslyn) and Ford (Silverton) plants. The next largest agglomeration of firms is in Nelson Mandela Bay Municipality, comprising Volkswagen (Uitenhage), General Motors (Port Elizabeth), and a Ford engine plant (Port Elizabeth). KwaZulu-Natal is home to the third largest concentration of firms, as well as the largest vehicle assembler in South Africa, Toyota. Toyota's Prospection plant dominates Durban's Southern Industrial Basin, along with numerous automotive component manufacturers, who are also located in the Western part of Durban (Pinetown, New Germany and Westmead), and in Pietermaritzburg (Willowton area). Mercedes Benz's South African plant is located in East London, along with a number of automotive component manufacturers, whilst the Western Cape also has a few component manufacturers – based either in Cape Town or Atlantis.

The South African industry's regional breakdown is summarized in Table 14. This shows a relatively even spread of the automotive industry between the three major producing provinces, with the Gauteng producing 153,289 vehicles in 2007, the Eastern Cape 191,811 vehicles and KwaZulu-Natal 142,811 vehicles. At an individual vehicle assembler level, Toyota (142,811 units) is clearly the largest vehicle producer in South Africa, followed by Volkswagen (113,975) and then General Motors (65,016) and Ford (62,181). Toyota is therefore larger than the third and fourth largest vehicle producers in South Africa combined, and is the only vehicle assembler producing volumes close to the minimum assembly threshold for world-scale production, which is considered to be 200,000 units. As further revealed in Table 14, the Eastern Cape and Gauteng have the largest concentrations of automotive component manufacturers at around 120 firms each (60 of which are major suppliers), although KwaZulu-Natal also has a large number of component manufacturers (approximately 70, of which about 40 can be considered major suppliers).

Table 14: Regional breakdown of vehicle assembly and component manufacture in South Africa (2007)

Province	Region	Vehicle assembler	# Vehicles produced	Brands/models assembled	Approx. # comp. firms
Gauteng	Rosslyn	BMW	50,300	BMW 3 Series	120 (60 major suppliers)
		Nissan	40,808	Nissan Tiida, Hardbody, 1400 LDV	
	Silverton	Ford	62,181	Ford Ranger/Mazda Drifter, Ford Ikon/Bantam, Ford Focus/Mazda 3	
Eastern Cape	Uitenhage	Volkswagen	113,975	VW Polo, Golf/Jetta, Citi Golf	120 (60 major suppliers)
	Port Elizabeth	General Motors	65,016	Opel Corsa/Corsa Utility, Isuzu KB, Hummer H3	
	East London	Mercedes Benz[12]	12,820	Mercedes Benz C Class, Mitsubishi Colt	30 (10 major suppliers)
KwaZulu-Natal	Durban	Toyota	142,811	Toyota Corolla/ Run X, Hilux/ Fortuner, Hi-Ace	70 (40 major suppliers)
Western Cape	Cape Town	N/A	N/A	N/A	20 (10 major suppliers)

Source: Adapted from Barnes and Back (2008b), and authors' own calculations

[12] Mercedes Benz changed its C-Class model in 2007, hence the very low levels of production in that year. The plant is capable of manufacturing over 50,000 units a year.

3.2. Recent industry performance

As should be clear from the brand/model findings presented in Table 14, a disproportionate number of light commercial vehicles (LCVs) are manufactured by light vehicle assemblers, relative to passenger vehicles. This distinction is unpacked in Table 15 and Table 16, which show the comparative output growth of the South African vehicles assemblers for passenger and light commercial vehicles respectively. As revealed in Table 15, passenger vehicle production in South Africa grew a total of only 24,541 units from 2003 to 2007, with Nissan and especially Volkswagen growing their production substantially, while other vehicle assemblers reduced their passenger vehicle output, including Toyota in KwaZulu-Natal.

Table 15: South African vehicle assemblers' passenger car production as a proportion of total global family output, as well as actual unit change from 2003 to 2007[13]

Vehicle assembler	2003	2004	2005	2006	2007	2003-07 Unit Change
Toyota	1.18%	1.26%	1.05%	0.67%	0.75%	(9,653)
Nissan	0.00%	0.31%	0.32%	0.44%	0.50%	13,205
VW	1.55%	2.26%	2.85%	3.37%	2.84%	52,336
Fiat	0.52%	0.48%	0.35%	0.19%	0.09%	(4,906)
Mazda	0.59%	–	–	–	–	(5,700)
Mercedes Benz	3.74%	3.75%	3.59%	2.91%	1.75%	(19,707)
BMW	5.42%	4.19%	3.89%	4.65%	3.85%	(1,034)
AVERAGE	1.33%	1.47%	1.47%	1.43%	1.24%	24,541

Source: OICA – Production Statistics (2003 – 2007)

The situation for light commercial vehicle (LCV) assembly is completely different, with Table 16 revealing that total South African LCV assembly increased 77,055 units from 2003 to 2007, with the greatest proportion of this amount linked to the increased output of the Toyota Hilux/Fortuner model over the period. Nissan and Mazda also increased their output slightly over the same period, although the South African contribution to the global family's total LCV output is only significant for Toyota (8.3% of Toyota's total LCV output). On average, South African vehicle assemblers are far more important to their parent companies in respect of LCV production (5.0%) than they are in respect of passenger car production (only 1.2%).

[13] The table only reflects local vehicle assemblers for which data is available. Also note that OICA excludes a number of vehicles assembled in South Africa as 'double counts', i.e. their production value is so low that their assembly is discounted, and allocated to the country where the CKD kit is sourced. For example, OICA does not reflect any General Motors production in South Africa.

Table 16: South African vehicle assemblers' light commercial vehicle production as a proportion of total global family output, as well as unit change from 2003 to 2007

Vehicle assembler	2003	2004	2005	2006	2007	2004-07 Unit Change
Toyota	4.97%	5.96%	6.34%	9.26%	8.29%	60,143
Nissan	6.26%	3.35%	4.98%	5.90%	5.55%	7,467
VW	0.54%	0.59%	0.42%	0.42%	0.32%	(43)
Fiat	0.98%	0.24%	2.16%	1.69%	0.61%	2,002
Mazda	–	7.27%	11.10%	8.54%	5.12%	6,035
Mitsubishi	2.65%	2.74%	3.03%	2.59%	2.82%	1,656
Mercedes	2.42%	4.27%	4.53%	4.15%	3.20%	(205)
AVERAGE	3.91%	4.15%	5.21%	6.07%	4.98%	77,055

Source: OICA – Production Statistics (2003–2007)

The growth of the South African based vehicle assemblers has been accompanied by (a) substantial increases in capital expenditure, with this particularly evident in 2006, as well as (b) healthy aggregated net profit levels for both light vehicle and medium and heavy commercial vehicle assembly, and (c) comparatively high earnings before interest and taxation. These findings are presented in Table 17, which when juxtaposed against the net profitability of the vehicle assemblers at a global level (see Table 4), reveals substantially healthier margins in the South African industry (average of 6.9% in 2006 versus 1.8% internationally in 2008).

Table 17: South African vehicle assemblers' recent profitability performance and investment levels (2000 to projected 2008 levels

Year	Net profit before taxation (n=8)		Earnings before interest & taxation[14] (n=8)	Capital expenditure
	Light Vehicles	Medium & Heavy Vehicles		
2000	R 1,285m	(R 33m)	–	R 1,562m
2001	R 3,717m	R 226m	–	R 2,078m
2002	R 4,102m	R 535m	–	R 2,726m
2003	R 4,256m	R 521m	–	R 2,325m
2004	R 6,041m	R 567m	6.6%	R 2,220m
2005	R 6,924m	R 1,064m	6.8%	R 3,576m
2006	R 8,744m	R 1,298m	6.9%	R 6,215m
2007	–	–	–	R 3,096m
2008 (projected)				R 4,371m

Source: the dti/TISA, and NAAMSA

While the South African based vehicle assemblers are the drivers of the domestic industry and set all the standards and price points that component manufacturers have to adhere to, the employment contribution of the components industry is substantially greater than that at the assemblers. Whilst the vehicle assemblers employed 37,900 people at the end of 2006, the comparative figure for the automotive components industry was 78,000, with a further

[14] Expressed as a % of total industry turnover, including parts and accessories

6,500 employed in the tyre manufacturing industry. Motor trade remained the largest employer in the sector, however, with 198,000 people employed, or roughly 60% of the total.

Table 18: Employment in the South African automotive sector (1990 to 2006)

	Assembly	Component	Tyre	Motor trade	Total
1990	37,845	69,000	na	160,000	
1991	36,895	65,000	na	155,000	
1992	38,731	na	na	178,000	
1993	37,160	na	na	171,000	
1994	37,600	na	na	175,000	
1995	38,600	65,500	11,000	178,000	293,100
1996	38,600	65,500	10,000	180,000	294,100
1997	37,100	69,100	9,500	180,000	295,700
1998	33,700	69,700	9,100	170,000	282,500
1999	32,000	67,200	6,670	175,000	280,870
2000	32,300	69,500	6,575	180,000	288,375
2001	32,700	72,100	6,300	182,000	293,100
2002	32,370	74,100	6,000	185,000	297,470
2003	31,700	75,000	7,200	191,000	304,900
2004	31,800	74,500	7,200	194,000	307,500
2005	34,300	78,000	6,800	198,000	317,100
2006	37,900	78,000	6,500	198,000	320,400

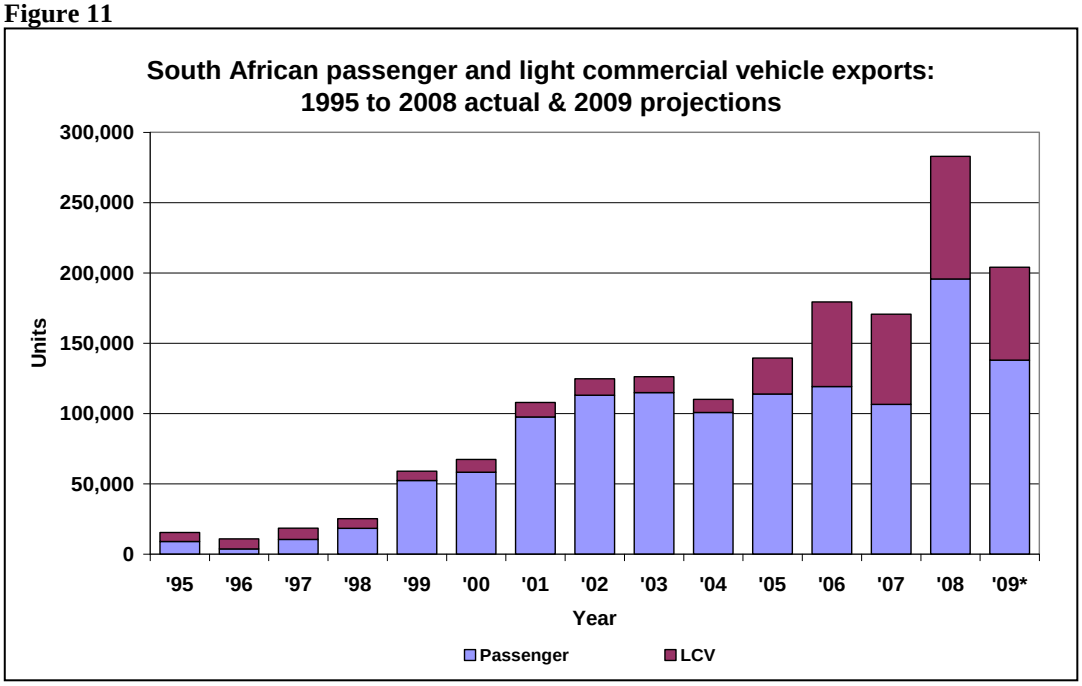
Sources: NAAMSA (various years); Department of Trade and Industry (various years)

3.3. Industry growth dynamics and trade performance

The South African automotive industry's impressive growth from the turn of the millennium to 2006 was driven by a number of factors, most notably due to strong growth in both export performance, and the growth of the domestic market. Less positive has been the very rapid growth in imports (already alluded to in Section 2.7), the growing trade deficit as a result of surging imports, and the substantial decline in the South African vehicle market and production since 2006. Each of these issues is unpacked in this sub-section starting with the trade data.

Figure 11 reveals the extent to which South African vehicle exports have grown since 1995. As indicated, whilst hardly any vehicles were exported over the period 1995 to 1997, minor exporting started in 1998, growing rapidly to 2001 before stabilising through to 2004, and then climbing again slowly to 2007, before rapidly escalating in 2008. From around only 10,000 units exported annually in the late 1990s, over 280,000 units were exported in 2008 alone, with approximately two-thirds of these exports being passenger vehicles and the balance LCVs. As forecasted in Figure 11, vehicle exports from South Africa are expected to plummet in 2009, contracting to around 200,000. Export losses are moreover anticipated for both passenger cars and LCVs. This decline should not be surprising given that the principle destinations of South African exports are the USA, the European Union, and Japan; all markets that are under severe pressure as the GCC unfolds through 2009.

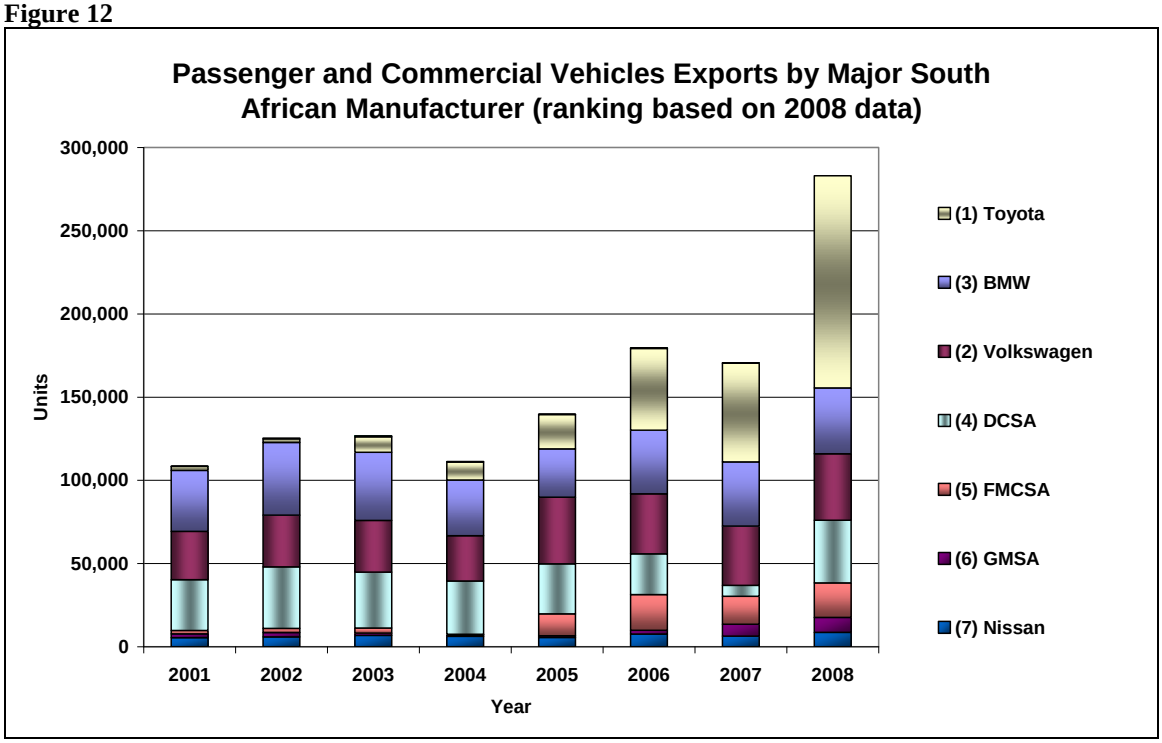
Figure 11



Source: NAAMSA

The breakdown of South African vehicle exports by vehicle assembler for the period January to September 2008 is presented in Figure 12, and as clearly illustrated the dominant vehicle exporter in South Africa is Toyota, with almost as many vehicles exported as all of the other South African assemblers combined. Toyota's dominant position is recent, however, with BMW, Volkswagen and Mercedes Benz the most significant exporters of vehicles in 2001 through to 2005. Major South African export models are the Toyota Hilux (LCV), Toyota Corolla, BMW 3-Series, Mercedes Benz C-Class, Volkswagen Golf, and Volkswagen Polo.

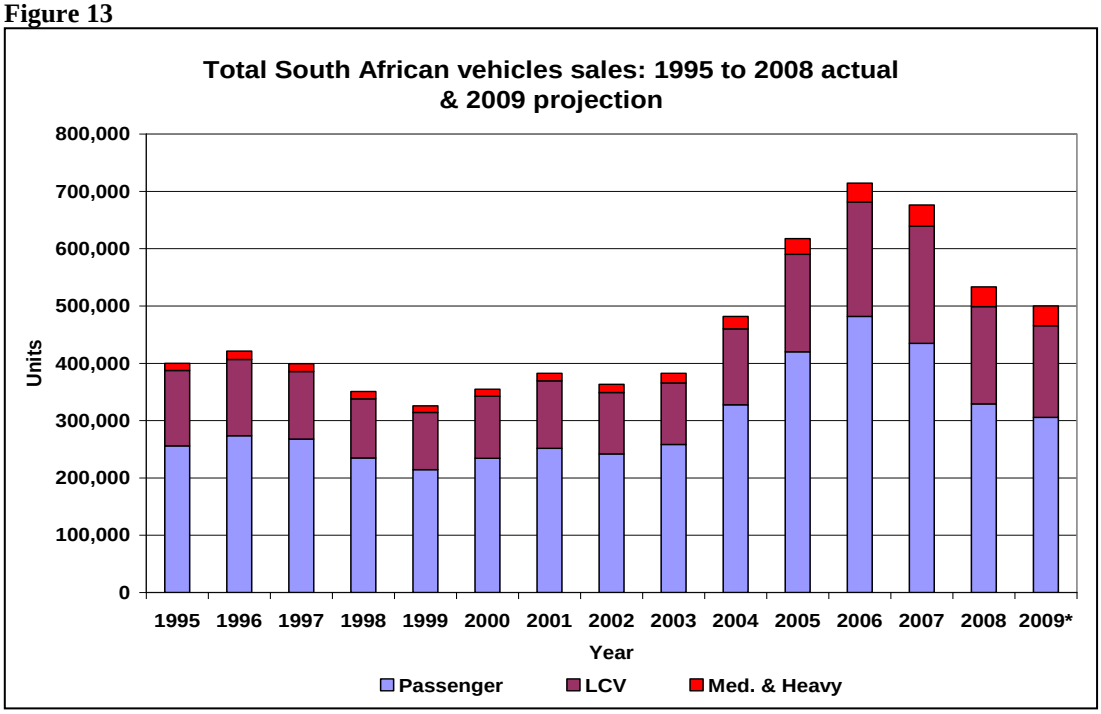
Figure 12



Source: OICA and NAAMSA

The severe decline in vehicle exports through 2009 is unfortunately occurring at the same time as the South African vehicle market experiences its worst downturn in recent history. This is reflected in Figure 13, which shows that the South African market performed exceptionally from 2003 to 2006 (growing at an average of over 20% per annum annually) after stagnating for almost a decade. However, since 2006 performance has dipped alarmingly, with the National Association of Automotive Manufacturers of South Africa (NAAMSA) predicting the market's contraction to 500,000 units in 2009, down 200,000 units from the 2006 peak of just over 700,000 units. Author engagements with industry experts through 2009 moreover suggest NAAMSA is being optimistic in respect of their 2009 projections. Based on January and February sales figures (both down by over 30% on 2008 sales levels), and industry expert views the market may contract to as few as 400,000 to 425,000 units. This will bring market demand back to 1995 levels.

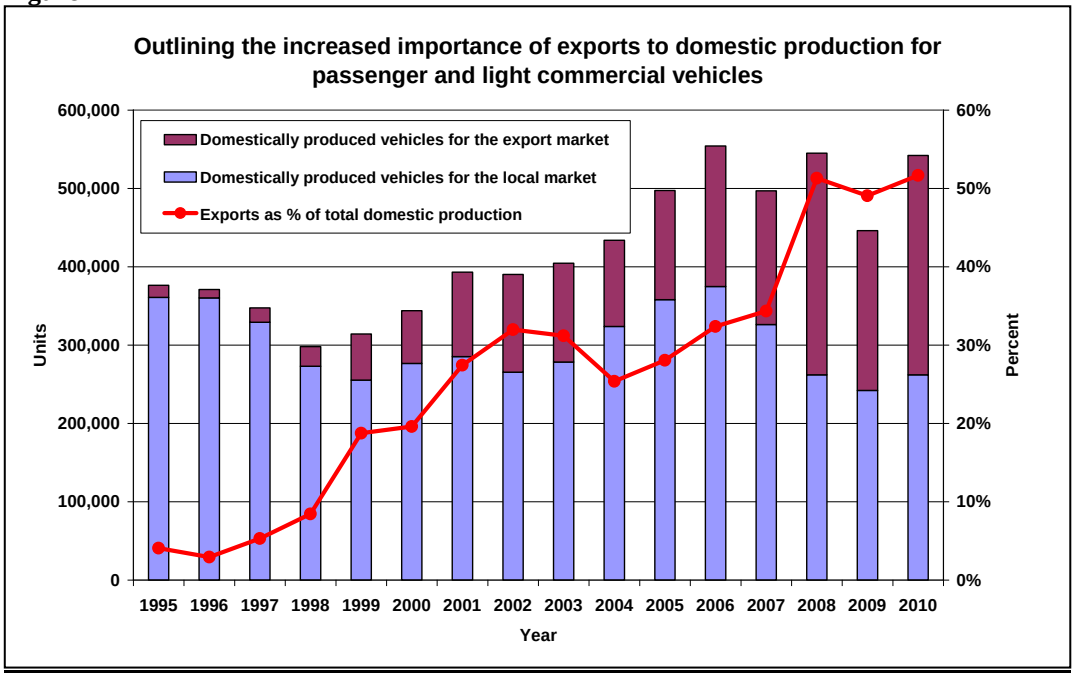
Figure 13



Source: NAAMSA

The growth in vehicle exports through 2008, coupled with reduced domestic market demand (and growing domestic market penetration by imported models – see below), resulted in the industry producing more vehicles for export than local consumption for the first time in its history. This represents a fundamental shift in the industry's position, with the domestic market consuming as much as 92% of local vehicle production as recently as 1998. The situation is moreover not projected to change much through 2009 and 2010. Around 50% of local production is predicted by NAAMSA to be exported through both years.

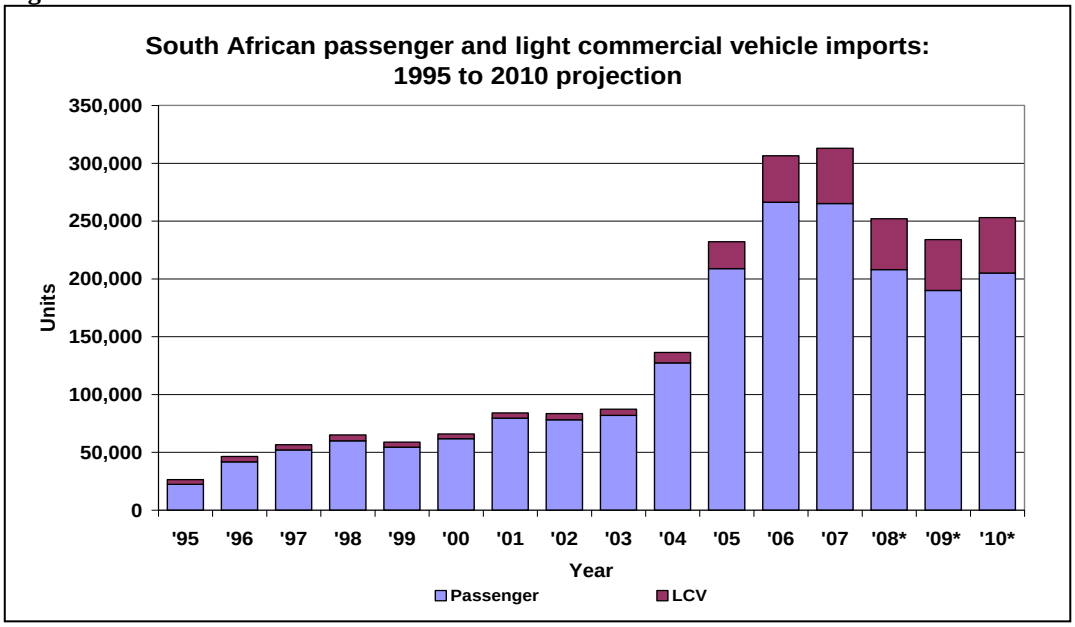
Figure 14



Source: NAAMSA

The corollary of reduced production for the domestic market when the domestic market has been growing is obviously a growth in vehicle imports. This equally striking trend is highlighted in Figure 15. Remaining relatively steady from 1995 to 2003 imports literally 'took off' from 2004 to 2007, reaching just under 50% of the total market (from less than 10% in the mid-1990s). In aggregated terms this meant that over 600,000 vehicles were imported into South Africa in 2006 and 2007 alone. Another recent negative trend has been the growth of LCV imports – a market segment which was almost exclusively supplied by local vehicle assemblers until 2005.

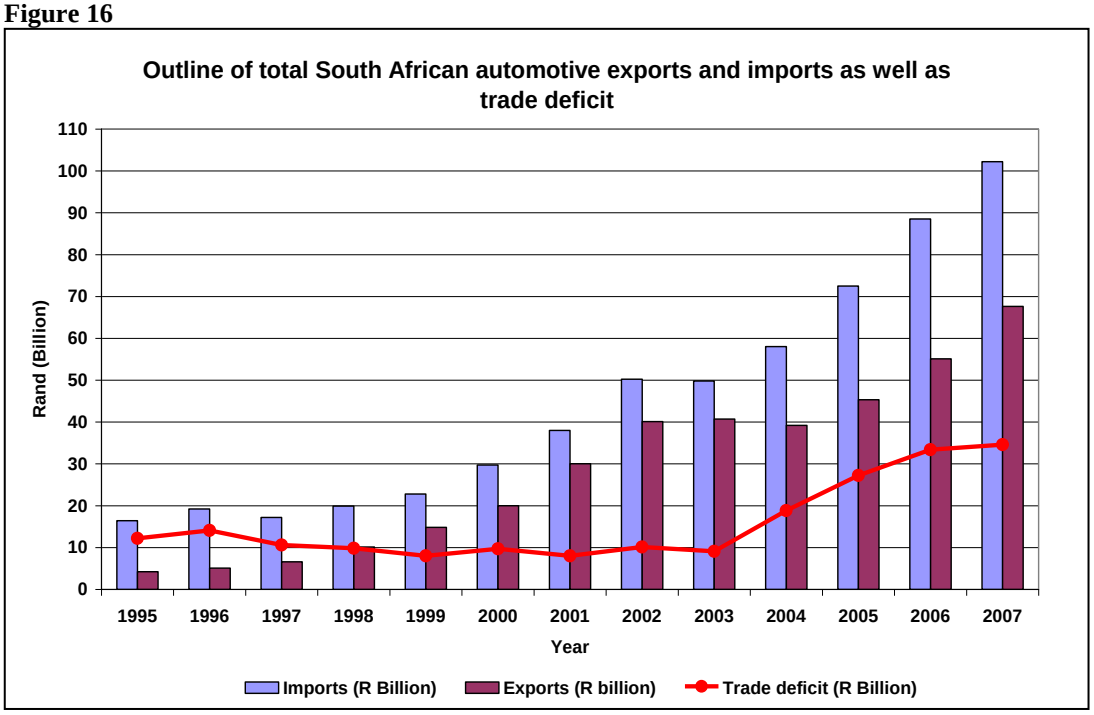
Figure 15



Source: NAAMSA

A direct impact of the import surge into the South African vehicle market has been the industry's declining trade balance. After remaining relatively consistent, with a deficit position of around R10 billion from 1995 to 2003, the deficit climbed alarmingly through to 2007, reaching nearly R35 billion. For an economy of South Africa's size the deficit is a major cause for concern, and renders the industry one of the primary reasons for the economy's large and, until recently, growing trade deficit.

Figure 16

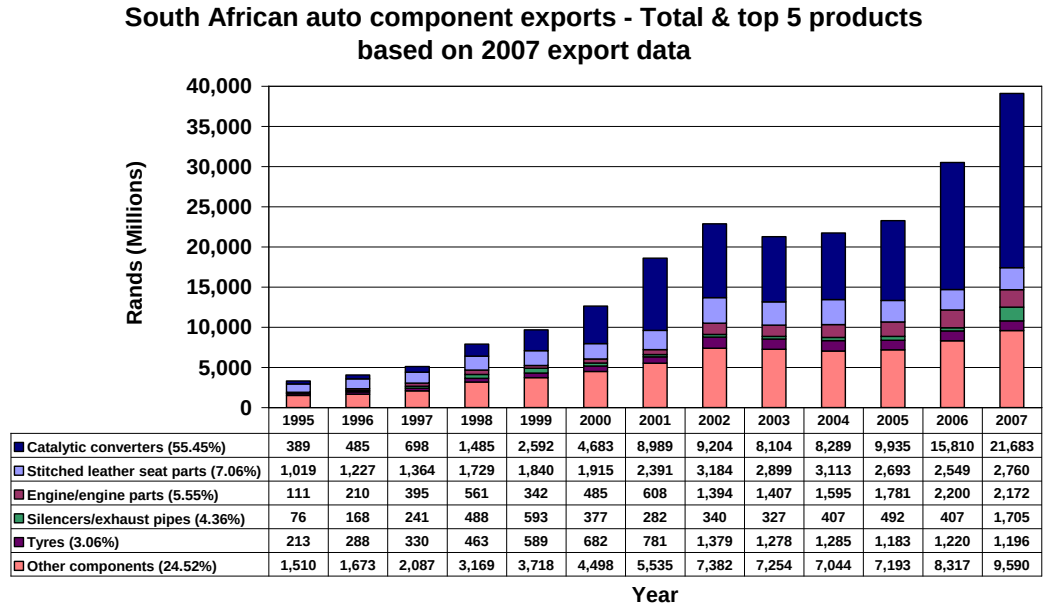


Source: Barnes and Black (2008a)

Despite the surge in the trade deficit, it is not only vehicle exports that have grown. As unpacked in Figure 17, South African automotive component exports have also grown very rapidly since 1995. From an aggregated export position of less than R4 billion in 1995, component exports breached the R10 billion mark in 2000, the R20 billion level in 2002, and the R30 billion mark in 2006. In 2007 total component exports reached over R38 billion, or nearly 10 times 1995 levels.

Whilst this represents an outstanding achievement, the automotive component export basket reveals that a full 55.5% of total exports were derived from one sub-sector, namely catalytic converter manufacturers. This is a platinum-based export sub-sector that generates huge sales, albeit adding only limited value to the South African economy. For example, the sub-sector employs only 5,000 people to generate its exports of around R21.6 billion. The next most important exporting sub-sector makes up only 7.1% of the export basket (sewn leather automotive products), with engines and engine parts, silencers and exhaust pipes and tyres making up the balance of the five major exporting sub-sectors. Although catalytic converter exports have grown impressively over the last few years, it is striking to note that both tyres and sewn leather automotive products have experienced export sales declines since 2002.

Figure 17



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Catalytic converters (55.45%)	389	485	698	1,485	2,592	4,683	8,989	9,204	8,104	8,289	9,935	15,810	21,683
Stitched leather seat parts (7.06%)	1,019	1,227	1,364	1,729	1,840	1,915	2,391	3,184	2,899	3,113	2,693	2,549	2,760
Engine/engine parts (5.55%)	111	210	395	561	342	485	608	1,394	1,407	1,595	1,781	2,200	2,172
Silencers/exhaust pipes (4.36%)	76	168	241	488	593	377	282	340	327	407	492	407	1,705
Tyres (3.06%)	213	288	330	463	589	682	781	1,379	1,278	1,285	1,183	1,220	1,196
Other components (24.52%)	1,510	1,673	2,087	3,169	3,718	4,498	5,535	7,382	7,254	7,044	7,193	8,317	9,590

Source: the dti/TISA

3.4. The national government's present policy for the industry: The MIDP

The key driver of the South African automotive industry's strong recent export (and import) orientation is the national government's industrial policy for the vehicle assembly and components industry, the Motor Industry Development Programme (MIDP), which was promulgated in September 1995, and which runs until the end of 2012. The MIDP continued the direction taken by Phase VI of the Local Content Programme, which ran from 1989 to 2005, and entrenched the principle of export complementation. However, it went a step further by abolishing local content requirements and introducing a tariff phase down at a steeper rate than required by the terms of South Africa's offer to the General Agreement on Tariffs and Trade (GATT, now the World Trade Organisation [WTO]).

The main elements of the MIDP, when implemented, were as follows:

a) The excise duty based local content system was changed to a tariff driven programme.

b) There was no minimum local content requirement.

c) Tariffs were to be phased down to 40% for light vehicles and 30% for components by 2002.

d) Manufacturers of light vehicles were entitled to a Duty Free Allowance (DFA) in terms of which components to the value of 27% of the wholesale price of the vehicle could be imported duty free.

e) Import duties on components and vehicles could be offset by import rebate credits derived from the export of vehicles and components.

f) Provision was made for a Small Vehicle Incentive (SVI) in the form of a higher duty free allowance for low cost vehicles.

While nominal duties on imported vehicles were set to remain high to 2002, the ability to rebate import duties through exporting enabled importers to bring in vehicles at lower effective rates of duty. Import-export complementation also enabled assemblers to use import credits to source components at close to international prices. Thus declining nominal protection on vehicles was to some extent offset by reduced protection for components.

In response to the need to assess the impact of the MIDP as well as to provide long term policy certainty to the industry, the Department of Trade and Industry (dti) conducted a midterm review of the MIDP in 1998, the results of which were published in 1999. A further review was conducted in 2002/2003. Both policy reviews extended the MIDP with minor adjustments and with a continued gradual decline in assistance to the industry (see Table 19). In the first midterm review, the MIDP was extended to 2007. One significant adjustment was that while import-export complementation provisions were extended, this was on a phasing down basis. The qualifying value of eligible export performance was scheduled to decline from 2003. This meant that while exports of components (or vehicles) with a local content value of, for example, R100 would allow the exporter to import R100 of components (or vehicles) on a duty free basis in 2002, from 2003 a gradually declining value of components and vehicles could be imported duty free. The SVI was also removed.

As had been the case in the lead up to the introduction of the MIDP in 1995, extensive discussion regarding the imposition of direct industrial policy measures to rationalise the industry was undertaken, but these were not adopted. An important late change introduced into this process as a result of concerted pressure on government by vehicle manufacturers who were planning major export programmes, was the introduction of a Productive Asset Allowance (PAA). In terms of the PAA, firms making ‘qualifying investments’ receive import duty credits equal to 20% of the value of these investments, spread over five years. The basic architecture of the MIDP for the period 1999 to 2012 is unpacked in Table 19.

Table 19: The MIDP as amended in the 1998 and 2002 Reviews

Year	A. Import duty		B. Qualifying value of export performance	C. Qualifying PGM content	D. Ratio of exports against imports		
	Built up light vehicles	Original equipment components	Built up vehicles and components(excluding tooling)	Catalytic Converters exported	Components, HCVs, tooling exported: CBU light vehicles imported	Components, vehicles, tooling exported: Components, HCVs, tooling imported	Light CBUs exported: Light CBUs imported
1999	50.5%	37.5%	100%	90%	100:75	100:100	
2000	47%	35%	100%	80%	100:70	100:100	
2001	43.5%	32,5%	100%	60%	100:70	100:100	
2002	40%	30%	100%	50%	100:65	100:100	
2003	38%	20%	94%	40%	100:60	100:100	
2004	36%	28%	90%	40%	100:60	100:100	
2005	34%	27%	86%	40%	100:60	100:100	
2006	30%	26%	82%	40%	100:60	100:100	
2007	30%	25%	78%	40%	100:60	100:100	
2008	29%	24%	74%	40%	100:60	100:100	
2009	28%	23%	70%	40%	100:60	100:100	
2010	27%	22%	70%	40%	100:60	100:100	
2011	26%	21%	70%	40%	100:60	100:100	
2012	25%	20%	70%	40%	100:60	100:100	

Source: Adapted from Black and Barnes (2003) and NAAMSA (2005).
Notes: The Duty Free Allowance of 27 percent remained unchanged during this period. The Productive Asset Allowance (PAA) was put in place until 2007 to be reviewed later.

A second review of the MIDP, which was completed in 2003, focused on providing clarity on policy until 2012. As presented in Table 19, tariffs were set to decline to 25% and 20% for built up vehicles and components respectively, as well as other minor adjustments. In late 2005 yet another review was initiated as a result of threatened challenge against the MIDP at the WTO, on the grounds that it constituted an export subsidy.

The MIDP's objectives: The MIDP was designed as a trade facilitating measure with very particular industry policy objectives (dti, 1997). As a result of protection, there were a large number of assemblers producing a wide range of models for a relatively small market. Volumes were therefore very low and the resultant failure to achieve economies of scale made the assembly industry inefficient. It also imposed major negative externalities on the component sector. With the proliferation of makes and models being produced in low volumes in South Africa, component firms were in turn required to produce at volumes well below minimum efficient scales. A key objective of the MIDP was therefore to increase the volume and scale of production through a greater level of specialisation in terms of both vehicle assembly and component manufacture.

Essentially, then, the MIDP has attempted to facilitate the industry's transition from completely knocked down (CKD) assembly, which has typically been characteristic of vehicle production in protected developing country markets such as South Africa, through a transition stage to full manufacturing (see Table 20). It is important to emphasise that CKD assembly involves relatively light investments, but then production costs are usually quite high, especially if a high level of localisation is stipulated by government policy. High local content requirements would necessarily require much higher levels of investment and would

tend to encourage rationalisation. In the CKD assembly stage, quality is likely to be below international standards and assemblers would be likely to introduce their own adaptations usually with the purpose of extending the economic life of particular models. As a result, in many protected, emerging economy markets, models have continued in production long after they have been phased out in advanced country markets. In South Africa, the continued manufacture of the VW Citi Golf is a remnant of this type of response to government policy.

In the transition and full manufacturing stages, where exports may become substantial, both quality standards and the number of model derivatives offered need to be in line with international practice. Volumes per model also increase in the transition stage; and under full manufacturing, volumes would approach world scale. Because firms are exporting, they need access to components at world prices. Thus, in spite of higher volumes in the transition stage, local content levels may not increase. In the full manufacturing stage, much higher volumes would normally be attained, allowing vehicle makers to localise components on an economic basis.

Table 20: Stages in the development of vehicle production in South Africa

	CKD assembly	Transition	Full manufacturing
Target market	Domestic	Domestic and export	Domestic and export
Level of integration with parent company	Low; import of CKD packs	Medium	High
Model line up	Many models	One or two	One or two
Derivatives	Limited to reduce costs	Full range to supply export market	Full range to supply export market
Local content	Generally low but may be quite high as a result of local content requirement	Moderate to medium, based primarily on cost factors	Medium to high, depending on adherence to global prices and standards
Quality	Below source plant	Equal to source plant	Equal to source plant
Production cost	High	Medium; penalties incurred by high logistics costs	Low; logistics are substantially reduced
Domestic design	Local adaptations	None	None - may do worldwide R&D in niche areas

Source: Adapted from Barnes and Black (2008b)

The main instruments of the MIDP have been falling nominal duties combined with export assistance, derived from the ability to offset import duties. While nominal duties on imported vehicles have remained moderately high at least in the early stages of the MIDP, the ability to rebate import duties by exporting has enabled importers to bring in vehicles at lower effective rates of duty. Import-export complementation has also enabled assemblers to use import credits to source components at close to international prices, so declining nominal protection on vehicles has to some extent been offset by reduced protection for components. This has meant that there has still been a significant incentive to assemble locally.

3.5. The national government's future policy for the industry: The APDP

The MIDP will be replaced by a new national automotive policy, the APDP, on the 1st of January 2013. The APDP differs from the MIDP in a number of notable ways. These differences relate specifically to the APDP's:

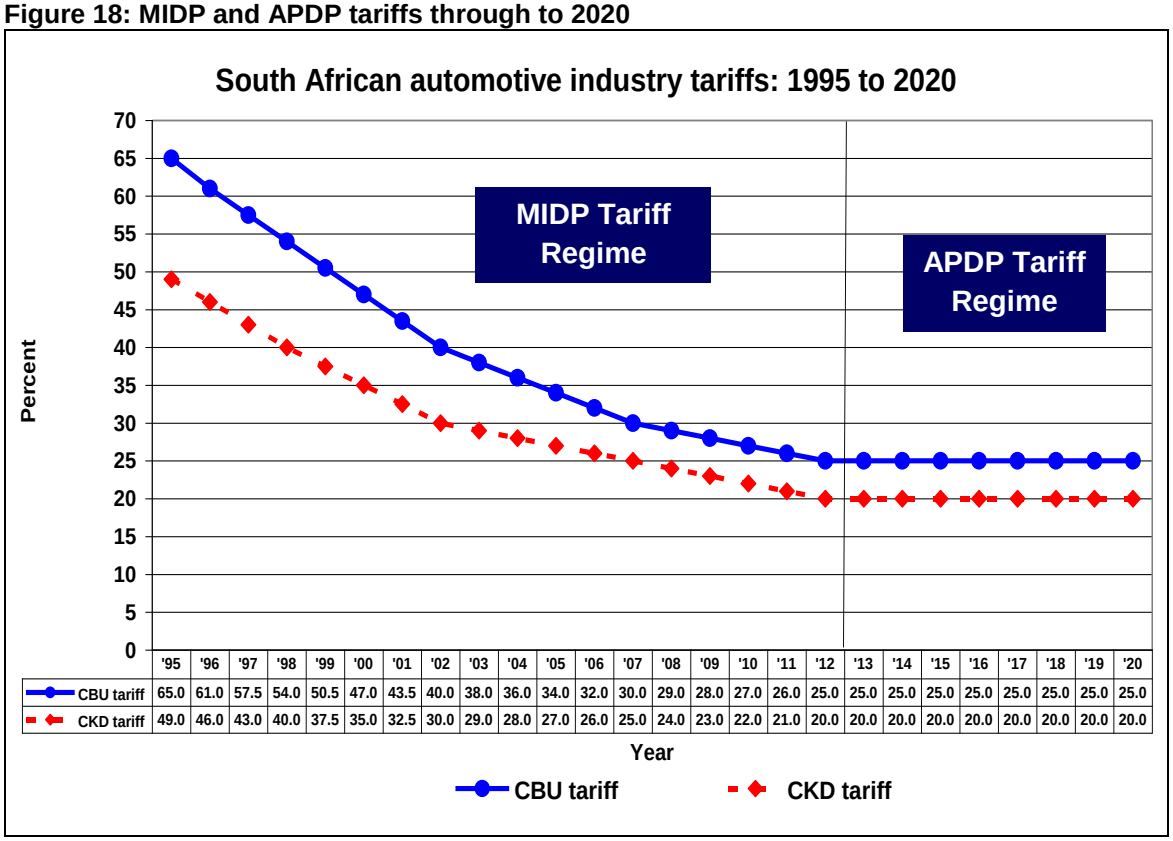
- Tariff regime from 2013 to 2020,
- Introduction of a Volume Assembly Allowance for vehicle assemblers,

- Introduction of a Production Incentive for vehicle assemblers and automotive component manufacturers,
- Establishment of an Automotive Investment Allowance (AIA), which is due to be launched in the middle of 2009.

A brief description of each of these areas is presented below, followed by a summary of the APDP's architecture in relation to the MIDP.

Tariffs: Under the MIDP, automotive tariffs consistently decline until 2012, with CBU tariffs reaching 25%, and CKD tariffs 20%. The APDP will not continue this trend, in recognition of high levels of import penetration into the domestic market, and the potential closure of vehicle assemblers if tariffs reduce further (particularly given the additional 7% market preference that European Union-based vehicle assemblers have when exporting CBUs into the South African market). Automotive tariffs, and thus the level of protection afforded the assembly and components industry, will remain at 2012 levels through to 2020. The automotive tariff regime in South Africa from 1995 through to 2020 is graphically outlined in Figure 18.

Figure 18: MIDP and APDP tariffs through to 2020



	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
CBU tariff	65.0	61.0	57.5	54.0	50.5	47.0	43.5	40.0	38.0	36.0	34.0	32.0	30.0	29.0	28.0	27.0	26.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
CKD tariff	49.0	46.0	43.0	40.0	37.5	35.0	32.5	30.0	29.0	28.0	27.0	26.0	25.0	24.0	23.0	22.0	21.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

Volume Assembly Allowance (VAA): The MIDP has allowed local vehicle assemblers manufacturing for the local market a Duty Free Allowance (DFA) of 27%. The DFA was implemented in 1995 and will remain in place until 2012. This basically means that 27% of a local assembled vehicle's wholesale price can be rebated against the duty payable on imported components that are used in the production of vehicles for the local market. Local vehicle assemblers thus receive a discount of 27% on duties that they incur when importing. Under the APDP the DFA will be replaced by the VAA. The VAA percentage will be lower than the DFA, at 20% in 2013, reducing to 19% in 2014 and 18% in 2015. The VAA will then

remain fixed at this level until 2020. A fundamental difference, however, is that the VAA will cover all vehicles assembled in South Africa irrespective of their market focus. Local assemblers will also only be able to access the VAA if their total annual plant production volume exceeds 50,000 units, although the APDP permits this to be across one or several models and platforms.

Production Incentive (PI): One of the biggest changes to be affected by the APDP relates to its introduction of a market neutral PI, which replaces the export benefits of the MIDP. This represents a fundamental shift in policy direction. Under the MIDP firms only accrue benefits when exporting, with these benefits based on the qualifying local material embedded in exported products. When the APDP is introduced in 2013 the export incentive will be replaced with a production incentive that calculates benefits on the basis of actual local production value and not material costs. The production value will be the sales value of the product, excluding all material inputs (i.e. Production Value = Profit + Overhead + Labour). The PI percentage will start at 55% in 2013 and reduce by 1% annually until it reaches 50% in 2018. It will then remain at this level in 2019 and 2020. A CBU adjustment of 80% will also be in place for the entire period of the APDP. This is to ensure that the level of incentive is equalised when being used to import CBUs and CKDs. Its value of benefit will therefore be 11% of actual production value at vehicle assemblers and component manufacturers, with the following basic equation applying:

(Sales – Materials Costs) x 55% x 20% CKD duty = PI benefit

The PI will benefit those vehicle assemblers and component manufacturers where a high level of value addition takes place or is planned going forward. Conversely, those export oriented firms who add little value in their operations, but who benefit from the MIDP as a result of the inclusion of expensive South African materials in their products, are going to be severely compromised. The dti is attempting to accommodate the requirements of these firms by defining particular sub-sectors as vulnerable. These particular sub-sectors will receive a PI of 60% in 2013, reducing to 55% in 2018.

Automotive Investment Allowance (AIA): The MIDP's current Productive Assistance Allowance (PAA) allows firms to claim 20% of an investment back over a five year period (i.e. 4% per year for five years). However, the PAA has been difficult to access because of restrictive qualifying criteria, and as such has been of only limited value to the South African automotive industry. Effectively, only vehicle assemblers have qualified, along with a few 1st tier suppliers with investments underwritten and directly linked to a local vehicle assemblers' model rationalisation, or export programme. The PAA will consequently be replaced by the APDP's AIA (Automotive Investment Allowance). The level of support offered to industry under the AIA will remain at 20%, although the AIA will be distinctive from the PAA in four important respects:

- First, it will be accessible to vehicle assembles and automotive component manufacturers. Importantly, component manufacturer investments will not need to be focused on, or underwritten, by a vehicle assembler. The only prerequisite will be that investments are bona fide automotive investments.

- Second, the AIA will be payable over three years and not five as is the case with the PAA. This will mean that the annual benefit that firms receive will be 6.67% over three years as opposed to the current 4% over five years.

- Third, the AIA will be paid in the form of a fiscal grant to automotive component manufacturers, rather than a duty credit (although this will still apply to vehicle assemblers), and will therefore not result in additional imports.

- Fourth, an additional 10% may be made available to firms investing in high technology products, and investment linked training. This is related to the high additional costs that are incurred when investing in advanced capital and technologies.

Importantly, while the tariff change, VAA and AIA aspects of the APDP are due to be implemented on the 1st of January 2013, the AIA will be implemented in 2009, most likely in the middle of the year, with National Treasury already allocating R870 million in the 2009-2012 national budget for the programme. The expectation is that the AIA will result in substantial increases in investment levels in the future.

Summary: The major differences between the current MIDP (1995–2012) and the future APDP (2013–2020) are summarised in Table 21.

Table 21: A comparison of the MIDP and APDP architectures

	MIDP (1995 – 2012)	APDP (2013 – 2020)
Tariffs	The level of protection offered by tariffs has reduced consistently from 65% and 49% for CBUs and CKDs respectively in 1995, to 25% and 20% in 2012	The level of protection offered by tariffs will remain constant at 25% and 20% for CBUs and CKDs respectively from 2013 to 2020
Local Vehicle Assembler Allowance	**DFA** – 27% of the wholesale price of locally assembled vehicles is rebated against the duty payable on imported components when producing vehicles for the domestic market	**VAA** – 20-18% of the wholesale price of locally assembled vehicles is rebated against the duty payable on imported components that are used in the production of the vehicles, irrespective of where the vehicles are sold, as long as annual units per plant exceed 50,000
Industry incentives	**Export-linked duty credits** earned – benefits calculated on the value of local materials in the exported product	**Market-neutral Production Incentive** – benefits calculated on production value added only
Investment assistance	**PAA:** • Only benefits vehicle assemblers and 1st tier suppliers whose investment is linked to a local vehicle assembler • 20% benefit, payable over 5 years (4% per year)	**AIA:** • Benefits vehicle assemblers and auto component suppliers as long as investment is auto focused • 20% benefit, payable in the form of fiscal grant (component manufacturer) or duty credit (vehicle assembler) over 3 years (6.7% per year)

Overall, then, will the APDP offer greater, fewer or similar benefits to the South African automotive industry when compared with the MIDP? The answer to this question is that some firms will benefit more, some will benefit far less and others should continue to receive similar benefits. Overall, three particular aspects of the programme are very encouraging in terms of developing and supporting the South African automotive industry:

- The new programme will benefit the local industry in general and not only certain exporting sectors, as is presently the case.

- The APDP is focused on incentivising local value addition. This should lead to a growth of the local auto industry, not only at a 1st tier level but also at the 2nd and 3rd tier level, thereby shifting the industry from its present phase of transition, to full manufacturing.

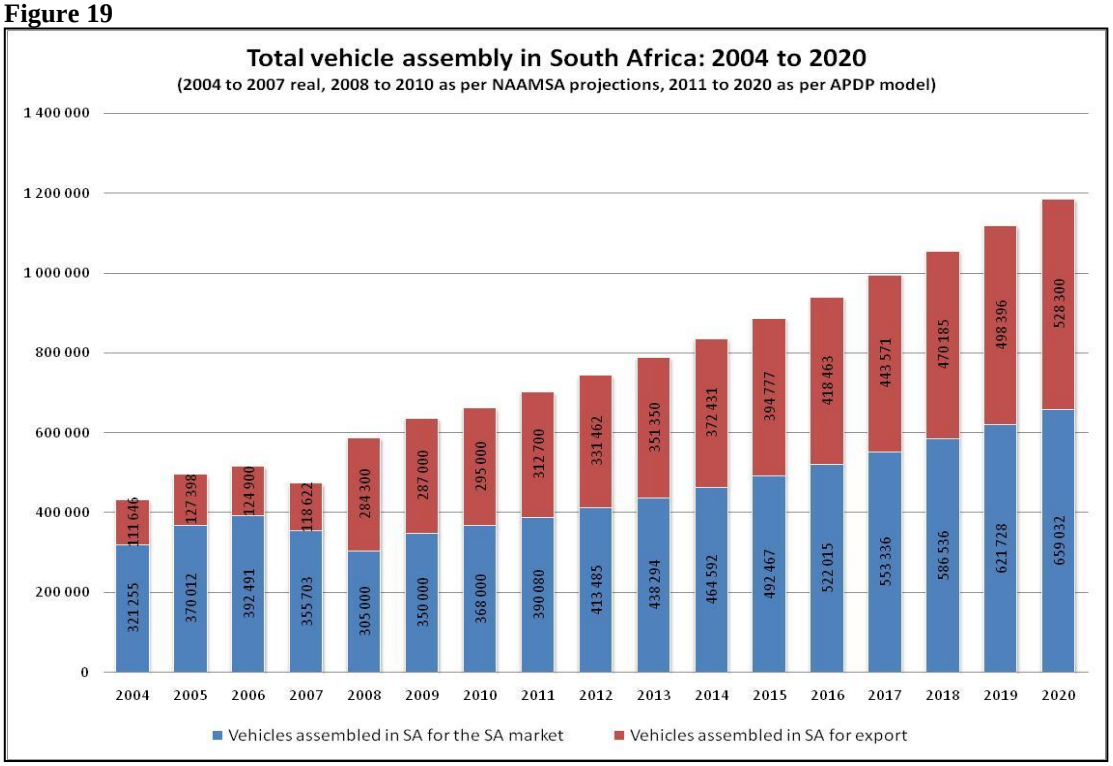
- The APDP offers the South African automotive industry policy certainty through to 2020 which should assist with long-term strategic planning. This is particularly important in the face of long-term investment cycles that characterise the industry.

- The programme encourages local vehicle assemblers to produce at least 50,000 units annually, thus providing the local components industry with the opportunity to manufacture at reasonable economies of scale.

3.6. Industry projections to 2020

Despite the South African automotive industry's present crisis, and the real difficulty it is likely to experience in respect of simply surviving over the next few months, it is nevertheless projected to expand significantly over the next decade. During the course of the development of the APDP, industry volumes were, for example, projected to reach 1,187,332 units in 2020. Whilst this may appear far too optimistic a projection it is important to note that it is based on NAAMSA's production projections to 2010 (as made at the outset of 2008), and then a 6% compounded annual growth rate on 2010 production levels. Production is moreover projected to be more or less equally split for the domestic and export markets, with 659,032 units projected for domestic market consumption and 528,300 for export markets. The projected growth of the industry to 2020 is presented in Figure 19.

Figure 19



Source: Adapted from Barnes and Black (2008b)

The growth of the South African automotive industry to the levels projected in Figure 19, will lead to substantial manufacturing value added and employment growth in the South African automotive assembly and components industry over the next 11 years. The extent of this growth is depicted in Figure 20, which captures the industry's projected increase in manufacturing value added (MVA) terms through until 2020, and Figure 21, which reveals the industry's anticipated employment gains to 2020. As revealed, the industry's MVA is expected to grow from around R40 billion in 2007 to well over R100 billion in 2020 (in 2007 Rand value terms); an increase of over 150%.

Similarly, employment is projected to grow from 120,940 in 2007 to 202,820 in 2020, representing total growth of 68%. The reason why employment is projected to grow more slowly than MVA is because substantial efficiency gains are expected to be realised in the South African automotive industry over the next 11 years – in terms of both vehicle assembly and automotive component manufacture. It is important to emphasise in this regard that the industry's ability to improve its efficiencies is central to the realisation of its growth projections. Given the industry's lack of competitiveness relative to major global players, it is essential that performance gaps are closed over the next few years; hence the projection that efficiencies (defined as Rand value addition for every unit of labour employed) will improve by at least 3% per annum.

Figure 20

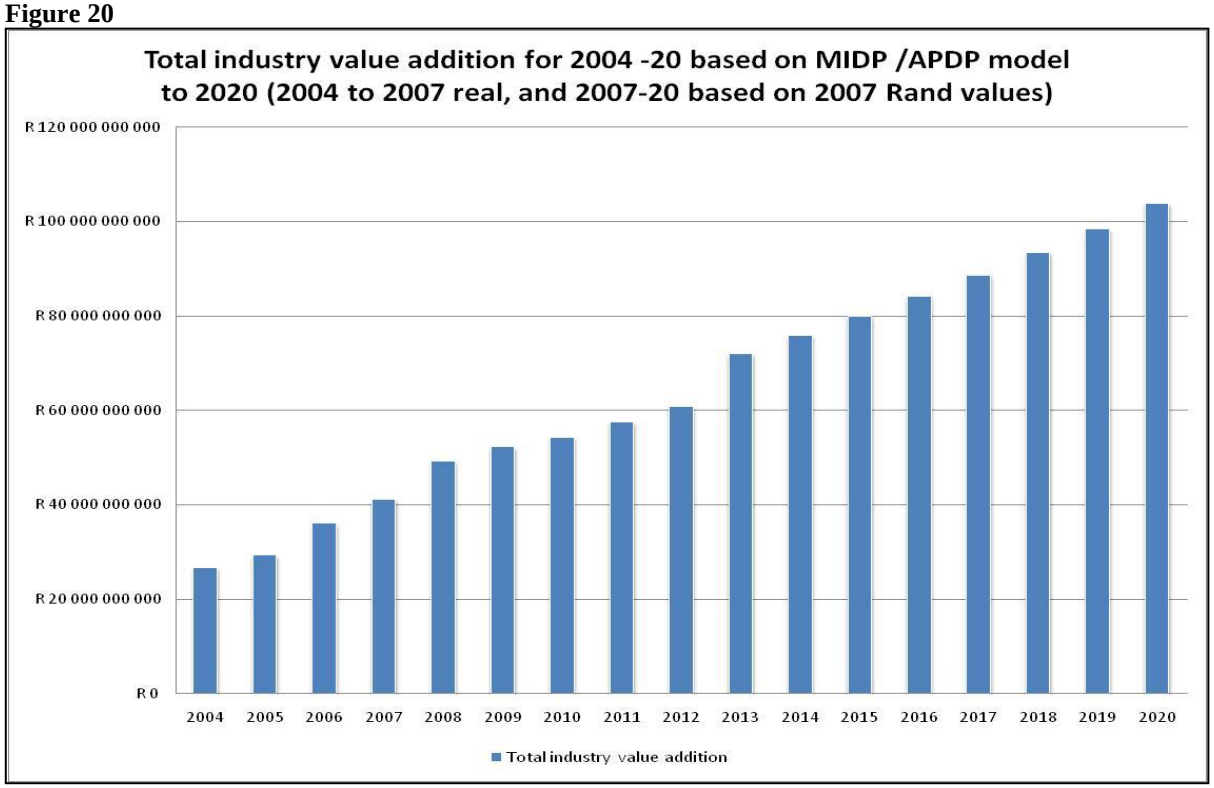
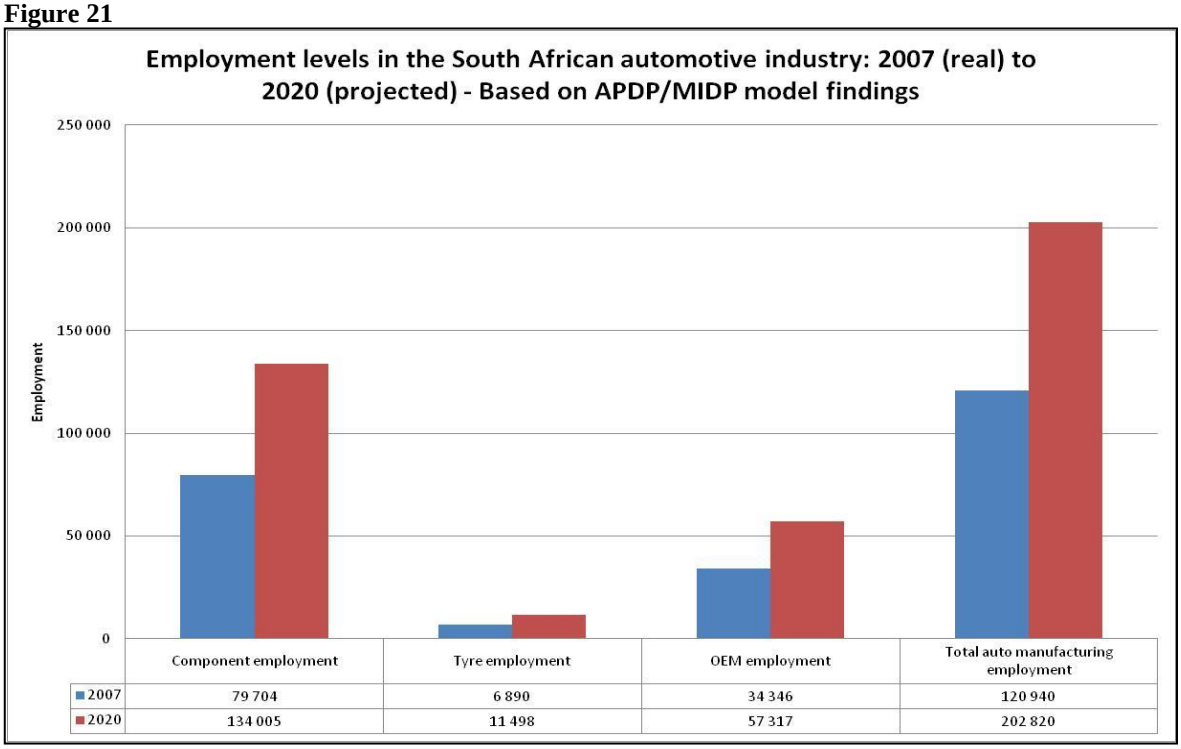


Figure 21



While the present crisis experienced by the industry may render the attainment of the 2020 projections implausible, the projections were made on the basis of considered analysis in the middle of 2008 – and appeared very possible then. The GCC may have fundamentally altered the automotive landscape over the last few months, and will most certainly result in firm closures and firm downsizing over the next few months, but the longer term projections made in 2008 still stand. The South African automotive industry, if developed appropriately over the next few years (see below), and in conjunction with the incentive structure of the APDP, could still achieve the projected levels indicated in the above figures.

3.7. World Class Manufacturing issues

Automotive industry productivity in the early 1990s was very low in South Africa, and well below global industry benchmarks. It has, however, improved very rapidly. Aggregate productivity data shows that the automotive industry has fundamentally outstripped manufacturing as a whole since the introduction of the MIDP in 1995 (Barnes and Black, 2003).

Data collected by the International Motor Vehicle Programme, based on detailed assembly plant surveys conducted in 1994 and 1996, showed that the average South African assembly plant compared poorly with assembly plants in other countries[15]. The main reasons for this can be ascribed to low levels of automation and the complexity of most assembly plants, which produced a range of models in relatively low volumes. Further, the industry failed to embrace World Class Manufacturing[16] standards that had come to prominence in the automotive industry in the late 1970s and early 1980s, which by the 1990s

[15] Unpublished data, International Motor Vehicle Programme.

[16] The term World Class Manufacturing can be used interchangeably with the terms 'Toyota Production System', 'Lean Production', 'flexible specialisation, and 'systemofacture'.

had become an operating standard within most of the leading automotive value chains evident internationally. A crude measure of assembly plant productivity is to measure vehicle output per employee. This fluctuates according to domestic market conditions but increased in South African by 68% over the period 1990-2005.

An important factor impacting on assembly plant productivity has been the reduction in the number of models produced, and to some extent, higher levels of automation. Improved operational competitiveness drawing on World Class Manufacturing principles has also played a role (Black and Barnes, 2003). But it is important to remember that model volumes remain fairly low as do levels of automation. Quality has also been much improved. In 2002, for instance, the Pretoria BMW plant at Rosslyn, outside Pretoria, received the highest quality rating of any German manufacturer supplying vehicles to the US. More recently the Mercedes plant in East London won plaudits for quality in relation to DaimlerChrysler's other global production sites. JD Power's 2005 survey showed that vehicles produced in South Africa had 23% more defects than imports. This was a large improvement on the previous year (when the figure was 43% higher).[17]

Similarly, rapid improvements have been made in the automotive components sector. Surveys of component firms in KwaZulu-Natal province, undertaken by Barnes (1998), showed significant improvements over the period 1994-97 in inventory levels, quality and indicators of external and internal flexibility.[18] Further gains were made over the period 1998-2001 although firms remained significantly behind the global frontier in respect of absolute performance levels. The performance of the South African component firms also tended to be better on internal benchmarks than where external factors played a role, for example in raw material inventories and supplier performance (Barnes, Kaplinsky and Morris, 2004).

Further to the competitiveness progress made in the late 1990s and early 2000s, South African automotive component manufacturers have continued to improve their operational performance through the mid 2000s. According to data generated through the SAABC, the average 'waste factor' within a sample of 78 South African automotive component manufacturers improved from 25.3% of their sales in 2004 to 20.8% of their sales in 2007. This 'waste factor' calculation undertaken by B&M Analysts[19], considers the cost raising effect of operational deficiencies in the South African firms, inclusive of their inventory holding, quality failures, production downtime and absenteeism rates[20]. Improvements in these areas have therefore been substantial enough to reduce waste within the firms by a full 4.5% of sales. Given the cost reduction challenges evident in the global automotive industry, this is obviously a very positive finding, suggesting that South African based automotive component manufacturers are responding to the competitiveness challenges confronting them; although performance is still some distance from that of a group of Central European firms benchmarked by B&M Analysts in 2007. The average 'waste factor' for the

[17] 'SA vehicles have 23 percent more flaws than imports' (*Business Report*, 1 November, 2005).
[18] See also Kaplinsky and Morris (1999)
[19] B&M Analysts is the service provider to the South African Automotive Benchmarking Club.
[20] The full set of factors included in this calculation are: Total inventory holding, customer returns, internal scrap rates, production downtime due to machine and tooling breakdowns, production downtime due to machine changeovers, and absenteeism.

44 firms based in that region was only 17.1% of their sales – 17.8% below the average South African standard.

The key competitiveness challenge confronting the South African automotive components industry therefore relates to whether the rates of improvement evident over the last few years, as well as absolute performance levels, are sufficient. Here, the jury is still out. As revealed in Table 22, and based on a slightly broader set of KPIs than explored above, South African component manufacturers are continuing to make good progress, with total inventory holding, external quality performance, delivery reliability, production reliability, and employee absenteeism all improving significantly from 2004 to 2007. The only area of minor performance deterioration relates to internal scrap rates. However, in spite of the improvements, performance remains some distance from the international frontier for certain of the KPIs. Most notably, internal quality performance and production reliability (both key cost raising indicators) are, comparatively, still very weak.

Table 22: Summary of recent competitiveness progress at South African automotive component manufacturers (2004-7), as well as performance relative to international standards

KPI	South African auto component firm performance levels (n=78)			International firm performance (n=81)
	2004	2007	Improvement %	2007
Total inventory holding (operating days)	38.8	34.8	10.3	32.5
Customer return rate (parts per million)	1,170	400	65.8	579
Internal reject rate (%)	4.1	2.9	29.3	1.9
Internal scrap rate (%)	3.5	3.6	(2.9)	1.1
On time and in full delivery reliability (%)	91.9	94.5	2.8	93.2
Production lost to machine breakdowns (%)	5.9	4.7	20.3	3.3
Absenteeism rate (%)	4.4	3.4	22.7	4.6

Source: B&M Analysts, SAABC database, accessed May 2008.

4. KwaZulu-Natal automotive industry analysis

As highlighted in Section 3 of this report, KwaZulu-Natal is widely considered to be the 3rd most important automotive location in South Africa, lagging the Gauteng and the Eastern Cape in terms of the number of vehicle assemblers in operation (KwaZulu-Natal only has Toyota SA, while the other two provinces have three assemblers each), as well as major and minor automotive component manufacturers. Such a crude synopsis is, of course, very misleading, since the province is host to the largest and most successful vehicle assembler both in South Africa, and internationally, as well as some of the most important automotive component manufacturers in the country. The importance of the provincial industry to the South African economy generally, and KwaZulu-Natal more specifically, is unpacked below.

4.1. Industry profile

The KwaZulu-Natal automotive industry is dominated by the Toyota assembly complex, which is located in the Durban Southern Industrial Basin (SIB). With a recently installed capacity of 220,000 vehicles, Toyota's Durban plant produced 142,811 vehicles in 2007, or 29.3% of all vehicles produced in South Africa. This production was broken down according to the following models:

1. Hilux/Fortuner LCV: 100,947
2. Corolla/Run-X passenger car: 31,208
3. Hiace mini-bus: 10,656

As 2007 was a model run-out year for the Toyota Corolla, production at the Toyota plant was skewed towards the production of Hilux/Fortuner models, which are built on the common International Multi-Vehicle (IMV) platform that Toyota developed in Thailand. This model platform will continue to be produced in volume at Toyota's Durban plant over the next few years, along with the new Corolla sedan. The Run-X hatchback replacement, the Aurus, is not being produced in Durban (now imported from Europe), whilst production of the Hiace is also expected to cease soon. The Toyota plant will consequently run on a two platform basis, with similar production levels anticipated for the Corolla and Hilux/Fortuner platforms over the next few years.

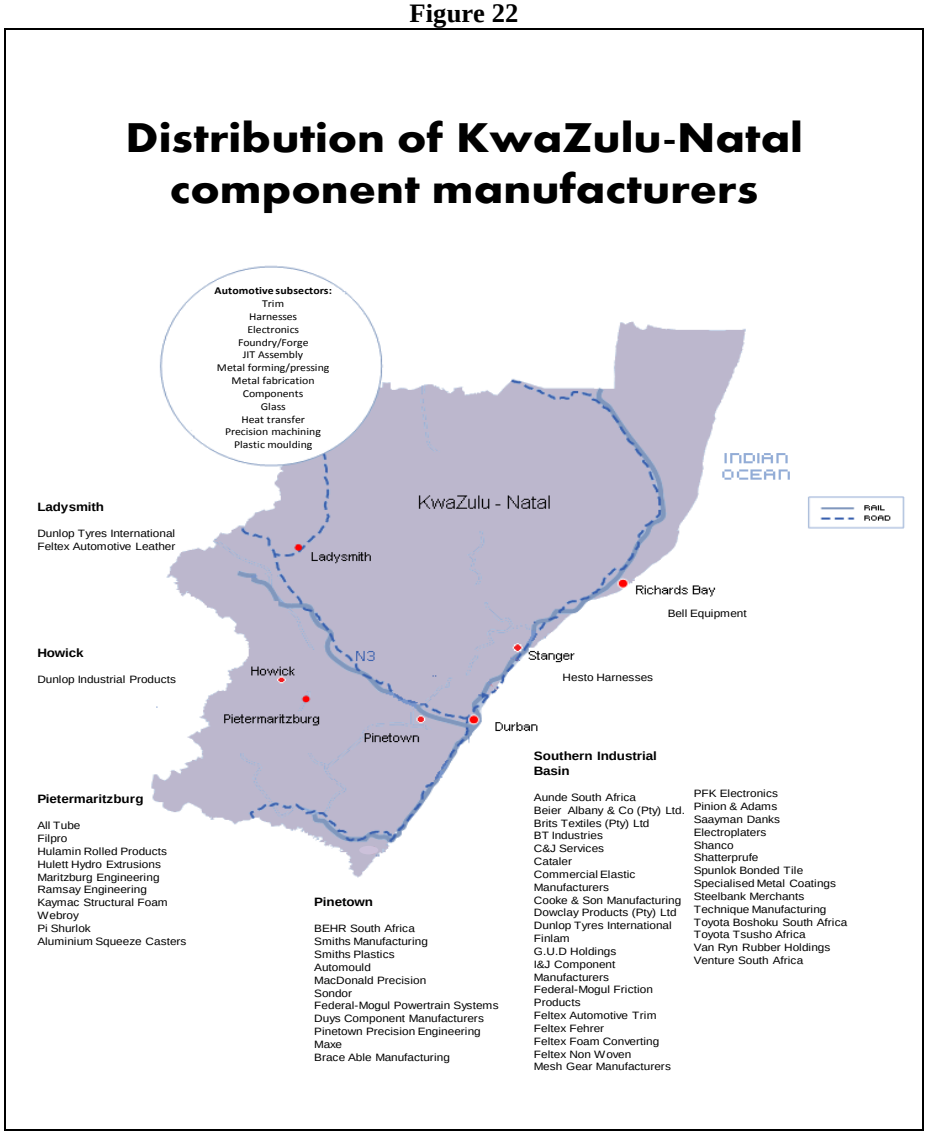
In addition, Volvo (Sweden) and MAN (Germany) have heavy vehicle assembly plants in the eThekwini Municipal area, but their volumes of a couple of thousand units each are so small that there is only a limited multiplier effect created, with few component manufacturers supplying into these operations. The second most important vehicle assembler in KwaZulu-Natal is in fact arguably not a vehicle assembler. This rather obtuse comment relates to Bell Equipment, the capital equipment manufacturer in Richards Bay, which is also one of the world's leading Articulated Dump Truck (ADT) manufacturers. As the leading employer in northern KwaZulu-Natal, and as a major purchaser of certain types of automotive components it contributes more positively to the provincial automotive industry than either of the Heavy Commercial Vehicle Assemblers based in Durban. In relation to Toyota's impact, its significance is however extremely small.

The automotive components industry in KwaZulu-Natal is strongly (although not exclusively) focused on supplying Toyota: many of the approximately 70 component manufacturers located in the province operate in close proximity to the Toyota production complex in the

Durban SIB. Other major production nodes include Pinetown (including Westmead and New Germany) in the western part of eThekwini, and the Willowton industrial area of Pietermaritzburg. A few major component manufacturers are also located in Congella, Durban, and Stanger, to the north of the city. Finally, there are two major component manufacturers in Ladysmith.

The geographical spread of KwaZulu-Natal based automotive component manufacturers is depicted in Figure 22, although it is important to emphasise that not all of the firms listed are of equal importance to the industry. Only major suppliers, defined as having more than 90% of their turnover in the automotive industry, and either employing more than 250 people, or generating sales greater than R100 million, are therefore listed in Table 23. In addition, the table captures their ownership profile, major products manufactured and approximate numbers of employees[21].

Figure 22



[21] Please note that employment levels are approximates only as a number of firms have substantially reduced their employment base since the start of 2009. The significant decline may, however, be transitory, and as such, late 2008 employment levels are represented in the table.

Table 23: Overview of major component manufacturers in KwaZulu-Natal

Plant location	Firm	Major products	Ownership	Employees
Durban SIB	Aunde	Sewn leather products	German MNC	1,300
	Cataler	Catalytic converters	Japanese MNC	100
	Dunlop Tyres	M&HCV Tyres	Indian MNC	900
	GUD Filters	Air, oil and fuel filters	SA – local holding company (private)	600
	Federal Mogul Friction Products	Brake and clutch linings and kits	American MNC	234
	Feltex Automotive Trim	Automotive carpets	SA – local holding company (private)	250
	Feltex Fehrer	Trim products	Swiss MNC-SA joint venture	250
	PFK Electronics	Automotive electronic systems	SA – private	250
	Toyota Boshoku	Seating systems	Japanese MNC	800
Pinetown	Smiths Manufacturing	Heat transfer products	Metair (publically listed)	750
	Smiths Plastics	Plastic mouldings	Metair (publically listed)	800
	Behr	Heat transfer products	German MNC	732
	Automould	Plastic mouldings	Metair (publically listed)	230
	Federal Mogul Powertrain Systems	Bearings and valves	American MNC	450
Stanger	Hesto Harnesses	Harness systems	Metair (publically listed)	1,900
Pietermaritzburg	Ramsay Engineering	Automotive pressings and fabrications	SA - private	468
	Pi Shurlok	Automotive Electronic systems	Shurlok (publically listed)	253
	Filpro	Air, oil and fuel filters	SA – local holding company	400
Ladysmith	Dunlop Tyres	Light Vehicle Tyres	Indian MNC	900
	Feltex Automotive Leather	Automotive leather	SA – local holding company	250

As clearly illustrated in Figure 22 and Table 23, the ownership profile of the KwaZulu-Natal automotive components industry is strongly influenced by Toyota, with a number of Japanese Multinational Corporations (MNCs) operating in the province as suppliers to Toyota, including Toyota Boshoku, Toyota Tsusho, and Cataler. In addition, two of Toyota's major global suppliers, Denso and Yazaki, have minority shareholdings in Smiths Manufacturing and Hesto Harnesses, respectively. Arguably, however, Japanese investment in the provincial automotive components industry is still very underdeveloped, with Toyota subsidiary plants in other locations (e.g. Thailand, Turkey, France and the United Kingdom) having far greater concentrations of Japanese MNC component manufacturer investments. Part of the reason for this is Toyota Japan's recent acquisition of Toyota South Africa, with its first equity stake only taken in the late 1990s, and full ownership of its South African subsidiary only occurring in 2005. Another less positive reason is the difficulty of securing Japanese MNC investments in a province they do not necessarily view as a priority location for future growth and development (stakeholder interviews).

The two major German investments in the KwaZulu-Natal automotive components industry (Behr and Aunde), as well as Federal Mogul's presence, are clear indications that the province is not totally dependent on Toyota's assembly operations, although these plants could easily be re-located to other South African provinces, or internationally, given the fact that they are not tightly linked to vehicle assembly operations. Major regional automotive component manufacturing conurbations are almost always tied to significant vehicle assembly activity[22], so the dependence of the provincial industry on Toyota is entirely consistent with international economic history.

It is also important to emphasise that the KwaZulu-Natal economy, and its associated vehicle and replacement components market, is not a driver of the provincial automotive industry. This is clearly reflected in Table 24, which outlines that the total provincial vehicle 'parc' was only 1.1 million vehicles or 14.3% of all vehicles on the road in South Africa in 2007. Holding all things equal, the provincial automotive manufacturing industry is proportionately far larger than the share of the provincial market in terms of aggregated national demand.

Table 24: South African vehicle parc by province (at the end of 2007)

Province	Total vehicle parc	% of SA vehicle parc
Gauteng	3,091,640	38.56
Western Cape	1,336,433	16.67
KwaZulu-Natal	***1,144,766***	***14.28***
Eastern Cape	552,879	6.90
North West	438,892	5.47
Free State	424,408	5.29
Mpumulanga	476,203	5.94
Limpopo	383,647	4.79
Northern Cape	168,158	2.10
South Africa	8,017,026	100

Source: NAAMSA

4.2. Production, investment and employment trends

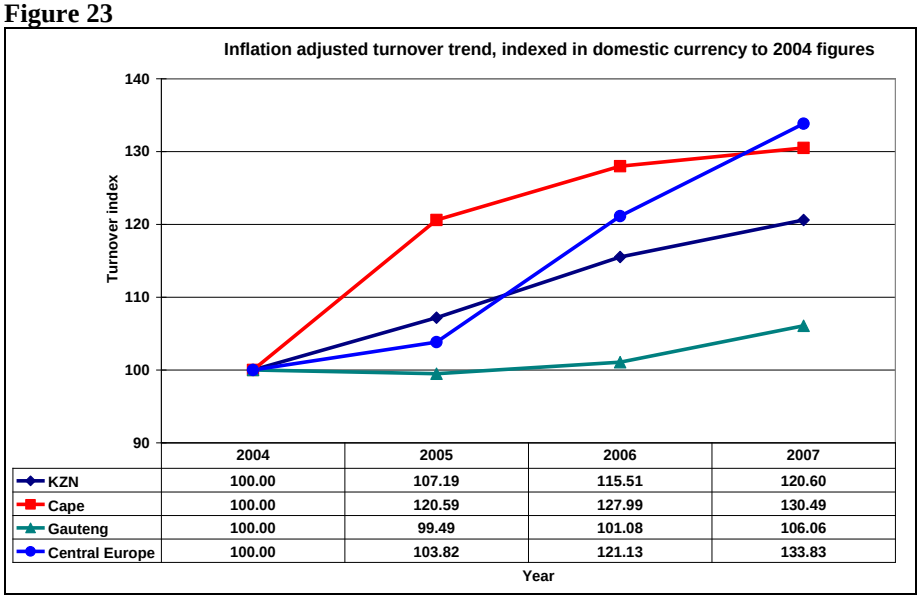
Based on the South African automotive industry's MVA of R39.7 billion, and holding Toyota's production share equal for the regional automotive components industry as well, total MVA from the KwaZulu-Natal automotive industry in 2007 can be estimated at approximately R11.6 billion, 90% of which would have been generated in the eThekwini municipal area, 5% in Pietermaritzburg, and the balance in the rest of KwaZulu-Natal (Ladysmith, Howick, and Stanger). Approximately half of this MVA, which would have been derived from R33.5 billion in sales, was generated from sales into the domestic market, and the balance from exports.

The growth of the KwaZulu-Natal automotive components industry over the last decade, as well as its future development, is therefore very strongly linked to the growth and development of the Toyota assembly plant in Durban. This growth is reflected in Figure 23,

[22] Only the growth of the Taiwanese automotive components industry has occurred independently of major automotive assembly supply. Even China initially struggled to grow its automotive components industry independently of major vehicle assembly, with consistent growth only occurring in that country when MNC vehicle assemblers set up significant, large-scale operations.

which outlines the comparative and absolute growth rates of a sample of KwaZulu-Natal automotive component manufacturers from 2004 to 2007. As revealed, firms based in KwaZulu-Natal grew their output 21% on an inflation adjusted basis (i.e. in real terms). This represented superior growth to that evident in the Gauteng, although growth in the Cape and Central Europe was marginally higher for the same period.

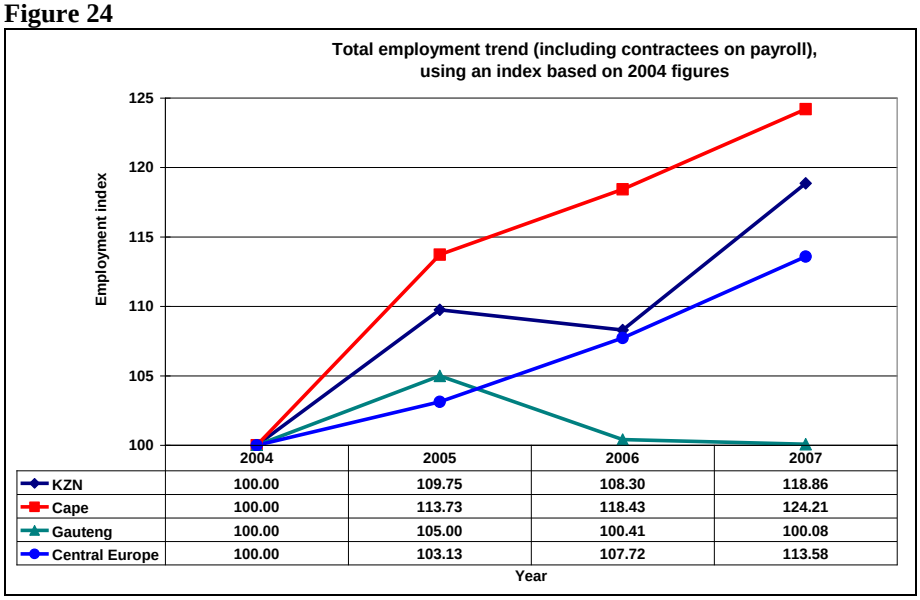
Figure 23



	2004	2005	2006	2007
KZN	100.00	107.19	115.51	120.60
Cape	100.00	120.59	127.99	130.49
Gauteng	100.00	99.49	101.08	106.06
Central Europe	100.00	103.82	121.13	133.83

Employment levels in the provincial automotive industry have reduced sharply since the last quarter of 2008, with at least 10% of the industry's jobs shed in the last five months. This trend would be entirely consistent with broader South African and international trends, revealing a significant short term structural crisis in the provincial industry. Notwithstanding this very negative recent trend, the KwaZulu-Natal automotive industry grew its employment impressively over the period 2004 to 2007. SAABC data reveals that average growth over that period averaged 19% at KwaZulu-Natal firms, ahead of the Gauteng and Central European averages (0% and 14% respectively), but behind the stronger growth recorded in the Cape (24%).

Figure 24



	2004	2005	2006	2007
KZN	100.00	109.75	108.30	118.86
Cape	100.00	113.73	118.43	124.21
Gauteng	100.00	105.00	100.41	100.08
Central Europe	100.00	103.13	107.72	113.58

As revealed in Table 25, the KwaZulu-Natal automotive components industry has also experienced reasonable financial returns over the last few years, with average Return on Investment (ROI) and operating profitability levels revealing comparatively strong performance relative to automotive component manufacturers in other parts of the country, as well as in Central Europe. However, both ROI and operating profitability levels deteriorated amongst KwaZulu-Natal automotive component manufacturers over the period 2004 to 2007, with average 2007 profitability standing at 12.2% and average ROI only 23.3% (over 6% below the four year average of 29.4%). The impressive financial returns secured have encouraged reasonably high levels of capital investment in the industry, with KwaZulu-Natal automotive component manufacturers investing more than 5% of their sales in new capital equipment in three of the four years from 2004 to 2007, resulting in average annual expenditure equivalent to almost exactly 5% of sales. Firms in the Gauteng and Central Europe did, however, invest more than this over the same time frame, with the Gauteng firms averaging 5.4% (due to high investment levels in 2007) and Central European firms an exceptionally high 7.5%.

Table 25: Average ROI, operating profitability and capital investment levels for the period 2004 to 2007 (all expressed as a percentage of sales)

Region	ROI (%)	Operating profitability (%)	New capital equipment expenditure (%)
KwaZulu-Natal	29.39	12.97	4.99
Cape	30.91	10.19	3.53
Gauteng	17.88	10.61	5.36
Central Europe	N/A	9.31	7.47

4.3. Automotive trade data

National automotive trade data is extremely difficult to unpack at a provincial level, particularly in respect of imports, as most imported vehicles and components do not have a particular declared province in which they are sold. Exporting figures in respect of vehicles can be calculated, as any Toyota export from South Africa is sourced from KwaZulu-Natal, but vehicle importing figures, as well as component manufacturing exports and imports, can only be modeled on the basis of vehicles sold and manufactured in the province relative to South Africa more generally. Holding these shares equal, we can approximate exporting and importing levels at the following levels:

1. 29.3% of all original equipment components imported into South Africa are likely to be sourced for KwaZulu-Natal vehicle assembly, as this is the provincial share of national vehicle production.
2. 14.1% of all vehicle imports into South Africa are likely to be sold in KwaZulu-Natal as this is the province's share of domestic vehicle sales
3. 14.3% of all aftermarket components imported into South Africa are likely to be sold in KwaZulu-Natal, as this represents the provincial share of the total vehicle parc

5. Firm level competitiveness dynamics

5.1. Introduction

Focusing on firm-level financial and operational performance data generated from automotive component manufacturers in KwaZulu-Natal, the Eastern and Western Cape, Gauteng, and finally a set of firms based in Central Europe, it is clear that there is substantial opportunity for competitiveness upgrading amongst KwaZulu-Natal component manufacturers. Whilst the performance of the KwaZulu-Natal based firms is comparable to those firms in the other South African provinces, the Central European dataset suggests scope for significant competitiveness improvement across a range of key operational variables.

All of the data presented in this section is derived from the ongoing activities of the SAABC, a continuous improvement structure that is closely aligned with the Durban Automotive Cluster (DAC). The composition of firms included in the annual benchmarking activities of the SAABC is presented in Table 26.

Table 26: Profile of firms in the SAABC database by plant location (December 2007)

Profile Indicator	KwaZulu-Natal	Eastern and Western Cape	Gauteng	Central Europe
Ownership	Local: 69.6%, MNC: 30.4%	Local: 47.2%, MNC: 52.8%	Local: 52.6%, MNC: 47.4%	Local: 55.0%, MNC: 45.0%
# employees	1-150: 21.7%, 151-250: 17.4%, 251+: 60.9%	1-150: 25.7%, 151-250: 22.9%, 251+: 51.4%	1-150: 47.4%, 151-250: 21.1%, 251+: 31.5%	1-150: 5.3%, 151-250: 15.8%, 251+: 78.9%
Turnover (R millions)	0-30: 18.2%, 30-100: 18.2%, 100-250: 36.4%, 250+: 27.2%	0-30: 9.1%, 30-100: 12.1%, 100-250: 36.4%, 250+: 42.4%	0-30: 0.0%, 30-100: 44.4%, 100-250: 27.8%, 250+: 27.8%	0-30:0.0%, 30-100: 13.3%, 100-250: 13.3%, 250+: 73.4%
Annual operating days	247.4	243.0	233.0	254.3
Shifts/day	2.1	2.3	1.2	2.6
Hours/shift	8.7	8.4	8.3	8.0
Primary market	OEM: 37.0%, Aftermarket: 33.3%, Other: 29.7%	OEM: 58.7%, Aftermarket: 17.4%, Other: 23.9%	OEM: 56.5%, Aftermarket: 21.7%, Other: 21.8%	OEM: 57.1%, Aftermarket: 12.5%, Other: 30.4%
Industry accreditations	ISO 14001: 76.2%, ISO/TS: 85.7%	ISO 14001: 64.7%, ISO/TS: 91.2%	ISO 14001:7.4%, ISO/TS: 89.5%	ISO 14001: 42.9%, ISO/TS: 57.1%
Exports as sales %	13.6%	25.5%	8.61%	73.0%
Imports as purchase %	37.7%	40.2%	41.4%	56.9%

As revealed from the above profile table, KwaZulu-Natal automotive component manufacturers are distinctive from component manufacturers in other parts of South Africa on two fronts. Firstly, more of the firms are locally, as opposed to multi-nationally, owned. Secondly, the industry has the strongest orientation to the aftermarket of the three regional datasets. Relative to the firms benchmarked in Central Europe, KwaZulu-Natal firms are generally smaller, operate less days annually, and have substantially lower exporting and importing levels[23].

The SAABC's market driver benchmarking methodology approach to analysing firm competitiveness in respect of their cost control, quality, reliability, flexibility, human resource development and production innovation performance is explored in this section. The focus is on performance levels in 2007, as well as recent changes in performance, typically from 2004. The market driver methodology is explained in Table 27.

Table 27: Summary of the SAABC's 'market driver' measurement system

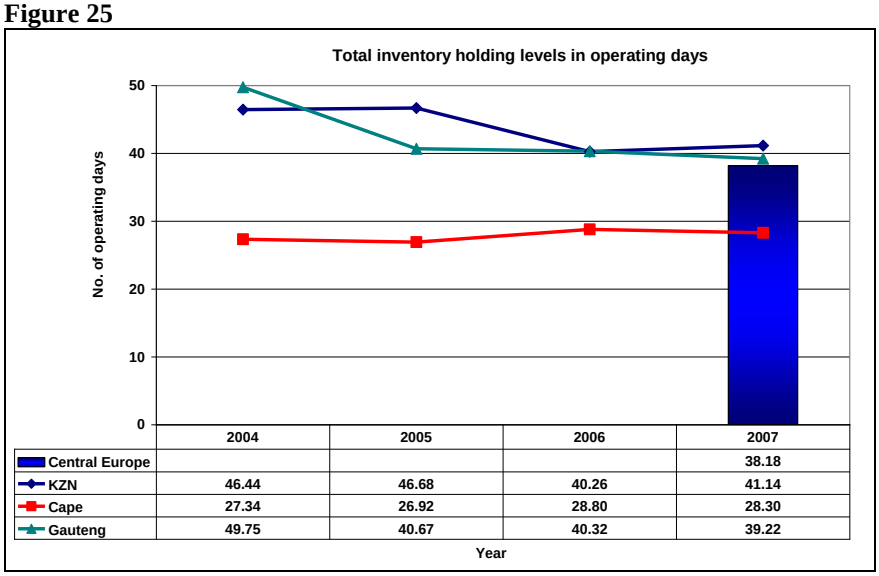
Market driver	Measures	Indicative value
1. Cost control	• Total inventory levels	Inventory is a sound proxy for cost control at manufacturers. Firms with low inventories are operating just in time systems and are therefore in control of their costs. Raw material, WIP and finished goods stock are all cost contributors.
2. Quality	• Customer return rates (0km failures) • Internal scrap rates • Return rates to suppliers	Customer returns reveal customer quality satisfaction, but offer an insufficient indication of internal quality performance. Firms may have poor internal systems, but provide quality products by following stringent checks at the end of processes. Here quality costs! Low customer returns need to be supported by low scrap rates and strong supplier quality if firms are to manufacture low cost, quality products.
3. Value chain flexibility	• Customer lead times • Production time lost to machine/tool changeovers • Supplier lead time	Value chain flexibility is determined by the speed at which a firm accepts a customer order and converts this to a delivered product. Key value chain variables for any firm is the flexibility of its suppliers, the flexibility of its own operations and finally the flexibility of its customer interface.
4. Value chain reliability	• Customer delivery reliability • Production lost to machine breakdowns • Supplier delivery reliability	No firm can operate flexibly without performance consistency. Ascertaining the value chain reliability of firms is thus as critical as measuring their flexibility. Operational reliability is moreover a central industry requirement, with on time and in full delivery a key demand. Measuring this indicator, along with the reliability of a firm's own operations and that of its suppliers is thus essential.
5. Human resource development	• Basic education levels of operators • Training expenditure • Absenteeism • Value added per employee	Vehicle assembler demands are becoming more onerous. Whether firms fail or grasp the opportunities afforded by these demands depends on the management of their human resources. The four dimensions to any change are manpower, machines, materials and methods, but it is the first that determines ability to deal with the others. Analysing whether firms are securing high levels of employee efficiency, investing in their employees, and securing high levels of employee commitment is thus critical.
6. Product development	• R&D expenditure	A success determinant for any component firm is its ability to bring new products to market. R&D expenditure indicates the extent to which firms control their own destiny in this regard.

[23] The Central European dataset is illustrative of an 'integrated peripheral market' with production closely integrated into the dominant West European production base. This is indicated by the very high average levels of importing and exporting evident.

5.2. Cost control performance

As highlighted in Figure 25, total inventory holding amongst KwaZulu-Natal automotive component manufacturers is higher than evident for any of the comparative groups. At 41.1 days, the KwaZulu-Natal average is nearly 50% higher than the Cape average of only 28.3 days. This differential has significant cost raising implications for the KwaZulu-Natal firms, revealing substantial opportunities to drive costs down in the provincial automotive components industry.

Figure 25

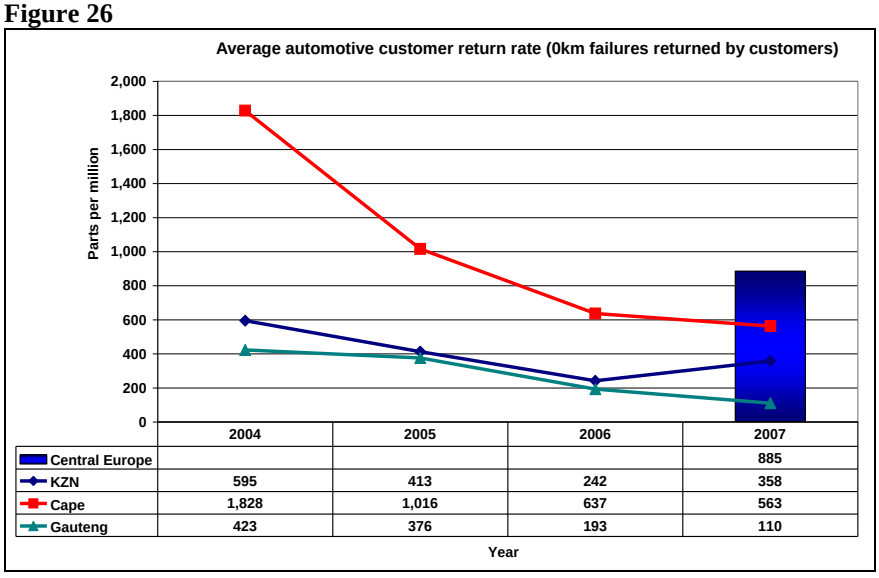


	2004	2005	2006	2007
Central Europe				38.18
KZN	46.44	46.68	40.26	41.14
Cape	27.34	26.92	28.80	28.30
Gauteng	49.75	40.67	40.32	39.22

5.3. Quality performance

KwaZulu-Natal automotive component manufacturers generally provide their customers with quality products. Average customer quality failure rates (exclusive of warranty claims) were 358 parts per million (ppm) in 2007, or less than half the Central European average of 885 ppm. Performance is also ahead of component manufacturers in the Eastern Cape, although Gauteng based automotive component manufacturers achieved exemplary comparative performance levels, at only 110 ppm.

Figure 26



	2004	2005	2006	2007
Central Europe				885
KZN	595	413	242	358
Cape	1,828	1,016	637	563
Gauteng	423	376	193	110

The major quality challenge for KwaZulu-Natal based automotive component manufacturers appears to lie in their internal processes, as well as the performance of their suppliers. Average scrap rates (as a percentage of material purchase values) are higher in KwaZulu-Natal than in the Cape and Gauteng, and substantially higher than in Central Europe (4.5% versus 0.8%). This has a major cost raising impact on firms, with the deterioration in performance amongst KwaZulu-Natal firms from 2005 to 2007 particularly concerning (see Figure 27). Similar concerns can be raised in respect of supplier quality failures into the provincial industry. KwaZulu-Natal automotive component manufacturers fail almost 1% of all components and materials delivered into their operations (9,869 ppm, where 1% is equal to 10,000 ppm) relative to only around 6,500 ppm at Gauteng and Cape firms, and 4,500 ppm at Central European firms. This is illustrated in Figure 28, along with the decline in average performance at KwaZulu-Natal component manufacturers from 2006 to 2007.

Figure 27

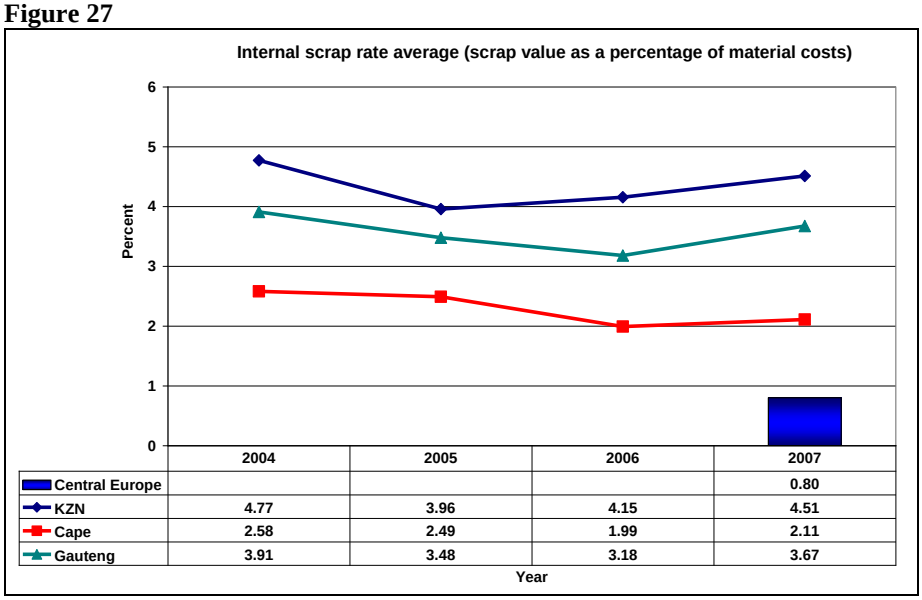
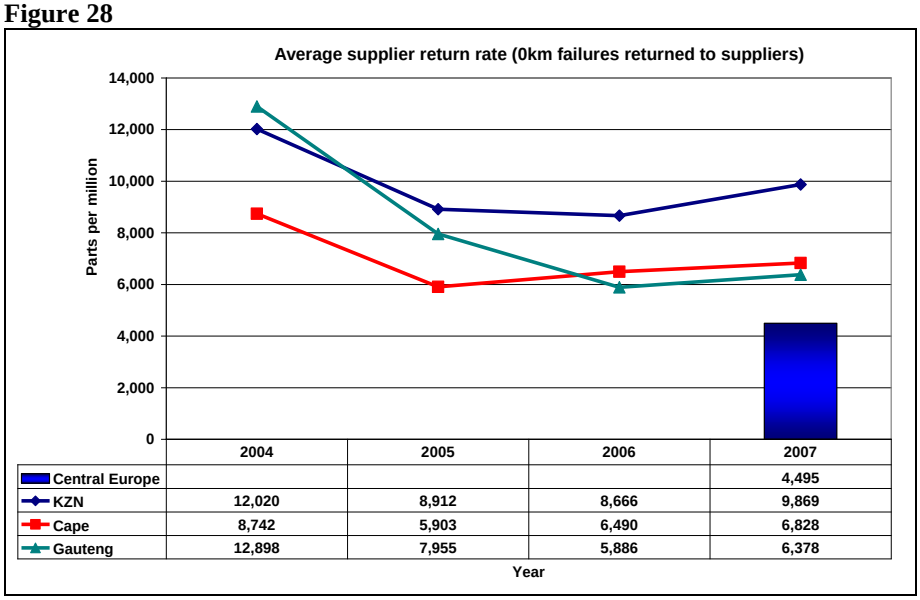


Figure 28

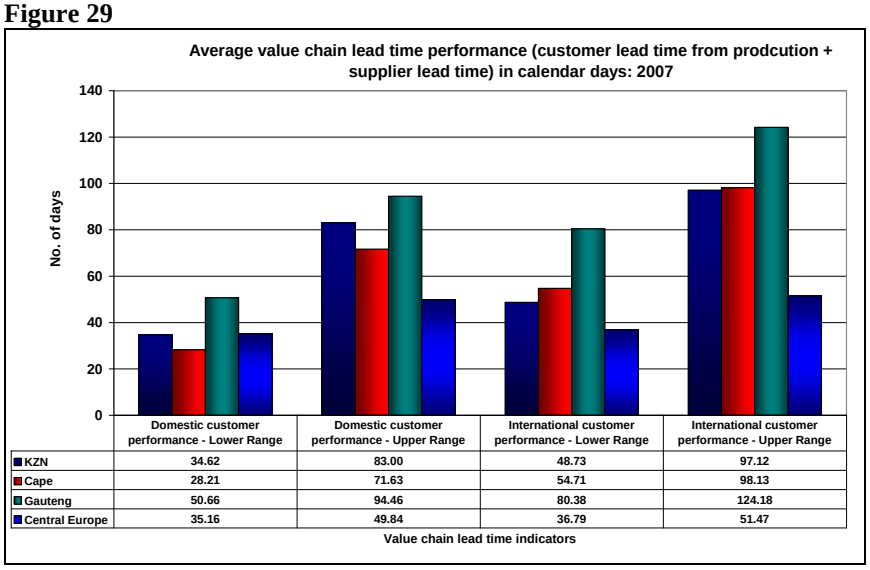


5.4. Flexibility performance

The average flexibility of KwaZulu-Natal automotive component manufacturers is behind that of the Cape firms, but well ahead of those based in the Gauteng. As revealed in Figure 29, this applies to both domestic and international customers, and for those firms performing at the upper (lower range) and lower quartile (upper range) levels. Leading KwaZulu-Natal automotive component manufacturers are performing at similar levels to their Central European counterparts when supplying to domestic customers, but performance within the upper range is substantially weaker, with comparative international customer lead time performance universally weak.

The logistics advantage that Central European firms have over their South African counterparts is very clear from Figure 29, due to the major proximity advantage firms in that part of the world have when supplying into a major developed economy region, such as Western Europe; also South Africa's major automotive trading partner.

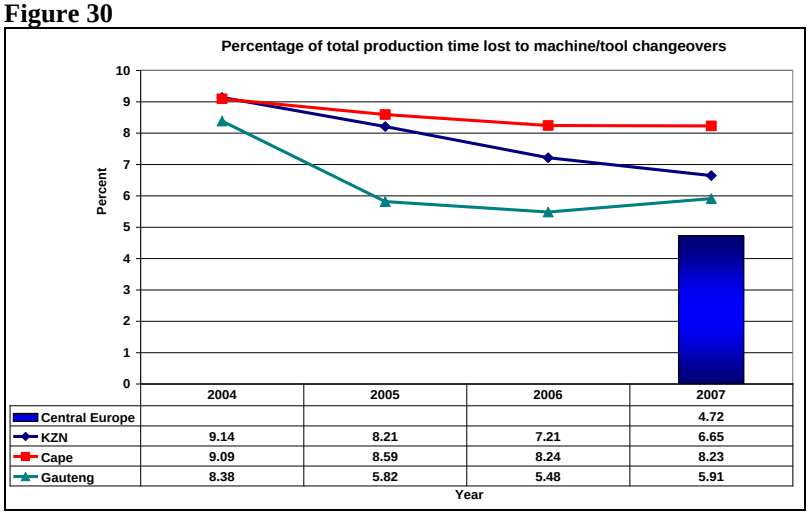
Figure 29



	Domestic customer performance - Lower Range	Domestic customer performance - Upper Range	International customer performance - Lower Range	International customer performance - Upper Range
KZN	34.62	83.00	48.73	97.12
Cape	28.21	71.63	54.71	98.13
Gauteng	50.66	94.46	80.38	124.18
Central Europe	35.16	49.84	36.79	51.47

Not only do South African automotive component manufacturers have longer production lead times than their Central European counterparts, they also lose more of their production capacity to machine and tool changeovers, suggesting that they manage their internal operations less flexibly and/or incur greater costs as a result of the flexibility demands being placed on them. For example, KwaZulu-Natal automotive component manufacturers lose an average of 6.7% of their production time to changeovers relative to only 4.7% at Central European firms. Cape firms perform well behind the KwaZulu-Natal firms in this regard, but the average for Gauteng firms is slightly stronger at 5.9%. Positively, the average for KwaZulu-Natal firms has consistently improved from 2004 to 2007, suggesting significantly improved flexibility performance in the province (albeit off a comparatively weak operating base).

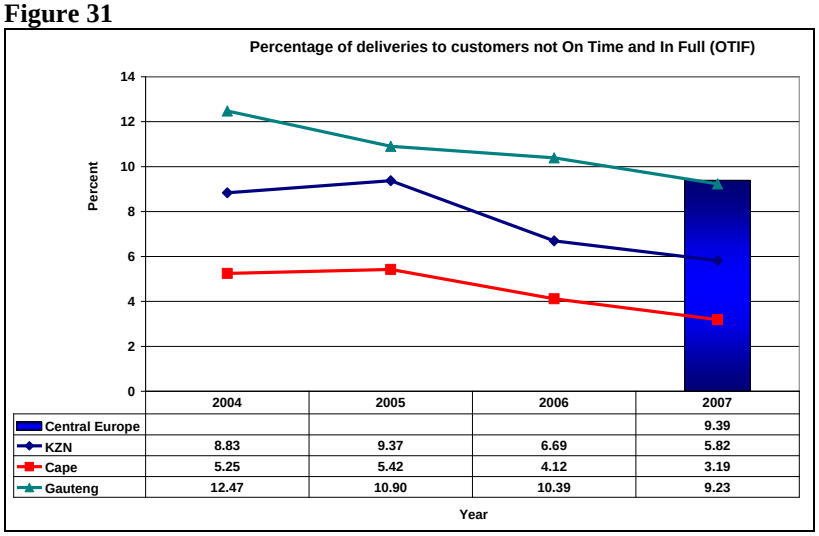
Figure 30



5.5. Reliability performance

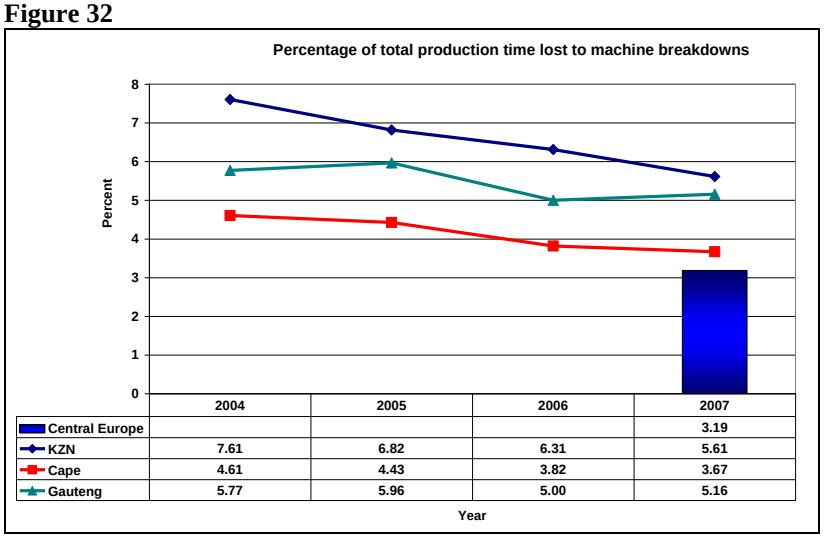
KwaZulu-Natal automotive component manufacturers perform well above the average levels of the Central European firms in the SAABC database. Average delivery failure rates (i.e. deliveries that are not on time or in full) are presented in Figure 31, which shows that 5.8% of KwaZulu-Natal automotive component manufacturer deliveries to customers fail, versus 9.4% of Central European deliveries, and 9.2% at Gauteng firms. Only Cape based firms outperform the KwaZulu-Natal automotive component manufacturers, achieving 3.2% in 2007.

Figure 31



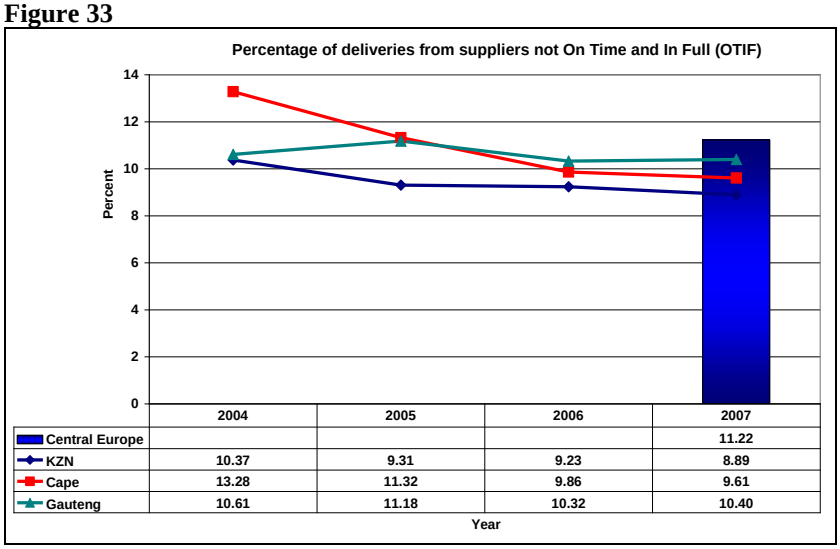
One of the reasons for failed deliveries at KwaZulu-Natal automotive component manufacturers is equipment failure, which averages 5.6% of total production time amongst provincial firms. This represents the weakest comparative performance of all firms, with Central European firms achieving production downtime rates of only 3.2%, Cape firms 3.7%, and Gauteng firms 5.2%. Maintaining equipment on a preventative or predictive, as opposed to breakdown, basis is therefore an operational imperative at KwaZulu-Natal automotive component manufacturers, although it is positive to note the significant improvement in performance, evident for the period 2004 to 2007.

Figure 32



Supplier delivery failure rates are substantially higher into the KwaZulu-Natal automotive component manufacturers (8.9%) than evident for customer delivery failure rates. And yet, KwaZulu-Natal firms demonstrate the strongest performance of the four categories, with Central European supplier delivery failure rates as high as 11.2%. The rate of improvement evident in KwaZulu-Natal is not as impressive for customer deliveries, indicating major reliability issues at the 2nd and 3rd tiers of the automotive supply chain.

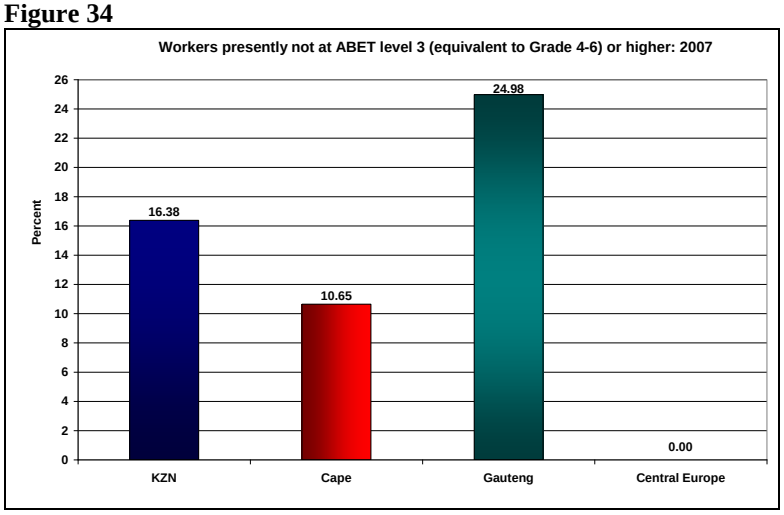
Figure 33



5.6. Human resource development performance

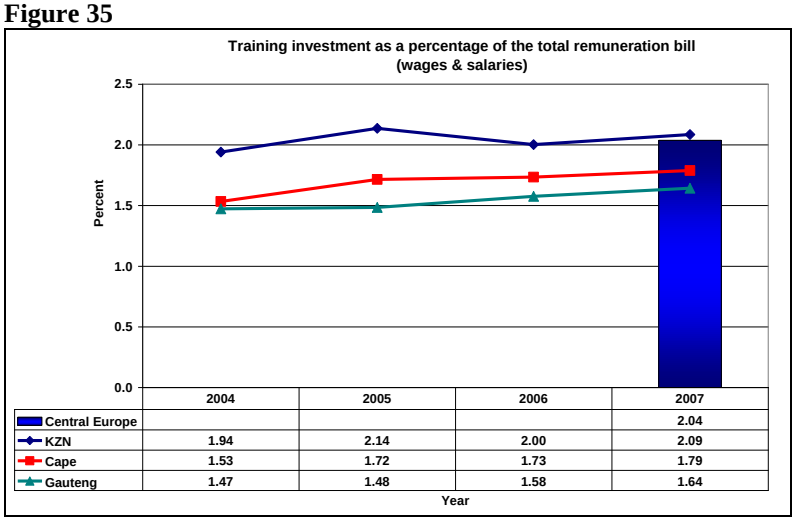
It is concerning that 16.4% of employees in the KwaZulu-Natal automotive components industry (i.e. one in six employees) were deemed to be functionally illiterate and innumerate in 2007. Whilst the level of illiteracy and innumeracy is estimated to be even higher in the Gauteng, this is a poor benchmark, with the average in the Cape 10.7% and in Central Europe zero – representing full numeracy and literacy.

Figure 34



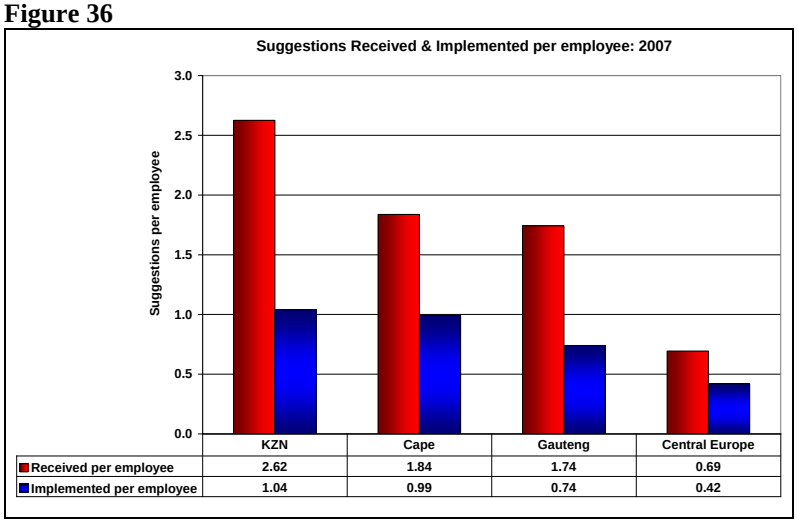
Given the limited base skills set evident in the provincial automotive industry it is encouraging to note that the levels of expenditure on training in KwaZulu-Natal are higher than elsewhere – at 2.1% versus 2.0% in Central Europe, 1.8% in the Cape and 1.6% in the Gauteng. KwaZulu-Natal firms have, moreover, consistently spent 0.3% to 0.4% more of their total remuneration bill (wages and salaries) on training than their other South African counterparts. Given the basic skills gap that exists between Central European and KwaZulu-Natal workers (see Figure 34), the marginally higher expenditure in KwaZulu-Natal may not be sufficient to close the skills gap on the Central European firms.

Figure 35



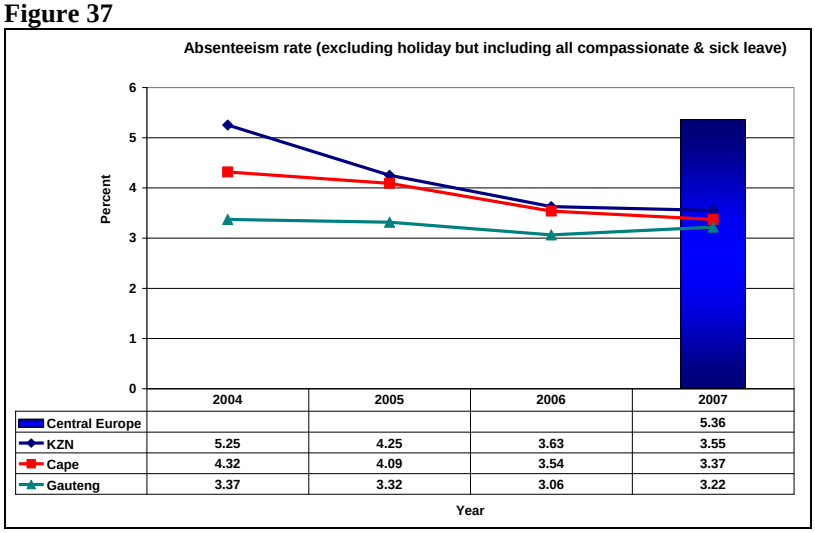
The consistently higher levels of training expenditure at KwaZulu-Natal firms appear to have had a positive impact on worker participation levels in suggestion scheme programmes. This is clearly illustrated in Figure 36, which reveals that the average automotive component manufacturer in KwaZulu-Natal secured 2.6 suggestions per worker in 2007; substantially more than secured in the Cape and Gauteng, and nearly four times the level of the average Central European firm (only 0.7 suggestions per employee). The ratio of suggestions actually implemented is not as impressive at the KwaZulu-Natal firms, although the figure of just over one suggestion implemented per employee in the year is still ahead of all the comparative averages.

Figure 36



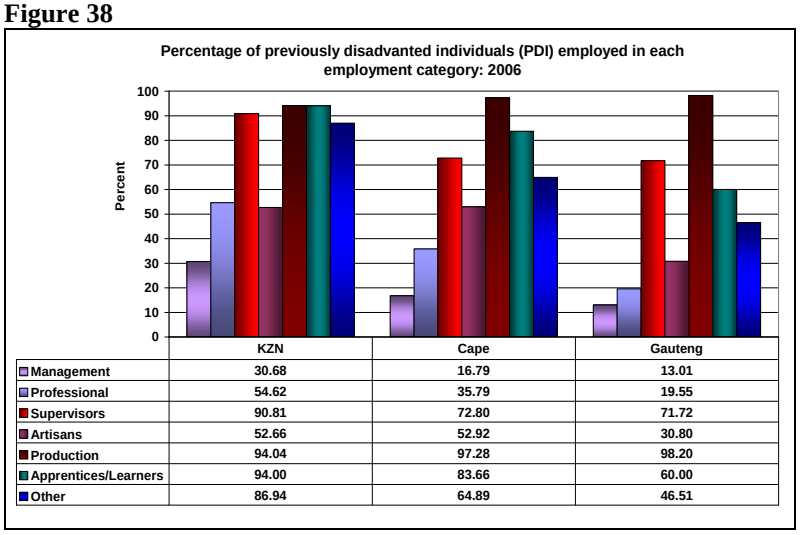
KwaZulu-Natal automotive component manufacturers experienced the most significant improvement in absenteeism performance amongst all the categories of firms for the period 2004 to 2007, although absolute absenteeism levels (3.6%) remained slightly higher than evident in the Cape (3.4%) and Gauteng (3.2%) in 2007. Relative to the poor performance of the Central European firms (5.4% absenteeism in 2007), KwaZulu-Natal performance is, moreover, stellar.

Figure 37



The final HR indicator reflected on in this section relates to the proportion of Previously Disadvantage Individuals (PDIs) employed at KwaZulu-Natal automotive component manufacturers relative to firms in the Cape and Gauteng. As revealed in Figure 38, KwaZulu-Natal firms have a substantially healthier employment equity profile, with 31% of management defined as PDIs (relative to only 17% in the Cape and 13% in the Gauteng), and 91% of supervisors (versus 73% in the Cape and 72% in the Gauteng).

Figure 38

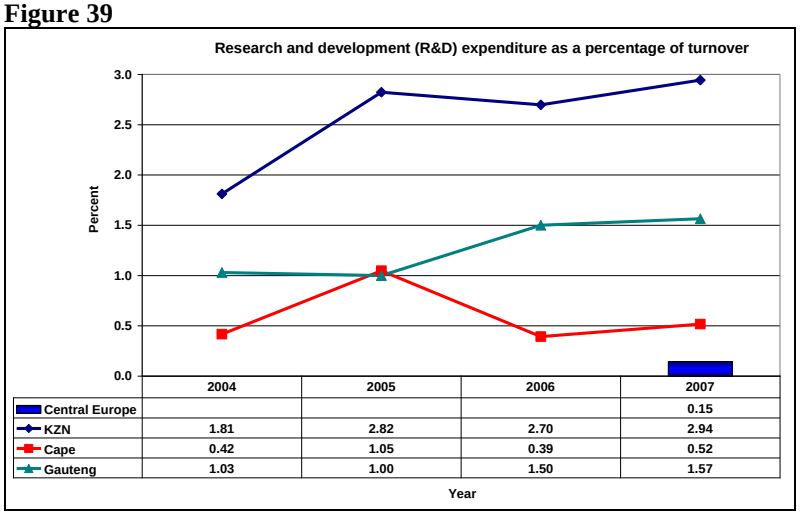


	KZN	Cape	Gauteng
Management	30.68	16.79	13.01
Professional	54.62	35.79	19.55
Supervisors	90.81	72.80	71.72
Artisans	52.66	52.92	30.80
Production	94.04	97.28	98.20
Apprentices/Learners	94.00	83.66	60.00
Other	86.94	64.89	46.51

5.7. Product innovation performance

Whilst the South African automotive industry undertakes very limited product innovation, as explained in Table 20, the trend data presented in Figure 39 reveals that some level of Research and Development (R&D) activity is taking place in the KwaZulu-Natal automotive components industry. Average R&D expenditure in KwaZulu-Natal represented 2.9% of sales in 2007; nearly double the Gauteng average, over five times the Cape average and many times the very low Central European average of only 0.15%. R&D expenditure in the province is however highly uneven, with only a handful of firms having any R&D capabilities. These firms are concentrated in the electronics and associated vehicle security sub-sector of the automotive components industry.

Figure 39



	2004	2005	2006	2007
Central Europe				0.15
KZN	1.81	2.82	2.70	2.94
Cape	0.42	1.05	0.39	0.52
Gauteng	1.03	1.00	1.50	1.57

5.8. Performance summary

Summarising the firm-level competitiveness position of the KwaZulu-Natal automotive components industry is difficult, as there are both positive and negative elements to its comparative performance. Operationally, KwaZulu-Natal firms perform admirably in terms of their quality (outperformed only by Gauteng) and reliability performance (second only to the

Cape, due primarily to a higher rate of equipment failure), but poorly in terms of cost control (inventory holding) performance and their supply chain (lead time) flexibility.

While the levels of investment in product innovation are relatively strong amongst KwaZulu-Natal automotive component manufacturers, this is within a context of limited R&D spending typical of a developing economy. Central Europe, in a similar position, consequently provides a poor benchmark for the provincial automotive components industry.

Overall, the KwaZulu-Natal industry displays the potential to achieve world class levels of manufacturing performance, but at the same time also exhibits a number of areas of deficiency that need to be substantially upgraded. While it is acknowledged that South Africa as a whole is significantly disadvantaged from a logistics point of view, this makes it all the more critical for South African firms, and particularly those in KwaZulu-Natal, to at least match international benchmarks, such as those posed by Central Europe.

6. Strategic position of the KZN automotive industry

Although the South African automotive industry is deemed to be strategically vulnerable by a number of leading academics, the national government has set substantial growth targets for the sector through to 2020, and the country's market potential remains significant (even if not by the standards of a China, India, Brazil or Russia). Given the parameters of the MIDP to 2012 and the APDP from 2013 to 2020, projected domestic market growth to 1,294,783 units in 2020 will create a solid foundation for the development of the South African automotive industry in line with the national government's objectives. Holding KwaZulu-Natal's 2007 position in the South African automotive industry equal through to 2020, the achievement of the national 2020 growth objectives will have substantial multipliers for the provincial automotive industry. These are unpacked in Table 28, and as revealed the KwaZulu-Natal automotive industry will grow very impressively to 2020 if it manages to maintain its South African production and market share.

Table 28: KZN production and market sales relative to South Africa (2007 and 2020 projections)

Indicators	2007 performance data			2020 projected performance		
	South Africa	KZN	KZN as % SA	South Africa	KZN	KZN as % SA
Vehicle production	474,325	138,977	29.3	1,187,332	347,888	29.3
Manufacturing Value Addition	R41,190m	R12,069m	29.3	R103,879m	R30,437m	29.3
Employment	120,940	35,435	29.3	202,820	59,426	29.3
Market sales	639,039	90,104	14.1	1,294,783	182,564	14.1

Whether the KwaZulu-Natal automotive assembly and components industry prospers to a greater or lesser extent than the South African average is entirely dependent on its ability to build its comparative strengths (S), resolve its comparative weaknesses (W), exploit future opportunities (O), and mitigate emerging threats (T). It is to these key competitiveness issues that this section therefore turns, with all four elements of the SWOT derived from both the primary and secondary research components of the strategy development process.

6.1. Strengths

Seven major competitive strengths appear evident for the KwaZulu-Natal automotive industry.

First, stakeholder interviews are unequivocal in identifying the location of Toyota in the Durban SIB as the KwaZulu-Natal automotive industry's single, most important competitive strength. Analysis of global and domestic production data further supports this contention. Not only is Toyota one of the world's most recognised brands; it is presently the largest vehicle assembler globally and in South Africa. Even more importantly, it is recognized as having the best production capability of all vehicle assemblers and is therefore widely anticipated to dominate vehicle manufacturing internationally over the next decade. Toyota is moreover presently the only vehicle assembler in South Africa with an installed capacity (220,000 units) considered to be sufficiently large to encourage high levels of local content.

Second, and tied to this major competitive strength, Toyota has established a sizeable automotive component manufacturing base in the province, with a number of major firms in

operation for a well established period of time. These long-established firms understand Toyota's strategic positioning and operational requirements intimately and have consequently developed aligned manufacturing capabilities that ensure the deepening of the Toyota Production System (TPS) within the local automotive industry. This is a major competitive strength relative to new automotive locations being established in Asia, where advanced production processes need to be learnt and developed from scratch. A basic understanding of World Class Manufacturing has been established in the provincial automotive industry, with this providing a solid foundation for the future development of the industry.

Third, the automotive industry in KwaZulu-Natal has a dynamic recent history of inter-firm collaboration focused on developing its competitive and comparative advantages. KwaZulu-Natal is, for example, the only province in South Africa with a formalised and functioning, industry-led cluster programme that is focused on ensuring its short, medium and long-term development. The DAC, which is supported by Toyota and over 40 automotive component manufacturers, has been in operation since 2001; and over the last eight years has successfully coordinated numerous inter-firm development programmes aimed at enhancing the manufacturing, human resource, logistics, supplier, and transformation capabilities of automotive component manufacturers in the province.

Fourth, not withstanding numerous criticisms of the Durban harbour's cost structure, flexibility and reliability, as well as the failed state of the province's rail network, KwaZulu-Natal automotive manufacturers are ideally positioned geographically, having ready access to international trade linkages via the harbor, and also being in close proximity to South Africa's largest provincial market, the Gauteng. Given the ideal production scenario for any vehicle assembler or component manufacturer of 50% output for the export market and 50% for domestic consumption, KwaZulu-Natal is ideally located. The Eastern Cape is, for example, arguably better positioned in respect of exports (because of harbour underutilisation in East London and Port Elizabeth), but is much further away from the Gauteng, which accounts for the majority of local market demand. Manufacturers in that province are ideally located for local market consumption, but are exposed to substantial additional costs when importing and exporting products.

The next two sets of competitive advantage do not relate to KwaZulu-Natal specific issues, but rather national industrial and trade policy advantages that provincial manufacturers benefit significantly from. The fifth competitive strength in the province is the MIDP/APDP policy framework that secures major incentives for manufacturers of both vehicles and components. Whilst the MIDP incentivises exporters only, the APDP will incentivize value addition, irrespective of its market focus, thereby ensuring maximum advantage for a KwaZulu-Natal industry that is presently focused on securing sales in both domestic and international markets. Linked to the dual market focus of the KwaZulu-Natal automotive industry, the sixth major competitiveness strength of the province is derived from national government trade agreements that secure preferential market access for South African assembled vehicles into the European Union (under the EU-SA FTA) and the United States of America (under AGOA). One of the key drivers of Toyota's successful export programme into the European Union is, for example, the EU-SA FTA, with stakeholder interviews revealing that this was as important a determining factor in awarding the export contract to Toyota SA, as the MIDP. BMW and Mercedes Benz have similarly focused on exporting their

South African assembled vehicles into the USA because of the preferential duty access South Africa receives under AGOA.

The final competitiveness strength identified for the provincial automotive industry, low overhead and labour costs, is not unequivocal, with only certain stakeholder interviews suggesting it as a present advantage. Other stakeholders suggested it was a past advantage, whilst others even indicated it as a present weakness. ***On balance,*** however, KwaZulu-Natal automotive component manufacturers still appear to have an advantage over their European, American and Japanese sister plants in respect of the costs associated with factory overheads (rentals, electricity, effluent, water, management and salaried staff salaries, etc.), as well as labour costs (employee wages). If the Rand trades at R10 to the US Dollar then this competitive strength will even be evident in respect of many Asian production locations, where local inflation has aggressively driven up overhead and labour costs in the last couple of years (especially in China, as evident from one of the authors' own visits to China in 2008).

6.2. Weaknesses

The KwaZulu-Natal automotive industry may have performed impressively in respect of its recent growth, but it is still beset with numerous competitiveness weaknesses that have the potential to fundamentally erode all of the gains made recently, and more importantly undermine future growth prospects. In this regard, the strategy research completed has unearthed 11 major competitiveness weaknesses.

The first weakness is firm-level skills deficiencies at both management and technical levels. Corroborating research completed for the Human Sciences Research Council (HSRC) by Barnes and Meadows (2008), stakeholder interviews revealed major skills deficiencies at almost every management and technical level within the KwaZulu-Natal automotive value chain, including mechanical, industrial, electronic, and electrical engineering, and related artisanal skills. While a notable development in the province in this regard is the development of the Tooling Centre of Excellence at the Coastal College, focused on developing toolmakers, it is the clear view of industry stakeholders that the industry's skills profile has deteriorated over the last few years – at the same time that securing more advanced skills has become necessary to compete internationally.

Again, tied to skills shortages, the second major identified weakness undermining the competitiveness of the KwaZulu-Natal automotive industry is government skills and bureaucracy at both provincial and local government levels. Moreover, both have apparently deteriorated over the last few years. Industry survey respondents indicated that bureaucratic inertia made planning for new product developments extremely difficult, with the lack of skills evident within local and provincial government, coupled with bureaucratic red-tape, leading to missed investment opportunities, and planned new business opportunities not being realized. A number of comments made by industry stakeholders in this regard were scathing, with recent investors in the province critical of government capabilities, particularly in relation to their experiences of running operations in other parts of the world.

A specific example of government inertia undermining the competitiveness of the sector is evident in respect of the industry's third major weakness, namely its lack of a Just-in-Time

(JIT) logistics and manufacturing infrastructure in support of Toyota's operations. As revealed in Section 1 of this report, Toyota has the most advanced production system of any of the world's vehicle assemblers, with a core part of its global competitive advantage forged from its JIT approach to managing logistics and manufacturing throughout its own operations, as well as that of its major suppliers. Globally, this means that Toyota requires its major component suppliers to operate in close proximity to its assembly plants. These suppliers then supply to the Toyota assembly plant a number of times per day. All production in the supplier plants are aligned with Toyota's own production to ensure no over-production takes place and that deliveries occur on time and in the volumes Toyota requires to maintain its own production output. This synchronised supply is a hallmark of the legendary Toyota Production System (TPS) and a base requirement for all Toyota plants globally. And yet, the Toyota plant in Durban does not have access to a JIT infrastructure, despite provincial government commitments to create a supplier park in support of Toyota's major investment in Durban in 2006. Interviews confirmed that the failure to build an automotive supplier park, as well as the failure to develop other associated JIT infrastructure proximate to the Toyota assembly plant in the SIB of Durban, has negatively impacted on the competitiveness of the provincial automotive industry.

The fourth major weakness identified relates to the provincial industry's dependence on only one vehicle assembler. Unlike the Gauteng and the Eastern Cape, which have three (admittedly much smaller) vehicle assemblers each, KwaZulu-Natal relies exclusively on the performance of Toyota. While this is also a major strength, given Toyota's leading position both domestically and internationally, it does make the province strategically vulnerable to any short-term shifts in the comparative competitiveness of the Toyota plant in Durban relative to sister plants in a variety of locations internationally. More specifically, the Toyota plant effectively only manufactures two vehicle platforms – the IMV and Corolla – making it particularly susceptible to competitiveness pressures from Thailand, Argentina and Indonesia (where the IMV is also being manufactured), and Turkey and the United Kingdom (where the Corolla is also being manufactured for supply into the South African and European markets).

The competitiveness of these locations contributes to the fifth and sixth major weaknesses evident in the KwaZulu-Natal automotive industry. The fifth weakness relates to low levels of local content in KwaZulu-Natal assembled vehicles, and the sixth to the lack of core power-train and drive-train technologies in the province, resulting in limited local content levels. In combination, these two weaknesses stunt the multiplier effect of the industry, as well as its technology spillovers, whilst also weakening its competitiveness position relative to regions with more advanced component manufacturing supply chains. Stakeholder interviews revealed that this is a major impairment to the international competitiveness of the KwaZulu-Natal automotive components industry; hence its high levels of importing.

Industry analysis reveals that automotive locations with high levels of local content, particularly core drive-train and power-train components, are more resilient and capable of competing internationally. This is because low levels of local content are severely cost raising, with the logistics costs associated with shipping CKD assembly kits to KwaZulu-Natal identified as a major reason for the local industry's lack of cost competitiveness. This becomes particularly apparent when comparing the province's local content levels of approximately 50% relative to Thailand's level of around 90%.

The provincial industry's seventh major weakness is unsurprisingly, then: its poor comparative cost competitiveness. Work completed through the SAABC suggests that South African automotive component manufacturers have operational waste levels that are equivalent to about 22.2% of their sales values at the 1st tier level, with this increasing to 27.7%% at the 2nd tier level. These levels are much higher than evident amongst Central European automotive component manufacturers (only 17.5%). This would mean that South African automotive component manufacturers are approximately 5% to 10% more expensive than their Central European counterparts at an operational level (due to higher inventory holding, manufacturing scrap levels, production downtime due to equipment failures, etc.). When combined with high logistics costs that make operating in South Africa another 5% to 10% more expensive than would be the case in a competing economy such as Central Europe or Thailand, the industry is clearly relatively uncompetitive. This also implies an the industry dependence on tariff protection for its survival, as well as the benefits of the MIDP, which approximate 17% of export values in 2009.

Another important part of the provincial industry's lack of cost competitiveness relates to the aging profile of the automotive component industry's capital stock. Whilst Toyota has invested heavily in its own operations and secured small scale investments from a few of its major multinational suppliers (such as Cataler and Toyota Tsusho) it is largely dependent on component manufacturers in KwaZulu-Natal who presently have a capital stock profile that averages 9.3 years of age, or nearly double than the average age of capital stock deemed necessary to stay abreast of the world's leading automotive technologies (estimated to be five years). Given the rapidly moving technology frontier of the global automotive industry, this gap needs to be closed, particularly if the industry's existing skills profile is to stay relevant and capable of absorbing new technologies as they emerge. Old equipment is also inherently more unreliable and technically incapable relative to state of the art equipment, placing the industry at a competitive disadvantage in the face of competing locations with newer technology and capital stock profiles.

Improving performance in respect of the industry's capital stock profile is likely to be difficult, given the provincial automotive component industry's deteriorating Return on Investment (ROI) levels. SAABC data reveals that the KwaZulu-Natal automotive component manufacturers have experienced a steady decline on their investment returns over the last few years, with this likely to lead to a disincentive to invest heavily, thus exacerbating the industry's present competitiveness deficiencies. For example, although the average ROI secured by a KwaZulu-Natal based automotive component manufacturer was 33.6% in 2004, it had deteriorated to 23.3% in 2007. It is important to emphasise, moreover, that these figures relate to the period prior to the advent of the present GCC, and cannot therefore be attributed to the industry's severe recent downturn.

The tenth major weakness identified during the course of the strategy research relates to the lack of formal university-industry linkages. University course offerings in KwaZulu-Natal were widely criticised as being inadequate in terms of both their orientation and their standard by industry stakeholders. For example, the University of KwaZulu-Natal does not offer Industrial Engineering as an undergraduate degree, despite this being one of the industry's key graduate requirements. The result is that a number of important firms in the industry have preferred to associate themselves with universities outside of KwaZulu-Natal, ensuring that

the province loses out on the synergies that should be created between a technologically advanced industry such as the automotive sector and local universities, as well as other Tertiary Education Institutions (TEIs). A core part of this synergy should also be in relation to Research and Development opportunities. Consistent with the Industrial Engineering example cited above, this is also almost completely absent.

The final major weakness identified relates to the constraining impact of the Durban harbor on the provincial automotive industry's competitiveness. While proximity to the Durban harbor is also an identified industry strength, interviews were unequivocal in highlighting the harbour's high costs, operational inflexibility, and low levels of efficiency, as major constraints to the industry's comparative competitiveness. The poor operational performance of the harbor apparently increases inventory holding costs in the industry (as firms buffer themselves from the harbour's inconsistent performance), raises other logistics costs, and undermines the reliability of automotive component manufacturers who are heavily penalized if they miss their delivery schedules when supplying Toyota.

6.3. Opportunities

Notwithstanding the 11 major weaknesses that presently impact negatively on the competitiveness and global standing of the KwaZulu-Natal automotive industry, the sector has a number of opportunities that need to be maximised to ensure it fulfills its potential. The clearest short-term opportunity is that once the GCC abates, automotive production in the province should surge, with the Toyota plant in the Durban SIB already having an installed capacity of 220,000 units. When international and domestic market demand returns, Toyota is well positioned to rapidly expand to full production capacity. Apart from this clear opportunity, four other major opportunities were identified during the course of the strategy research completed.

The second – and most important - opportunity relates to the provision of focused supply-side support to enhance the immediate competitiveness position of the industry. This includes four major areas of focus, including:

- Investment in an appropriate JIT infrastructure in support of the industry's advanced manufacturing and logistics requirements. Central to this is the development of a world class Supplier Park in close proximity to Toyota, as well as the general upgrading of infrastructure in the SIB, in support of the industry's more general JIT requirements.
- Deepened inter-firm, and private-public sector collaboration to drive down costs, and enhance knowledge and efficiencies within the provincial automotive industry. The DAC is running a number of successful programmes in this regard, but its scale of operation is small by international standards, with support only presently being received from the eThekwini Municipality and not the provincial government.
- Engaging with Transnet to ensure the harbour is more attuned to the needs of the industry, and creates the capabilities to cost effectively meet the industry's advanced logistics requirements on both the inbound and outbound side of the value chain.
- Engagements with Tertiary Education Institutions (most notably the University of KwaZulu-Natal) to ensure that the industry's future high and medium level management and technical skills requirements are met. This could include the establishment of a Centre of Automotive Excellence focused on coordinating TEI course offerings with the industry's evolving skills requirements, or the establishment of a Professorial Chair of

Automotive Engineering at a local TEI, focused on managing the relationship between the provincial industry and local TEIs. This could, moreover, straddle both skills development and R&D opportunities (which are unpacked in more detail below).

The third major opportunity is closely aligned to the industry's own skills development requirements, namely the re-skilling and development of government departments and parastatals that need to understand and respond to automotive industry requirements. The gap between the private and public sector in this regard is apparently huge, and growing, thereby undermining the confidence of the industry in its ability to deepen its future competitiveness in partnership with government, and its associated parastatals. Dangerously, this 'crisis of confidence' is potentially self-perpetuating. As such, the cycle of pessimism needs to be broken by the re-skilling of those core local and provincial government departments and parastatals responsible for working in partnership with the industry to advance its competitiveness and hence maximise its potential.

The fourth major opportunity relates to the provincial government creating a much stronger automotive profile for the province. How many South Africans know that 44% of all vehicles exported from South Africa in 2008 were exported from Durban? Most still believe the industry is dominated by German vehicle assemblers based in the Eastern Cape and Gauteng, when KwaZulu-Natal has grown its industry far more rapidly than elsewhere in the last few years. And yet there is no positive brand association between the province of KwaZulu-Natal and the industry, which is home to one of the world's 10 leading brands, and the leading automotive brand internationally. This stronger profile should further encourage automotive component manufacturer investment in the industry, particularly if it is complimented by improved performance in the areas identified above, as well as implementation of the fifth major opportunity, which is focused on the development of a coordinated Japanese Outreach Programme (JOP). The JOP needs to concentrate on facilitating the future expansion of Japanese multinational investments in the province through the identification of Japanese schooling and cultural requirements in the province. It is important to note that the Welsh Development Agency had significant success in securing Japanese automotive investments in the 1980s and 1990s on the basis of a coordinated business- and culture-friendly approach. A JOP therefore represents a potentially major complimentary opportunity to the advancement of the industry's competitiveness.

The sixth and final major opportunity represents a longer-term and more risky proposition for the provincial government – namely the establishment of a R&D support mechanism for hybrid/alternative fuel technologies, particularly as these relate to Light Commercial Vehicles (LCVs). Strategically, it is clear that the global industry is moving in this direction (see Table 9), with hybrid/petrol and hybrid/diesel technologies projected to expand their market share, along with entirely new engine technologies. It may be possible for the province to work with the industry to identify niche R&D opportunities relating to these developments, and to incorporate these into either the envisaged University-Industry partnership, or through the establishment of an advanced R&D centre focusing on these new technologies. The cost of establishing such a centre would however be extremely high, with each of the world's major vehicle assemblers already spending billions of dollars on such R&D. Developing a partnership with a vehicle assembler such as Toyota, and rather focusing on niche R&D opportunities may therefore be more appropriate.

6.4. Threats[24]

The most immediate threat confronting the provincial industry is the potential for a number of component manufacturers to exit the industry in the short-term as they become crippled through the GCC. There are a number of warning signs that this is a very real threat, including the recent financial results of major publically listed component manufacturers with operations in the province, such as the Metair Group of Companies (Smiths Manufacturing, Smiths Plastics, Automould, and Hesto Harnesses) and Control Instruments (Pi Shurlok's parent company). Any further contraction in domestic and international market demand may very well cripple some major automotive component manufacturers in the first half of 2009. This would not only have a significant negative socio-economic impact on the province, but would also fundamentally undermine the industry's recovery from the GCC. As demand picks up, probably from early 2010, any major component manufacturers lost in the interim are unlikely to be resuscitated, thus stunting the industry's short-term re-stabilisation. Provincial and local government need to consider implementing actions to prevent this imminent threat from being realised – potentially through local government rates rebates, or credit extensions on services offered through provincial and/or local government in KwaZulu-Natal.

The second major threat is longer term in its orientation, although it is already manifesting itself in the provincial industry as a major operational weakness. This relates to the industry being 'thinned out' on an ongoing basis as local content in KwaZulu-Natal vehicles reduces further. The threat here is that KwaZulu-Natal continues to assemble a large number of vehicles, but without any local content, thus diminishing its competitiveness, and global standing in respect of future Toyota investment decisions, effectively relegating the province to minor production status within the Toyota global 'family'. Responding to this threat requires a clear identification of the provincial industry's competitiveness deficiencies, as unpacked in subsection 6.2, with the major opportunity in this regard relating to the introduction/ bolstering of key supply-side support measures to enhance the industry's competitiveness (see subsection 6.3).

The third major threat is consistent with the 'thinning out of local content' threat articulated above, relating as it does to the continued thinning out of skills in the KwaZulu-Natal automotive industry. This has a short term and medium term dynamic. In the short-term the GCC fall out has resulted in a number of retrenchments of senior personnel within the industry as a means to reducing costs. This immediate skills loss will make it difficult for the industry to recover from the GCC. The medium term threat is however far greater, as this relates to broader institutional failure in the KwaZulu-Natal automotive industry – namely the inability of TEIs to provide the industry with the requisite skills needed to replace retirees, and the ongoing emigration of high level skills from the industry. In a recent study by Barnes and Meadows (2008), which was completed for the HSRC, the inability of TEIs to provide the South African automotive industry with required skills was highlighted as the most likely

[24] In this section we only consider provincial-specific threats, and as such exclude national threats such as the potential removal of the MIDP prior to 2012 because of World Trade Organisation (WTO) concerns, or a WTO challenge to the APDP, which will guide the development of the South African automotive industry from 2013 to 2020 (although this is very unlikely). We also do not reflect on the potential termination of the SA-EU FTA because of exceptional trading conditions, or the implications of long-term market contraction in the South African economy, as these are all national issues.

reason for the industry not achieving the national government's future growth objectives. Not only did senior industry personnel interviewed present scathing opinions on the capabilities of many of South Africa's TEIs, they also indicated that it was taking them over four months to recruit critical engineering and artisan skills into the industry – and only when serious compromises were made in respect of qualification and experience levels. The interviews completed for this particular strategy development process revealed very similar views amongst KwaZulu-Natal stakeholders, suggesting that the findings from the national study are equally relevant to the province – hence the importance of forging new university-industry linkages, as outlined in subsection 6.3.

The fourth and fifth major threats to the provincial industry are strongly inter-linked. Analysis clearly suggests that failure to develop a JIT infrastructure in support of the industry, along with substantially improved performance in associated government institutions and parastatals (including the harbor) will result in a permanent reversal of the industry's positive performance trajectory. This fifth threat cannot be taken lightly, with the industry's improved competitiveness dependent on what firms do to improve their internal performance (and which they are doing reasonably well), and what provincial and local government does to improve industry specific logistics and infrastructure capabilities. The industry cannot achieve this independently, as revealed in comparative experiences from countries as different as the United States of America and Thailand. Moreover, simply maintaining infrastructure and logistics capabilities at present levels will not suffice. The global automotive industry's competitiveness is advancing rapidly, and unless the pace of change in KwaZulu-Natal is consistent with this level of advancement the province is likely to be left behind as a preferred location for future automotive investments.

Linked to this fourth threat, the fifth major threat is that the costs of operating in KwaZulu-Natal continue to increase at a far more rapid pace than evident internationally. This relates to the direct cost associated with utilities (electricity, water and effluent treatment), harbour use, as well as local government rates, which have increased at a pace far in excess of inflation. For firms that enter into 4-5 year fixed price contracts, as is typical in the automotive industry, such price movements can prove crippling. In a recent study tour to Shanghai by one of the authors of this strategy document, advanced, efficient and cost effective infrastructure was noted by manufacturers as a major area of competitive advantage for their operations. The threat is that KwaZulu-Natal loses out on future automotive investments because of the continued escalation in the cost of operating in the province, with this leading to reduced local content, the lack of state of the art technologies being employed, etc., thus further progressing the industry's present negative cycle.

The final threat confronting the industry is the greatest, although the least likely in the short term. This relates to Toyota no longer viewing Durban as the preferred location for its domestic and regional market presence. Whilst the R3.5 billion investment made by Toyota in 2006 will lock the firm into the province over the duration of the present lifespan of its IMV and Corolla platforms (another 5-6 years), there is a possibility that investments are cut back for the next generation of production platforms introduced. There is therefore a 'window of opportunity' to bolster the performance of the provincial automotive industry, but the recent announcement by Toyota that it is considering investing in a new plant in Egypt offers a clear warning that Durban's preferential status may only be transitory.

6.5. Summary

The KwaZulu-Natal automotive industry's recent growth and development has been enabled by a number of positive national and global trends, although it is presently being severely stunted by the GCC. At face value, the substantial growth of the industry reflects positively on the province, but deeper interrogation of the industry profile using a basic strengths, weaknesses, opportunities and threats (SWOT) analysis reveals that the industry is beset by a number of major deficiencies that are likely to undermine its future development if not aggressively responded to in the short to medium term. These SWOT analysis findings are presented in Table 29: the industry's Achilles Heel is that its supply-side competitiveness is insufficient to compete internationally without ongoing access to national government incentives - presently in the form of the MIDP (to 2012) and from 2013 the APDP (to 2020). If the industry is to maintain its growth momentum this position needs to be fundamentally altered over the next few years, hence the importance of the provincial government working with the industry to build on its strengths, resolve its weaknesses, maximize its opportunities and mitigate its threats.

Table 29: Summary of SWOT analysis findings

Strengths	**Weaknesses**
• Toyota assembly plant: brand, volumes, parent company's international and domestic market strength • Well established automotive component manufacturing base • Well established inter-firm cooperation via the Durban Automotive Cluster (since 2001) • Trade access: Domestic market (Gauteng) and exports (harbour, new airport) • MIDP benefits to 2012, APDP benefits to 2020 • EU-SA Free Trade Agreement • Overhead and labour costs (but not universal)	• Firm-level management, technical skills deficiencies • Government costs, skills, bureaucracy, alignment • Lack of a JIT infrastructure (no supplier park) • Dependence on one vehicle assembler (two platforms) • Limited local content in locally assembled vehicles • Limited power-train and drive-train technologies • Age of capital stock • Financial performance of firms (reducing ROIs) • Operational performance of firms (especially logistics costs) • Industry-university linkages – skills and R&D • Harbour costs, flexibility and infrastructure
Opportunities	**Threats (provincial only)**

• Toyota's installed capacity is 220,000 units. Production can be rapidly expanded to this
• Provision of focused supply side support
  ○ Investment in JIT infrastructure
  ○ Deepened private-public sector collaboration
  ○ Harbour alignment with industry needs
  ○ Engagement with TEIs
• Development of skills in Government and parastatal support institutions
• Provincial economy's automotive profile
• Establish Japanese Outreach Programme
• Focused R&D on hybrid/alternative fuel technologies for LCVs
	• Short-term: Contraction in demand cripples industry – lose component firms to GCC
	• Industry is 'thinned' out as local content reduces
	• Skills drain makes it difficult to benefit from upswing in domestic and export markets
	• Infrastructure/support institutions fail to improve, or deteriorate
	• Costs of operating in KwaZulu-Natal rises relative to other South African/international locations
	• Toyota no longer views Durban as preferred location for its domestic/regional market presence

7. Maximising the regional industry's potential to 2020

The extent to which the KwaZulu-Natal automotive industry builds on its numerous strengths, resolves its weaknesses, exploits its opportunities and mitigates its threats, will ultimately determine whether it realises its potential through to 2020. Given the KwaZulu-Natal automotive industry's 29.3% share of South African vehicle production, and considering the South African industry's projected growth to 1.187 million vehicles of production in 2020, it is clear that the provincial industry has significant growth opportunities – as long as (a) it can maintain its share of South African vehicle production, and (b) it realises the national government target for the industry in 2020.

In this section we consider the potential growth profile of the KwaZulu-Natal automotive industry through to 2020 based on these two critical assumptions, and then consider the development implications for the industry if it surpasses (high road), or under-performs (low road) in relation to the projections through to 2020. Finally, we unpack the priority issues that are most likely to support or undermine the achievement of the provincial industry's 2020 growth potential.

7.1. National MIDP/APDP model findings to 2020: KwaZulu-Natal implications

Holding KwaZulu-Natal's national production share steady at 29.3% to 2020; and based on the MIDP/APDP macro model created to analyse the impact of national government on the industry, it is clear that there are major growth opportunities for the provincial automotive industry, as depicted in Table 30. As revealed, from a base of R 29.3 billion in total production sales in 2007, the industry is projected to expand its production sales to R 42.8 billion in 2012, and an even more impressive R 64.8 billion in 2020. This level of production sales growth will lead to the industry growing its direct Gross Geographic Product (GGP) contribution to the KwaZulu-Natal economy from R12.1 billion in 2007 to R17.9 billion in 2012 and R30.4 billion in 2020. Value addition, which is based on production sales minus all material input costs, reveals the true extent of the automotive industry's contribution to the KwaZulu-Natal economy, although it does not factor in multipliers, which are widely acknowledged to be far more extensive (as identified for the South African automotive industry more generally in Barnes and Black, 2008b).

Table 30: Projected KwaZulu-Natal automotive industry production sales, production value added and vehicles production to 2020 (based on 29.3% SA production share and in constant 2007 R billion values)

KPI	2007	2008	2010	2012	2014	2016	2018	2020
Vehicle production sales (billions)	R 21.9	R 26.8	R 29.7	R 33.4	R 37.5	R 42.1	R 47.3	R 53.2
Component production sales (billions)	R 7.4	R 7.8	R 8.5	R 9.4	R 9.7	R 10.3	R 10.9	R 11.6
Total production sales (billions)	R 29.3	R 34.6	R 38.2	R 42.8	R 47.2	R 52.4	R 58.2	R 64.8
Total auto industry value addition (billions)	R 12.1	R 14.4	R 15.9	R 17.9	R 22.2	R 24.7	R 27.4	R 30.4
Vehicles produced (units)	138,977	172,665	194,259	218,269	245,248	275,560	309,619	347,888

As also revealed in Table 30, if the KwaZulu-Natal automotive industry were to grow in a manner consistent with national projections to 2020, a total of 347,888 vehicles would be

produced in the province. Considering Toyota's installed production capacity of 220,000 units this means that an additional 130,000 units of capacity will need to be created at Toyota (or at another vehicle assembler) to realise the industry's potential as identified by the dti.

Given the low levels of local content in South African assembled vehicles, including those assembled in KwaZulu-Natal, the growth in vehicle production volumes is likely to substantially grow importing levels into the province. Excluding trade with the other major South African vehicle producing provinces, and based on its 29.3% South African production share, KwaZulu-Natal imported approximately R10.7 billion worth of automotive components in 2007, with this projected to rise to R16.3 billion in 2012 and R26 billion in 2020. The figures presented in Table 31 reveal not only the magnitude of this growth over the period, but also the extent of the industry's localisation opportunities. If the KwaZulu-Natal automotive components industry was able to improve its competitiveness, and expand its technical capabilities, there is the potential to secure the production of a significant portion of these imports in the province. Based on 25% of these imports being re-located to the province by 2020, total KwaZulu-Natal automotive component production sales would increase from R11.6 billion to R18.1 billion; an increase of R6.5 billion, or 56%.

Table 31: Projected KwaZulu-Natal automotive component importing levels to 2020

	2007	2008	2010	2012	2014	2016	2018	2020
Imports: Components only (R billions)	R 10.7	R 13.1	R 14.5	R 16.3	R 18.3	R 20.6	R 23.1	R 26.0

Note: This assumes no increase in local content in KwaZulu-Natal vehicles through to 2020

The employment created through the growth of the provincial automotive industry to the levels projected in Table 30, is presented in Table 32. As highlighted, aggregated employment is projected to grow by 23,992 people, increasing total employment levels from 35,435 in 2007 to 59,427 in 2020. This projection is moreover based on an assumption that the industry will improve its real value addition output per employee by 50% through to 2020. Consistent with the projections completed for South Africa as a whole, this is recognised as the minimum level of labour efficiency improvement required to support the development of the automotive components in the province (Barnes and Black, 2008b).

Table 32: Projected KwaZulu-Natal automotive industry employment growth to 2020

	2007	2020	Projected growth
Components	23,353	39,264	15,911
Tyres	2,019	3,369	1,350
Vehicle assembly	10,063	16,794	6,731
Total employment	35,435	59,427	23,992

Note: Based on MIDP/APDP national projections, and assuming 50% employee efficiency improvements from 2007 to 2020

All of these projections to 2020 assume that the South African automotive industry will grow to 1.187 million vehicles of production, and that KwaZulu-Natal will maintain its 29.3% share of national production. However, what are the implications if the KwaZulu-Natal automotive industry either over-or-underperforms by 33% relative to the national average? More specifically, what are the implications for value addition and employment? These are reflected upon in Table 33, which provides an overview of the industry's GGP and

employment contribution under three scenarios. The first relates to the base projections presented above, while the second and third scenarios consider poor and high performance scenarios based on 33% over/under performance respectively. As highlighted, the industry's employment and GGP contribution remains important to the provincial economy, even when considering the low road scenario. Substantially more wealth and employment is however created under the middle and high road scenarios, with the high road projection creating 61,446 jobs in 2020, and a total first order GGP contribution of R 30.4 billion.

Table 33: Middle, low and high road scenarios for the KwaZulu-Natal automotive industry in 2020

Scenarios	GGP contribution	Employment
Middle road: Base projection (29.3% SA production share)	R30.4 billion	59,427
High road: Over-performance by 33%	R40.5 billion	79,038
Low road: Under-performance by 33%	R22.9 billion	44,682

7.2. SWOT implications for achieving 2020 projections

The growth potential of the KwaZulu-Natal automotive industry to 2020 is clear, although the national MIDP/APDP model used to develop the projections is equally unequivocal in indicating that the South African industry's growth potential will not be realized unless substantial progress is made in respect of both demand and supply-side issues impacting on its performance.

In this regard three elements were deemed critical to the industry achieving production of 1.187 million vehicles:

1. Growth of the domestic market to over 1.2 million vehicles by 2020.
2. The existence of a stable and supportive national industrial and trade policy framework for the industry over the period.
3. Substantial advancement of the competitiveness of the South African automotive industry, inclusive of firm-level and broader support institution upgrading (inclusive of government departments, parastatals, and TEIs).

The first of these three critical elements lies largely outside of the control of stakeholders in KwaZulu-Natal, with the domestic market's performance largely driven by macro economic factors. The province's contribution to vehicle demand in South Africa is, moreover, small, at only around 14%, with market growth in the Gauteng likely to be the principal driver of national market growth over the next few years. In respect of the second critical element, the country's overarching national industrial and trade policy has already largely been set by the dti through to 2020 - in the form of the MIDP to 2012 and the APDP from 2013 to 2020. This is extremely positive, with both the MIDP and APDP very supportive of the industry's medium-term development. It does however mean that there is only limited scope for the provincial stakeholders to involve themselves in orchestrating major policy shifts within the industry.

The major role left for provincial stakeholders consequently appears to be in relation to the third critical element, which is the advancement of the regional industry's competitive capabilities. The SWOT findings that relate to this element are therefore particularly important to take note of, hence the importance of the findings presented in Table 34.

Responding to the particular SWOT issues included lie within the ambit of control of provincial stakeholders. It is these critical issues that need to be focused on if the third element of the industry's development challenge to 2020 is to be met.

Table 34: Competitiveness upgrading elements within the SWOT findings

Strengths	**Weaknesses**
• Well established inter-firm cooperation through the Durban Automotive Cluster • Overhead and labour costs (but not universal)	• Firm-level management, technical skills deficiencies • Government costs, skills, bureaucracy, alignment • Lack of a JIT infrastructure (no supplier park) • Limited local content in locally assembled vehicles • Limited power-train and drive-train technologies • Age of capital stock • Operational performance of firms (especially logistics) • Industry-university linkages – skills and R&D • Harbour costs, flexibility and infrastructure
Opportunities	**Threats (provincial only)**
• Provision of focused supply side support: o Investment in appropriate JIT infrastructure o Deepened inter-firm and private-public sector collaboration o Harbour alignment with industry needs o Engagement with TEIs • Development of skills in Government and parastatal support institutions • Focused R&D on hybrid/alternative fuel technologies for LCVs	• Industry is 'thinned' out as local content reduces • Skills drain makes it difficult to benefit from upswing in domestic and export markets • Infrastructure/support institutions fail to improve, or deteriorate • Costs of operating in KwaZulu-Natal continue to rise relative to other South African/international locations

8. Prioritising strategic interventions in the KZN automotive industry

Given the SWOT findings presented in Section 6, as well as the projections relating to the industry's growth potential to 2020 in Section 7, it would appear critical that the KwaZulu-Natal Department of Economic Development (KZN-DED) develop a comprehensive framework of strategic interventions to build on the provincial industry's strengths, ameliorate the industry's weaknesses, exploit opportunities and mitigate threats. In an environment of abundant financial and human resources, the KZN-DED could potentially focus on responding to each of the SWOT elements presented to ensure the industry's 2020 growth projections are realised. Reality is, of course, a different proposition altogether, with the KZN-DED and the provincial government more generally under-resourced. Prioritising those key strategic interventions that are most likely to enhance the competitiveness of the KwaZulu-Natal automotive industry, lock Toyota into the province in the long-term, and encourage ongoing investment in the automotive components industry, is therefore essential.

Based on the extensive analysis presented in previous sections of this report, it is consequently proposed that the KZN-DED, working in partnership with industry stakeholders, focus on the following five priority interventions over the next few years, each of which is unpacked in more detail below:

6. Creation of a cost effective JIT infrastructure in support of Toyota
7. Provision of support to the DAC to expand the depth and ambit of its activities
8. Facilitation of industry-university linkages within KwaZulu-Natal
9. Provision of support for technical and artisan skills development in the industry
10. Creation of a KwaZulu-Natal automotive brand that profiles the automotive capabilities of the province

8.1. Priority #1: Creation of a JIT infrastructure in support of Toyota

It is critical that the KZN-DED support the establishment of a supplier park in support of Toyota's operations in the Durban SIB. The establishment of the supplier park would increase the attractiveness of the province as a preferred automotive investment location for Toyota's global suppliers that have not yet established facilities in the province, and would signal the intent of the provincial government to establish the province as a major player within the global automotive industry. Moreover, the need for such a park has been confirmed by Toyota South Africa, whilst the expertise required to establish such a supplier park already exists within South Africa, with the Automotive Industry Development Corporation (AIDC) having managed the establishment of the state of the art supplier parks in the Gauteng and the Eastern Cape.

The timeline for the establishment of such a supplier park is critical. If the park is not fully functional prior to the replacement of the vehicle models presently being manufactured at the Toyota Durban plant (Toyota makes sourcing decisions 5 years prior to a platform launch), its positive impact on the provincial automotive industry will be stymied. Put simplistically, if the supplier park is established within this timeframe then a higher level of vehicle production, as well as local content in locally assembled vehicles, can be expected. Conversely, if the supplier park is not established, it is difficult to envisage any major changes in the current status quo relating to investments in the automotive industry. Given

that the present IMV is due to be replaced in 2013 and the Corolla platform in 2014, the establishment of the supplier park is an absolute priority.

Whilst the investment costs associated with establishing a supplier park are likely to be substantial, over the long term these costs are likely to be recouped through plant rentals. Critically, though, it is recommended that the KZN-DED not apply commercial rates when attempting to secure tenants for the supplier park. It is imperative that the supplier park be considered part of a long-term provincial industry development process, with favourable rentals offered in return for long-term plant and equipment investments on the part of the firms that locate in the park. This is the approach that a number of competing economies have taken when establishing supplier parks, and it is imperative that KwaZulu-Natal follow the same approach in order to attract the calibre of firms required to advance the competitiveness of the provincial automotive industry.

Finally, it is equally important that the public sector does not reduce Toyota's JIT infrastructure requirements to the provision of a state of the art supplier park. Given the large number of automotive component manufacturers presently operating in the greater eThekwini municipal area, and more specifically in the Durban SIB, it is critical that established industrial locations are also upgraded to operate more efficiently. In important automotive production locations such as Bangkok, Thailand (as eThekwini's major competitor location, given Toyota's extensive IMV production in that city), the focus of government has been on improving the general infrastructure that automotive manufacturers depend on, rather than developing separate supplier parks. This is an important lesson: The provincial automotive industry requires a world class infrastructure to compete effectively, not only pockets of excellence. The supplier park will contribute to the creation of this world class infrastructure, but it cannot be viewed as the only element involved.

8.2. Priority #2: Capacitate the DAC to develop industry's capabilities[25]

The Durban Automotive Cluster has been in operation since 2001 and represents a very meaningful private-public industry development partnership between the eThekwini Municipality and the provincial automotive industry. With over 40 participating manufacturers, including Toyota SA, the DAC operates on the basis of five inter-linked programmes that are focused on:

1. Developing the regional industry's World Class Manufacturing capabilities
2. Building the regional industry's Human Resources profile
3. Optimising the logistics chains of automotive component manufacturers
4. Advancing the operating standards of second tier component manufacturers
5. Positively transforming the B-BBEE status of the regional industry

With an operating budget of around R6 million for 2009, the DAC is limited in its financial capacity to facilitate the development of the provincial automotive industry. Opportunities

[25] Dr. Justin Barnes sits on the executive committee of the Durban Automotive Cluster, whilst B&M Analysts is the appointed service provider to the DAC. Making positive recommendations in support of the DAC could therefore be construed as a conflict of interest on the part of the authors. This potential is recognised and acknowledged in this footnote. It is however, important to emphasise that the authors have prioritised the DAC without any ulterior motives. Industry interviews consistently noted the importance of the DAC to the development of the regional automotive industry. This can be validated through independent verification with the industry informants listed in Section 1.

therefore exist for the KZN-DED to engage with the DAC to identify areas where programme content can be deepened and expanded to a greater number of firms in order to advance the competitiveness of the KwaZuu-Natal automotive industry. Particular opportunities in this regard relate to the expansion of the DAC's Graduate Development Programme for Engineers, and the focused development of second tier automotive component manufacturers. As revealed in Sections 3, 4 and 5, management and technical skills deficiencies, as well as operational deficiencies in the second tier of the automotive component manufacturing industry, are retarding local content opportunities, hence the excessive levels of importing that are presently evident throughout the KwaZulu-Natal automotive value chain.

The costs associated with supporting the DAC are unlikely to be exorbitant, with KZN-DED funding of R2.5 million annually likely to substantially expand its activities in a number of critical areas.

8.3. Priority #3: Foster industry-TEI linkages

It is proposed that the KZN-DED support the establishment of a formal provincial industry-TEI linkage by funding the establishment of a Chair of Automotive Development at the University of KwaZulu-Natal. The funding required to establish such a position would not initially exceed more than R2 million annually, and could fundamentally re-align the provincial automotive industry's relationship with KwaZulu-Natal's premier centre of higher learning. The position could, moreover, be used to better align other provincial TEI-industry engagements, with the Chair of Automotive Development potentially sitting on the DAC Executive and therefore staying engaged with the evolving development needs of the automotive industry. Given the shortage of engineering and related technical skills in the industry, it would be most appropriate to locate the Chair in an engineering faculty, and to bestow upon it the highest level of academic credibility. This would allow the position to be used as a leverage point between academia and the industry, thereby opening up opportunities on both sides of the academic-industry divide.

If appropriately structured, the Chair of Automotive Development could play a major role in coordinating the provincial TEIs' support for the regional automotive industry, focusing on the development of appropriately qualified graduates, coordinating the provision of accredited short courses on industry specific development themes, and facilitating the establishment of applied and advanced Research and Development projects in support of clearly identified industry priorities. These activities could be financed through existing university funding mechanisms, such as the National Research Fund, or through industry contributions. KZN-DED support would therefore not need to fund the position of Chair of Automotive Development beyond a certain period of time – perhaps five years. Positive multipliers should emerge from the establishment of the position, to the point where it becomes sustainable on the back of its own activities, and reason d'être within the regional automotive industry.

8.4. Priority #4: Skills development at management and technical levels

Whilst KZN-DED support for the DAC, and the establishment of a Chair of Automotive Development at the University of KwaZulu-Natal, could play a critical role in supporting the development of skills within the provincial automotive industry, significant additional focus is

required to deepen the management, engineering and technician (including artisan) skills base within the provincial automotive industry. It is therefore proposed that the KZN-DED fund the completion of an exhaustive analysis of the industry's present and future skills needs – in line with its growth projections to 2020. The importance of this exercise cannot be over-emphasised. Very simplistically, if the industry does not have the skills required to grow, it will not!

Understanding the industry's skills needs, as based on the high, middle and low road projections presented in Section 7, is therefore an imperative. Where growing skills gaps are identified the provincial government should consider (a) the provision of bursaries to students to influence the development of their career paths in line with the automotive industry's strategic objectives, and (b) official engagements with the Department of Home Affairs, to expedite the recruitment of scarce management, engineering and technical skills into the province. Calculating the quantum of funding required to support the extensive skills development required over the next few years is extremely difficult, with several existing processes ostensibly already in place to obviate the need for further interventions. Unless there is ongoing collaboration between government and the provincial automotive industry, focused on ensuring that this is indeed the case, already large skills deficiencies in the industry are likely to grow. It is therefore incumbent on the KZN-DED to remain abreast of skills issues in the industry, and to be responsive to industry demands for an enhanced skills base to ensure that industry growth is not undermined by skills deficiencies.

8.5. Priority #5: Establishing KwaZulu-Natal as an automotive brand

Ensuring that KwaZulu-Natal is identified as a major automotive producing region, and not the third and smallest leg of the South African automotive industry, should be a priority for the provincial government. As the main driver of South African vehicle exports through 2008, and the manufacturing location of the dominant vehicle assembler, both locally and internationally, KwaZulu-Natal should be aggressively marketing itself as Africa's most dynamic automotive producing region. Although branding KwaZulu-Natal an automotive producing region is unlikely to secure short-term benefits for the provincial economy, it would ensure industry awareness of its central role in the future development of the provincial economy, whilst also impressing on potential investors the seriousness with which the province views the automotive industry – and hence the attractiveness of investing in KwaZulu-Natal. The province's brand association with Toyota Motor Corporation, which featured as the world's third most admired company in Fortune Magazine's 2009 global assessment[26], indicates the magnitude of this opportunity, particularly given the industry's significant growth opportunities through to 2020.

While the central role played by Trade and Investment KwaZulu-Natal in promoting the investment profile of the provincial automotive industry is clearly apparent, more resources are clearly required to advance the status of the province as a major automotive producing location.

[26] Only Apple and Berkshire Hathaway featured above Toyota in Fortune Magazine's 2009 ratings. No other vehicle manufacturer featured in the top 10, which included prominent companies such as Google (4th), Procter and Gamble (6th), and Microsoft (10th).

8.6. Funding requirements

Giving effect to the five priority interventions outlined above will require far more than simply expensing large sums of money in support of the KwaZulu-Natal automotive industry. It will also involve institutional re-alignment and the forging of a provincial level public-private sector partnership straddling each of the identified priority areas. Apart from the establishment of JIT infrastructure in support of Toyota's requirements, which is clearly an infrastructure-linked investment, all of the other interventions are strongly institutional in their orientation and will require a significant amount of coordination and ongoing public-private sector engagement to be successful. It is also clear that it will be very difficult to gauge their completion dates, with each of the interventions needing to be sustained long after they are focused on as priority provincial government interventions. Given the magnitude of the automotive industry's growth potential in KwaZulu-Natal and the complexity of the challenges that need to be met if this growth potential is to be realised, it is proposed that each of the five priority interventions is focused on for a full five year period by the KZN-DED, as opposed to only one or two years. Five years is deemed the minimum period required to positively impact on the development of the provincial industry through to 2020.

Apart from the fixed investment costs associated with establishing the JIT infrastructure required by Toyota (and which are not costed here), the costs associated with implementing the four remaining strategic interventions need not be particularly large. These are summarised in Table 35. As highlighted, total expenditure is calculated at R43.44 million for the five year period. Of this amount, R15.27 million is allocated to cluster support, R10.0 million for the establishment of a Chair of Automotive Development within the University of KwaZulu-Natal, R9.0 million for skills development, and R9.17 million for the marketing of KwaZulu-Natal as South Africa's premier automotive producing region.

Table 35: Priority intervention funding requirements

Intervention	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Cluster support	R2.5m	R2.75m	R3.03m	R3.33m	R3.66m	R15.27m
Chair of Automotive Development	R2.0m	R2.0m	R2.0m	R2.0m	R2.0m	R10.0m
Skills development	R1.0m	R2.0m	R2.0m	R2.0m	R2.0m	R9.0m
Automotive marketing	R1.5m	1.65m	R1.82m	R2.0m	R2.2m	R9.17m
TOTAL	R7.0m	R8.4m	R8.85	R9.33m	R9.86m	R43.44m

Each of the amounts presented in Table 35 needs to be qualified, in order to ensure that a full understanding of each intervention is developed:

- **Cluster support:** The amount of R2.5 million in Year 1 is inflation adjusted by 10% annually through to Year 5, taking total expenditure to R3.66 million in that year. This support should be in addition to the Durban Automotive Cluster's present operating budget, and should be focused on 2nd tier supplier development and the development of engineering and technical skills in the KwaZulu-Natal automotive industry. These two focus areas are strongly aligned with the provincial growth strategy of developing smaller, independent firms (that largely operate at a 2nd tier level within the automotive value chain), and positively transforming the skills and employment equity base of the automotive industry. Given the well established institutional processes of the DAC, and the substantial support given to that institution by the private sector and the eThekwini Municipality, any provincial government resources allocated to the Cluster are likely to be well spent, and optimal benefits secured.

- **Chair of Automotive Development:** The five year allocation of R2.0 million annually is intended to represent a seed investment on the part of the KZN-DED to firmly establish a stronger automotive orientation within the TEIs of KwaZulu-Natal. It is anticipated that the R2.0 million annual allocation will result in the establishment of a dynamic Chair of Automotive Development within the University of KwaZulu-Natal – a position that will become increasingly self-sustaining over the five year period, hence the failure to inflation adjust the financial allocation over the five year period. There are a number of existing financial support mechanisms in place for well established academic institutions, including potential private sector support, wherever this is deemed worthwhile. Key is ensuring that the position of Chair of Automotive Development leads to the evolution of this institutional dynamic over the five year period. Based on a senior academic's salary of around R600,000 to R700,000 annually, the R2.0 million annual allocation should provide sufficient scope for the development of this institutional dynamic, thereby ensuring its sustainability long after KZN-DED support for the position is withdrawn.

- **Skills development:** The amounts allocated in Table 35 are indicative only. It is clear that a comprehensive audit of the industry's skills demands through to 2020 is required in Year 1 (based on the low, middle and high road scenarios presented in this report), and that resources will then need to be allocated on the basis of actual industry requirements. The amounts allocated are again not particularly large as there are numerous existing initiatives to support skills development in the national automotive industry, and these may simply need to be better coordinated, or supplemented, to ensure the regional automotive industry's growth potential is not stymied by skills shortfalls that cripple its development. The total amount of R9.0 million for the five year period should be sufficient to positively impact on the skills profile of the industry if successfully coupled with existing initiatives.

- **Automotive marketing:** The amount of money allocated for the marketing of KwaZulu-Natal as South Africa's most dynamic automotive region may appear relatively large at R9.17 million for the five year period, but such an initiative is by its very nature expensive, requiring a multi-focal set of initiatives to secure an enhanced automotive profile for the province. The expenditure recommended is moreover in addition to existing marketing processes in place, and as such represents an additional focus to the province's existing automotive marketing activities. As per the recommended DAC funding model, a 10% inflation adjustment is factored into the automotive marketing budget for the five year period, with the first year recommendation of R1.5 million escalating to R2.2 million in Year 5.

In addition to the direct financial contributions presented in Table 35, and again recognising that no financial costings have been presented for the provision of JIT infrastructure, it is recommended that the KZN-DED secure additional resources to bolster its ability to effectively interface with the KwaZulu-Natal automotive industry. This is a major present shortfall within the department and, if left unresolved, is likely to undermine the critical role the provincial government should be playing in support of the development of the regional automotive industry to 2020.

9. In conclusion

The findings presented in this strategy report reveal an extremely negative short-term outlook for the KwaZulu-Natal automotive industry, but a far more positive medium to long term perspective. Based on the provincial industry's impressive growth from the turn of the millennium to the middle of 2008, and national projections that indicate healthy South African production and demand conditions in 2020, it is clear that the industry remains a potentially major driver of provincial socio-economic development. Notwithstanding the fundamental shifts occurring in the global automotive industry and the very negative short-term implications of the GCC (see Section 2), which have had a similarly harmful impact on the South African automotive industry (Section 3), the KwaZulu-Natal automotive industry appears well-poised to benefit from the turn in the industry's present negative cycle.

As depicted in Section 4, although the KwaZulu-Natal automotive industry has not been immune to the GCC, and has contracted at a similar pace to the rest of the South African automotive industry over the last six to eight months, the regional industry's manufacturing fundamentals appear relatively sound. Most notably in this regard, KwaZulu-Natal is home to Toyota's manufacturing operations in South Africa. The province therefore benefits enormously from being host to a major production plant of the world's largest and most respected vehicle assembler, an assembler that has moreover rapidly expanded its production capacities and capabilities in KwaZulu-Natal over the last few years. At 220,000 units of installed vehicle capacity Toyota is now the largest vehicle assembler in South Africa by some margin; and whilst a large proportion of that capacity may presently be standing idle, it can easily be 'turned on' again when South African and international market demand picks up in the future. Key in this regard is ensuring that the provincial automotive components industry survives 2009, with a large number of firms experiencing severe financial distress. If a number of important suppliers to Toyota close, the industry's resuscitation post the 2009 crisis will be made substantially more difficult.

The improving competitiveness of the KwaZulu-Natal automotive components industry, as depicted in Section 5, suggests that the industry has the capabilities to compete internationally into the future, although the performance data presented also reveals major firm-level deficiencies that need to be confronted if long-term competitive advantage is to be secured. Particular areas of concern relate to deteriorating financial returns amongst the automotive component manufacturers prior to the advent of the GCC (which may negatively impact on future investment decisions), the age profile of the manufacturers' capital stock (which is some distance from world-class), and the cost raising implications of operational weaknesses tied to machine failures, stock holding, quality management practices, and weak logistics chains. As revealed in this section, the average automotive component manufacturer in South Africa is 5-10% more expensive than their Central European counterparts as a result of operational weaknesses alone, with another 5-10% estimated for South Africa's weak logistics infrastructure. In combination, this means that South African automotive component manufacturers are 10-20% more expensive than their Central European competitors – making the industry dependent on national government support, such as tariffs, the provision of export benefits through the MIDP to 2012, and from 2013 to 2020, the provision of production incentives when supplying into the domestic and/or export markets (under the APDP).

Based on the strengths, weaknesses, opportunities and threats (SWOT) presented in Section 6, it is clear that the future of the provincial industry is work in progress. Many of the SWOT elements presented apply both regionally and nationally, although a number of very specific KwaZulu-Natal issues can also be identified. On balance, it would appear as if the KwaZulu-Natal automotive industry is better placed than the other major automotive producing regions in South Africa, principally due to the recent expansion of Toyota's Durban plant. Building on this expansion was noted as a major opportunity in Section 7, which outlined the growth figures that could be attained provincially if the KwaZulu-Natal automotive industry was able to maintain its 29.3% South African production share through to 2020, and the South African automotive industry was able to achieve the output targets set by the Department of Trade and Industry for 2020. The figures generated in this regard are very significant, revealing that the automotive industry could increase its contribution to GGP from R12.1 billion in 2007 to R30.4 billion in 2020, whilst growing employment from 35,435 to 59,427 over the same period.

As also revealed in Section 7, these figures could be significantly altered by the provincial industry either under or over performing relative to the national average. Based on the provincial industry performing at levels 33% ahead of the national average, 2020 contribution to GGP could be as high as R40.5 billion. Conversely, undershooting the national average by 33% would see GGP contribution increasing to only R22.9 billion in 2020. The employment 'spread' as derived from these scenarios is similarly large, with 81,724 jobs evident for the high road scenario and 46,200 jobs evident for the low road scenario.

Securing the socio-economic benefits of the high road scenario, or succumbing to the low road scenario, formed the focus of Section 8, which unpacked the priority areas of intervention required to ensure that the industry's potential to 2020 is realized. Whilst responding to all the SWOT findings presented in Section 7 was noted as being ideal, in recognition of the scarce resources that the provincial government is likely to have to support the KwaZulu-Natal automotive industry only five priority interventions were identified. These are the:

1. Creation of a JIT infrastructure in support of Toyota's operations
2. Provision of funding support for the industry development activities of the DAC
3. Fostering of industry-TEI linkages through the establishment of a Chair of Automotive Development at the University of KwaZulu-Natal
4. Provision of resources to support the development of management, engineering and broader technical skills within the industry
5. Branding of KwaZulu-Natal as an automotive producing region

It important to emphasise here, that each of these five interventions needs to be meticulously implemented if the provincial government is to support the development of the KwaZulu-Natal automotive industry. Identifying another five or six interventions from the SWOT findings would be easy; although it is far more appropriate to successfully implement this narrow range of interventions than to focus on a broad swath of interventions, all implemented in a piece meal manner and with limited resources and hence focus. The strategy development process has therefore led to a set of recommendation that have been costed at R43.44 million over a five year period, with this amount excluding the very substantial expenditure that will be required to develop the infrastructure required to support Toyota's JIT supply chain requirements.

References

- Barnes, J and Black, A (2008a), *Motor Industry Development Programme Review Report - Part 1: International Developments and the impact of the Motor Industry Development Programme on the Automotive Industry,* Unpublished report, Compiled for the South African national government's Department of Trade and Industry, August 2008.
- Barnes, J and Black, A (2008b), *Motor Industry Development Programme Review Report - Part 2: Final policy proposals,* Unpublished report, Compiled for the South African national government's Department of Trade and Industry, August 2008Barnes, J and Black A (2008a), Unpublished APDP recommendations, 2008
- Barnes, J, and Black, A. (2004), A strategic assessment of the South African motor vehicle, parts and accessories sector, The Presidency/ComMark Sector Workshop, 25-26 November, Midrand, South Africa
- Barnes, J. and Black, A. (2003) "Motor industry development programme: review report", unpublished mimeo for the Department of Trade and Industry, Government of South Africa, (24 February).
- Barnes, J and Comrie, D (2007), KwaZulu-Natal Automotive Industry Report, Research report compiled for Trade and Investment KwaZulu-Natal (89 pages), 23 January 2007
- Barnes, J. and Lorentzen, J. (2004) "Learning, upgrading and innovation in the South African automotive industry", European Journal of Development Research**,** 16, 3 (Autumn), pp 465-498
- Barnes, J, and Meadows, B. (2007), On the brink? Skills demand and supply issues in the South African automotive components industry, Research Report compiled for the Human Sciences Research Council (79 pages), 28th September 2007
- Barnes, J and Morris, M (2007), Staying alive in the global automotive industry: What can developing economies learn from South Africa about linking into global automotive value chains? European Journal of Development Research, 20(1), 31-55
- Black A (2008), PhD Thesis
- Blueprint Consulting (2006), MIDP Review Report 2005/6. Unpublished mimeo for the Department of Trade and Industry
- National Association of Automobile Manufacturers of South Africa (NAAMSA) Annual Reports
- National Association of Automotive and Allied Component Manufacturers (NAACAM) Annual Reports
- PriceWaterhouseCoopers automotive research briefs
- South African Automotive Benchmarking Club Newsletters
- The dti (2008), Unpublished Customised Sector Programme report, December 2008
- The dti (2009), Unpublished APDP report, February 2009
- www.autofacts.com
- www.oica.net
- www.naamsa.org.za
- www.naacam.org.za

10. Appendix A

Stakeholder Interviews Questionnaire

The following broad questions were posed to participants in the stakeholder interviews, around which discussion was generated:

- In your experience, what are the key challenges facing the KwaZulu-Natal automotive assembly and components industry in terms of advancing its production capabilities, achieving economies of scale and, in general, improving its international competitiveness standards?

- What role is the provincial government playing in terms of supporting the KwaZulu-Natal automotive industry to confront these challenges, and what more could it be doing to support the industry in respect of meeting these challenges?

- What do you believe are the KwaZulu-Natal automotive industry's major development opportunities over the next 12 years (in terms of new or expanded investments, particular sub-sector growth opportunities, new skills demands, etc.), and how can the provincial government support the industry to take advantage of these opportunities?

- Do you believe that more needs to be done to foster stronger public-private partnerships between provincial government and local firms in the automotive sector, and if so do you have any particular ideas relating to these partnership opportunities?