

The Impact Infrastructure Provision and Management of the Port of Durban's Car Terminal on the KwaZulu-Natal Auto Industry.

This dissertation is submitted in partial fulfilment of the requirements for the degree of Masters in Development Studies at the School of Development Studies at the University of KwaZulu-Natal, Howard College Campus, Durban.

Talia Ann Arkin
June 2005

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of the Port of Durban's car terminal on the
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By

Talia Arkin

Declaration

This dissertation represents original work by the author and has not been submitted in any other form to another university. Where use has been made of the work of others it has been duly acknowledged and referenced in the text.

This dissertation was undertaken as part requirement of a Masters Degree in Development Studies at the University of KwaZulu-Natal.

The research for this dissertation was undertaken under the supervision of Glen Robbins, from January 2005 to July 2005. The opinions expressed and conclusions arrived at in this document reflect solely those of the author.

Abstract

This dissertation examines the role that public infrastructure development at the Port of Durban has had on the KwaZulu-Natal's auto sector. In essence this paper unpacks the debate surrounding public spending directed at promoting specific industry outcomes. To this end, the auto industry is examined in terms of its export-orientated growth since the inception of the car terminus. The auto industry provides an excellent case study, as there is considerable public and private sector concern in this sphere. This paper analyses the role of local and national government as well as non-governmental role players in planning expenditure for the car terminal. The limited amount of formal literature in this field has informed the structure of this paper, making it important that some measure of efficiency benchmarking be included in this study. This has been done so of the role of the car terminal in the logistic value chains of the KZN auto industry could be examined. This in turn aided in the understanding of the role of the terminal as a conduit for inputs used in local production as well as the impact it has (or hasn't) had on export-orientated growth within the industry.



Picture I: Overview of the Car Terminal at the Port of Durban, picture courtesy National Port Authority (NPA).

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List of Acronyms

CBU - Completely Built Up

CKD - Completely Knocked Down

DPE – Department of Public Enterprise

DT - Department of Transport

DTI - Department of Trade and Industry

KZN – KwaZulu-Natal

MIDP – Motor Industry Development Plan

NPA – National Ports Authority

OEM – Original Equipment Manufacturer

PA – Port Authority

SAPO – South African Port Operator

SOE – State Owned Enterprise

TEU – Twenty Foot Equivalent Unit (Standardised Container Unit)

TSAM – Toyota South Africa Motors

Chapter One: Introduction

“...[G]lobalisation... has resulted in a fragile socio-economic structure susceptible to disruption at many places and in many ways. For instance, consumer goods are seldom produced in one plant or even one country today, they are now assembled from component parts made around the world. Similarly, raw materials are largely refined in places other than where they were extracted... [creating] a production and market system dependent on various means of transportation of which the container industry is a key element. This system is managed by the transfer of data, orders, and capital by satellite and, increasingly, fibre-optic networks. The shift ... to a policy of “just in time delivery” for raw materials, component parts, and finished goods greatly increases [the system’s] susceptibility to disruption.Further, the suppliers of international transport are consolidating into fewer but larger global organisations, which includes not only shipping lines but also port operators, forwarders, insurers, and ship builders. Therefore, the global economy can be brought to its knees quite easily”¹ (Radebe: 2003).

Globalisation relates to the integration of markets and production across the boundaries of nation states (Khor, 2000). There has been a rapid increase in the rate of integration over the past three decades as liberalisation policies have become the mainstay of foreign and trade policies the world over. Liberalisation in trade, investment and international capital flows has allowed for assimilation of international markets and production.

Trade across national borders is not a new phenomenon, the ancient Phoenicians traded across oceans. The focus however is not on the historical

¹ A quote cited by Minister Jeff Radebe) at the opening of the International Association of Ports and Harbours’ World Ports Conference, held in Durban in 2003. In Radebe’s speech notes there is no reference to the original authors, nor a citation given of where the quote was

ties that trade but rather on the implications that trans-national trade holds for the developing world. International trade has moved beyond the basics of Ricardian theory, that stipulates each country trades goods they have an abundant ability to produce effectively and efficiently, and import those goods for which they do not have a comparative advantage in production (Lindert & Pugel, 1996: 34). Rather, globalisation is now viewed as 'a complex trade in components to certain standards of design, quality, lead times and delivery reliability with the aim of bringing them all together in a branded finished product for market' (Morris; 2000: 7, draft version).

South Africa's successful integration into global markets is not due solely to the economic policy adopted by the first democratic government, it is also a reflection of the role of infrastructure provision by national government through establishment of state owned enterprise (SOE) and its interaction with domestic industrial policy aimed at private sector development.

The study focuses on infrastructure provision and management of a South African port terminal, the car terminal at the port of Durban, and the ability of local industry (the KwaZulu-Natal auto industry) to make use of the facility in line with the development parameters as set out by the Motor Industry Development Plan (MIDP), the export orientated growth plan for the South African automotive sector.

There are three areas of key focus in this paper, the aforementioned infrastructure provision and subsequent management; a measurement of terminal performance and finally an analysis of the local auto industry's ability to interact meaningfully with the policy environment and available infrastructure.

In order to full actualise a developing country's potential for global interaction, the focus lies in the role of the protectionist state and the rapid dismantling of tariff structures to encourage trade in goods between nations, bolstering the

located. The original document can be found at

export sector and linking into the notions of structuralist development (Martinussen: 1997). To this end, South Africa has since democracy revelled in the neo-liberal free market trade model (very much in line with the behest of the Brettonwoods Institutions) enunciated in the economic policy of GEAR – Growth, Employment and Redistribution. While this policy certainly had its detractors (Osborn: 1997) South Africa's re-emergence in global trade was clearly perceptible – Lall & Kraemer-Mbula (2005) note that South Africa's manufacturing sector contributed 57.6% of the continent's total manufactured exports.

As is indicated in Table 4.2, which is derived from Lall et al (2005: 42), 92% of these manufactured exports are automotive related and a substantial proportion exit SA through car terminal. The infrastructure of the car terminal has grown substantially with the physical structure recently undergoing an impressive augmentation - the number of bays increased from 3500 to 7000 (Shipping Digest: 13 Sept 2004) allowing for two hundred thousand vehicles moving through the terminal in 2004 (figure includes transshipment vehicles, supplied by National Port Authority; Interview 3). The infrastructure of the port's management – and as a result the terminal's management too has undergone some substantial changes. Government has retained its central role in port management, although the formal structures have been transformed (see chapters 2 and 8).

This dissertation seeks to unpack these changes from their inception – understanding the role of the state (represented by the Department of Transport and the Department of Trade and Industry as well as the Department of Public Enterprise) and the private sector (OEMs, shippers, auto-carrier firms) in the terminal – as well as the impact that these changes have had and will have upon the terminal users from the local auto sector. The role of management is examined under the title of '*efficiency*', notably the performance of the terminal and the ability of the terminal to meet local and international traffic demands. The term efficiency, here refers to measurement

of performance levels and has been chosen as there is a clear and discernable link in maritime economic literature between best performance practises and growth (see chapter 4). The link between terminal efficiency and growth in the auto industry is discussed in chapters 7 and 8.

The performance the car terminal should not however be referred to as a being sole and sufficient motivation of growth in the auto industry – rather a myriad of factors should be taken into account. The range from input availability to labour costs, technology and policy environment – but certainly some relationship between the efficiencies achieved in the terminal and the ability of the local car industry to meet global value chain expectations can be recorded. The terminal is also viewed as the main conduit of exports, and hence closely linked into to export orientated growth plans of the South African auto-industry.

Within the KwaZulu-Natal auto industry, the major player is undoubtedly Toyota South African Motors – the only assembler in the province, also referred too as an original equipment manufacturer or OEM. Their manifest of operations stipulates that a minimum of 60% local contents be used in each vehicle; this is covered in much greater detail in chapter 8. To this end, an increase in local export driven production would have significant backward economic linkages into the local KZN economy beyond their Prospecton plant.

The study was restricted to the KwaZulu-Natal auto industry, chosen because of its proximity to the port and highly organised structure, an understanding of the restriction of 'scope' is necessary in order that the reader is aware of the lack of generalizability of the study's findings to other areas in South Africa.

An overview of the port of Durban (focussing on both historical occurrence and traffic base) is included in the preliminary chapters as is a brief venture into the history of South African manufacturing, this is included in order to place the current changes in perspective. It is important that these chapters should not be viewed as departures from the substance of the study but rather

as necessary background chapters that grant the literature review (chapter 4) and the research methods overview (chapter 5) a foundation.



Plate 1.1: Ro-ro vessel being berthed at the car terminal (courtesy of Terry Hudson)

This paper focuses on the interactions of national and local government, as well as non-governmental role players in infrastructure provision and planning for the Durban car terminal. As there exists little formalised literature or previous studies conducted on the car terminal, this study serves as a first to be able to draw inferences between the car terminal's development and the development path of the auto industry. This has been done using both quantitative and qualitative data collection methods, as discussed in chapter 5 and by establishing a typology for measuring efficiency (as set out in chapter 7) which in turn would aid debate of the effectiveness of the car terminal as a driver for economic development in the KZN auto industry.

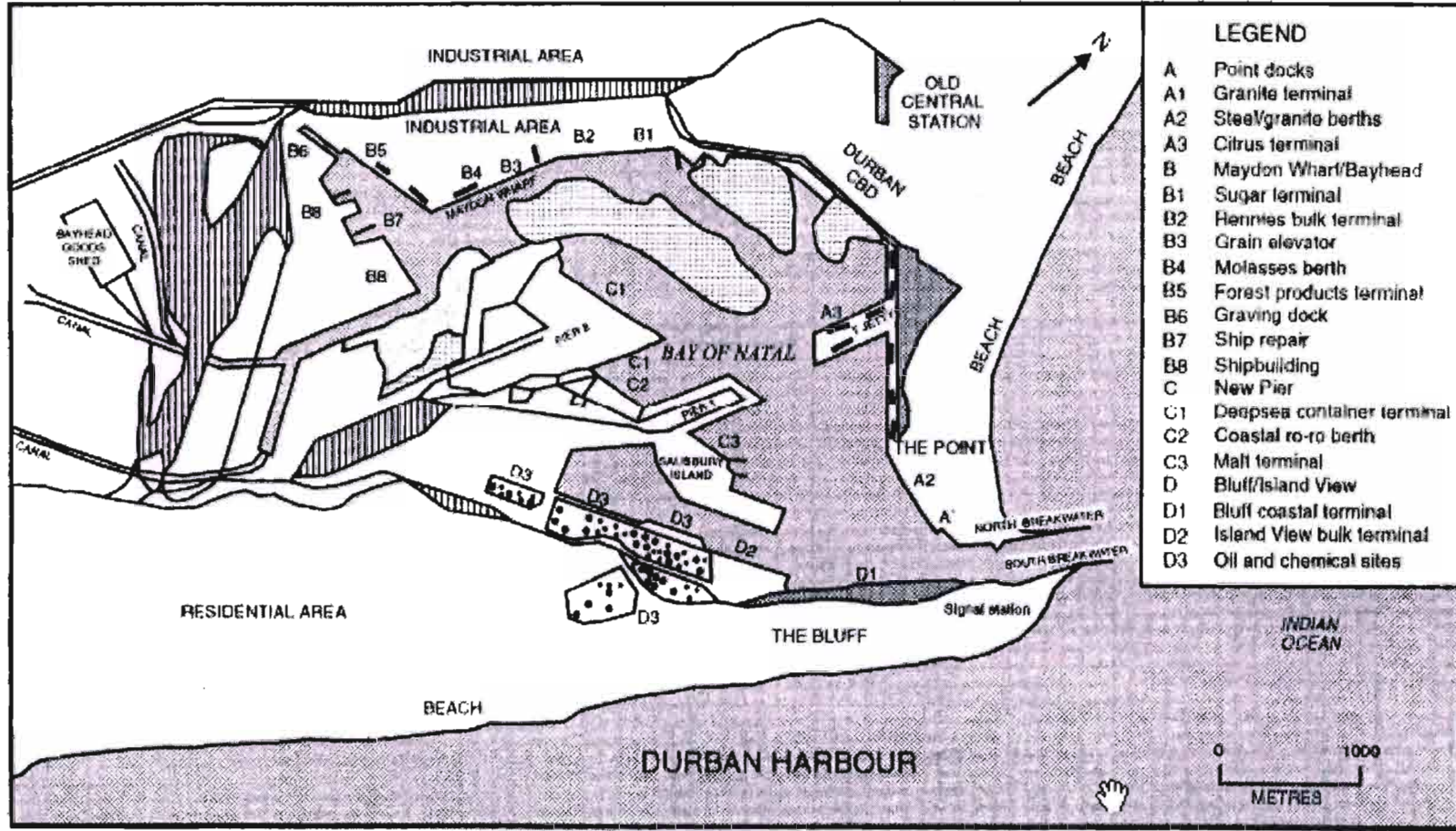
This inquest into the car terminal has a two-fold justification; firstly a clear link to development studies is distinguishable (see the literature review in chapter 4) as industrial expansion, the provision of infrastructure by the state and the issues of devolution are critical issues of economic development and this topic allows for an excellent case study to examine them within the South African context.

The association between infrastructure provision (i.e. a terminus at a port) and economic development is clearly outlined within the tradition of development theory, from the modernists to the structuralists (Martinussen: 1997).

Secondly, as no studies exist to that accurately measure of the benefits of the massive public expenditure in the port of Durban car terminal such a review would be useful to both the public and private sector agents involved, especially in light of the concessioning programme currently underway by the government. The members of the auto industry who rely on the services provided by South African Port Operator (SAPO) and the National Port Authority (NPA) and could make use of such a study in order to better determine what the future capabilities for transshipment of components and entire vehicles into and out of South Africa, and hence help locate firms' future strategies within the industry in terms of the Department of Trade and Industry's Motor Industry Development Plan (MIDP).

Fig 2: Port Plan

Durban Harbour Layout (Taken from Robbins; 2002:11)



Chapter Two:

The port of Durban

The port of Durban (see Figure 2, Port Plan a schematic representation on previous page) was little more than a sandy lagoon until the mid 1800s; however, by the early twentieth century it had become the leading port in South Africa. This was due, by and large, to the utilisation of modern dredging techniques that made sufficient inroads into the narrow, stilted up entrance of the port to allow larger vessels through.

Durban is a hybrid port (see chapter 4), with a limited separation between landlord and operational functions. The port of Durban was managed, until 2001 by the parastatal Portnet, the maritime transport wing of the state's transport group, Transnet. Portnet was restructured into two state owned enterprises or SOEs (see appendix 2 on page 91) the first, the National Port Authority to take the role of landlord and a second, South African Port Operations (SAPO) to handle port operations. The port of Durban is formally managed by the NPA, a fully corporatised public company, allows for landside operations to be run by private terminal operators. 'Privateers control [the] lion's share of wet-bulk, dry-bulk and neo-bulk cargo operations in the port' (Jones: 2003), the container terminal, car terminal and combi-terminals have however remained in the public domain, falling under the large banner of SAPO.

Durban's traffic base grew steadily in the early and mid twentieth century as coal and later sugar exports formed much of the bulk trade. The port really came into its own in the late 1970s with the rapid containerisation of cargo, and quickly became the foremost container terminal in South Africa. Durban continued to focus on containers, liquid and break-bulk cargoes, as Richards Bay, the closest rival port, developed into a bulk and neo-bulk specialist (Jones: 1997).

Several specialised terminals, Island View, the petro-chemical offshore terminus, the container, combi and the car terminal were developed in the

port. A variety of privately operated, industry specific terminals – like the sugar terminal are also present at the port (see appendix 3, page 88).

The port of Durban has in recent years positioned itself as the region's 'hub port' with excellent road and rail linkages into the hinterland as well as along the coast. Its geographic location allows for relatively easy movement of goods from the industrial complexes in Gauteng to the international market, as well as being ideally situated as a major thoroughfare for inputs into local industry as well as handling the export traffic of local produce as well as locally manufactured goods (see Figure 6.1 Freight Corridors on page 52).

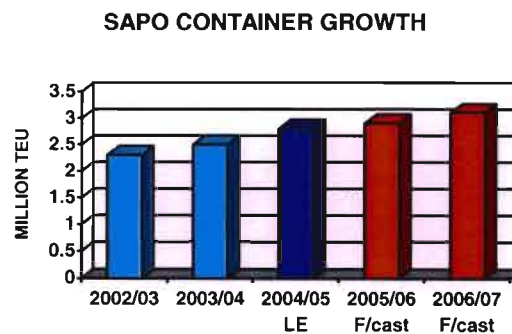


Figure 2.1 National SAPO Container Growth (taken from Transnet presentation 11/05/05 slide 18)

The impact of a changing traffic base on the port of Durban and the movement towards containerisation of seafaring cargo, has been well managed by the port. By 2003, Durban was the foremost container handling port in Africa and second only to Melbourne (in year 2003 figures) in the southern hemisphere (Jones; 2003:7).

A second notable trend has been the increase in 'multipurpose' traffic, single vessels that can carry a melange of unitised, break-bulk and parcel bulk cargo. Overarching both these trends however, is the inclination of ship owners to replace their aging fleet with larger and more economical bulk and container vessels (Jones: 1997).

While the majority of the bulk trades are carried in Handy-sized and smaller Panamax bulk vessels and pose no problem for usage in port, the number of Handy's as a percentage of the world fleet has dropped from 50.4% to 45% in 2001, while Panamax vessels have increased by 10% of the world fleet (up from 17.3% to 27.6%) in the same period (Jones: 1997). However, the trend is encapsulated by the growth in mega-vessel tonnage, which now stands at 18.7% of the world container traffic (measured in TEUs or Twenty-foot equivalent containers)TEU. This is of concern because as ships get bigger, their draught (depth) increases, this impacts their ability to access relatively shallow ports like Durban, which allows a maximum clearance of only 14m for a loaded vessel in ideal conditions. In reality, draft limitation threshold becomes operational from 12.49m, preventing most vessels larger than 4000TEU, which effectively excludes 15% of the world container fleet from accessing the port (Jones: 2003). This impact will continue to be felt as the world order book indicates that over 60% of orders in 2003 are for vessels in excess of 4000TEU. This will likely affect the positioning of berths and berth access as the length of wharf side is critical for the disembarking and loading of cargo.

Durban's cargo traffic is in the main container and unitised bulk (i.e. vehicles), both which require complex wharf side cargo handling and extensive storage and manoeuvring facilities. Both terminals are facing constraint due to the close proximity of the positioning of the harbour in relation to the city's central business district; this proximity is easily discernible when examining the port schematic on page 14.

While the physical location has created capacity constraints in the port, its location in the broader sense of national transport corridors has been for more effective. The development of integrated transport corridors – in line with the vision proposed by the Moving South Africa (DT: 1998) document – has been successfully established incorporating the port of Durban.

Durban plays a pivotal role in the development of effective freight corridors in the region, in 1997 figures the Durban-Gauteng corridor moves 21m tons of freight (inclusive of all modes of transport) per annum, with an expectation that this will rise to 39m tons along the corridor by the year 2020 (DT: 1998). The creation of effective transport corridors is linked to the notion of merging ports into streamlined hubs through which the most efficient sized vessels may be serviced and freight moved through a 'hub port' along the 'spokes' of the transport corridors efficiently to its required destination.

This is clearly indicated by a brief examination of port traffic flows, Durban is the busiest non-bulk terminal in South Africa, and currently the second busiest port in the southern hemisphere, as shown in Figure 2.2 which appears below.

Figure 2.2 Comparison of Port Traffic, Selected Southern Hemisphere Ports (2000)

Port	Total Port Traffic (m tons)	Rank	Container Traffic (TEUs 000s)	Rank
Richards Bay	91.5	1	5	15
Newcastle	73.9	2	9	14
Durban	49.7	3	1291	2
Santos	43.1	4	945	4
Sydney	24.6	5	999	3
Melbourne	22.3	6	1322	1
Casablanca	19.8	7	311	9
Abidjan	14.6	8	434	7
Auckland	13.3	9	561	6
Cape Town	11.8	10	395	8
Lagos	9.1	11	178	11
Mombasa	8.9	12	219	10
Buenos Aires	7.8	13	716	5
Dakar	7.2	14	149	13
Port Louis	4.7	15	161	12

Taken from Jones (2003: 7) Table 3 African and Southern Hemisphere Port Traffic (selected ports, 2000).

A further indication of the effectiveness of this model was the establishment of the revamped car terminal in 1998, with 7000 parking bays and dedicated berth for car carriers and overhead double carriageway bridge linking the quay to the terminal (www.sapo.co.za) that was built to meet the requirements of the local auto industry and auto market (see plate 2 on page 21). The freight

network allows for vehicles to move to and from the hinterland, via both road and rail, linking local producers and customers into the global market.

As the study centres on the car terminal and the KwaZulu-Natal auto industry, it is critical to understand that the major route for the international transport of car 'parts' (components) is predominantly through the container terminal at the port of Durban and not the car terminal which deals with the conveyance of fully built up vehicles. Indeed, in relationship between the terminals and the auto industry of KZN could be represented diagrammatically as in diagram 2.3 below.

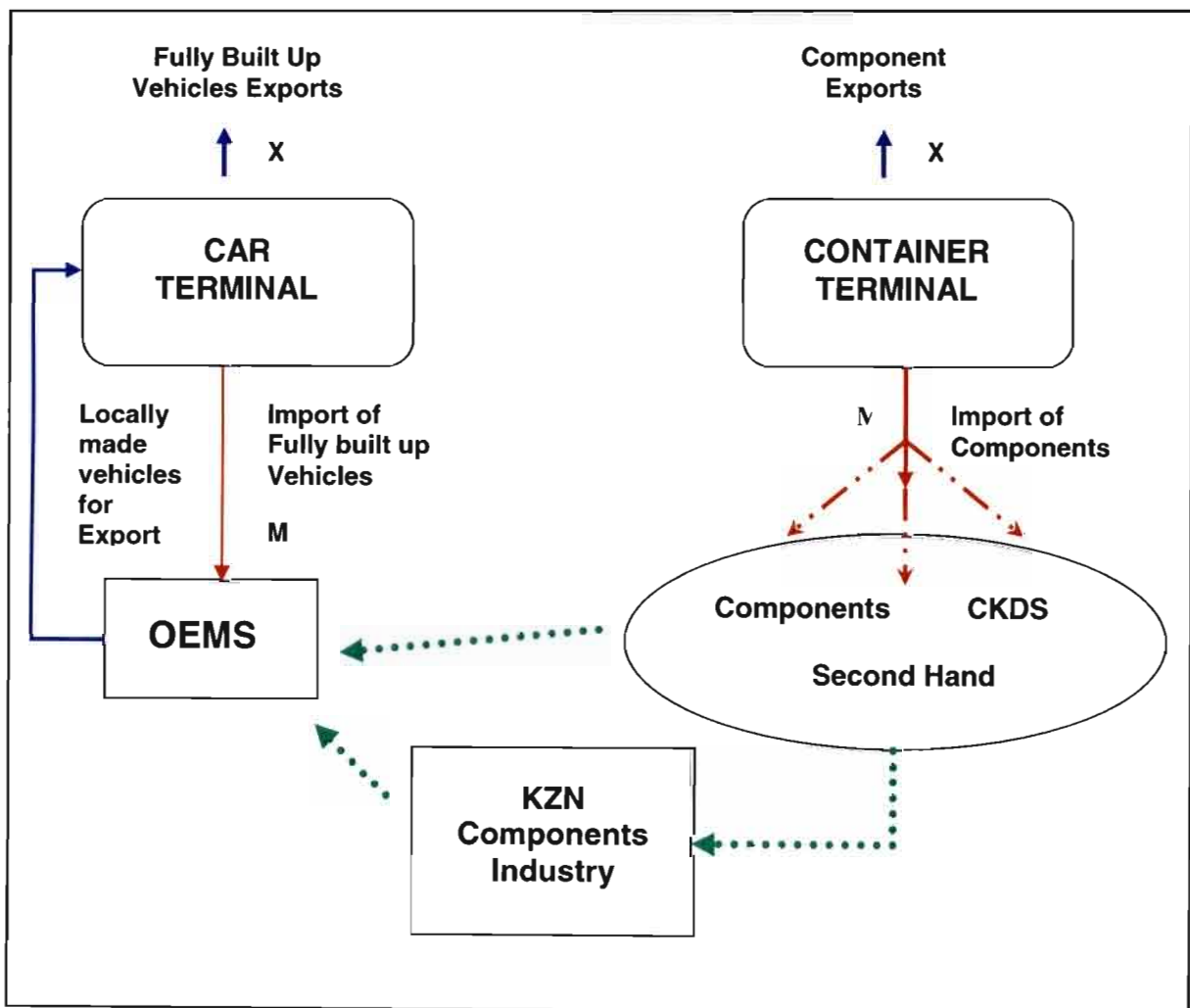


Figure 2.3: Breakdown of the Local Auto Industry's Use of the Port of Durban

The KZN auto industry is component based, and while a great deal of this production does go to variety of South African based assemblers, a substantial proportion of locally made components are exported [X] via the

container terminal. Similarly, considerable automotive component imports [M] - demarcated for use by local assemblers - arrive via the container terminal. This relationship is indicated by the arrows from the container block (red demarcating import), via the component oval (green indicating local production and import mix) and onto the OEM block where they are used in production. The fully built up cars are then exported via the car terminal (indicated by the blue line linking the OEMs to the car terminal).

Imports of fully built up vehicles also occur through the car terminal, as indicated by the red import line from the car terminal to the OEM box. As the emphasis of this study is on the car terminal the focus is on coverage of the car terminal, the left hand side of the diagram, however, the existence of the right hand side of the diagram cannot be summarily ignored as it helps complete the complex picture of the KZN auto industry.

The diagram above shows the intricate interactions between the port and the local automotive industry, vehicle throughput (terminal usage) is closely linked to the industry's design promulgated by the MIDP. Actual terminal use is indicated below in graph 2.4 National SAPO Vehicle Growth, the graph indicates a substantial increase in through traffic in 2006/2007 is expected,

Transnet puts it at 12% (Transnet1: 11/05/05) this forecast is explained in greater detail in the following chapters of this study.

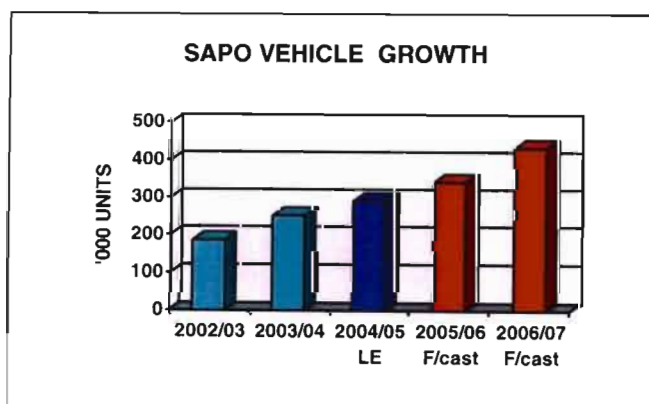


Figure 2.4: National SAPO Vehicle Growth (taken from Transnet presentation 11/05/05 slide 18)

The following chapter unpacks the history of manufacturing policy in South Africa and allows the MIDP to be placed in perspective with previous and existing national policies. This will aid the understanding of the findings in chapter 8, which explores the local auto industry's response to the structures of industrial policy as well as to those of car terminal – and sheds some light on the aforementioned growth in vehicle traffic at the car terminal.



Plate 2.1: Overhead Double Carriageway Linking the Car Park at the Durban Car Terminal with the Quayside. (Photo courtesy of Terry Hudson).

Chapter 3: Historical overview of South Africa's manufacturing sector

In order to contextualise the role of the MIDP in the South African manufacturing sector it is useful to briefly examine the local development path manufacturing. This chapter by no means provides an exhaustive study, but rather a general introduction that serves to give some historic grounding to the discussions that follow in later chapters.

While there has been some type of formally recorded economic activity in the region since the 1600s, due to the creation of the initial 'trading post' servicing the needs of the Dutch East India Company, the evolution of the manufacturing sector is a fairly recent addition to the economic history of South Africa. Such activity has only recorded in substantial figures from the late 1800s onwards.

Manufacturing was initially greatly impacted upon by the discovery of mineral wealth and the isolation created by the world wars. Manufacturing policies and protection truly came to the fore in the inter-war period and continues till this day. This chapter intends to provide a brief overview of the external impacts upon the sector as well as trace the establishment of formal government interaction.

In the late 1860s trade 'was concentrated at the ports, and large wholesale concerns had developed a lucrative two-way trade, importing manufactures of all kinds, and exporting wool, hides, skins ivory and other local products' (Houghton; 1971:3). The first noticeable export leaving South African shores was Merino sheep's wool – an industry created and regulated by Mosenthal (Arkin: 1975; 2005). Local agriculture (notably sugar) also featured as an export. At this point, formal trade was largely restricted to the coastlines of the Cape and Natal colonies, with little interaction with the hinterland.

This was all to change with the discovery of diamonds in the Orange Free State (1868) which led to a massive influx of miners and fortune seekers into

the hinterland. The further discovery of diamonds in Kimberly, three years later, in 'diamondiferous [earth]...meant that diamonds had ceased to be merely a fortune-hunter's gamble, but had become the stable foundation for a large-scale modern industry' (Houghton; 1971:11). The rapid migration to the Cape diamond fields was matched only by the influx of 'uitlanders' (foreigners) to the newly discovered goldfields in the Witwatersrand in 1886. The discovery of coal deposits nearby the goldfields powered modern methods of gold extraction (Houghton: 1976). Rapidly the Witwatersrand became covered by series of small settlements surrounding the different stopes, which eventually amalgamated into the city of Johannesburg. Thousands 'attracted by the economic opportunities' (Houghton; 1971: 21) flocked to the new settlement. This massive relocation into the hinterland generated an impetus for the localised manufacturing of consumable goods which had not previously existed in sparsely settled South Africa.

The establishment of a modern mining industry required significant inputs that South Africa's fledgling manufacturing sector was not yet able to provide, this resulted in the initial vast import of heavy mining equipment, safety equipment, protective clothing and dynamite use on the mines. However, soon local monopolies for production were granted (Houghton: 1976) and local production of mining needs based manufactured goods began: dynamite (local manufacturers were granted monopoly rights); boots and light mining equipment. The focus of economic activity had moved from the coast to the hinterland (Houghton: 1971), and the indications of the establishment of a modern manufacturing complex in the hinterland were evident.

Political rivalry, fuelled by the high tariffs at the port of Cape Town prompted the Transvaal Republic to create a rail link with Delagoa Bay, creating a trade corridor circumvented the Cape and Natal ports. This added to the political tensions of the day, tensions that eventually resulted in the Anglo-Boer War (Houghton: 1971). Following the war, negotiations began for the formation of a customs union – what resulted, however, was the political Union of South Africa. 'From the outset, the new state found its path crossed by several; pressing problems and desires: it had inherited a growing "poor White"

problem; there was a need to diversify the narrowly based economy; and there was the desire, natural amongst all developing nations, for greater economic self-sufficiency' (Lumby; 1983a: 199). The fledgling manufacturing sector was perceived – not least by those involved – as the way in which the Union could gain greater autonomy. The Cullinan Commission was tasked with 'investigat[ing] the feasibility of establishing local industry' (Lumby; 1983a: 199). Their findings suggested the revising of the current tariff structures and preferential rail rates, specific sector protection as well as the promotion of white labour in industry in order to alleviate the 'poor White' issue (Lumby; 1983a).

The tariff structures were put in place just before the outbreak of World War One. On the whole, the war acted as a stimulus for manufacturing development – the 'difficulties of importation... stimulated the local manufacture of certain consumer goods' (Houghton; 1976: 121), once trade resumed after the war this growth was halted. The local manufacturing sector was heavily constrained by a small domestic market and no economies of scale. Hence, the terms of trade experienced by the Union remained poor as the variety and lower costs of imported manufactured goods out performed locally manufactured goods (Houghton: 1976).

The initial 'post-war boom was followed by a slump in 1922' (Houghton; 1971:22). Fluctuations in agricultural products, chief among them wool, generated an unstable economic environment, that even the international return to the gold standard could not improve (Houghton; 1971:22).

The Board of Trade and Industries was 'established on a part time basis in 1921' (Lumby; 1983a: 204) in order to further promote local industry. Some tariff restructuring occurred and a variety of industries within the manufacturing sector received protection. The Board was limited in its scope however as the government 'favoured a policy of free trade' (Lumby; 1983a: 204) largely because of the significant imported inputs into the mining sector. Despite this, the Board became a permanent feature under the next government, this was done both to aid industrial development – realising that

gold was a finite resource - but also in order to create a permanent solution to the 'poor whites' (Houghton, 1971 and 1976) who had featured significantly in the election campaigning. As Lumby (1983a: 204) notes, 'After almost half a century of limited industrial progress the development and protection of South Africa's secondary industry at last became the declared policy of the South African government'.

Metal and aligned industries benefited greatly from tariff protection, so much so that the parastatal, the South African Iron and Steel Industrial Corporation (ISCOR) was formed in 1928. This had great economic success during the Second World War (WW2) when Iscor took the lead in the establishment of armament and ship repair.

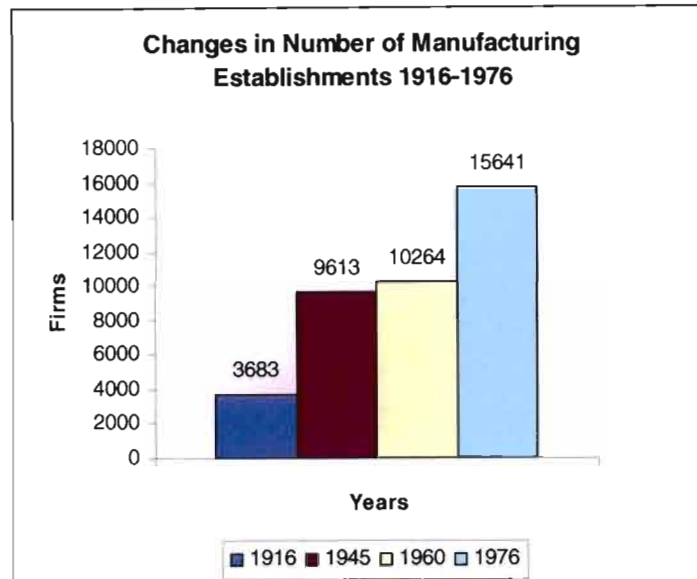
WW2 placed increased demand on local manufacturing to meet the local market's needs, as 'the normal civilian demand [was] cut off from overseas sources of supply' (Houghton; 1976: 126). South Africa, in the post war aftermath, had the makings of a modern economy: the mining sector continued to play the major role in exports but manufacturing was now beginning to meet more of local demand (Houghton: 1971). Lumby (1983a) notes that 'the expansion of the secondary sector, partly due to tariff protection, did lessen the degree of dependence upon the primary sector' however, the manufacturing sector was still reliant on the foreign exchange generated by mining for the purchase of intermediate inputs into production.

As Natrass (1981: 168) indicates in Table 8.3 (replicated in part below as Graph 3.1) the growth in number of manufacturing establishments is substantial between 1916 and 1945, slowing in growth until 1960 and then resuming a faster growth rate until 1976.

This rapid expansion of the manufacturing sector from 1960 onwards is explained by Houghton (1971: 43) as resulting from the growing 'political pressure... after 1958'. This was to result in a variety of trade restrictions against South African exports and a reduction in SA's ability to satisfy the local markets demand for imported manufactured consumer goods.

Manufacturing had remained 'since the late nineteenth century' (Lumby; 1983b: 235) driven by import substitution.

Figure 3.1: Manufacturing Firms



While this initially served as sufficient motivation for impressive growth (as indicated in figure 3.1 above) without creating an export orientated industries platform South Africa faced major growth constraints. The Board of Trade and Industry noted this as early as 1945 (Lumby; 1983b: 235) and it was reiterated by the Viljoen Commission in 1958 (Lumby; 1983b: 235), import substitution however remained the 'underlying...industrial strategy' (Lumby; 1983b: 235).

Little had changed in the manufacturing sector in the latter part of last century - import substitution continued to played a major role in South African economic development, as the domestic market remained unable to provide a sufficient variety of hi-tech manufactured goods to suit local buyers' tastes and needs (Barnes, Kaplinsky and Morris: 2003). With the import substitution remained the 'heavy tariffs, generally escalating with the degree of value added, coupled with preferential purchasing' (2003:4). Coupled with this was the promotion of key industries, Barnes et al (2003) cite fuel industries (coal and petro-chemical) as by the 1980s, not only was the world economy facing a fuel crisis and spiralling inflation, but South Africa was isolated by trade sanctions – a result of the government's political regime of Apartheid.

With sanctions came an increase in protection for the local economy, tariffs which had always been substantial became even more 'complex... [and] firm-specific' Barnes et al (2003:5). While these measures did offer some protection to local industry, it also affected the balance of payments account. Attempts were made at reducing the non-tariff barriers with definitive tariffs and export orientated production subsidies became available. Following the election of democratic government in 1994 greater attempts were attempted in order to bring SA in line with the General Agreements on Trade and Tariffs as promulgated by the Brettonwoods Institutions and thus back into global trade stage.

Interestingly, Barnes et al note that 'export subsidies... were removed since they were very costly (the value of subsidies were approximately 0.5 percent of GDP at their high point in the mid 1990s), were subject to growing corruption, and were anyway becoming GATT-illegal' (2003:5). The authors also indicate that this removal of formal subsidization 'did not signify a withdrawal of the government from industrial policy' (2003:5) Rather, it indicated a new phase of South African industrial reform, the advent of supply side strategies intended to encourage globally competitive manufacturing, interestingly it was restricted to two sectors: clothing and automotive, both sectors that had under previous administrations received special notice. Barnes et al (2003) forward the idea that this was due to pressure from the World Bank coupled with the limited 'administrative capacity [of government] to define and implement selective industrial policies' (2003:6). In the automotive industry this was realized by the implementation of the MIDP.

The MIDP was the first major government sponsored incentive programme that focused on supply side measures of an industry rather than creating a local demand for manufactured products Barnes (2000, 2003). This focus is discussed in greater detail in chapter 6, however, some discourse at this juncture would form a pleasing conclusion to the path of manufacturing development described in this chapter. Essentially the MIDP was developed to improve international competitiveness by encouraging local manufacturers to adopt international best practices, thus improving the attractiveness of SA

vehicle exports as well as improving local affordability. Overall, it was designed to enhance the auto industry's trade balance (an industry that traditionally operated on the basis of imported knock down kits being assembled locally) and lastly to insure that sector maintained some form of employment stability (Barnes: 2000).

The incentivising of exports promulgated by the MIDP was (and remains) centered around a credit system that allowed local manufacturers and assemblers to use 'export earned' credits to offset the costs of import duties on materials, components and fully built up vehicles, allowing locally produced vehicles to compete internationally. The tariff rebates encourage local component manufacturing as well as assembly by allowing rebates to manufacturers and assemblers that export products that have incorporated imported components.

This movement away from pure import substitution has increased the focus on the improvement of manufacturing practices (Barnes 1999; 2000). This in conjunction with the increased the opportunities given to local production to access the global market through the rebate scheme has meant that the protectionism of the industry has come full circle, from import substitution to export driven.

Indeed, manufacturing has come a long way in South Africa, from mineral exploitation to import substitution to globally competitive sector development. This journey is intrinsically linked global patterns of development, the discussion of which forms the basis of the following chapter, and while this treatment of the MIDP is highly generalized in this chapter it is dealt with in greater detail in the chapters that follow.

Chapter 4:

Literature Review

The literature review that follows examines five significant areas, the role of development theory on infrastructure development and public spending; the role of maritime theory in the structures of local port management; port efficiency models; a review of local manufacturing and the MIDP's structures and finally the role of the port in the spatial relation to the KZN auto industry is evaluated. For ease of reading, each of the sections are signposted, however, in order to provide a semblance of cohesion each section flows directly from the previous with some overlapping evident in order to preserve the integration of the review.

This chapter closes with some general comments, under the subheading of 'spatial relations' that form connections between the various sections and serve as a guideline for the direction and methodology of research undertaken (as set out in chapter 5).

Development Theory

Industrial development has been a significant arena of development theory since the 1970s, and has by and large, been ascribed to the Structuralist school of developmental thought championed by Prebisch and Myrdal (Martinussen: 1997). Essentially, this school of thought critiqued a less developed countries (LDCs) ability perform economically while experiencing high levels of unemployment. These high levels of unemployment were perceived to reflect structural fault lines in the developing countries' economies, and these theorists believed that any economic growth and development would only be achieved via coordinated industrial planning that overcame these underlying structural faults.

This was stylised in the 'centre-periphery' model first described by Prebisch in the late 1940s. The model was used to describe the trade relationship between the developed centre (United States, United Kingdom and Europe) and the developing periphery (Latin America, East Asia) highlighting the weak

position of the developing world. Countries on the periphery 'were not capable of deriving any significant benefits from their foreign trade' (Martinussen: 1997: 76), this has been ascribed to the system of mercantilism associated with the previously highly colonised developing world. To remedy this situation, state intervention and systematic investment planning would be required. As Singer (1984) noted, such planning could be funded by external sources and should be focussed on the creation of a modern industrial complex (cited in Martinussen; 1997). As Lall & Kraemer-Mbula (2005:5) notes about Africa's industrial development, "The exposure to foreign markets, enterprises, skills and practices that manufacturing brings can be the catalyst for **modernization of national industrial enterprises**, as seen in East Asia" (emphasis in original).

South Africa's development path followed a similar trajectory to that of the larger Latin American countries, though for slightly different set of reasons. Latin America focused on import substitution policies buoyed by government's provision of infrastructure, which proved initially successful. The cost of producing high end durable goods as well as capital equipment proved to be disastrous (Martinussen: 1997; 77). The Latin American economies on the periphery did not have a smooth transition to the centre and 'broadly based social progress' (Martinussen: 1997; 77) didn't follow suit. In South Africa, a similar situation arose – import substitution was enforced by trade sanctions imposed by various trade partners as a mechanism of protest against the South African government's apartheid policies. Like the Latin American countries local production of durable goods continued at a premium for the small domestic market. When sanctions were lifted it became apparent that South African required some form of structured entry into the market – the approach followed can best be likened to the school of developmental thought aligned with the Neo-Structuralist Approach (NSA). Rather than abandon all the theorising of Prebisch, the Neo-Structuralist pragmatically adapted his approach, noting the importance of bolstering an 'efficient entrepreneurial class' (Martinussen: 1997; 73) as well as the continued and extended role of the state as a provisioner of 'higher industrial productivity' (Martinussen: 1997; 73) on the supply side as being necessary to enable a developing country to

adequately compete on the world market. As Tabellini (2004) succinctly notes 'economic development is largely a legacy of history' (2004:6), indeed development levels reflect the political as well as economic will of governments past and present. Economic policies aimed at promoting growth are often required to focus on mitigating past mistakes before any actual growth can be achieved.

Public spending, as recommended by the Structuralist and Neo-Structuralist theorists has according to Tabellini (2004:10) created 'no robust link between the size and composition of public spending and economic growth'. However, Easterly and Rebelo (1993) cited in Tabellini (2004:10) indicate a contrary view with regard to public spending in transport related areas and tout their findings as having 'robust and positively correlated' linkages to economic growth.

Interestingly, there has been a marked decrease in public sector commitment in infrastructure provision (energy, transport and sanitation) in the developing world. This has been driven, according to Estache, Perelman and Trujillo (2005) by three factors are responsible: a change in ideologies (2005: 1) led by the unlikely forays into privatisation by the Chileans and British in the mid and late 1970s; the assimilation of new technologies like the containerisation of sea freight, freight moving equipment and increased vessel size and lastly as a reaction to the fiscal doldrums experienced by several emerging market countries in the 1980s. Essentially, the authors state that large scale government intervention in infrastructure was no longer feasible as the oil crisis took its toll on the balance of trade of the developing world. Estache et al (2005) also note that these drivers of change are intrinsically linked as ideological change is informed by 'fiscal crisis' (2005:2). Linking Estache et al's (2005) viewpoint specifically to the port sector is Brooks (2004) who derived three similar protagonists of reform in port governance, but referred not to financial constraint of developing nations' governments (Estache et al 2005) but rather to the 'low levels of public confidence in government' (2004: 168).

Onto the paradigm of public sector spending led development thought we superimpose the example of the provision of infrastructure and management of the car terminal at the port of Durban and the ability of the KZN auto industry to utilise this facility in order to compete viably internationally.

Maritime Theory and Port Management

The first area of discussion of this dissertation focuses on the infrastructure provision and management of the car terminal in the port of Durban. In order to review the literature on this matter it must be understood that the infrastructure referred to can be divided into two, marine infrastructure – like approach channels; water depth and breakwaters – and the superstructure – or landside infrastructure which comprises of cargo handling and storage equipment. The massive costing of such infrastructure is generally prohibitive for private provision, indeed it represents a significant initial investment or fixed (sunk) cost and though requiring some intermittent upkeep the majority of costs are expended in the initial construction. There is thus no marginal cost incurred when additional vessels enter the port, and marine infrastructure can be deemed to be a public good as the costs of using the waterway, water depth and passing breakwater are difficult to ascribe to individual callers to port (Bennathan and Wishart: 1983).

The public sector's role in provision for ports is thus most definitely on the seaward side where costs would be a prohibitive factor in the establishment of such infrastructure (Bennathan and Wishart: 1983). Cargo terminals, such as the car terminal, their superstructure and operations however present far greater opportunities for private sector involvement.

To couch this argument once more in theoretical development terms; Rosenstein-Roden (cited in Martinussen 1997; 228) noted that the state needs to be involved in economic development planning as market failures will allow for the misallocation of investment and hinder future growth. This contention is generalised quite neatly in Martinussen (1997:229) in three points: individual preferences (with regard to investment) may not lead to 'development-promoting' optimisation of resources; market mechanism do not

function flawlessly in developing economies and if they function sufficiently well they are likely to produce an equilibrium of 'low level' development.

The start up costs, though indicating some tendencies towards natural monopolies, are not as prohibitive as the marine infrastructure and more importantly, the use of cargo facilities and services can be far more precisely measured and priced and therefore far more easily recovered (Notteboom and Winkelmanns: 2001). Interestingly, the incentive exists for governments to 'under-provide public goods that benefit all' (Tabellini; 2004: 11), like port infrastructure, in order to target benefit specific groups or to garner rents for government coffers.

Port management models are highly varied across the world, but as ports are in many instances the key interface between one region (or country) and another some form of co-ordinated control is usually required to insure that all vested interests (local, regional, national and international) are reasonably accommodated. Goss's (1990) five point discussion highlights the jurisdictional necessity of a port authority (PA) and covers diverse issues like property rights, planning requirements, public goods, externalities and aspects of economic efficiency. Port authorities appear in three different structures, local (municipal), regional (provincial or state) and national. The port of Durban, like all other public ports in South Africa, is an example of a port under national jurisdiction, the South African National Ports Authority (NPA). National jurisdiction has some appeal to developing countries, as it allows for centralised planning to take place and may aid the development of port planning, transport corridor development and capacity control in terms of national *best interests*.

Port management, as examined by Brooks (2004) highlights the different structures of governance and functionality available to ports couched in the terms of the World Bank's port reform toolkit (www.worldbank.org): service port; tool port, landlord port and private service port. These distinctions link closely to those made by Jones (2003) who describes port functionality as having three different variants, 'landlord', 'tool' and 'operating' ports, as

indicated in Table 1 below. The term 'service port' (Brooks; 2004: 169) is interchangeable with Jones' (2003) 'operating port'. The 'private service port' described in Brooks (2004: 171) falls outside of Jones' (2003) grouping as it is an entirely private operation, thus beyond the scope of any public sector jurisdiction.

Landlord ports have the most limited form of public sector involvement out of the three. The PA's jurisdiction effectively covers only the marine infrastructure, the seaward side of the port, allowing for private enterprise to take on all landside activities like cargo handling and storage. The PA may be involved in the landside arrangements to the limited extent that it may be the lessor of land to the private cargo handling firms.

Figure 4.1 Traditional port types and their characteristics

Type of port	Control by Port Authority over:		
	Infrastructure	Superstructure	Cargo-Handling
Landlord	YES	NO	NO
Tool	YES	YES	NO
Operating	YES	YES	YES

(Reproduced from Table 5 in Jones; 2003: 12)

A Tool port, often referred to as a Hybrid port, is structured so that the Port Authority controls both the marine infrastructure (up to the quayside) as well as the superstructure on shore. Private enterprise in such a port would control cargo handling and stevedoring, while fixed equipment and storage facilities would remain within the domain of the PA. Such models tend to be clumsy, especially with the advent of containerisation where cargo movement is highly integrated from ship to distribution. The final model of port governance is the Operating port where the PA is involved in the full spectrum of port activities, with no formal role devised for private-public interaction.

While the division between public-private provisioning appears technically easily assigned on an economic efficiency and costing basis, the reality is that this is seldom so in ports. The port of Durban's marine infrastructure and cargo handling operations (including those of the car terminus) are both controlled by public sector players, the NPA and SAPO (Jones: 2003), creating a Dr Jekyll – Mr Hyde existence which does make efficient operations somewhat difficult and has also proven a stultifying factor in the movement towards greater private enterprise involvement.

Despite Goss's (1990) enthusiasm for PAs he does note that they have limitations, he decries in particular their Weberian nature as well as the limitation of their charters which could hamper long term planning (and movement towards privatisation) if restrictions on flexibility are enforced.

This premise is examined by Everett (2003) who describes the Australian port experience as being curtailed by state intervention. Indeed, the Australian ports' 'sub-optimal performance' level is perceived to exist (2003: 211) due to 'limited' state intervention. Everett (2003) focuses not on the intervention itself, but rather on the underlying framework of legislation as the cause of this poor performance by the ports. The 'political management' (Everett; 2003: 213) of ports has allowed for inappropriate business models to be implemented, this management is engendered in a lack of legislation that allows for the corporatisation of state utilities that would facilitate more efficient port operation.

India's ports adhere to the 'service port' model although there is some movement towards the adoption of 'landlord' status by the national port authority. However, this change in status is to be temporary as 'the governance model implemented in India is not privatisation, as the assets will revert to the port authorities upon expiration of the management leases' (Brooks; 2004: 176). In the United Kingdom, ports have 'moved closer to the fully private sector model' (Brooks; 2004: 175), however this transition was not without its detractors – criticism has been levelled at the rapid retraction of government from the port sector (Baird; 2000). Gilman (2003: 283) notes that

'the link between regional strategies and national context is rather weak as there is no explicit national strategic framework'. In the words of Brooks (2004: 175) 'the outcome (of port privatisation in the UK) fell short of the efficient markets ideal'.

In Canada, no single model is able to meet all the criteria of the 568 ports, so an amalgam of approaches have been adopted, depending on the position and nature of the port to this end Baltazar and Brooks (2001) cited in Brooks (2004) observe that no single model can meet the requirements of all variants of port settings.

South African port governance has recently undergone legislative changes in the form of the National Port Authority Bill in 2003 that was specifically designed to establish the NPA as a corporation 'to own, manage, control and administer ports on behalf of the State' (Ch 2, line 45) and to encourage efficiency of management as well as enable greater private sector participation in 'provision of port services and facilities' (Ch 3, 11h, line 41), effectively espousing that all ports should fall within the landlord framework. Myrdal's treatise of 'the soft state' (1968) cited in Martinussen (1997: 226) cautioned there may be some unwillingness for the state to allow for policies to be created that are anti large interest groups in society, or powerful segment within industry. He further observes that 'laws in developing countries, were, as a rule, formulated in such weak and imprecise terms that a considerable degree of discretionary power was left with government officials' (Martinussen: 1997; 226).

Has this been the *raison d'être* of much discussion, but little action, towards privatisation of SAPO controlled cargo-related activities? Indeed, formalised plans by the Department of Transport appeared only in late 2004, and detail a process stretching till 2010 (DT: 2004). This 'progress' bodes favourably when compared to the vetoed discussions of 2003, led by Transnet, which effectively placed the creation of a second container terminal in the port of Durban 'on the back burner' as 'it appears government carries some doubt whether the private sector will be able to operate the existing terminal

effectively' (Ports & Shipping: 19 October 2003). This view contradicted an article published in The Mercury newspaper which proclaimed: 'Durban harbour privatisation fast-tracked' (IOL 16 May 2002), with extensive quotes from the Public Enterprise Minister, Jeff Radebe, in favour of privatisation of port operations. 'Operating rights, for pre-determined periods, would be transferred soon through lease and rental contracts, but land and port estate would remain state-owned' (IOL 16 May 2002). So, possibly real progress is merely round the corner, a mere three years later?

Port Efficiencies Models

Notteboom and Winkelmans (2001) inspect the role of port authorities (PAs) (in a study focused primarily on container orientated ports) in the changing economic and market environment in which ports operate. Essentially asking how changing international traffic flows impact on 'strategic and operational issues in the framework of port management' (Notteboom and Winkelmans; 2001: 71). Their focus initiates from the changing patterns of consumption (demand) of durable and non-durable for goods and the implication that these changes have had on the structures of transport. They detail the movement of production from Fordist tradition to post-Fordism and identify growing global integration and changing corporate structures as being among the key factors for this. The outcome, according to the authors is simply an extension of this new tradition to the transport industry. Ports must be able to adapt and adopt, or face being removed from the value chain. Port management structures must be able to meet the diverse needs of their clients, especially their largest rent providing users who may view the port as little more than a further link in the supply chain. PAs must seek continual improvements in infrastructure as well as in core competencies, 'offering greater value to the port user' (Notteboom and Winkelmans; 2001: 83) in order to remain competitive.

Robinson (2002) redefines the role of ports as 'elements' (2002: 250) or links in supply chains and cautions that in this new conceptualisation the port is no longer revered as a place where the interface between ships and cargo but 'as an element in a logistics pathway designed to deliver value to shippers on a sustainable basis' (2002: 250).

Notteboom and Winkelmanns (2001) expand upon Goss's (1990) five point discussion of the jurisdictional necessity of the PA, stating that PA can move beyond the 'facilitator role' (2001: 84) and become a 'catalyst' (2001: 84) in the creation of an efficient port. In particular, they mention the critical role of the PA in generating 'value-added logistics and logistics polarization' (2001: 84), a view shared by Carbone and de Martino (2003), constructing coordinated information flows between port authorities; operators and users as well as holding a critical role in planning and implementing new services and links with other ports. Ports can no longer rely merely upon economies of scale for appeal, they must move towards 'an economies of scope approach' (Notteboom and Winkelmanns; 2001: 87) that incorporates greater interaction with the logistic chains of port users.

Carbone and de Martino (2003) examine the integration of ports, and in particular role of port operators, in international supply chains. They present a case study of the Port Authority of the Port of Le Havre's integration into automobile manufacturer Renault's supply chain. The study scrutinises the transport and cargo handling systems of the port and compares their efficiencies with those of the manufacturer. Interestingly, one of their key observations is that due to limited 'business economic research' into ports the 'business-organisational insight [of ports] is poor' (2003: 318).

In this regard efficiencies studies are essential to the port sector as competition in this realm of transport is difficult to guarantee due to the low number of competitors in some regions, indeed gains in efficiencies from other modes of transport are not mirrored by the sea side freight movement (Estache et al (2005). Clark, Dollar and Micco (2004) indicate that the improving port efficiencies would minimise shipping costs by 12%.

Estache et al (2005: 14) bemoan the general lack of 'academic coverage of economic efficiency in the port sector' worldwide, they count only eight articles published on the developing world, none of which are focussed on African ports. Their critique of the existing studies is that they are often poorly

structured examinations attempting to cover too much ground in a single paper. The predominant focus is on cargo handling, with 'few of the studies...specific...to which part of the port sector they are focussing on' (Estache et al; 2005: 14). The studies' scope is dictated by the availability of data, which in turn informs the choice of analytical tool (these vary from time series, Stochastic Production Frontiers and Data Envelopment Analysis) used. Some studies have further modified these tools (De and Ghosh: 2003) to form an amalgamated toolkit and when coupled with a lack of coherent methodology surrounding the definitions of variables (Estache et al 2005: 15), comparability value of these studies becomes seriously hampered.

The relationship between transports cost and trade volumes has traditionally been defined by a negative relationship between distance and cost, however Clark, Dollar and Micco (2004: 419) highlight to recent studies that indicate the multiplier effect the impact of raising transport costs has on trade volumes. A cited study by Limao and Venables (2001) in Clark et al (2004: 419) indicated that a 10% increase in transport costs translates into a 20% drop in volume traded. Clark et al (2004) examined some factors that contribute to port efficiency – infrastructure, organised crime and regulating authorities – and then formed a paradigm linking efficiency to costing mechanisms. Their findings indicate that distance and decreases in efficiency can lead to associated increases in transport costs which in turn 'implies a reduction in bilateral trade' (Clark et al (2004: 441).

In the causality efficiency study conducted on Indian ports by De and Ghosh (2003) the authors construct an index (the Port Performance Index or PPI) to measure the relationship between performance and traffic levels and to establish whether this is a dialectic relationship or simply a mono-directional causality. Their finding that performance drives traffic flow (and not the other way around) provides useful information for policy makers to act upon, and the authors caution that the study is merely an illustrative exercise and not a definitive guide to 'national port policies' (De and Ghosh; 2003: 19).

Estache et al (2002) discuss the model of Mexican port reform, stipulating that reform was undertaken to improve efficiency that would 'lower the logistics costs and hence improve the overall competitiveness of the reforming economy' (2002: 545). They found that ports that were allowed operate autonomously performed far better in the short run (realising increases in efficiency between 2.8% and 3.3%), usually within the services provision sphere of the port and not in infrastructure provision (2002: 558). The authors note that efficiency gains lead to better levels of competition between ports, and this may serve to enforce, in the long term, port reform measures. However, they end their paper by remarking that 'increased accountability for performance' (2002: 558) may do more in the long term than increased levels of inter-port competition for port efficiency. They reason that governance issues and asymmetrical distribution of information are mightier hindrances for efficiency, and should transparency and information flow be present then port reform is more likely to be maintained.

Estache et al (2005) reflect that despite the limitations of the studies conducted on the port sector in the developing world several import maxims become apparent: there exists a strong association between size and efficiency and technology and efficiency; fluctuation in efficiency is to be expected over time as ports and economies are subjected to external shocks; access to capital and capital accumulation (highlighted predominately in De and Ghosh; 2003) has a significant impact on efficiency and finally that the measurement of efficiency is complex and is derived from numerous components.

Efficiency modelling is used to inform port reform, Estache et al (2002) note that decentralisation and increased competition between the Mexican ports improved overall efficiency measures for the sector. Ownership reform, concessioning and privatisation as detailed in Brooks (2004) has tended to create 'improved efficiency in the sector in developing countries' (Estache et al (2005:16).

López and Poole (1998) reiterate the importance of port efficiency in the logistics supply chains into the hinterland that the port serves. The authors note that these efficiencies are then carried throughout the economy. An issue that they highlight (1998: 34) is that inefficiencies arise from numerous sources and they take special note of the 'complexity of the principle-agent relationships among port service providers and their customers'.

Port reform, taking into account efficiency capacity, links closely into state driven development planning. Devolution, concessioning and continued management of ports are all options of reform and such planning can follow either a generalised macro level model like the GEAR model adopted by the South African government on the late 1990s, or sector specific planning. The latter is described in Martinussen as being when the entire economy is split 'into two or more main sectors' (1997; 229). This approach has been often expanded upon and the version adopted by South Africa is referred to as the input-output model or linked sector model (Martinussen: 1997).

Local Manufacturing and the MIDP

Planning is undertaken to insure that as sectors are intrinsically linked in a series of complex intertwined value chains that the growth of one sector will result in a positive spin off in others. The evolution from a primary focus on capital formulation to the recognition of the role of labour and human capital in economic development has somewhat melded South Africa's experiences and changing institutional paradigms to the 'crisis management' style described by Klerck (2001). He identifies with 'regulation approach' (2001; 107) and essentially it is the response of development to crises, in South Africa's case the crises were a change in political outlook in the late 1980s which culminated in a new government structure following the 1994 election and concurrent currency crises that occurred in several waves and in different forms from the 1980s until the present day.

Kaplan (2004) presents a review of manufacturing performance and policy in South Africa spanning the previous decade. He notes that South Africa's manufacturing growth rates have stagnated in terms of 'share of developed

market and world MVA [manufacturing value added] has declined persistently' (Kaplan; 2004: 623). Government response to the lacklustre performance of South African goods on the international market has been fairly inexact, with the exception of two sectors – textiles and autos – which have both had highly specific development orientated policies conferred upon them.

In terms of African exports to the world market, the South African manufacturing sector contributed 29.7% of the continent's total exports (Lall & Kraemer-Mbula: 2005), when this is further disaggregated into the technology type (low, medium and high) it becomes apparent that within medium technology band – where the auto sector is situated – South Africa contributed 86.1% to the continent's exported goods, 92% of which was automotive related.

Figure 4.2: South Africa's Share of African Exports

Reproduced from Table 1 in Lall & Kraemer-Mbula (2005: 14).

	1980	1990	2000
Total Exports	49.2%	70.8%	29.7%
Primary products	33.2%	58.8%	9.7%
Total manufactures	68.4%	76.5%	57.6%
Resource based	60.9%	78.9%	45.6%
Agricultural Based	53.7%	61.8%	43.0%
Mineral Based	64.3%	87.9%	46.7%
Low Technology	82.8%	58.0%	48.1%
Fashion Cluster	58.3%	35.5%	25.1%
Other LT	93.6%	74.7%	72.5%
Medium Technology	91.0%	88.2%	86.1%
Automotive	92.6%	96.6%	92.0%
Process	92.1%	86.0%	84.0%
Engineering	87.6%	88.2%	84.7%
High Technology	69.8%	91.4%	87.1%
Electronic	80.1%	94.9%	92.5%
Other HT	66.0%	89.9%	83.8%

The Motor Industry Development Programme (MIDP), initiated ten years ago, was designed to make the local auto industry more competitive by gradually lowering tariffs, reduction of customs duties on components 'up to 27% of the wholesale value of the vehicle' (Kaplan; 2004: 627); the removal of local content requirements as well as allowing for a system of 'duty rebate credits to be earned on exports' (Kaplan; 2004: 627).

Essentially, exporters of vehicles and auto components are able to use the system of rebate – Import Rebate Credit Certificates (IRCC) – to counteract the costs of producing locally; this makes the finished product (car) for export a cheaper commodity. The IRCC allows both assemblers (OEMs) and component manufacturers to earn duty credits when exporting goods that are permissible to use to 'offset duties incurred through importing or sold to other firms in the industry at a slightly discounted rate' (Morris et al: 1997). As Flatters (2002) noted this may mean that the local consumer base is disadvantaged as vehicles that are exported are *cheaper* than those sold domestically due to these structured tariffs.

These 'favourable tariff structures' have meant that the local components industry has been forced to improve production methods in order to compete with international imports (Morris et al: 1997). This view is shared by Barnes & Black (2003) who stipulate that the auto industry's export successes are the result of improved competitiveness and that the domestic car buyer has not been faced with higher prices as a result of changed tariff structures, this is in line with the lowering of 'real protection levels' described by Morris et al (1997).

Price comparisons by Barnes & Black (2003) indicated that the cost of buying a specific car model in South Africa was not out of line with the purchasing of the same vehicle in the United Kingdom or European Union, finding that 'at equivalent levels of quality and specifications, South African consumers face lower product prices' (Kaplan; 2004: 629). There are some objections, notably from Flatters (2002), about the technique of comparison and these are

important to note, however it should also be recognised that comparative price analysis between similar goods in different markets is controversial to administer due to the difficulties associated with using nominal currency rates.

Interestingly the MIDP Review Report (Barnes & Black: 2003) noted that there had been a 'positive performance' by the industry in exporting levels, but a 'negative performance' in importing levels (2003: 21). Imports as a proportion of sales increased only 10.6% from 1993 (40.6%) to 2001, at 51.4%, while exports were 36.2% in 2001, up from 15.6% in 1993, indicating an increase of over 20% (Barnes & Black; 2003:18). Flatters (2002) argument of local cars costing local consumers more than the export market is not borne out in the figures presented by Barnes and Black (2003), as if this was the case a higher growth rate in imported vehicles would be expected as consumers voted with their wallets, instead additional consumption of imported vehicles has been low growing only 10% in 9 years.

Spatial Relationships

Klerck's (2001) regulation approach appreciates the cyclical nature of manufacturing crises and allows for an evolving analysis of economic development in the auto sector. The approach is a useful tool for understanding the structures at play in the relationship between the port of Durban and the KwaZulu-Natal auto industry. The KZN auto industry is an example of highly organised manufacturing (Lorentzen, Robbins and Barnes: unpublished) and much has been written about the components industry and production for local use by OEMS as well as for the export market (Barnes; 2000 and 2001). One area that has not received much attention however is the final link in the value added logistic chain between the manufacturing and assembling side of the local industry and the transport hub, the car terminal of the port of Durban.

Initially the emphasis of the industry in KwaZulu-Natal was on 'input suppliers around Toyota, which had initially [been] established in Durban to benefit from access to imports provided by the port' (Harrison & Morris: 1996, Jones: 1997 cited in Morris et al 1997: 3). Morris et al refer to the 'ancillary policies' (1997:

3) that aided the formation of the KwaZulu-Natal auto industry, key among these was the local content requirement for domestically produced vehicles that gave impetus to the establishment of numerous component manufacturers in the region.

Fujita and Mori (1996) created a model that moves away from the typical notions of geography inducing port-city formation – an existing natural harbour or wide-river – and examine rather the role that “self-agglomeration” within the ‘spatial economy’ (1996:99). Within their model only one type of good is initially produced in all cities, as specialisation occurs so to does the process ‘decentralisation’ (Fujita and Mori; 1996: 118) take place, the authors’ model explains that ‘M-industries (manufacturing industries), in which lower order industries (having higher transport costs and/or lower degrees of product differentiation) are decentralised first, while higher order industries tend to stay in the core region’ (1996: 118). To what extent is this model applicable to the auto industry in KwaZulu-Natal?

Due to limited industrial land surrounding the port itself, industry began to move outward into different areas of Durban, the process is referred to as the suburbanisation of industry by McCarthy (1993) cited in Morris et al (1997). Clustered groups of automotive related production began to emerge to the west of Durban (Young 1976 cited in Morris et al (1997)). This movement away from the port of Durban does not serve to indicate that the ports centrality to the Durban economy is in any way lessened. Jones (1997 and 2003) indicates the critical role that the port of Durban has as the largest hub port on the eastern seaboard.

Port users and service providers concerned for the future efficiency of the port of Durban believe that the hold up on vital decision making (about concessioning port operations) is counter productive (Jones: 2003). It appears that concessioning on any terminal is unlikely to go ahead (despite the Department of Transport's 2004 proclamations) until the NPA can be convinced that the privatisation will bolster cargo handling expertise in the port of Durban.

When these considerations are taken into account along with the direct and indirect impact that various state bodies and policies exercise on the car terminal it becomes increasingly important to be able to unpack the role of the car terminal as a catalyst for growth in the local auto industry. Some kind of feedback indicating what port users' impressions of the terminal are is essential in order to justify public spending of this magnitude. To this end, a review and suggested methodology for measuring efficiency is also included, as a method by which SAPO and the NPA may in be able to better fulfil their role within logistics supply chains for the local automotive industry. These tasks are set out in the following chapters, with a detailed research methodology following on directly from this literary review chapter.

Chapter 5:

Research Methodology

In order to answer the concerns set out at the end of chapter 4, detailed research was required. A methodical description of the research undertaken is set out below. As the topic lends its self to both qualitative and quantitative research methodologies each are dealt with in turn. Gathering the data necessary for this dissertation was not all 'smooth sailing' and this is also indicated below.

Qualitative Methodology

A series of in-depth one-on-one interviews incorporating representatives from the city of Durban's Economic Development Unit, the NPA (local and national), SAPO, Spoornet, shippers, the DTI and the KwaZulu-Natal auto industry (both OEM and component and auto carriers representatives) as well as academics and maritime journalists was held. Due to the significant number of organisations linked to the Durban Car Terminal, interview candidates were generated using non-probability sampling to create a realistic and industry-wide response group. Using a sampling technique also help to ensure the validity of the respondents with regard to the research questions. This was unproblematic as key organisational role players were easily identified. 20 formal responses were sought, and 18 were respondents were forthcoming.

Figure 5.1 List of Interview Respondents

Respondents	No. of Interviewees
Academic	1
Auto Carriers	1
City officials	3
Consultants	2
DTI	2
Journalist	1
NPA	1
Autos	2
Sapo	1
Shippers Organisation	1
Spoornet	3

The nature of the port's structure made it important to interview both individuals from the NPA and SAPO as well as members of the City's economic planning department. It soon became apparent that other City officials' comments would have to be sought as there were a number of other City functions involved in the car terminal, among them were the Traffic Department and various Urban Renewal Projects. Likewise, a great deal of linked local research had been commissioned on the port (though not on the car terminal) and so a various consultants and academics' input was vital to the study.

As the port forms part of the greater transport network of South Africa, contact was attempted with Transnet (who owns NPA and SAPO) as well as the Department of Transport. These did not meet with success, but various officials at Spoornet (another subsidiary of Transnet – see appendix 2 on page 78) were willing to be interviewed, but remained quite reticent to formally comment on a variety of key issues.

The shippers who frequent the car terminal all belong to a formal shippers' organisation that is tightly structured and this greatly reduced the number of interviews needed as I was able to glean an industry overview by speaking to a single source.

The KZN auto industry is dominated by Toyota and interviews with the firm initially proved difficult to organise. However, after much negotiation, access to a variety of documents as well as individuals was permitted – these form much of chapter 8's findings. As terminal users make extensive use of the road network surrounding the port it was important to understand any issues arising from this dependence. To this end an interview with one of the largest auto carrier firms (who services both KZN and non-KZN OEMs) was undertaken.

As much of the research was dealing with current events, the commentaries of local journalists proved an invaluable source of background information and

enable me to place localised data from other sources in a 'bigger picture' perspective.

The interviews were held in person with Durban based interviewees or via phone with those not locally situated. Part of the interview included a short electronically accessed questionnaire that provided some quantitative feedback, which aided the formation of the chapter on efficiency a great deal, and was collected back at the interviews or via return email.

What proved most challenging was identifying the correct people within national structures to interview; this was made more difficult by a dearth of contact information made available in the public forum.

Interestingly, the city officials proved the most difficult interview subjects, due to an unfortunate combination of departmental disorganisation and personal apathy.

The inherent risks in qualitative methodology, particularly in non-probability sampling, is that interviewees may refuse to divulge sensitive information as confidentiality issues may arise with a small sample group. As there are a limited number of OEMs using the car terminal issues disclosure due to confidentiality proved a realistic concern for the validity of the study. What did prove interesting was the realisation that researching a topic that is firmly grounded within both public and private economic spheres is that the difficulty in gleaning data is often people and not procedure driven. This was particularly true as the current tendering process underway at the terminal is still very much in the planning stages, and several key players – notably Spoornet were very reluctant to formally comment. Other interviewees, mostly in the private sector were far more forthcoming and often rather blunt about their views, which made a refreshing change from the stonewalling of various government departments.

As some sources were unwilling to be directly quoted their views are incorporated, but specific interviewees are not cited in order to adhere to their desired level of confidentiality.

Quantitative Methodology

The quantitative aspect of the research was two-fold: an exploratory analysis - measuring the performance of the car terminal, using the electronic questionnaires and secondly predictive analysis stemming from a review of available data, from various role players - the NPA (volumes) and Naamsa (import and export figures in relation to national GDP). What was disappointing was the lack of publicly accessible disaggregated South African Revenue Services (SARS) data on import and export figures. Despite numerous communications with SARS, the only information made available was the general import and export figures of entire bands of manufactured goods. The Naamsa and Toyota figures made available for use are an indication of the effectiveness of their data collection and retention systems and neither organisation imposed any issue of confidentiality on data usage. The information made available by the NPA and SAPO, was restricted to general terms, as they felt that as service providers they could not infringe on the confidentiality guarantees given their clients.

The creation of a realistic efficiency measurement was hampered by the type of data available from both the NPA and SAPO. They were only able to furnish me with volumes figures, and broad turn around times. Bizarrely, SAPO felt that giving me a schedule of berth occupancy would infringe on their clients privacy, although the current month information is available off their website.

Despite these limitations, the combination of the techniques of non-probability sampling and a quantitative examination of available statistics data proved more than adequate compile a composite of the port planning process - Chapters 6 and 7 focus on the results of the fieldwork pertaining to the port and in particular to the terminal's development; this is contextualised within the framework set out in the literature review as well as within the Department

of Transport's national transport logistics' paradigm - and create a model for measuring terminal efficiency as well as glean the response of the auto industry to the terminal. These findings (the results of the fieldwork focussed on the auto sector, from interviews with Toyota, consultants, the auto-carrier industry as well as from Naamsa) are contained in chapter 8.

Chapter 6

Port Planning

The port of Durban is viewed as the major gateway into the industrial complex of the hinterland and 'as the single dominant port in the Southern African sub-region, if not on the continent of Africa' (Jones; 1997: 24). As an integrated part of the national transport network, ports are the focus of national planning for the furthering of national developmental goals.

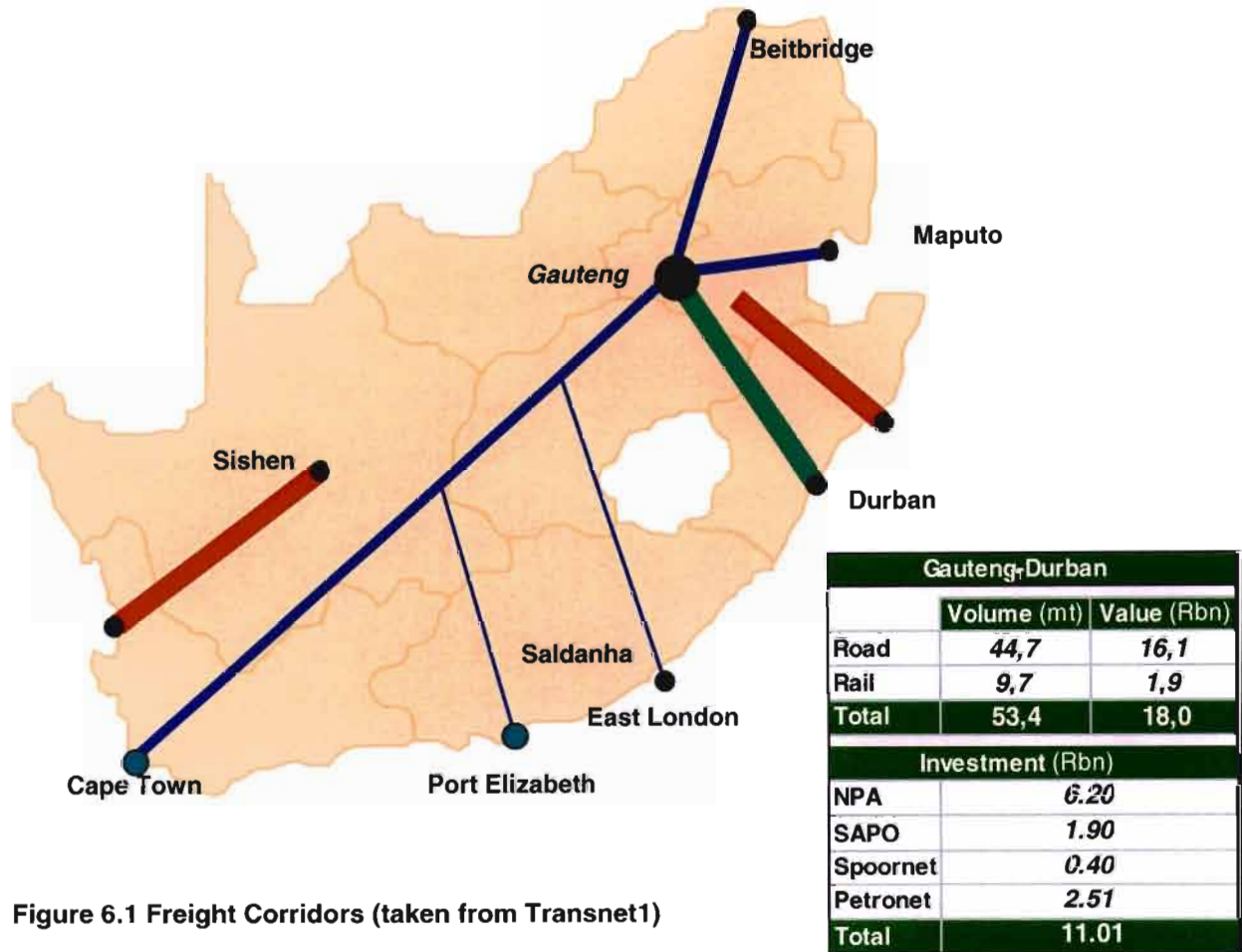


Figure 6.1 Freight Corridors (taken from Transnet1)

Figure 6.1 shows the national transport network and highlights to volumes of freight moved along the Durban-Gauteng corridor - indicated in green on the map. The port of Durban serves as the point of exit and entry from SA for the Gauteng industrial complex and the road and rail figures indicated in the box are for two-way traffic along this link, which cumulatively record volume levels of 53.4m tons at a value of R18bn. This demand on transport has in turn been recognised and future investment at the port is set at R8.3bn (SAPO and NPA

figures combined). The improvement of transport infrastructure allows for 'the process of the growth, reconstruction and development of our country by reducing the cost of doing business in our country' Thabo Mbeki (State of the Nation Address 21 May 2004).

Ports are viewed as national assets and administered by a national body. There however does exist a planning quandary in the port sector as ports serve both local logistic needs, like the South Durban Renewal Project (SDRP), and the needs of the national transport corridors. Projects like the SDRP are designed to benefit local economic development through a multi-modal design strategy, which "is important not just to build synergy between local and city-wide plans, but also to ensure that decision makers can establish a connection between very localised activities and resource allocation in line with city-wide commitments" Robbins (2004: 15). This is then intended to fit into national development strategies. However, this is further complicated by the public nature of ports (Bennathan and Wishart: 1983; Goss; 1990; Martinussen: 1997). The same national body - the NPA - that administers the ports also administers the major South African port operator, SAPO, which operates the car terminal in Durban. As Jones (2002: 69) emphasises there is a need for 'capacity extensions' at local ports in order for South Africa to compete in the low tariff globalised market. This may, as in the case of the Durban car terminal, cause some conflict as national interests and local needs may not coincide completely. This chapter is designed to unpack some of these issues that have been faced during the planning process for the car terminal.

The process of political transformation in South Africa affected all socio-economic spheres and led to a progressive restructuring of state controlled industry and infrastructure that occurred in the mid and late 1990s. The Department of Public Enterprise's (DPE) Restructuring Programme was created to remedy past inequalities in industry as well as improve the capacity of the state owned enterprises (public companies). This in turn was envisaged as the way to foster 'economic growth, socio-economic development'

(www.dpe.gov.za) and better enable South Africa to re-enter into the world's markets on an equal footing. Much of the DPE's focus has been in the transport arena as all transport modes and state owned enterprises (SOEs) and on improving the infrastructural capacity of South African ports in order to achieve this outcome.

The decision making process surrounding the building of the car terminal at the port of Durban occurred simultaneously with the national debates of infrastructure provision. Depending on with whom you speak, the project was driven by national government; by the automotive sector; as part of the greater Durban port development strategy of Portnet in conjunction with the city or occurred without sufficient consultation with local city planners.

All sources *identified* the same three major stakeholders in the planning of the car terminal: the automotive industry (represented by various OEMS and Naamsa); the city of Durban (Economic Development Department) and Portnet, representing national government interests, however they varied in their opinion of how *involved* all three were the process (this is indicated below in table 6.1).

In depth interviews were conducted with all parties as well as other city departments, transport companies, shippers, independent consultants and Spoornet - what follows below is the summation of the process that was undertaken to build the car terminal at the port of Durban.

The question asked of the respondents was: did they feel the planning process had been inclusive? The results are shown below.

Figure 6.2 Perception of Inclusiveness in Planning Process

Category	Not inclusive at all	Moderately Inclusive	Highly Inclusive
Academics (1)	1		
Autos (n = 2)			2
City (n = 3)	2	1	
Consultants (2)	1	1	
Dti (1)			1
Portnet (NPA/SAPO) (n = 2)			2
Spoornet (2)			2
Total (n=13)	4 (30.8%)	2 (15.4%)	7 (53.8%)

The auto industry representatives felt that their needs had been adequately addressed in dialogue with Portnet, as indicated by their choosing 'highly inclusive'. All the national structures involved in the planning concurred with this assessment, while local government (represented by the City) did not share this viewpoint (Interviews 2; 11 and 16).

The city representatives were not alone in their perception of non-inclusiveness as indicated in the table, indeed, some of the strongest words came from a consultant (Interview No. 12), who described Portnet as a 'gung-ho organisation that took little consideration or interest in other factors'. This statement was made in reference to the manner in which recommendations made about possible future congestion were derided as of being little importance. Interestingly, this is one major area of current contention under review by both the NPA and the City.

Sachs (undated: 2) views African coastal cities as the 'region's engines of growth', however he cautions that there is a 'need for appropriate urban-level governance' (undated: 3). The process of port planning undertaken at the Durban car terminal falls short of Sach's ideals, appropriate local governance is in place, but national structures prohibited its effective involvement, the following chapter examines if this has been proscibement to the attainment of terminal efficiencies.

In the midst of the negotiations for development of the car terminal, national structures were undergoing change. The devolution of Portnet – the maritime wing of Transnet – into the NPA and SAPO has played a major role in the planning of the car terminal at the port of Durban (Interview: 4). The restructuring of the Transnet subsidiary was very much in line with the UNCTAD's belief that "the landlord port option, whereby operations are run independently by an autonomous department – private and/or state – of the port authority, is this the most appropriate solution for the majority of Africa's ports" (cited in Radebe; 2003:2) and government's aims of generating higher levels of efficiencies in the port sector (Interview: 9).

In 2001, Transnet, the parastatal transport corporation, removed the structures of Portnet from its transport stable. In a speech given at the Intermodal Africa Conference in 2004, Radebe commented on this 'the former state entity Portnet was split into two independent bodies: the National Port Authority responsible for landlord activities, and SAPO, South African Port Operations, who are in charge of port operations' (2004: 3). This devolution, while very much in line with international maritime best practises has some constraints as both SAPO and the NPA remain within the realm Transnet and total public ownership. The enactment of the NPA Bill in 2003 has created a possible path of future development and the privatisation of terminal operations in the maritime industry, but as yet, two years later, the status quo remains in place – with the parastal firmly in control of the ports and the car terminals.

With the establishment of the DTI's MIDP (1995), it became apparent to those in the sector that in order to generate an efficient, world class export orientated automotive industry; world class export facilities would be required (Interview: 3). Robinson (2002) and Carbone and de Martino (2003) affirm this view that it is necessary for a port to be an integral part of the logistics chain in order for such efficiencies to occur. The development of the terminal had major implications not just for the KZN OEMs but also for the Gauteng based OEMs (Ford, Nissan and BMW) as the port of Durban was the main conduit for shipment of the hinterland-based industry (Interview 3). Durban is a highly diversified multi-purpose port which has created a specific specialisation in handling container and unitised, like CKD and CBU, traffic (Jones; 1997 and 2002).

Naamsa (Interview: 3) viewed the development of the car terminal as an essential element of the improvement of the national logistics value chain, reducing the lag between production and availability on the world's market and reducing the costs of trade by lowering the transport costs through increased efficiencies. Morris, Barnes and Dunne refer to '[the] demise of import substituting industrialisation [as] equalling new opportunities for city ports as gateways for globalised and export based manufacturing operations'

(2002: 109). The advent of new production processes has made it essential that ports be able to keep pace with new inventory holding systems.

In interviews with the NPA, SAPO and Naamsa it was indicated (by Naamsa in Interview 3) that terminal planning was initiated in 1995 when Portnet specified that it wanted to meet with Naamsa and discuss the future direction of the terminal in terms of expected industrial requirements based on the projections of future exports and imports of CBUs. The NPA (Interview 4) further indicated that by 1997 Naamsa, at the behest of BMW, had broached the subject once more with the port's administration and the port remained hesitant about committing to the establishment of a car terminal due to the substantial start up costs and the limitations of space. However, according to Naamsa (Interview 3), the auto industry persisted and the NPA capitulated and identified the Cato Creek a break bulk handling area as a potential site of a car terminal. There were derelict sheds and a defunct rail line serving the underutilised area, and both SAPO (Interview 5) and the NPA (Interview 4) noted in interviews that with an investment of R1b it could become a world class facility. Although Naamsa and the NPA had reached an amicable agreement, the city of Durban felt that the positioning of the new terminal would be problematic according to the Department of Economic Development for the Ethekewini Municipality (Interview 2). They argued the car terminal is located on the northern tip of the port, where several non-core port activities occur - the establishing of a new terminal in such close proximity to the CBD, the recreational areas of the Point waterfront and the Wilson's wharf, both then under development, could, the city felt, cause future problems of congestion (interviews were held with the Department of Economic Development as well as Department of Transport (Interview: 11) both shared this viewpoint).

On the ubiquitous 'other hand' the loss or diminishment of port traffic would have spelt great economic loss to the Greater Durban Metropolitan Area (GDMA). Jones (1997) indicates that the economic impact of port traffic for the region in terms of employment in excess of 23867 individuals at a wage bill of R950m in 1994.

To add a further dimension to this already complex situation, the City of Durban, through its Economics Development Department was the major supporter of the development of a local automotive cluster, the Durban Auto Cluster. The City provided the seed funding (Lorentzen et al; 17 unpublished December 2004 version) for the organisation and remains highly involved in the governance of the organisation, although the DAC is under 'firm driven' control (Lorentzen et al; 18: unpublished December 2004 version).

Thus the city, despite objections about traffic, could hardly condemn the expansion of the car terminal in its entirety, having set up a major interest group to which the terminal is of direct and critical benefit,. The NPA went ahead with the development, acting as per its mandate as an autonomous national structure operating under a centralised management. This drew the following comment from a city official "they [the NPA] paid scant attention to City's issues" (Interview: 16). As a result, city officials from Economic Development noted, that there was then and remains so now, no formalised institutional arrangement on reporting or information sharing between the port and the municipality (Interview: 2). Some level of cooperation does exist though as each level of further development and building must have local municipality approval. In the NPA's own words "there exists a 'broad' understanding about the City's limitation of jurisdiction in the port as the NPA is effectively a landowner paying rates to the city" (Interview: 4).

This situation appears unusual, in that there was very limited dialogue about planning between the port and the city that are in such close proximity to one another. This is contrary to international practise that establishes the port as being firmly entrenched within a space – the city where it is geographically located (Fujita and Mori: 1996) - and as such it forms an integral part of local manufacturing decisions.

However this limited interaction between Port and City appears not to be anomaly in behaviour or a diversion from the status quo, rather, quite the opposite is evident as indicated by the quote below:

‘...in effect the Port authority structure had complete freedom to do as it liked on government owned port land – many decisions were taken by the government to proceed with projects that would have been seriously questioned if examined under town planning systems operated by the City. These included decisions to develop sensitive environmental areas of the port, restrict public access, place sensitive and high risk facilities near residential areas and continue ad hoc arrangements with regard to facility development and cargo handling choices. However, the City was by no means blameless in this process as in many cases it turned its back on opportunities to work closer with the Port’ (Robbins; 2002: 6).

This lack of co-ordination is worrisome not merely from a theoretical viewpoint, but also because it is divergent to the focus on the intermodal nature of ports, Radebe (2004:2) ‘emphasise[s] the strategic and critical link ports and harbours represent to countries and regions’ in his address to Intermodal Africa.

In 1995 the vehicle traffic at the port was 1600 units per month, with approximately only 10% of that being exports (160 units) (www.sapo.co.za). By 2004 exports made up 23% of total throughput, or 3849 units per month, and total volumes are at 16564 per month, or 198773 per annum in 2004 figures. In a decade, there has been increase of close on 90% in terms of car handling (interview with SAPO officials).

Figure 6.3 Throughput of the Car Terminal (1998-2004)

	Imports	Exports	Total
1998	37,076	5227	42303
1999	31,797	6904	38701
2000	60,621	19666	80287
2001	66,394	41800	108194
2002	68,371	48723	117094
2003	83,880	53477	137357
2004	152,580	46193	198773

The terminal opened in 1998 was designed to handle 90 000 vehicles per annum. SAPO allows that poor physical security and a lack of a dedicated berth hampered efficiency; however the rapid growth of the automotive industry in the following three years translated into demand for further facilities and Portnet needed to reconsider the original investment in the car terminal. Additions to the initial site have had to been made in order to meet the auto sector's expansion (Interview with NPA).

Extensions to the existing facilities were undertaken by the NPA, as Portnet has ceased to exist, the number of bays was increased from 3500 to 7000 and an overhead bridge linking the parking lot to the quay was opened to coordinate a more rapid movement of vehicles to and from vessels, at a cost of an R100m. These alterations were finally completed in early 2004 (www.sapo.co.za), and already negotiations are underway for a further extension of another 4000 bays and a second berth as once more growth in the auto sector has led to "capacity constraints" (Interview 4).

While all parties interviewed on this issue (NPA, SAPO, Naamsa, City and Toyota) agreed that the port management and has been very pragmatic its approach to constraint management, there was some differing opinion surrounding the inclusiveness of decision making. Saturation at the car terminal has led to issues arising over congestion accessibility into the terminal as well as special compatibility – the selfsame issues raised initially by the City in the mid 1990s. Officials from the city were critical about the sharing of information as they feel that decisions made that benefit the port should also be decisions that benefit the city (Interviews 2 and 16). Much discussion has centred on traffic generated by the car terminal (and other terminals) making use of public access roads (Interview 11).

In particular, Victoria Embankment, Winder Street and Baysview Road and Shepstone Road are areas of concern for the city planners and traffic department. These roads service both commercial and residential areas are currently experiencing congestion as a result of car-carriers and other freight moving road vehicles. Traffic studies commissioned by the city have

highlighted a variety of issues, key among them has been the issue of 'accessibility' as 'The lack of sufficient access roads to the port however results in high levels of traffic congestion' (Le Roux; 2004: 3). Car carriers are designed to load either 5 or 10 vehicles at a time, all of vehicle throughput at the terminal, with the exception of BMW, make use of the public road system, that translates into a great deal of heavy commercial vehicles in a mixed commercial and residential area.

In order to better understand the problem of congestion information was sought from transport officials (Durban Metro Transport Department – City2; Interview 11); the auto carriers industry, Spoornet (Spoornet2; Interview 14 and Spoornet3: 17) and an Durban based consultancy (Consultant2; Interview: 12) that did the initial congestion studies for the city in 2001 and have been commissioned once more for the follow up studies. An average PTCT (pure truck and car transport) vessel discharges an average cargo of 1500 vehicles for the local market (figures from SAPO and Interview: 13) and these vehicles require transport via road to their final destinations. Car-ferries come in two standard sizes, a five carrier and a ten carrier. For a typical vessel of new vehicles 150 ten vehicle car-ferry trips would be required to disburse the shipment, or 300 five vehicle car ferry trips. 52580 vehicles were received as imports at the car terminal in 2004; virtually all were transhipped to dealerships via road, creating between 5258 to 10516 car ferry trips out of the terminal, dependent on size of the car ferries.

An interviews held with leading car carrier firm indicated that they would very much like to move to a system of round the clock operations and were waiting on the terminal (which currently closes at 10pm) to be open later. They suggested following the European auto carrier business model, with deliveries only at off peak hours – as in Europe heavy duty vehicles onto public access roads and into the CBDs of cities after hours as congestion during the day is to great – this, they claim would greatly reduce congestion at the Durban car terminal. They also indicated that they would far prefer to return to the use of

rail as opposed to road as this would lower their operation costs, i.e. they wouldn't have to buy the car carriers. They too cited rail inefficiencies, and 'nonsensical pricing, because they [Transnet] accused the auto carrier firms of being a cartel, when we were very much in competition with each other. It was nonsense!' as the reason for moving away from rail to road haulage (Interview: 18).

Rail usage by the auto sector has reduced greatly in recent years, this has happened due to two clearly discernable reasons 'The decrease in the reliability, availability and total delivery time of rail services and the increase in the availability and reliability of road based services, and the improvement in road travel times and costs' (Le Roux; 3: 2004). Spoornet and the NPA are currently in negotiations to redevelop the current rail infrastructure of the car terminal (Spoornet1: Interview 10) and in to this end the NPA has commissioned a further traffic study relating to the proposed further extension to the car terminal by 2006/2007 (Interview: 4). It appears that they are taking the concerns of the city seriously at last as public announcements that the new extension would be serviced exclusively by rail in order to reduce congestion have been made (www.dailytenders.co.za accessed on 24/05/05). What remains to be seen is whether or not the Department of Transport's plan for transport integration (DT:2004) is able to be realised at the port of Durban.

The expansion of the current Toyota platform, covered in chapter 8, adds to the current capacity crisis experienced in the terminal. Currently the NPA, Toyota and Spoornet (development division) are negotiating a further extension to the terminal of an additional 4000 bays, an additional berth and an upgraded rail link servicing the terminal according to the NPA (Interview: 4). Spoornet confirmed that there were negotiations underway, but declined further comments, citing the fact that 'the tender process has not yet been completed' (Spoornet2: Interview 14). The freight logistic challenges associated with this expansion are currently under review, with new routing systems as well as additional access points into the port being examined claims the NPA, however, as yet, City Traffic Department officials claim to be unawares of any new routings being proposed (City2; Interview: 11). It

remains apparent that there is a definite lack of communication between city and port officials, despite this it appears that something 'right' is occurring as expansions is on the cards for the terminal.

To return to the national structures that inform the local happenings, Transnet's proposal for Logistic Activity Precincts (DT; 2004:28) 'A designated area in which all logistics related activities are brought together to promote seamless supply chains' is very much in line with the NPA's plans for further development of the car terminal (Interview 4). Both local and national representatives of the NPA reiterated that terminal operates in a space not solely confined to the boundaries of the port. The logistics of the shipment of vehicles extends beyond the parking lot of the car terminal and into the greater logistics network of the automotive industry. The new development to the car terminal is being discussed in terms of a nodal extension, the creation of a further 'element' (Robinson; 2002: 250) in the logistics chain. The extension is hoped to infuse activities, for example a representative of SAPO (Interview 5) mentioned that they are looking at the possibility of installing fitment centres at the terminal, and this inclusion of different types of economic activities and linkages would allow for growth to transcend beyond the port and into the automotive and associated industries.

However, as a city official noted, 'that would probably require a fairly high level of cooperation' (Interview 16) what remains to be seen is whether or not that can be managed.

The level of interaction between role players in the planning the terminal has most definitely had an impact on the operations of the terminal. While terminal users remarked that SAPO "are doing a great job" (Interview: 7) they also commented that "we still have some hassles with our logistics flow, but that isn't related to the actual day-to-day management of the terminal" (Interview: 18). The following chapter examines what contributes to these "hassles" and attempts to establish an efficiency model that highlights these issues for the car terminal of Durban.

Chapter 7

Model Efficiency?

The previous chapter highlights the substantial gulf in planning that exists between the city and the port. This rift serves as a linkage to the issues surrounding the terminal's efficiency levels as many of the issues highlighted previously recur in this chapter as factors relating to terminal efficiency. The model described in this chapter is based upon the perceptions and problems highlighted by terminal users (OEMS, auto carriers and shippers) and city officials (Transport and Economic Development) as well as by a local academic and journalist. The majority of statistics are provided from the terminal management, SAPO.

Efficiency in this study is equated to the micro-economic concept of 'optimal production decision making' (Mansfield; 1979:2), which entails the optimal use of available resources to reach a cost effective economic solution. Simply put - the use of economic resources that allow for best results at lowest costs, or economic efficiency.

Economic efficiency is however only achievable if technical efficiency is attained first. Technical efficiency is described by Maurice & Phillips (1986: 232) as being the state where a producer 'cannot reduce the quantity of one of more inputs without increasing others to maintain the same level of production' i.e. 'is using the minimum amount of inputs in order to maintain a desired level of productivity'. Within the car terminal, technical efficiency can only be attained in those spheres for which the terminal's management has direct influence and responsibility – landside operations; this complicates the measurement of over all efficiency as the terminal is an integrated node within the wider port and within the automotive industry's logistics chain.

With this limitation in mind, this chapter seeks to create a measure of efficiency for the car terminal and draws heavily on existing econometric models of efficiency in an attempt to generate a straightforward and easily applicable measurement tool.

Before continuing any further it must be asked: why measure efficiency? The logistics chain of the local auto industry has been subjected to vast number of benchmarking endeavours (Barnes: 1997, 1999; 2001). Benchmarking clubs exist like the KZN Benchmarking Club and the Durban Auto Cluster (DAC) established to aid members to improve their efficiencies in order to improve the competitiveness (Lorentzen, Robbins & Barnes: unpublished). No local studies have been generated that measure the role of the car terminal in the logistics chain of OEMs, it has been taken for granted that generating efficiencies as part of the vehicle production value chain remains solely within the realm of the individual firms. This is contrary to international practise that views the port as an integral link in the logistics chain of the car industry (Carbone & De Martino: 2003).

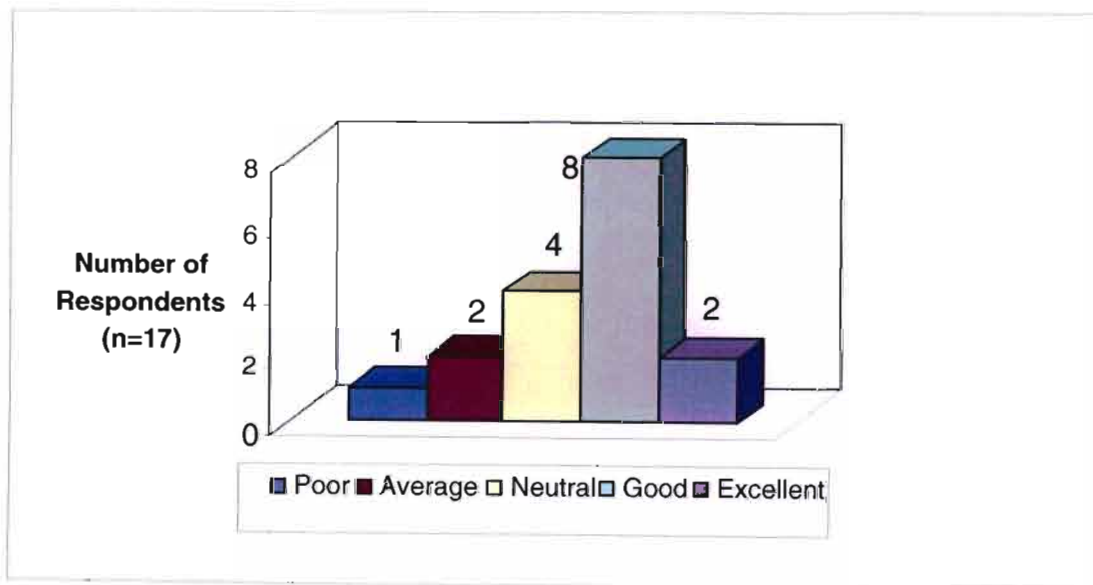
Indeed, many of those interviewed for this study initially stated that the MIDP had little to do with the terminal's performance as it was aimed at the manufacture and not transport of components and vehicles, however, the two processes are not exclusive to one another. Newly acquired production efficiencies can be lost along the logistics chain, and in order to prevent this from happening it is necessary to create a measure that notes the ability for the terminal to attain efficiency

Simply benchmarking the terminals 'output' in terms of vessel throughput against other South African car terminals like the ones in East London and Port Elizabeth is not a sufficient indicator of how effectively the local terminal operates simply because a range of factors may influence why a vessel chooses to call at a particular port. In the case of Durban most notably is the linkages into the hinterland that grant it the status of 'hub-port' (Jones: 1997). The car terminal is a member of the KwaZulu-Natal and national automotive industries' logistics chain, and as such is highly embedded within the respective OEM's supply chains as well as impacting on other agents within the industry. In South Africa the current organisation of the MIDP has catapulted local industry into global competition. In order to compete effectively "locally offered international transport and logistics solutions must be competitive too" (Interview 3).

As Carbone and De Martino note there exists an interest in creating 'synergies as well as converging interests, between the players of port community in order to guarantee reliability, continuous service and good productivity level' (2003; 305), essentially they are stipulating that efficiency in maritime transport services is not reliant upon a single organisation's performance levels but rather on a range of providers working in concert. Interestingly Carbone and De Martino conclude that there is a dual reliance on 'efficient infrastructure and inland connections' linking into a 'global transport system' as well as 'the availability of logistics and transport operators to contribute to the value creation and to accomplish also the qualitative attributes of demand' (2003: 306).

Interviewees were asked: how well do you feel the terminal compares to other components of the transport system (i.e. road/rail) if 1 is poor and 5 is excellent? Their responses are illustrated below in Figure 7.1

Figure 7.1 Respondents Perception of the Port in Comparison to other Components of Transport System



The majority of respondents favourably compared the terminal to other components in the transport system, when asked to substantiate their views the interviewees overwhelmingly, 65%, incorporated the word 'efficient' in their answer.

As is evident by the efficiency studies cited in the literature review in Chapter Three, there are a variety of methodologies measuring efficiency, most stemming from the notion of scale economies – an operating environment enabled by falling costs as scope increases. Creating an efficiency model for the car terminal is critical for strategic planning for both the terminal and terminal users as it would allow for identification of ‘weak spots’ before they become an economic liability for the functioning of the terminal. Secondly the terminal would be able to be benchmarked against other national and international facilities and this too could prove instructive.

Two of the key complaints of academics working with efficiency data is that there is a major lack of data in the maritime field, with nothing written about African ports, and that that is available is often the result of poorly defined models informed by complex methodologies (Estache et al 2005). The model below is designed to overcome these issues.

As illustrated, the model examines five separate factors that impact on the efficiency of the port: transport links (road and rail); ship turn around (offloading and reloading), maritime services, berth occupancy rate, landside logistics and facilities. This model is a much simplified version of De and Ghosh’s (2003) examination of efficiency of Indian ports. They examined twelve ports, across all terminals, over a fifteen year period to examine port performance and port throughput (De and Ghosh; 2003). Their ‘port performance index (PPI)’ (De and Ghosh; 2003: 7) comprised of an eight factors measuring operational performance. I have adapted their model in order to inform the choices of factors in the model below, and rather than focus exclusively on operational issues, ship turnaround time and landside logistics; two additional factors have been included: maritime services and transport links. De and Ghosh’s model is derived to establish a composite picture port efficiency using a variety of econometric tools.

The available data on the car terminal does not lend itself to such analysis, nor do I believe that such an analysis is entirely practical in order to examine the efficiency levels of the car terminal as interviews with various stakeholders

raised concerns surrounding the NPA's role as service provisioner at the terminal as well as inter-modal transport issues. The model below is derived from these discussions with port users (OEMS as well as second hand importers and exporters); service providers (shippers, car ferriers and Spoornet) as well as SAPO, the NPA and economic development planners from the city of Durban.

When SAPO was asked to score themselves for efficiency, with a top score being 5 and a lowest possible score of 1, the answer was promptly: "5!". The same question was asked of terminal users and there responses varied from 4 (60%) to 4.5 (40%). Encouraged by this hugely positive reply, the respondents were then asked to identify what they had taken into consideration for their assessment. The answers are displayed below in figure 7.2.

Figure 7.2 Perceived Factors of Efficiency

Respondents	Factor
Academic (n = 1)	Turnaround, Maritime Services
Car Carriers (n=1)	Storage, Access, Transport Links
NPA (n=2)	Turnaround
OEMS (n=1)	Storage, Access, Transport Links
SAPO (n=1)	Turnaround, Berth occupancy
Shippers (n=1)	Turnaround, Berth occupancy
Total (n = 7)	

The factors identified became the basis of the model outlined further on in this chapter. Interestingly a greater emphasis has been place on Turnaround time (mentioned by 57% of the respondents) than any other factor. While Berth Occupancy and Transport Links each received equal prominence at 29%. The factors within the model are discussed individually, and a methodology for their measurement is suggested. What is critical when designing a model is creating the weighting of the variables, should transport linkages carry a greater emphasis than time spent waiting for a free berth, or does queuing outside the port's approach merit greater emphasis? No weighting has been attached as the model has not been put to the test and thus data reliability is

not an issue. Rather what is being discussed is the practicality of creating a usable model that may allow for real-time feedback to invested stakeholders.

The second consideration of this model is that all of these variables are easily measured and indeed, SAPO collects much of this data in order to benchmark its own performance. The implication of this model is simply that efficiency can be defined and improved. Interestingly none of these variables are absolute in their own right, as each impacts upon the others and this informs the discussion that follows.

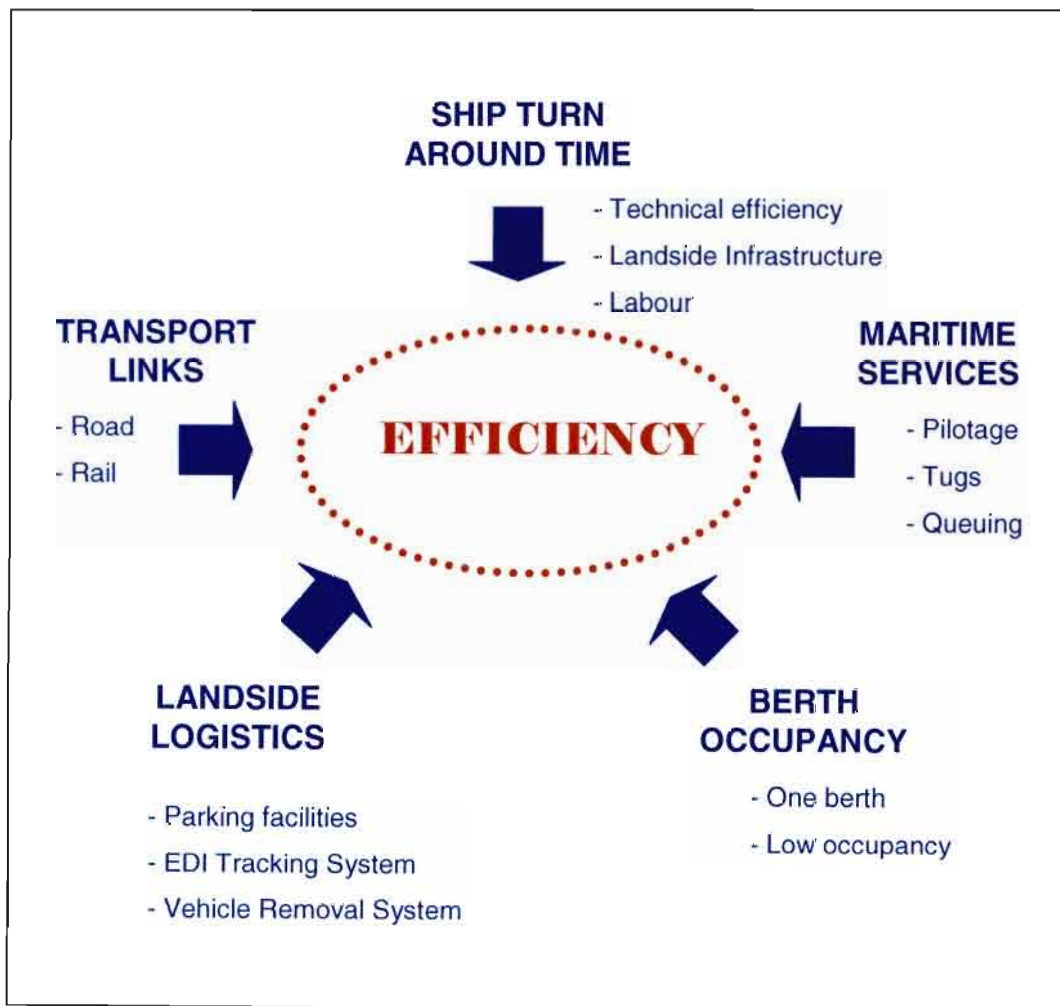


Figure 7.3: Five Factors of Port Efficiency

Before a vessel may enter the terminal to discharge its cargo it may have to wait for some substantial time to enter the port itself. This is due to both the nature of the port and its entrance. The port is very shallow – with approximately 11m clearance, navigating safely through requires a local pilot

and depending on the vessel, accompanying tugs. Vessels may have to wait during busy spells for a pilot to become available, and hence a queue to enter may form (Interview: 6). This in turn translates into a time lag for cargo owners as well as shippers and may induce greater transport costs as vessels are at sea for longer than anticipated (Interview: 13). Marine services induced delays fall within the ambit of the NPA (Interview: 4), however, they impact upon the operations of SAPO. These services are easily measured by time units and could prove a useful indicator of cost generation that falls outside of SAPOs influence.

The car terminal management is not currently unduly concerned that maritime services delays will impact on the availability of open berths as occupancy is recorded by the terminal at 40% (Interview: 5). This reflects but may not entirely mirror the number of port calls as a more than one vessel may call on a given day. If all vessels are made to wait prior to entering the port then it is conceivable that car carriers running behind schedule could create a backlog at the single berth available in the car terminal. This is more likely to occur, with greater frequency, the busier the terminal becomes. At present for May through to mid July this year 35 car carriers are expected, several on the same day – it is likely that queuing delays could set this schedule into disarray (www.sapo.co.za). De and Ghosh (2003) indicate in their study that berth occupancy is an operational factor; however, I believe that given the feedback of the interviewees that this issue in the Durban car terminal strongly correlates to Maritime Services provision and thus may not fall entirely within the sole capabilities of SAPO.

Similarly, such delays would impact on the ability of the terminal to meet the *landside logistic* requirements of the shippers (Interview: 13). At present the 7000 bays are not sufficient to meet the projected demand of traffic, resulting in the planning of a further 4000 bays. Terminal efficiency is compromised if a vessel makes it through the queue, into the berth and then has to wait laden until vehicles are removed from the parking area in order to free up space for the new cargo before the ship can be unloaded (Interview: 18).

A major aspect of landside logistics are the vehicle inspections that are carried out prior to loading and offloading. SAPO has an IT system (Electronic Data Interchange or EDI) in place that allows for real time uploading of information to the OEMS. The General Cargo Operating System also allows real time tracking of vehicles which has greatly aided the integration the use of maritime transport into the vehicle logistic chain (Interview: 5).

Ship turn around time is the amount of time spent by a vessel in port, and is easily measurable in hours and days. Several key factors impact upon this variable, notably: available landside infrastructure, labour and customs processing. Landside infrastructure and labour are bound together as a terminal's loading and off loading operations is only as effective as the cargo moving equipment operators and machines available allows it to be. Currently the lag experienced at the car terminal is approximately 1.5hrs between berthing and the commencement of offloading, SAPO attributes this lag to the unlashing of vehicles onboard in order to ready them for offloading. The terminal operates at a loading/offloading pace of 170 units per hour, or approximately 3 units per minute (Interview: 5). If the average consignment size is 1500 vehicles and approximately 200 000 vehicles passed through the terminal in 2004 then a minimum of 133 days in berth is required, at current levels of busyness the berth is occupied for 146 days, the aforementioned 40% occupancy rate.. The average time a vessel takes to become fully loaded is just under 9 hours, of which 90% of the time spent is actual loading of vehicles and the remainder is spent lashing them into place. Loading time may vary in accordance with the number of drive-up ramps a vessel has.

Labour in the car terminal is highly skilled. A 150 drivers work in the terminal and a further 70 surveyors and inspectors are also present. Information technology accounts for approximately 40 individuals while management is only 5 and safety officers are formally registered at 2 individuals. Stevedoring needs are outsourced, with approximately 60 individuals are indirectly employed by the terminal (Interview 5).

Customs clearance of goods moving through the terminal is not perceived as a major aspect of turn around time, as this function is largely outsourced to clearing and forwarding firms. In the terminal clearance is purely the domain of SARS and good working relationship between the terminal management and the customs officials help speeds up the individual clearing and forwarding of cargoes. With this said, the collection of vehicles still requires visits to multiple offices – in different buildings adjacent to the terminal itself in order to verify ownership before a vehicle may be driven away (Interview 6).

The final factor in this model is the *transport links*. This refers to the links between the terminal and other modes of transportation used to ferry vehicles to and from the terminal. Numerous road hauliers service the terminal, using a public access road to enter and exit; this does on occasion cause a slowing up of traffic and is one of the problems most mentioned by the city planners that requires immediate attention (City1: Interview 2). The current routes taken by car ferries include an extended loop around the terminal to gain access to the parking area. Transporting the vehicles by the public road network adds to the congestion in the already densely occupied commercial and residential area surrounding the terminal. The second concern about using road as major transport link is that car ferries can only hold 10 cars at a time, some only 5. If a vessel is laden with 1500 vehicles then 150 to 300 carrier trips are required, dependent on the size of the carrier used, this is an unwieldy and lengthy exit from the terminal (Interview 18).

The current rail link into the terminal is extensively used by only one OEM, which happens to be based outside of KZN (Spoornet3: Interview 17). The local OEMs prefer road access as rail is perceived to have low levels of reliability (Interview: 7). Indeed, in the words of the Department of Transport, 'Spoornet has low level of productivity, old assets and insufficient labour' (DT: 2004). In light of this, there are currently talks underway to improve the rail link servicing the needs of auto industry. Conversations with Spoornet's planning department indicate that the tender negotiations currently underway will mean that local OEMs rail links to the car terminal will undergo refurbishment soon, in line with the NPA's vision of an enlarged car terminal by 2007 (Spoornet2:

Interview: 14). The rationale is that rail is a much lower cost option and that this would reduce congestion in the immediate area (Spoornet2: Interview: 14). Measuring the relative efficiencies of road versus rail is easily done looking at cost per unit and time spent in-transit figures. This will undoubtedly impact on the efficiency of the terminal, but as yet no projections are being made publicly available (Interview: 4).

Due to the highly integrated nature of vehicle transport to and from the terminal, a delay in one side of the logistics chain impacts on the other end. Terminal users were highly complimentary about the EDI tracking system, and the manner in which complaints and issues were handled (Interview 7). Their issues invariably linked to the external factors that currently mar the efficiency of the car terminal, namely the transport linkages and maritime services (Interviews 7; 12 and 18).

Despite the current space constraint facing the port the NPA is confident about the future expansion of the car terminal and has commissioned SAPO to undertake feasibility planning for a fitment centre adjacent to the terminal, (Interview: 4). The expected expansion of the terminal by 2007 is likely to include some kind of Logistics Activity Precinct (LAP) – in line with the Department of Transport has development of a national freight project - where inter-modal freight movement is given a defined location in which to occur.

To return to efficiency modelling, the five factors clearly impact upon each other. Maritime services affect berth occupancy, and may have a greater impact in the future. Berth occupancy and landside logistics as well as transport linkages in turn play a major role in ship turn around time. Can one be weighted more significantly than another factor? I believe the answer is yes, as only landside logistics and ship turn around time are factors wholly in the hands of the terminal.

The rationale for modelling the efficiency of the terminal's operations is not merely to provide SAPO with a pat on the back for a terminal well managed, but rather to generate an indication of the environment in which the local auto

industry interacts. This chapter makes it possible for us to now examine the role of the car terminal in the development of the KZN auto industry, and answer the question of whether or not the car terminal's infrastructure provision and management has been a driver of growth in the car industry.

Chapter 8

Has the Car Terminal Bolstered Growth in KZN Auto Industry?

The creation of the efficiency model in the previous chapter was based on the notion that the port forms an integral part of the logistics network of the auto industry. The interactions between port and auto sector are illustrated by figure 2.3 on page 19 (Breakdown of the Local Auto Industry's Use of the Port of Durban). The key question asked in this chapter builds on this understanding of connectivity and examines whether or not the car terminal has played a major role in the growth of the local auto industry. This chapter as the follow on from the discussions of port planning and operational efficiency in the terminal seeks to bring together the issues raised in the literature and the findings of the fieldwork in chapters 6 and 7 and examine their impact on the processes on the local OEM and growth in the industry.

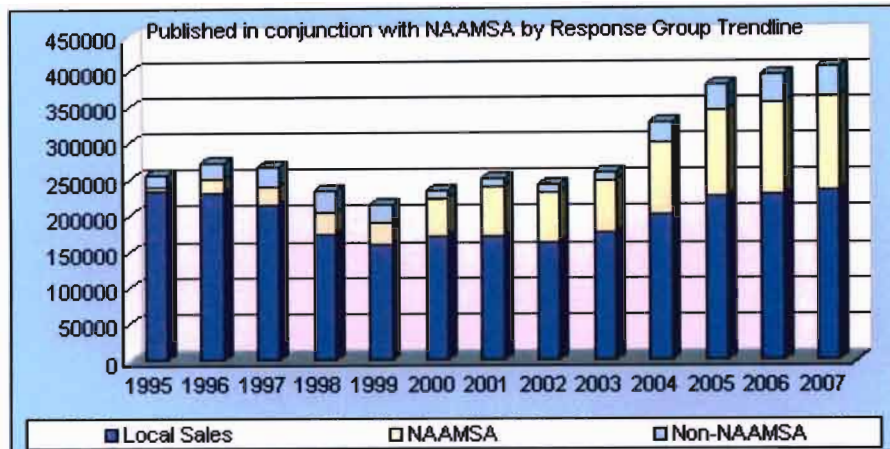
I recall to your attention that the focus of the study is on CBU vehicles making use of the car terminal, thus the focus of the KZN auto industry is determined within these parameters – little attention is paid to the component industry, as this would merit a second paper in its own rights and secondly because the shipment of components is done primarily through the container terminal not the car terminal (see chapter 2).

If one examines the passenger car market; far more vehicles were imported in the mid 1990s for local consumption than were produced for the domestic market. This is clearly indicated in figure 8.1 below; the increasing size of the yellow bar indicates that local production for local consumption is increasing, and in 2005 it is projected that local production will account for approximately half of the domestic sales – a vast rise in volumes from the miniscule amount produced in 1995.

What has driven this change? In the chapter 3 the manufacturing sector was briefly reviewed and a variety of state-sponsored programmes for industry were mentioned, among the most recent of these is the MIDP. This programme is outlined in succinct terms below - the MIDP is also dealt with in

detail in chapter four - and is widely viewed as the catalyst for the change in production levels in the local automotive industry (Interview: 3).

Figure 8.1: Domestically Produced Local Sales and CBU Imports - Total Local Market 1995 - 2004 Actual; 2005 - 2007 Projection (SOURCE: NAAMSA)



The MIDP was promulgated in 1995, and indicated a movement away from the manufacturing sector's traditional import-substitution production and towards export promotion based manufacturing. The SA automotive industry was geographically highly isolated and insulated by tariff protection. Barnes et al (2003: 8) indicate that there were five key aims of the policy: '[to] improve the international competitiveness of firms in the industry; enhance its growth through exporting; improve vehicle affordability; improve the industry's highly skewed trade balance and stabilise employment levels'. These objectives are being met by the 'gradual and continuous reduction of tariffs (indicated in Figure 8.2 on the facing page) so as to expose the industry to greater international competition' (Singh: 2004). Aiding this has been the and the introduction of export incentives like the IRCC that fostered higher levels of specialization and allowed exporters to earn rebate on import duties as well as an array of other incentives designed to upgrade capacity in the industry (Serfontein: 2003).

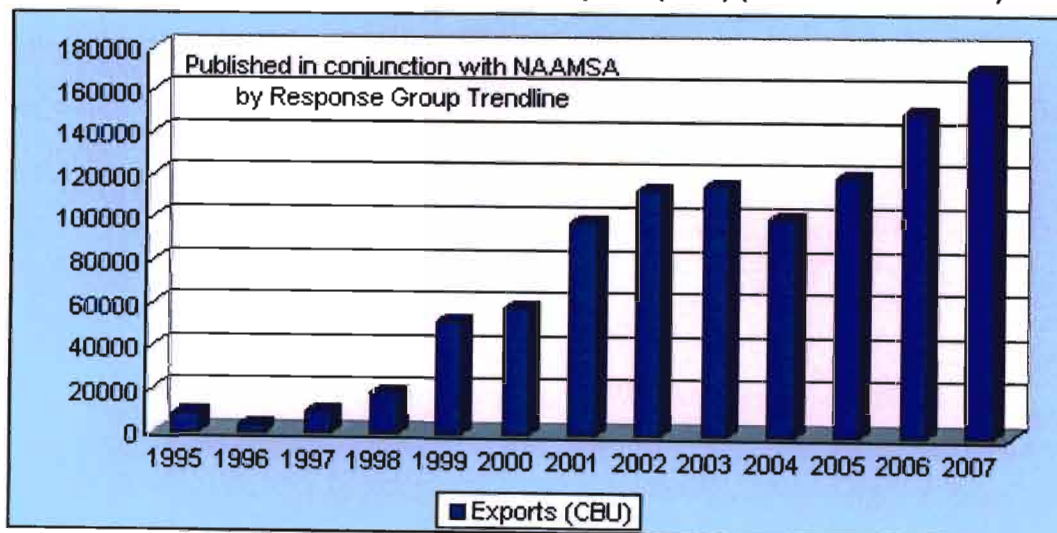
Figure 8.2 MIDP Import Duties (Reproduced from Singh; 2004: 9)

<i>Date</i>	<i>Rate of CBU light vehicle import duty</i>	<i>Rate of OEM component import duty</i>
2002	40%	30%
2003	38%	29%
2004	36%	28%
2005	34%	27%
2006	32%	26%
2007	30%	25%

In practice the changing policy environment surrounding manufacturing in South Africa meant that international car manufacturers with locally based production facilities sought to export in greater volumes in order to recoup the IRCC credits. In order to export competitively what was needed by local manufacturers was to move away from multiple lines to '...fewer models with higher volumes. With this strategy comes a greater potential for increased quality and lower unit costs' (Singh: 2004: 9).

The port Durban had been dealing with very small volumes of exports and imported CBU (completely built up) vehicles until 2001. Traditionally the local OEMs brought in CKD (completely knocked down) car kits, not landed at the car terminal but rather at Multipurpose Terminal that were reconstructed and then sold on the domestic market (Interview: 15). Exports of fully built up cars were minimal, as indicated by the graph below:

Figure8.3: Domestically Produced Exports (CBU) (SOURCE: NAAMSA)

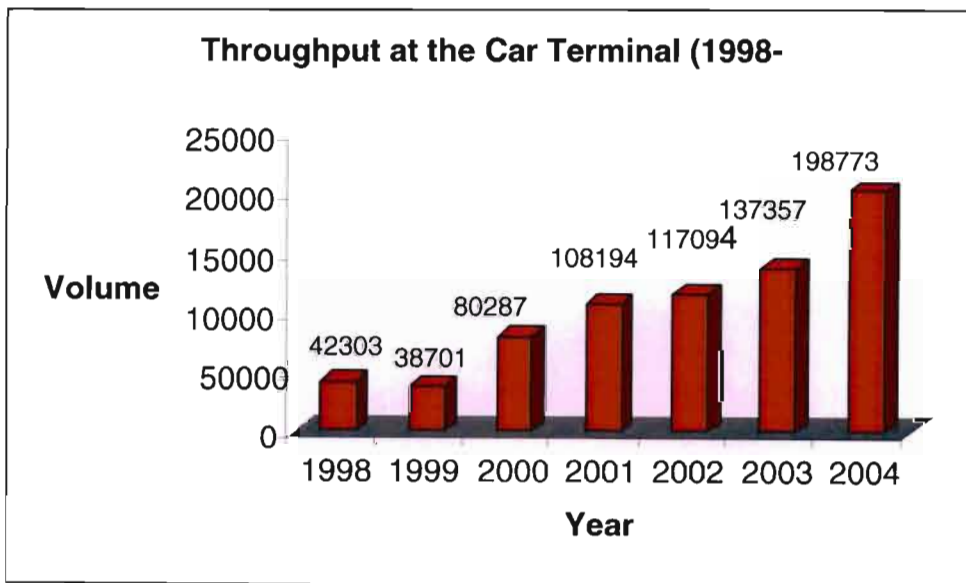


The marked increase from 1998 onwards is partially attributed to the opening of the car terminal in Durban according to Naamsa (Interview 3), and projections about the further increase in car handling facilities is being treated most favourably this too is indicated in graph 8.2 with continued growth in exports projected in 2005 through to 2007.

In actual handling terms the terminal has increased substantially since 1998, figure 8.3 on the following page indicates the year on year increase. The figures indicate both imports and exports combined; these are disaggregated below in figure 8.4

Interesting to note is that despite a reduction in locally produced CBUs for export in 2004, overall the car terminal increased throughput by over a third from 2003. The overall increase in throughput has risen from 42303 units in 1998 to 198773 units in 2004, or by 78% in seven short years.

Figure 8.4 Vehicle Throughput at the Car Terminal (1998 – 2004)



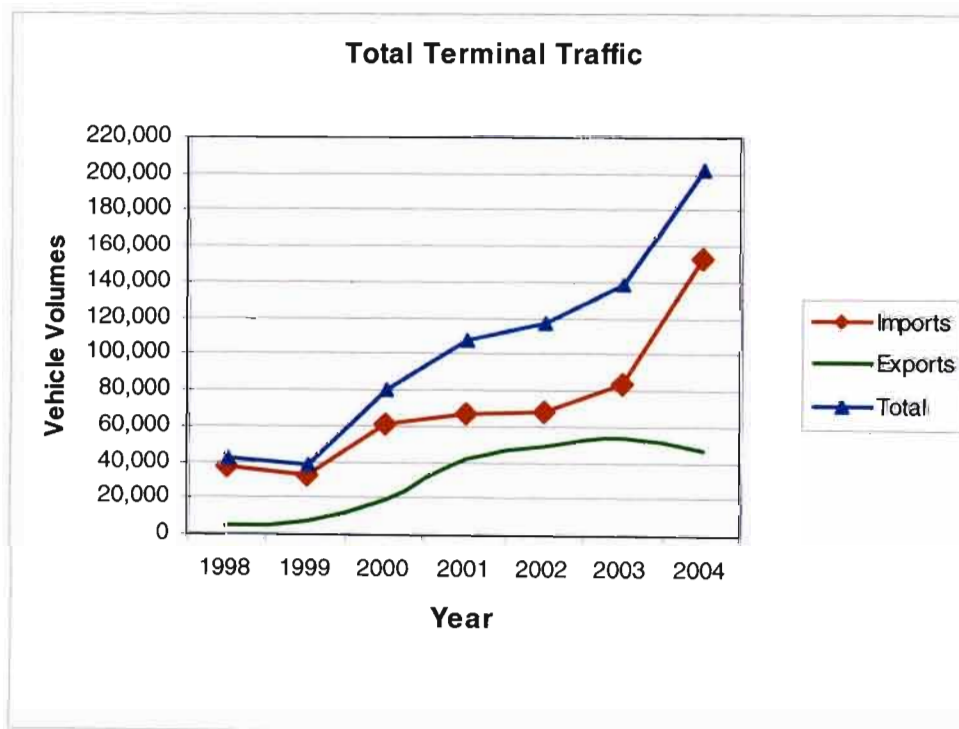
When throughput is totally disaggregated into imported and exported vehicle figures an interesting picture emerges (graph 8.4). While exports rose admirably from 1998 to 2001, there appears to have been a flattening out of this trend since 2002 and indeed a very slight decrease since 2003. Imports however in the same time frame initially decreased from 1998 to 1999, then

rose at a steady rate until 2003 and in 2004 appear to have risen sharply. There are a variety of reasons that explain this trend, among them is the marked increase of CBUs of OEMs that have no manufacturing presence in South Africa, but the trend that this chapter is going to attempt to unfurl is that of diminishing exports. The explanation on offer is simply that the locally based KZN OEM is unable to participate in contributing fully to export volumes.

Toyota SA (TSA) is the only KZN based OEM. TSAM began as mass importer of low-end multipurpose vehicles (bakkies) for the local market in the 1960s. By the mid 1970s Toyota vehicles were being produced under license in KZN. The firm was initially a family owned concern, received massive investment via a buy-in from Toyota Motor Corporation (TMC) in 1997, when they purchased a 27.8% share of the company (Interview: 7).

There appears in the graph below to be a trend in South Africa of global OEMs repurchasing local manufacturing operations, rather than allowing them to operate as they have in the past under license.

Figure 8.5 Imports and Exports Disaggregation at the Car Terminal



According to Naamsa this is in line with the highly globalised nature of the industry (Interview 3). OEMs are seeking to regain control of their far-flung manufacturing plants in order to insure a better standardised product and also better positioning for international trade. Individual countries (and trade areas) focusing are on particular models for mass production instead of each producing a wide range to meet local needs, now trade facilitates these needs. Like other OEMs based elsewhere in the country, TSAM has been largely reincorporated into its global firm of Toyota Motor Corporation (Singh: 2004).

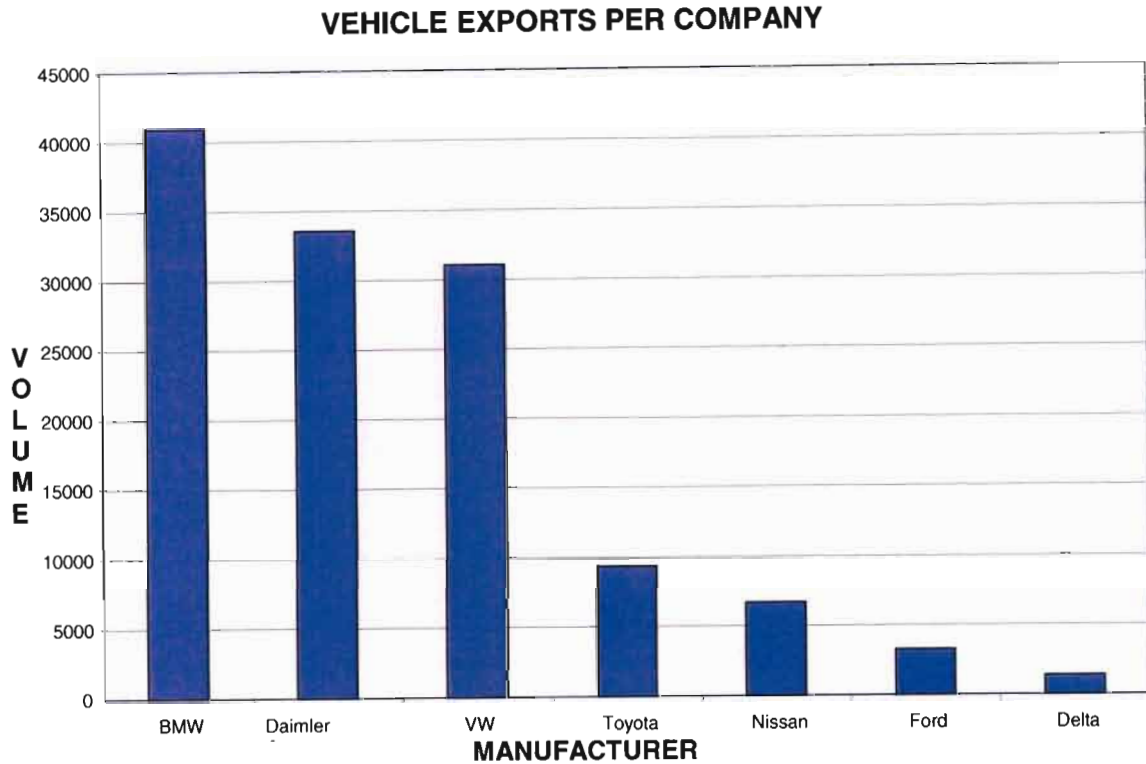
TSAM's production is entirely KZN based, in Prospecton, current capacity is 360 units per day and this is set to increase to 500 per day by 2007. Four lines are currently being produced, the Tazz, Corolla, Hi Lux and Hi Ace, this is to be reduced to the Corolla (new model expected in 2007) and Hi Lux (new model already being produced) lines in order to produce using scale economies for export (Interview: 7). In reality however, TSAM is lagging substantially behind other OEMs in the export field. In 2002 TSAM generated only 13000 units for export, 3000 to African destinations and a further 10 000 to Australia (Singh; 2004:10). TSAM position compared to other OEMs is indicated in figure 8.5 and the next page.

As is clearly indicated below, Toyota, despite world class production facilities and close proximity to the port are lagging substantially behind in exports, In discussions with various members of the automotive industry, from Naamsa to the DAC as well as with TSAM it became apparent that TSAM is currently choosing not to make 'full use' (Singh; 2004: 3) of the MIDP incentives for export production. In 2004, TSAM purchased IRCCs to the value of R423m from BMW in order to remain duty neutral (Serfontein: 2004).

TSAM should be making use of the MIDP to import "duty free" by exporting in greater volumes. The Completely Knocked Down (CKD) kits' IRCCs would be used to offset the CKD imports and Completely Built Up (CBU) IRCCs used to offset CBU imports. IRCCs from CKDs can be used to 'cross-subsidise' CBU

imports but there is a 40% penalty, as only 60% of a CKD IRCC can be utilized when paying for a CBU's duties. TSAM is however not following these guidelines for the MIDP.

Figure 8.6: Vehicle Exports per Manufacturer (Source TSAM Production Systems Department)



TSAM is a net importer (i.e. imports greater volumes than are exported) and is currently running an IRCC Management System rather than an MIDP Management System (Serfontein; 2004: 15). Essentially vehicles are imported first, and then TSAM attempts to locate the IRCCs to clear their duty. In order remain “duty neutral” (Serfontein; 2004: 16) TSAM has resorted to purchasing IRCCs from other OEMs (Interview 7).

In contrast, other OEMs operating in SA have incorporated MIDP systems into their production strategies and operate in an environment where ‘exports must first be achieved before imports can be brought in and Imports are therefore “duty neutral” (Serfontein; 2004: 16). In order to change the status quo at TSAM a greater emphasis would have to be placed on local content component in order to increase the IRCC on exported CBUs (Interview 3). This is possible as the vertical integration of TSAM is such that several of its

major component suppliers are closely linked, but has yet to be fully realized (Interview 7).

Thus despite a favorable policy environment and infrastructure development at the car terminal TSAM has *so far* been unable to capitalize on the car terminal at the port of Durban as a venue for exports due to internal constraints. TSAM's limited involvement during the planning stages of the car terminal, they opted to be represented by Naamsa, although other leading OEMs took part in the negotiations in their own right (Interview: 3), was indicative of the firms "limited strategic vision at that time" (Interview: 7). Their slow take up of the MIDP also meant that the efficiencies present at the terminal played little role in improving TSAM's global positioning by aiding the reduction of logistics costs. This is interesting as Notteboom and Winkelmanns (2001) and Robinson (2002) both go to great lengths to stipulate how manufacturing has changed and become increasingly demand driven – creating a new paradigm of post-fordist production. In the Renault – Le Havre case study (Carbone and de Martino: 2003) it is the port and not the manufacturer whose logistics management has constrained trade, the very opposite has occurred locally.

Indeed, there has been limited impact on the auto industry – no additional growth in exports from TSAM has filtered down to little growth in the components industry in KZN. Despite this the KZN components industry has been remarkably stable and experienced good growth in the past 5 years. Approximately 60 firms, employing 15000 people are based in KZN, aggregated employment rose 24% and sales by 43%, strongly outperforming the component industry in the Eastern Cape and Gauteng (Barnes; 2004:1). The local component industry focuses on export and after market production as well as production for various OEMs outside of KZN. As their production is not exclusively linked to consumption by TSAM they have experienced "substantial growth in the past five years" (Interview 1).

Indications are that the local components industry will soon be focusing a great deal more on additional production for the local OEM. This is set to

change as production systems at Prospecton have been revamped into a 'two-shift system' (Thaver1) for the production of the new IMV (Innovative Multipurpose Vehicle), an additional 800 workers will be employed at the plant – which translates into an injection of R4m per month into the local economy or R48m per annum – as an additional '100 people were recruited to handle the supply logistics for the increased production and two-shift operation' (Thaver1). TSAM's suppliers are also gearing up for production of the new Hi-Ace. 1600 components are locally sourced from 78 local suppliers, 58% of whom are located within a 30km radius of the Prospecton plant. International component suppliers are also being wooed by TSAM to 'set up operations in South Africa, near the Prospecton plant, with additional benefits to KZN' (Thaver1).

Finally, as production increases so to will the need for intermediary support – Naamsa estimates that 'increased service providers in and around Durban linked to the various OEM import/export programmes, suppliers and opportunities at the Durban Car Terminal has increased employment figures by approximately an additional 1000 people' (Thaver1).

Further external inducements are expected in order to bolster TSAM potential as an exporter. Currently negotiations between the NPA, SAPO, TSAM and Spoornet are underway to improve the rail link between the Prospecton plant and the car terminal to co-ordinate with the further extension of the car terminal (Interviews 3, 4, 5, 7 and 14). It appears as though TSAM has finally found its feet with the MIDP and that the KZN auto industry is set to derive benefit from the car terminal at the port of Durban (Interview 3).

To answer the question posed in the title of this chapter 'has the car terminal bolstered growth in KZN auto industry?' the short answer is no. The blame however appears not to rest with the car terminal - but rather on the innate ability of TSAM to miss opportunities that were present. It is quite incredible that TSAM, despite controlling 28% of the domestic market (Singh: 2004) was unable to shift strategies in view of the changing domestic policy arena and take advantage of fortuitous infrastructure placements. This however appears

set to change: “Our logistics platform has improved, we will soon be able to make full use of local resources” (Interview: 7), hopefully these ‘resources’ will include the Durban car terminal.

This last comment from Interviewee 7 can be linked to a Lall’s (1999) view that: “*In sum, the thrust of future industry has to be competitiveness based on open and transparent policy regimes, participation in globalized activity, advanced technological capabilities and skills, and interaction with new state -of-the-art services and infrastructure. These define the thrust of future industrial development...*” (emphasis in the original, cited in Robbins; 2004:8).

The ‘capabilities’ referred to by Lall (1999) find grounding in the literature surrounding port efficiency. López and Poole (1998) expound on the importance of port efficiency in the logistics supply chains that reach into the hinterland that the port serves, these efficiencies are then transmitted throughout the economy.

TSAM is operating in a suitable policy environment, participating in global trade and has considerable technological resources as well as access to first class infrastructure. However, as Lall (1999) notes, access to infrastructure is not enough, ‘*interaction*’ is necessary. TSAM has not previously interacted sufficiently with the car terminal to derive benefit from the facilities, as it did not play a significant role in the planning process, nor has it managed to gain efficiencies from usage – this appears set to change, and hopefully once it does a greater impact will be felt in the KZN auto industry.

Chapter 9: Conclusions

This paper has examined the role of the car terminal in fostering development in the KwaZulu-Natal auto industry. The terminal is the major maritime interface for South Africa's auto trade and an essential link into the increasingly globalised world market, as indicated by Minister Radebe's quote in the introduction (page 7). South Africa's recent re-entry to the global marketplace was engineered by government – specialised development policies for selected manufacturing sectors were designed (the MIDP being one of these) and the national transport infrastructure was overhauled – as discussed in chapter six. This happened via the process of involved transport parastatals becoming corporate entities (Jones:2003) and physical infrastructure being built to meet growing demand. The substantial increase in terminal traffic, as noted in Graph 8.3 on page 69, can be attributed to the repositioning of South Africa's trade strategy to meet the requirements of a globalised market by promulgating a specific domestic manufacturing policy.

This paper set out to examine these changes, and the role players who influenced them, notably the national transport platforms, port authorities, national and local government as well as the response of the auto industry, represented by OEMs, industry representatives, consultants and ancillary industry firms. In order to do this effectively the first three chapters served as general introductions to the topic matter, the first examined the problem statement, the second as a general overview of the port of Durban (focussing on both historical occurrence and traffic base) and finally the third - a brief foray into the history of South African manufacturing, to place the current changes in perspective, was included. These should not be viewed as departures from the substance of the study but rather as necessary background chapters that enable the literature review (chapter 4) and the research methods overview (chapter 5) to find grounding in the subject matter.

Klerck (2001) notes that South African development policy was derived along the lines of the 'regulation approach' which essentially views development as the series of responses given to a succession of crises. Indeed, South Africa emerged from Apartheid to encounter a highly integrated global market. Despite the substantial infrastructure present in the country, access was not universal and manufacturing production was still very much focussed on import substitution (Barnes, Kaplinsky and Morris: 2003). In order to improve access to trade the government adopted a typically Neo-Structuralist focus (Martinussen: 1997) on public spending on the augmentation of the manufacturing sector and relevant infrastructure. Lall and Kraemer-Mbula (2005) emphasise the importance of bolstering industrial development in order to generate meaningful interaction with international trade, as Kaplan (2004) notes this was realised in South Africa by focussing on two specific manufacturing sectors textiles and automotive. Thus South Africa's desire to integrate into world markets led to a national government-driven focus on manufacturing development which resulted in specific development of manufacturing policies like the MIDP (Kaplan: 2004) which were further enhanced by 'ancillary policies'(Morris; 1997:3) that benefit local economic development, like the SDRP (Robbins: 2004), and the development of KZN auto industry.

The research process, detailed in chapter 5, was guided by the available literature – that is to say, there was very little written on car terminals, and absolutely nothing written on car terminals in developing countries. This proved both a challenge (the lack of guidelines) and also quite liberating as the direction of research was not bound by previous studies. The limited available quantitative data was largely provided by port authorities, as little appears to be collated by any other outside source. These constraints were more than made up for by the underutilised local knowledge available for interviews which formed the bulk qualitative analysis of the study.

The first of the areas examined was the provision of infrastructure for the car terminal, this was unpacked in chapter 6, followed by a detailed analysis of terminal management and efficiency generation in chapter 7 and finally

chapter 8 linked these together and examined how the local auto industry had responded. Was it able to interact meaningfully with the policy environment?

In a concise review the indications from figure 8.5 on page 79 are that TSAM has not been successful, despite a long and well established presence in the country and ideal physical location in close proximity to the terminal, their performance was poor in comparison to BMW, DCSA and VW companies with similar local market share. The *push* for the establishment of the car terminal came from Naamsa, obligated by BMW to act as soon as the impact of the MIDP was understood, and their rapid adaptation to the changing environment is clearly reflected by their far higher level of exports generated than those of TSAM (figure 8.5, page 79). The failure of TSAM to adapt to the IRCC structure of the MIDP and the company's stance as a net importer, and purchaser of IRCCs from other OEMs in order to remain duty neutral has greatly impacted upon their ability to compete with the other OEMs with SA based manufacturing operations. Despite the available facilities of the terminal, Toyota has not, thus far, managed to benefit due to their own internal constraints (Interview 7) and lacklustre adoption of the MIDP (Interview: 3).

While export driven production increased with the advent of the MIDP (Barnes and Black: 2003), the actual trade in vehicles only saw substantial changes in volumes once the facilities at the terminal were expanded and able to handle the augmented traffic as noted in chapter 6. What was clearly revealed in the interviews undertaken for this paper was the controversy that still surrounds the provision of this infrastructure at the terminal, this formed the basis of chapter 6. City officials have (seven years on) retained a considerable amount of animosity about the entire planning process. The success of the terminal is undeniable though (as seen in the various graphs in chapter 8), as the demand for additional facilities has been felt twice in the seven years, an extension opened last year and a further one is planned for 2006/7 as capacity levels are once more near constraint levels.

Despite the animosity felt between City and Port planners on both sides, providing the necessary infrastructure was, according to interviews with terminal users, a major enabling factor that facilitated the auto sector's ability to trade. This does not diminish the problems associated with provision, notable that national and local strategies of development appear to be misaligned is a serious issue, and cannot be summarily dismissed out of hand, especially as the port planning in Durban is designed to link into the Department of Transport's national logistics plan. Indeed, Easterly and Rebelo (1993), cited in Tabellini (2004:10), study indicated public spending in transport related areas created 'robust and positively correlated' linkages to economic growth. However, as chapter six probed into the realistic concerns faced by both sides, such spending could only have the desired outcome if local planning needs were taken into better consideration and allied with national planning in order to achieve both local and national development goals.

Chapter 7 took the issue of provision one step further and sought to examine the performance levels of the terminal. Within the literature (chapter 4) port performance was usually linked to some kind of port efficiency model, this was evident in the articles of Notteboom and Winkelmanns (2001); De and Ghosh (2003) Clark et al (2004) and Estache et al (2005). These literary findings were coupled with the feedback from the qualitative study and together were used to form the efficiency model in the chapter. The rationale for including this chapter was based once more on the literature review (chapter 4), where a clear link between terminal efficiency (performance levels) and growth had been established. A further consideration of efficiency is the role of the terminal within the logistics chain of industry as written about by Carbone and de Martino (2003) in great detail. The focus on the ability of the terminal to operate in such a manner that efficiencies are captured within the logistics chain (Robinson: 2002) and feed into national manufacturing structures (López and Poole: 1998). During the literature search no models of efficiency specific for a car terminal were located, hence an additional incentive to derive a 'non-technical user friendly model' as the one indicated on page 60 in chapter 7.

Chapter eight examined the impact of port planning and management on TSAM, as a major player in the KZN auto industry - and its ability to utilise the terminal optimally. The findings in this chapter revealed that despite the efficiencies present at the car terminal, indicated by the performance level, they remained untapped due to TSAM's poor choice of operating platform. The indications are present, however, that this will soon change. By 2007 TSAM will produce only two models, the Hi-Lux and Corolla, both to be produced using the policy guidelines of the MIDP and destined for large scale export. TSAM is confident that once this new platform is in place, much greater benefit will be derived from the car terminal.

The Martinussen (1997) model - bolster the export sector (automotive manufacturing) and incorporate it with formal structural development (the car terminal) was adhered to by South African strategists when plotting the reintroduction of South Africa to world trade. The volumes of traffic moving through the terminal and the future plans of TSAM indicate that this strategy has been a success for the South African auto sector and presents an incredibly promising and exciting future for the KwaZulu-Natal auto industry.

A key 'developmental lesson' can be extrapolated from this study. South Africa sought to engage more vigorously with international trade, to this end, the automotive sector was highlighted as a key manufacturing sector that could achieve this. In the South African experience government policy (the MIDP) was directed at the auto sector and was further aided by infrastructure spending on a conduit for trade, the car terminal at the port of Durban. The understanding was that matching government spending and manufacturing policy would grant the auto industry the right combination of advantages to be able enter the global arena meaningfully.

What national strategists had not included in their planning was just that, the *planning*. Massive contention between local government (the City of Durban) and the NPA, a SOE, and other interest groups, notable Naamsa and several OEMs from the auto industry, surrounded the provision of infrastructure. The notion of planning is carried one step further, beyond the boundaries of the

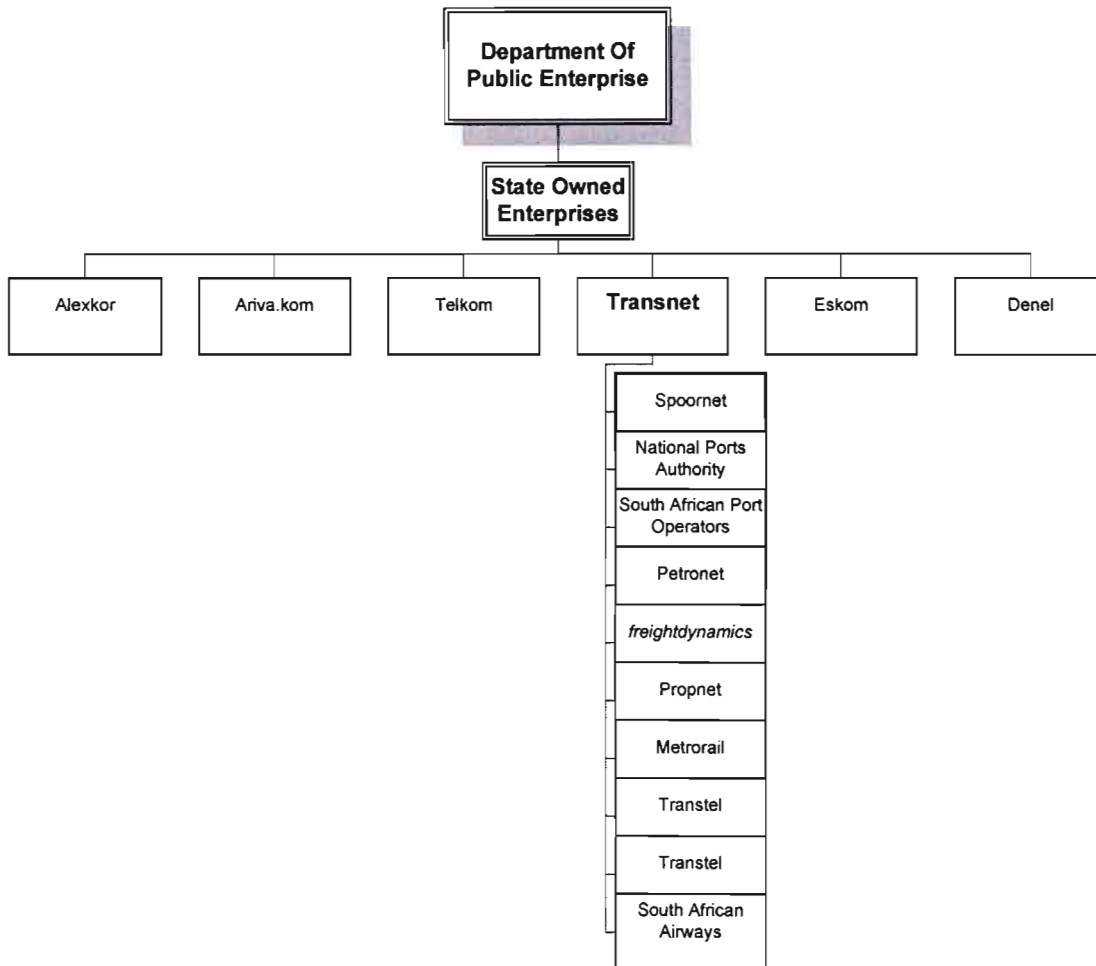
contested port and to industry itself. When the industry earmarked for preferential treatment is unable (for any variety of reasons: technology, labour, capital investment or strategic diffidence) to embrace these changes then it is unlikely that there will be any form of positive outcome (i.e. an increase in exports). Within the case study of the KZN auto industry this occurred, TSAM was unable to utilise the boost from government to its advantage and subsequently unable to make use of the effectiveness of the car terminal as driver for growth.

It is possible to further extend this supposition and conclude that had the KZN based OEM played a more significant role during the planning stages of the development of the car terminal at the port of Durban that they would have been better motivated to overcome their firm's reticence and thus better positioned to reap greater rewards from the newly available infrastructure.

In the final synopsis government policy and the subsequent development of infrastructure aimed at a specific industry outcome appears likely to reach the desired conclusion, to allow a developing country to move from the periphery to the centre (Prebisch cited in Martinussen: 1997), only if industry able to take advantage of the situational variables, thus it is not enough to put the tools on the ground, industry must be part of the process of deciding what tools are needed and also be shown how to pick them up and make use of them.

**Appendix 1:
Transnet Structure**

Organisational Chart of Transnet



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