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RETHINKING THE FORMALISATION OF THE MINIBUS-TAXI INDUSTRY IN SOUTH AFRICA

by

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DISSERTATION SUMMARY

RETHINKING THE FORMALISATION OF THE MINIBUS-TAXI INDUSTRY IN SOUTH AFRICA

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A first-rate public transport system is one of the critical building blocks of any world-class economy. The minibus-taxi industry has developed into the dominant public transport provider in South Africa and is a beacon of black economic empowerment. However, the industry's informal operation is plagued with problems like poor road safety and declining profit margins. This research project sets out to investigate these impediments in an effort to provide a framework for the transformation of the industry into a high-quality, customer focused enterprise. The TOC thinking processes is systematically employed to design a robust solution for this multifaceted operation. The research presents a positive prospect of genuinely safe, secure and reliable public transport for the first time in South Africa.

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GLOSSARY

Corridor	Transport route connecting to activity nodes
Cost recovery	The ratio of income generated versus operating cost on a route
Desire lines	Lines indicating highest public transport demand
Economic life	Period during which vehicle is considered safe, reliable and cost-effective to operate
Formalisation	Entails the progression of informal enterprise to become part of the formal or regulated economy
Informal economy	All economic activities that is characterised by an informal business style and unregulated by authorities in an environment where similar activities are regulated
Informalisation	The process by which formal jobs are displaced increasingly by jobs in the informal sector or measures of undermined formal labour regulation to minimise labour cost
LOS	Level of service, attributes of public transport e.g. safety, reliability, security, affordability, speed and frequency
Mode	Vehicle of technology employed for public transport e.g. bus, rail
Nodes	Urban activity node e.g. commercial, retail
Operator	Person or group engaged in business activity, in this report it will refer primarily to taxi owner or associations

Poly-centric	Urban environment with various activity nodes and decentralised
Regulation	The process of bringing inline with authoritative rule

LIST OF ABBREVIATIONS

CRT	Current reality tree
EC	Evaporating cloud
DOT	Department of Transport
DTI	Department of Trade and Industry
FRT	Future reality tree
GTI	Gauteng Taxi Initiative
LOS	Level of Service
MSA	Moving South Africa
NTPS	National Transport Planning Study
NTTT	National Taxi Task Team
PRT	Prerequisite Tree
RSC	Regional Services Council
SABTA	South African Black Taxi Association
SANTACO	South African National Taxi Council
SAPS	South African Police Service
SATACO	South African Taxi Council
TOC	Theory of Constraints
TT	Transition Tree

"It is easier to perceive error than to find truth, for the former lies on the surface and is easily seen, while the latter lies in the depth, where few are willing to search for it"

Johann Wolfgang van Goethe

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Chapter 1: Introduction and theoretical framework

1.1 INTRODUCTION

A first-rate public transport system is one of the critical building blocks of any world-class economy. Even though South Africa boasts first-rate road infrastructure, public transport has not received as much attention in the past.

Since the existing public transport (rail, bus and taxis) is generally unsafe, unreliable and limited in coverage it basically only serves a captive market. Anyone that can afford a private vehicle will use it. Moreover, population densities and economic growth especially in urban areas are putting increasing pressure on the existing road network. These factors along with other advances, e.g. tourism, necessitate implementation of a high-quality public transport system in South Africa.

The minibus-taxi industry in South Africa has evolved to compete with the highly regulated and inefficient bus and rail services. The industry has displayed great levels of resilience and innovation in the face of shifting political and socio-economic conditions and has become the dominant mode of public transport in South Africa. However, the industry is plagued with violence, poor road safety and low financial margins. The government of South Africa has for many years been experiencing pressure from a wide spectrum of stakeholders to improve the performance of the industry through some sort of reform or regulation.

1.2 HISTORICAL DEVELOPMENT

From the early 1980's to 1995, the minibus-taxi industry in South Africa grew at a phenomenal rate. The position of the taxi industry vis-à-vis other transport modes was strengthened by the perception in the minds of commuters that it is a community-based industry, surviving the apartheid authorities and without any form of subsidies. It grew from a negligible informal operation to the dominant player in the public transport industry accounting for an estimated 65% of passenger journeys

(Oosthuizen and Mhlambi, 2001: 1). Today the taxi industry provides transport for 5 to 10 million people every day and has a daily turnover of R15 million (Weekly Mail & Guardian, 1999). It is widely lauded as the showcase of black capitalism in South Africa.

Unfortunately, together with the phenomenal growth came over-traded routes, a high incidence of conflict and violence and an appalling road safety record. Reasons for this appalling record range from bad driving to poor funding, the wrong kind of vehicles and poor maintenance. Insurance companies and financial institutions shun the industry, which they regard as too risky.

In 1992 the National Taxi Task Team (NTTT) was set up to investigate the causes and ways of ending the conflicts, which have engulfed the industry since its inception. The NTTT reported that the minibus taxi industry is not recognised by government and also lacks economic empowerment, a formal structure and effective control of its operations (Memorandum, 1999). The continuing conflict and constant threat of violence in the industry attests to the failure to create effective mechanisms and structures to control and regulate itself to resolve conflict and contain violence. Some of the task team's recommendations were that the Minister of Transport should regulate and formalise the industry and work towards its economic empowerment. These recommendations led to negotiations between the government and taxi organisations, which ultimately saw all taxi organisations agreeing to work together.

A new plan has been designed to deal with the problems that have rendered South Africa's taxi industry uncontrollable. The plan includes taking the country's present fleet of 120 000 minibus taxis off the road and replacing them with larger, stronger, safer vehicles equipped with smart cards to ensure they stick to registered routes. Under a recapitalisation plan, jointly developed by the Departments of Transport, Trade and Industry, Minerals and Energy and Finance, the government will subsidise existing taxi owners to help them buy the new 18 to 35 seat taxis. A final implication of this formalisation of the taxi industry will be the legal, commercial and fiscal

incorporation of all relevant business entities involved, with a major source of revenue for the SA Revenue Service becoming part of the tax net.

However, as with all new developments in this volatile sector, the recapitalisation programme carries the risk of upsetting established power relations and generating conflict. Negotiation between the government and South African National Taxi Council (SANTACO) has been progressing slowly and has reached deadlock on occasion. These and other factors have delayed the government's plans to formalise the industry and provide assistance through the recapitalisation programme. The slowdown is obvious from the intended announcement of the final contract winners in July 2000 and the fact that the new vehicles were supposed to appear on the roads by January 2001. No announcement has been made yet and on 24 November 2003 Transport Minister Dullah Omar extended the deadline for replacement of old vehicles to 2010.

1.3 RESEARCH PROBLEM

Transporting between 5 and 10 million passengers daily the taxi industry has indisputably a major role to play in the South African economy. However, the problems experienced by the industry and the associated deterioration of service levels pose serious reservations about the sustainability of the operation in its present form.

Formalisation of the industry appears to be inevitable to achieve required levels of safety and efficiency. Yet, an exercise of this nature will require huge upfront investment and will not happen without a fair amount of resistance from existing operators. It is therefore vital that a sound understanding of the industry and its operation be obtained, before huge resources are committed to the support of the industry.

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1.4 RATIONALE FOR THE RESEARCH

The taxi industry is the dominant mode of public transport in South Africa and it has a very important role to play in the economy. Hence, the principal motivation for the research is that if the industry's performance can be improved, it will significantly benefit the overall economy. In concurrence with this underlying principle, the three issues below served as further stimuli for the research project.

1.4.1 Enhancement of public transport

Public transport is an enabler industry, i.e. it is an industry that not only exists to meet goals inherent to transport, but also serves to meet wider objectives of socio-economic development. The Moving South Africa document gives the following objectives of a public transport system (MSA, 1998: 18):

- Accelerated economic growth
- Increased trade
- Improved access to employment opportunities
- Increased social integration

Therefore, a good public transport system is an essential cornerstone for a high performance country. Given South Africa's drive for increased economic growth, employment creation and social integration – public transport has the potential to accelerate all these processes.

In addition, the MSA forecast has indicated that by 2020 the primary problem in the transport industry will not be road safety but rather congestion (MSA, 1999, 73). If left unchecked, road congestion will be one of the most damaging problems for the urban economy in 20 years from now. Public transport will be instrumental in relieving and preventing congestion.

1.4.2 Black economic empowerment

The minibus-taxi industry is widely lauded as the showcase of black capitalism. It is an industry with a turnover of R12.6 billion per annum (Financial Mail in Khosa, 2001: 1). However, Mr Paul Browning of the Forum for Transformation in Transport, (2001:1) reasons that *"if economic empowerment is a synonym for wealth and wealth is taken to mean the formation, retention and appreciation of capital at a rate greater than that of inflation – then the taxi industry has significantly failed."* Oosthuizen and Mhlambi (2001: 1) also believe that *"the instability prevalent in the industry undermined its progress and success and prevented it from reaching the point of full formalisation and empowerment and becoming a reliable business partner."*

One of the aims of the government's empowerment initiative is to have *"40% of shares on the JSE Securities Exchange owned by black business"* (BEE, 2003). Considering this objective it seems logical that the taxi industry – which is a beacon of black economic empowerment - should receive support from government to become part for the formal economy.

1.4.3 Delays in the rollout of the recapitalisation programme

In 1999 the recapitalisation programme was officially announced, a bold step to regulate the industry, which was considered an all-round good proposal at the time. Despite the Department of Trade and Industry's claims that the project is forging ahead, this ambitious plan is already 4 years overdue and seems to be plagued with problems. Therefore, it seems reasonable that the case for the formalisation of the taxi industry be revisited.

1.5 RESEARCH OBJECTIVE

The aim of the research is to design a framework for the creation of a high-quality, customer-focused, yet economically sustainable taxi industry. Considering the fact that the taxi industry has a 65% market share in the public transport sector, the research will have a specific focus on minibus-taxi operation whilst maintaining a holistic view of public transport sector. The success of the framework will be measured by the extend that:

- level of service (including safety) is enhanced;
- economic sustainability of the industry is ensured.

The framework will provide a road map for the formalisation process and broad guidelines for policy formulation and government support to improve the performance of the industry.

The MSA (1999: 24) document accentuates the following vision for urban public transport in South Africa *"by 2020, urban customers will be able to participate fully in the various activities of city life by using a public transport network that provides as much city-wide coverage as possible and which is affordable, safe, secure, fast and frequent."* Hence, in this report the term "level of service" collectively refers to the affordability, safety, security, speed and efficiency attributes of the operation.

The concern for sustainability stems from the following matters, highlighted by the MSA team (MSA, 1998: 18):

- Sustainability is required to meet the customers needs, i.e. levels of service.
- Sustainability is a necessary condition for the continuous upgrading of level of service of transport.
- Public transport is a long-term industry which requires advance planning and funding availability.
- Loss of the public transport industry could destabilise other parts of the economy.

Based on the objective provided above, the research will seek to answer the following two questions:

1. Can the mini-bus taxi industry survive doing business in an informal and unregulated environment?
2. How can the taxi industry be transformed to deliver first-class service in an economically sustainable manner?

1.6 RESEARCH DESIGN AND METHODOLGY

Against the background of the present situation in the taxi industry, it is no doubt in the interest of all parties' concerned (government, operators, drivers, commuters and the general public) that the formalisation of the industry be viewed afresh. This research project is an independent academic study where all relevant data will be reviewed in an attempt to arrive at a solution in the best interest of all stakeholders as well as the wider economy of South Africa.

1.6.1 Design description

The research will be of an empirical nature and can be classified as secondary data analysis. In this type of study the researcher uses existing data in order to test hypotheses or answer research questions (Mouton, 2001: 164). The data analysed will consist of surveys and studies already conducted on various aspects of the taxi industry in South Africa (see paragraph 1.6.2 under data collection). These investigations cover areas ranging from operational problems to violence and labour relationship in the taxi industry. The reason why the researcher opted for an approach of secondary data analysis instead of surveys or stakeholder representation as the primary means of data collection is that users of public transport are rarely in a position to provide substantial input to the large-scale restructuring of the whole industry, due to their limited exposure to more sophisticated international public transport systems (Shaw, 1998: 3). Public transport

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users' responses usually tend to focus on the day-to-day operational problems of the system and for this type information various existing research sources was consulted.

The study was done within the qualitative paradigm and a qualitative method of data analysis was utilised. The conceptualisation and mode of reasoning is deductive reasoning. Pretorius (2002: 3-4) states that *"…empirical data does not necessarily mean quantitative numerical data, but can be qualitative textual data"* and that *"…testing the hypothesis is not limiting the researcher to the use of statistical analysis, but deductive logic can be employed as a means of conceptualisation and mode of reasoning to arrive at a conclusion."* The form of deductive reasoning used is conceptual explanation, where the meaning of a concept is clarified through the deductive derivation of its constitutive meanings (Pretorius, 2002: 3-5).

The secondary data analysis design is mostly criticised for the fact that the researcher cannot control data collection errors in the primary data and is constrained in analysis by the research objectives of the original study or survey (Mouton, 2001: 165).

1.6.2 Research methodology

The Theory of Constraints (TOC) thinking processes will be systematically employed to analyse the data collected on the taxi industry in order to identify core problems and develop a framework for the formalisation of the mini-bus taxi industry in South Africa. Before the researcher can commence with the comprehensive data collection phase, he will have to acquaint himself with the procedures involved in gathering of data for the qualitative research methodology. A sound understanding of the TOC thinking processes will also be required to apply this philosophy in the analysis of data.

The question might arise why the TOC thinking processes are utilised in the research rather than more conventional transportation modelling and planning. The answer lies mainly in the fact that the common planning process often focuses on incremental change, addressing symptoms of the problem as oppose to the deeper-rooted problems, which would demand fundamental restructuring of the system. This concept is supported by the following statement, *"Major cities which have initiated substantial structural reforms in the public transport sector have not tended to rely heavily on the standard transportation planning process but have opted for a more strategic response which is often based on the use of operational analysis as a mechanism for assessing certain strategic level trade-offs and for defining optimal or at least practicable government interventions in the urban transport and land use market"* (Supernack in Shaw, 1998: 4). As opposed to focusing on incremental change, the TOC thinking processes is a system level problem solving technique, which can be applied to any level of system, aimed at finding the core problem which, if solved, will remove all of the undesired symptoms.

Furthermore, the research will focus exclusively on urban public transport because this operation forms the backbone of the transport system (MSA, 1999: 12) and the needs of the rural commuters are quite different from those in urban areas. Rural public transport tends to focus on mobility, while for urban public transport the emphasis is on accessibility and capacity utilisation.

The research project has will be conducted as a three stage process.

- Literature review

The first step in the research will be to review literature on the informal economy. The taxi industry in South Africa has its roots in the informal economy; operating predominantly outside the legal, commercial and fiscal spheres of the economy. The emergence of the informal economy in modern social systems raises many questions about development theories. Through the literature review, the researcher will

develop an understanding of the complex nature of the urban informal sector and endeavour to find ways to improve performance of business in this sector. The researcher will also review formalising experiences in other countries. A summary of the review as well as the main findings relevant to the taxi industry will be given in Chapter 2. However, due to the secondary data used and the use of deductive logic, reference to various literature sources will be given throughout the report and will not be limited to Chapter 2.

- Data collection

Chapter 3 contains a presentation of information collected on the history and progression of the taxi industry in South Africa. It highlights all major structural changes as well as more recent developments.

Data collected is primarily of a secondary nature, compromising (but not limited to) the following recent surveys, research and technical reports and dissertations (dates published in brackets):

- An investigation into the "Economic Role of the Black Taxi Industry" by L.J. Ford of the University of the Witwatersrand (1989).
- "Labour relations in the minibus taxi industry" by Moses Mahlangu of the University of Pretoria (2002).
- A survey done by the Human Sciences Research Council (HRSC) to establish the needs and preferences of commuters and operators (2001).
- Research on the "Fundamental Restructuring of the Planning, Management and Operation of Urban Public Transport" conducted by the Centre for Scientific and Industrial Research (CSIR) Roads and Transport Technology Division (1998).
- Investigation into "Taxi violence in South Africa (1987 - 2000)" by J. Dugard of the University of Cambridge in England (2001).

- "The Moving South Africa Action Agenda", a 20-year strategic framework for transport in South Africa, issued by the National Department of Transport (1999).
- The National Taxi Team's Final Recommendations (1996).
- A report on "The most critical issues in the Gauteng Taxi Industry" compiled by the Gauteng Department of Public Transport and Roads (1995).
- Gauteng Provincial Government's "Congestion Strategy" (2002).
- The "Request for Proposals" for the transformation and recapitalisation of the South African Taxi Fleet of the Department of Trade and Industry (1999).
- The Position Paper with regard to the "Electronic Management System Specifications of the Taxi Recapitalisation Project" issued by the Department of Transport and CSIR's Roads and Transport Technology Division (2000).
- "Wealth in Wheels? The minibus-taxi, economic empowerment and the new passenger transport policy" by Paul Browning of the Forum for Transformation in Transport (2001).
- "The Road to Empowerment of the Minibus-Taxi Industry is Full of Pitfalls" by Oosthuizen and Mhlambi of Siyazi Transportation (2001).

The research will be a compliment and extension of these sources and not a substitute for it. It should be emphasised that the research employed many of the ideas and recommendations of two publications in particular, i.e. *The Moving South Africa Action Agenda* and *Fundamental Restructuring of the Planning, Management and Operation of Urban Public Transport.* These documents are based on rigorous analysis and presented well conceptualised theory of the wider public transport sector. Recommendations and ideas presented in these two studies will be built on and specifically applied to the taxi industry.

- Data analysis

Data analysis will be carried out by means of the TOC Thinking Processes. The TOC thinking processes were originated by Dr. Eliyahu Goldratt, *"The intent of the*

thinking processes was to provide a systematic approach to enable people to create and implement the kinds of change that can also be considered improvement" (Scheinkopf, 2000: 4). The process uses a strict logical framework where causes and effects are scrutinised to ensure logical arguments and conclusions.

In order to arrive at an innovative solution for the problems of the taxi industry the researcher will attempt to find answers to the three questions by applying the Theory of Constraints (TOC) Thinking Processes:

1. What needs to be changed in the taxi industry? (What is the core problem?)
2. To what should the taxi industry be changed/transformed? (What is the solution to the core problem?)
3. How to cause/facilitate the change within the taxi industry? (How to implement the solution to eliminate the core problem?)

The "Current Reality Tree" (CRT) will be used to identify the core problem that needs to be changed in the taxi industry. This process will be discussed in Chapter 4. In Chapter 5, a vision will be created of the new state to which the mini-bus taxi industry should be changed/transformed by applying the "Evaporating Cloud" (EC) and "Future Reality Tree" (FRT). Finally, the "Prerequisite Tree (PRT) and "Transition Tree" (TT) will be used to answer the third question "How to cause the change". A detailed action plan for the implementation of the new vision for the taxi industry will be described in Chapter 6. Figure 1.1 gives a graphical presentation of the how the TOC thinking processes will be employed.

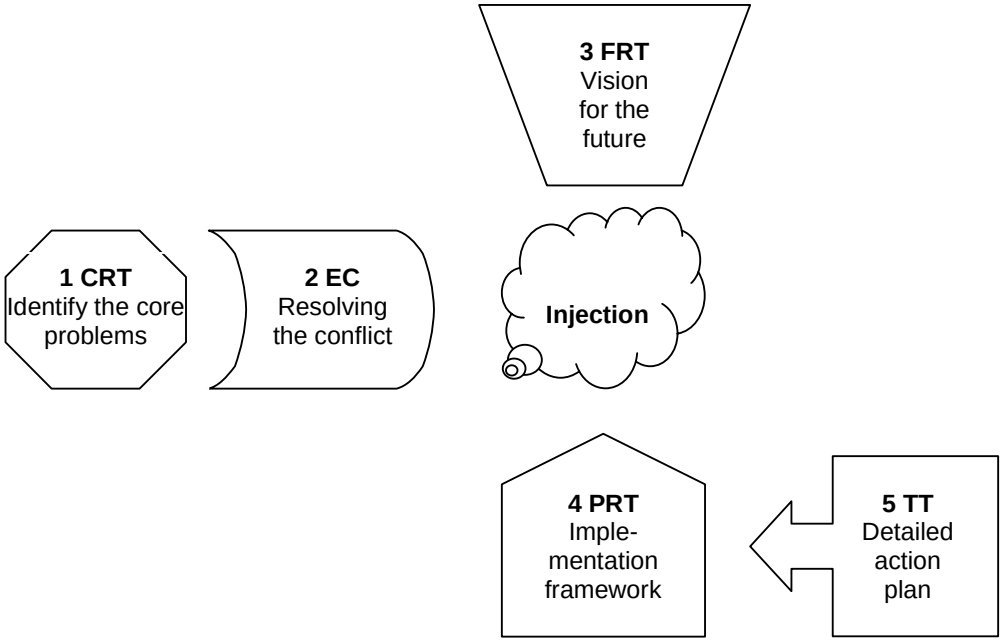

Figure 1.1 Full analysis by means of the TOC Thinking Processes

The combination of these thinking processes will enable the researcher to develop robust solution for the problems of the taxi industry. The main findings of the study as well as the final recommendations are provided in Chapter 7.

1.7 EXPECTED CONTRIBUTION OF THE RESEARCH

The expected contribution of the research is twofold. In the first place it will offer an alternative framework for the formalisation of the minibus-taxi industry in South Africa. The research is distinctive in the sense that is will be taking an original view, bearing in mind the informal character of the business whilst working to a solution. The research will not examine the taxi industry in isolation, but rather take a holistic view of the public transport sector in South Africa. This framework will be a synthesis

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of research on various aspect of the industry including economic role, labour relations, violence, empowerment as well as transportation impact.

In the second place the exercise will be a first and unique application of the TOC thinking processes to both the informal sector and the field of public transport.

1.8 CONCLUSION

With the research problem, scope of the study and projected end-product defined, the challenge is now to develop a high-quality, customer-focused and economically sustainable taxi industry. This will no doubt be a demanding exercise, but with the prospect of transforming the industry to realise its full potential in providing quality public transport for the first time in South Africa it will surely be a rewarding one.

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Chapter 2: Introduction to the informal economy

2.1 INTRODUCTION

The informal economy is phenomenon obscured by ambiguity and controversy. In their book *The Informal Economy: Studies in Advanced and Less Developed Countries*, Portes and Castells (1989: 11) describe it as follows: *"The informal economy simultaneously encompasses flexibility and exploitation, productivity and abuse, aggressive entrepreneurs and defenceless workers, libertarianism and greediness."*

This characterisation immediately rings true of so many aspect of the minibus-taxi industry in South Africa. This is an industry with a turnover of R12.6 billion per annum (Financial Mail in Khosa, 2001: 1) but at the same time "*one of the most unprofitable, violent-prone and crisis-ridden sectors in the post-apartheid period in South Africa*".

However, recent research in the field of the urban informal sector has proven the relevance of informal sector enterprises for socio-economic development (Gaillard, 1998: 324). Even though limited use is made of capital, urban informal sector entrepreneurs manage to create an income for themselves that is on average well above the legal minimum monthly wage (Gaillard, 1998: 325). What is more, these enterprises create substantial amounts of urban employment.

Given the relevance of the informal sector, it would make sense for the government to support this sector through the design of policies that would improve the performance of the sector. However, only by having a thorough understanding of the informal sector can meaningful policies be designed? Kaufmann and Kaliberda (1996:1) found *that "the omission of a systematic treatment of the unofficial economy impairs the provision of effective advice and policy implementation."* They further recommend that a country with a sizable share of its activities in the informal economy would benefit from non-conventional policies in areas such as social protection and taxation.

However, only when a thorough understanding of the issues and dimensions of the informal sector has been obtained can one design meaningful policies. This chapter is an attempt to attain such an increased understanding by an exploration of the development and characteristics of the informal economy.

The chapter is structured as follows. The first section deals with the informal sector on a global basis. Different definitions are given, reasons for the sector's existence are explored and the effects of informalisation investigated. In the second part of the chapter the origins, size and structure of the informal sector in South Africa is examined. Then the grounds for formalisation are considered by studying the costs and benefits of formalising informal ventures. Finally these findings are applied to the taxi industry in an attempt to obtain some guidelines for the formalisation of the taxi industry.

2.2 DEFINITION OF THE INFORMAL ECONOMY

Various, and sometimes conflicting, definitions of the informal economy exist. The two most descriptive definitions the researcher came across are given below:

According to Portes and Castells (1989: 12) the informal sector is *"a process of income-generation characterized by one central feature: it is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated."*

The South African Central Statistical Service (CSS) defines the informal sector as *"all types of economic activities which conceptually are to be included in the National Accounts that are underestimated or not measured at all, due to the informal business styles of vendors and enterprises that are not known of officially"* (Naidoo in Martins, 1995: 4)

Hence, for the purpose of this report the following definition will be adopted:
The informal sector can be defined as all economic activities that are characterised by an informal business style and unregulated by authorities in an environment where similar activities are regulated.

One may argue that criminal activities can then also be viewed as part of the informal sector. There is however, one distinct difference between informal and criminal activities in the sense that criminal activities produce goods or services of an illicit nature. Informal activities, on the other hand, produce perfectly licit products even though the production arrangements may be unregulated.

The basic difference between formal and informal activities does not centre on the character of the final product (which is legal for both cases), but on the manner in which it is produced and exchanged.

2.3 THE INFORMAL SECTOR ON A GLOBAL SCALE

At first, informal sector research was only conducted in Africa, Latin America and other third world countries, because researchers believed that these activities have disappeared in industrialised countries. Recent research suggests that this assumption is inaccurate. On the contrary, informal arrangements seem to constitute a major structural feature of society, in both developing as well as industrialised countries like the United States of America, United Kingdom and Western Europe (Portes et al., 1989: 1). Furthermore, the concept of informal economy embraces a broad spectrum of situations; i.e. from the hawker selling fruit at a taxi rank in Soweto to a private software developer contracting in Sandton.

The most significant generalisations to be drawn by Portes et al. (1989: 15) in a review of studies of the informal economy in a variety of social contexts and countries were:

- The informal economy is universal; the same type of arrangements exists in countries with very different levels of economic development.
- The sector is heterogeneous; the forms adopted by unregulated production/distribution vary widely.
- There has been an apparent increase of the informal sector activities during the recent past.

Informalisation is a growing global trend, which cut across the whole social structure. The resilience of the informal sector is obvious from its emergent presence in developing countries but also in even the most institutionalised and regulated economies.

2.3.1 Reasons for informalisation

Widespread presence of the informal sector inevitably poses the question why is a growing and resilient informal sector are to be found in the presence of a formal sector? The Rogerson (1994: 15) defines informalisation as *"the process by which formal factory jobs are displaced increasingly by jobs in unregistered plants and in home working.*" Analysis of the process of informalisation has brought forward a number of common themes, despite the great diversity within the sector (Portes et al., 1989: 28):

- A common objective of informal entrepreneurs seems to be the undermining of organised labour's control over the work process.
- Informalisation is a direct reaction against the state's regulation of the economy, in terms of both taxes and social legislation.
- A third general cause is the integration of national economies into the international system, where there is a tendency towards the diffusion of low labour cost across countries and regions.

- Countries, especially newly industrialised countries, informalise themselves in an attempt to obtain a comparative advantage for their production relative to the more regulated countries.
- Finally, in the face of high unemployment and harsh living conditions workers have resorted to a less wages and worse working conditions in a quest for survival.

In a report of the Bureau of Market Research of the University of South Africa, Prof J. H. Martins (1995: 1) found that, *"the role of the informal sector is particularly relevant when levels of unemployment and poverty are high and economic growth is slow."* The report also found that the development of the informal sector can be viewed as a possible means of providing some form of survival or subsistence income.

In an analysis of sixteen Eastern European and former Soviet Union countries, Kaufmann and Kaliberda (1996: 20) even found that with a significant decline in the formal economy, only just under half of the drop was absorbed by the growing informal sector. The other half was translated into a decline of the overall economy.

2.3.2 Effects of the informalisation

The informal sector being so prevalent should invariably have significant economic and social impact. Again referring the review of research done on the informal economy in a various countries by Portes et al, the following were presented as the most important effects of informalisation (1989: 29):

- The process of informalisation significantly contributes to the formation of a decentralised model of economic organisation. Informal enterprise appears to lie at the core of the flexible production and decentralised networks that form the emerging model of industrial management.
- The impact of informalisation on productivity seems to be contradictory. Productivity of labour tends to be lower, because of the use of less advanced production technologies. Conversely, there is some evidence that the

productivity of capital may be higher, because of the reduction of overhead costs and the concentration of capital directly in productive investment.

- The best-known economic effect of the informalisation process is to reduce cost of running the business.
- The most significant social effect of the process is undermining the power of organised labour in all spheres. This process amounts for the rapid displacement of more rigid hierarchies on which large organisations formerly relied.

The (aforementioned) report of the Bureau of Market Research of the University of South Africa (Martins, 1995: 1) indicated that *"growth in this sector causes structural changes in the economy, which modify patterns of demand and distribution."*

2.4 THE INFORMAL SECTOR IN SOUTH AFRICA

Attempts to define and measure the informal economy vary significantly because of the conflicting objectives of the different studies. Statistics South Africa (SSA) estimated the number of workers in the South African informal sector as 1.907 million, or 18.4% of the national labour force according to the 1999 October Household Survey (OHS, 2000). The contribution of the informal sector to the GDP in 1994 was estimated at R25 744 million or 6.7% of the official GDP (OHS, 1995). Unfortunately, approximations of the contribution of the informal sector to the GDP were not made by the SSA after 1994.

Unpacking the structure of the informal sector reveals that activities are concentrated in trade (25.6%), agriculture (10.9%), construction (9%) and manufacturing (6.9%) (OHS, 2000). The limited development of manufacturing in urban South Africa is noteworthy in comparison with other African countries.

A further dominant feature of the South African informal economy is that growth occurs primarily through the replication of informal businesses. Manning and Mashingo (in Rogerson, 1994: 16) refer to the process as *"growth through replication" rather than growth through "capital/skill/ technology upgrading".* This seems to be the case with the taxi industry as well; the same type of operation is duplicated regardless of transport demand conditions.

In terms of structure of the informal economy, the existence of significant gender divisions and the overarching context of patriarchy should also be acknowledged. An important observation is that women earn less than men in the informal economy, since the most profitable businesses are dominated by male entrepreneurs (Rogerson, 1994: 11).

2.4.1 Origins of informal economic growth in South Africa

In the previous paragraph the expansion of the informal economy worldwide was explained. In a synthesis of existing research, Rogerson (1994: 14-29) concluded that the widespread surge of informal activity in South Africa is mainly attributable to two factors.

- The Demise of the Formal Economy

The key explanatory factor for the establishment of informal economic enterprise was identified by an Employment Creation Strategies report (in Rogerson, 1994: 14) of the Development Bank of South Africa (DBSA) as the "*progressive emasculation of the formal economy, which has exhibited an alarming decrease in its capacity to absorb new entrants to the labour market."* It was found that most of the growth taking place in South Africa's informal sector is a direct consequence of the downturn and low absorptive capacity of the formal sector.

- The Informalisation of the Formal Economy

A common feature underpinning the expansion of informal enterprise is the informalisation of formal activities. This refers to situations in which formal business enterprises seek to evade regulations governing employment protection and labour security, by establishing or linking their production to small, informal supplementary enterprises on terms, which make them particularly vulnerable to exploitation. The main aim of informalisation is to get around labour regulations and diminish labour cost. The taxi industry in South Africa developed under similar conditions where profitability is increased through the exploitation of labour.

2.4.2 Problems and Constraints

The problems and constraints facing entrepreneurs in the informal sector have received a considerable amount of attention by research and development agencies. The primary business problems experienced by informal entrepreneurs in South Africa will be discussed below.

It is important to point out that although general constraints that exist within the informal sector were identified, there is an urgent need to disaggregate the analysis and focus on the specific problems experienced in the different sub-sectors of the informal economy.

Furthermore, even though the core constraints on the development of informal enterprise is financial, problems can only be effectively addressed if access to credit is provided together with (or even preceded) the provision of training, infrastructure and access to markets.

- Finance and credit

Rogerson (1994: 22), after analysis of a number of empirical studies concluded that access to finance and credit are the most significant problems inhibiting the establishment and running of informal businesses. Apart from start-up funds, money needed for the purchase of equipment and lack of working capital appears to be the most pressing constraints. In Chapter 3 this feature will elaborate on in terms of the taxi industry and it will be illustrated how lack start-up funding has impeded the performance of the industry.

- Infrastructure

The access to a premise to work from represents a serious constraint on the growth and stability of the enterprise. The fact that informal enterprises are primarily found in townships - where there is often limited access to telephones, electricity and roads - make communication, production and distribution very difficult and expensive.

- Training

Equipping informal entrepreneurs with managerial skills and higher levels of education is essential for the development of the informal economy. Morake et al. (in Rogerson, 1994: 25), found that there are major gaps between the existing training systems and the real expressed needs of informal business operators.

- Urban planning and management

In several respects, the current form of the South African city is anti-developmental, mainly due to the legacy of apartheid. The combination of low density sprawl, separation of land-use and fragmentation of development are not conducive to the activities of small business and the informal economy. Dewar (in Rogerson, 1994: 26) found that "market concentration necessary to generate vibrant local economies

does not exist and the limited number of points of high accessibility, in combination with the spatially extensive market catchments, ensure that only large economic units can really flourish."

- Markets and linkages with other businesses

Traditionally collaboration between large and small-scale enterprise in South Africa has not developed to a meaningful extend, as in the case of Japan and the Pacific Rim. On the contrary, Natrass et al. (in Rogerson, 1994: 105) have found that big businesses would rather eliminate informal enterprises through direct competition or through take-over. Symbiotic linkages, through subcontracting will promote the informal economy a great deal.

2.5 FEASABILITY OF FORMALISATION

The idea that the informal sector operates in unregulated markets, was the main focus of the previous paragraphs. The process of formalisation basically entails the progression of informal enterprise to become part of the formal or regulated economy. The question whether regulation and legalisation is the solution to the problems of the informal sector, inevitably arises. To answer this question one has to determine the cost of changing the informal sector to becoming formal and also compare the cost of becoming regulated with the benefits derived from the regulation.

According to Tokman (1989: 3) the informal sector can be conceptualised according to two approaches:

- First, the informal sector is viewed as an outcome of the decentralisation and reorganisation of the production and work processes on a global level.

- The second approach is founded on the observation that informal activities are performed beyond the law in developing countries, as a result of inadequate legislation and bureaucracy.

The conceptualisation of the informal sector in South Africa is a closer interpretation of the first approach as decentralisation take place as a consequence of a labour surplus. Consistent with this, Tokman says that *"decentralisation ensures, by its functionality, a more dynamic insertion in terms of links with markets, technological change and resource availability."*

2.5.1 Types of legality

To become part of the formal economy, informal operators needs to adhere to existing regulation and legislation. Two stages of "being legal" can be identified, namely:

- Becoming legal – legal recognition
- Being legal – legal operation of business

The first stage usually entails the registration of the business enterprise with the local and national authorities. The second stage consists of two spheres, i.e. legality relating to taxes and legality referring to labour matters.

The major costs of legalising activity will be discussed in the next two paragraphs. It is important to note the most of these observations are derived from research done in South America.

- Becoming legal

The basic idea underlying the registrations of micro-enterprises is to acknowledge the legal existence of the business, to identify it as an economic unit subject to tax obligations and also to ensure minimum health and safety standards are met.

According to Ricardo Lagos (in Tokman, 1989: 87), the cost involved for entry to legality is the summation of the following; time needed for registration, financial cost of registration and money spend on modifications

Although time consuming, the cost of legal registration is usually not insurmountable for informal businesses. The biggest disbursement is typically to bring the buildings/manufacturing plants/vehicles to a level that adheres to the safety and hygienic standards set by the authorities.

- Being legal

Where the process of becoming legal mainly constituted administrative steps, the practice of staying legal requires the fulfilment of various obligations. As previously mentioned the main operational costs related to these obligations are tax and labour requirements.

Taxes include municipal licences or permits, income tax as well as value-added tax. In most cases studied by Tokman taxes do not represent a major obstacle for informal entrepreneurs as income levels are very low and income tax doesn't have a heavy incidence (Tokman, 1989: 13).

Labour cost on the other hand is quite significant as it represents a fixed cost, independent of size and economic performance. Labour legislation requires the payment of legal minimum salaries and the fulfilment of various social security obligations. Unlike tax obligations, labour requirements are not differentiated according to size of operations and annual profits.

2.5.2 Benefits of Legalisation

The predominant reason why informal business operators do register and legalise their operation is to gain access to markets and to avoid fines and penalties. In certain countries the state also provide particular exemption for registered micro-

enterprises (Tokman, 1989: 110), e.g. exemption from certain taxes, exemption from certain state fees, special lines of credit, elimination of the use of fiscal books etc. However, Loyle (in Tokman, 1989: 131) found that in none of the cases she studied in Brazil that these benefits exceeded the cost of legalisation.

2.6 SUMMARY OF FINDING AND RELEVANCE TO THE TAXI INDUSTRY

Given the high levels of unemployment and poverty in South Africa, the importance of the informal sector should not be underestimated. The sheer size of the taxi industry in public transport in South Africa should be reason enough for the government to support this industry in improving the levels of performance.

The development of taxi industry, similar to most informal business was overlooked by the government of the day providing no assistance in terms of subsidies etc. The taxi industry developed in an environment of slow economic growth and high unemployment. It will be illustrated in the next chapter that the informal way of business was sustained by cost minimisation through exploitation of labour and general disregard of safety standards and taxes. Furthermore the constraints limiting the performance of the industry are comparable to other informal enterprises in South Africa. Access to finance, lack of appropriate infrastructure and inadequate skills and training are major causes of the deteriorating service standards of the taxi operation. These are perhaps also the areas where government assistance would be most effective.

As to the issue of formalisation; it was revealed that taxes and legalisation do not seem to be obstructions in the process of joining the formal economy but rather labour requirements and safety standards. These are the areas then that taxi operators skimp on resulting in poor road safety and service levels.

A final observation is the fact that the costs associated with becoming and being part of the formal economy are usually much higher than the benefits derived from the

process. Therefore, if transport authorities are serious about combining the taxi industry with formal public transport operations, it would need to provide additional incentive to ensure increased profitability and sustainability.

2.7 CONCLUSION

As discussed above the most costly aspects of compliance with the legalisation process are modification related to safety and health standards and most significantly fulfilment of labour obligations. It should however be remembered that the informal sector is operating beyond regulations in an environment characterised by a lack of well-remunerated job opportunities and by excess labour. It should be clear that labour obligations should therefore allow for a trade-off between protection of employment and protection of workers. It could be useful to explore the possibility of defining new contractual relationships for the legalisation and regulation of informal enterprises.

The informal sector is an integral part of total national economies and there are powerful forces sustaining the sector. The same significance applies to South Africa where the livelihood of millions of people in South Africa depends on the existence of informal activities. The majority of research indicates that informalisation is here to stay, and the question is whether the informal sector can be supported to improve its performance.

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Chapter 3: The history on the minibus taxi industry in South Africa

3.1 INTRODUCTION

The minibus taxi industry in South Africa has grown from a negligible informal sector activity in townships to the dominant mode of public transport in South Africa. However, expansion did not occur in a smooth and organic manner. A closer evaluation of the progress reveals distinct periods of development mainly influenced by government intervention and legislation.

The period from 1977-1987 is characterised by the struggle of the taxi industry to be recognized as a public transport operator. The time following 1987 saw the deregulation of the industry coupled with the instigation of violence as a part of the daily operation of the industry. The post-apartheid era is distinguished by efforts to bring the industry under some form of control and regulation again. Finally, in 1999 the ambitious recapitalisation of the taxi industry was announced. Unfortunately the programme is already delayed by more than 4 years and it is remains to be seen whether it will be implemented any time soon.

3.2 THE PERIOD FROM 1977 TO 1987

Up to 1977 minibus taxis did not play an important role in the transport industry. Sedan vehicles, like Valiants and Chevrolets, were used as taxis and only for trips within black townships.

Bus and rail transport were highly regulated and inefficient and the cause of various riots and boycotts. In 1977 the government, fearing that continued intervention in the transport sector would result in heightened politicisation and sustained boycotts, established the Breda commission of Inquiry into transport deregulation (Khosa in Dugard, 2001). The commission found that South Africa *"had reached a stage of economic and industrial development which enabled it to move towards a freer competition in transportation"* (McCaul, 1990: 38).

Following the Breda commission, The Road Transportation Act of 1977 (No.74 of 1977), came into operation that year. The Act defined a bus as a motor vehicle designed for the conveyance of more than 9 persons (including the driver). This opened the way for the introduction of the legal minibus taxi to be used to carry up to 8 passengers. The minibus was used instead of sedan cars and gradually began capturing an increasing share of the black commuter market (McCaul, 1990: 35) and by 1982 more than 90% of black taxis were minibuses (The Natal Witness, 22 April 1989 in McCaul, 1990: 39).

In terms of the 1977 Act, all public transport operators carrying passengers for gain had to acquire a public carrier's permit from the Local Road Transportation Boards (LRTBs). As part of the taxi permit application, the operator had to prove that existing transport facilities were not sufficient to meet the public's needs in a certain area (McCaul, 1990: 40). Apart from the public carrier's permit, the operator required a certificate of fitness for their vehicle, the driver had to have a public service driver's license and then there were further requirements specific to particular areas.

The popularity of taxis grew due to the conveniences, speed and frequency of their service. Shaw (1998: 8) found that the modal shift from bus and rail to taxis was mainly attributable to *the "poor levels of service provided by the formal modes."* The success of the taxi operators in the transport industry resulted in the bus companies becoming increasingly concerned about the competition. The bus operators' fight to retain their monopoly on the one side and the growing vote in favour of the deregulation of the industry eventually led to the Welgemoed commission of inquiry in 1981. Bodies in favour of the deregulation of the industry included the Taxi Owner's Association, the Free Market Foundation and the Transport Consultation Commission (a group representing 17 private sector organisations) (Ford, 1989: 40). A draft bill based on the Welgemoed recommendations was circulated in 1983. The bill proposed that (McCaul, 1990, 43):

- taxis be defined as vehicles carrying no more than 4 passengers;

- a new a category of "small bus" carrying 5 to 25 passengers, operating on fixed routes, timetables and approved tariffs be created;
- licensed minibus taxis be phased out over 4 years;
- all taxis be fitted with meters.

The draft bill was opposed by the South African Black Taxi Association (SABTA), the private sector and even the National Association of Automobile Manufacturers (NAAMSA) (McCaul, 1990: 45). Over and above these pressures, a new transport inquiry had been initiated by the Minister of Constitutional Development, Chris Heunis. The National Transport Planning Study (NTPS) was to bring transport policy in line with national policy and constitutional developments and to rationalise the transport sector in general. The NTPS's style was more innovative than most government inquiries and the investigations brought about the first major shift in South African transport policy (McCaul, 1990: 47). The NTPS's final recommendations on taxis were that:

- 16 seater minibus taxis be allowed to operate as taxis;
- the central government should stipulate the minimum number of taxis in each regional services council (RSC) had to allow;
- taxi numbers should be controlled on a quota basis in each RSC area, with the RSC to decide on the maximum numbers in its area;
- the quota should be based on a formula which includes considerations such as rank space;
- the applicant should no longer need to prove the need for a service.

Because of the fact that taxis were now a vital element of the South African transport system, the Competition Board suggested a complete deregulation of the industry and proposed making licences and permits more readily available (McCaul 1990: 50).

The White Paper on National Transport Policy tabled in January 1987 agreed to the Competition Board's recommendations that entry to the taxi industry should be

controlled only by considerations of whether the operator had met certain technical requirements. It rejected the NTPS recommendation that the government should set minima on the number of taxis in each RSC, but that the RSCs could set maxima using a formula based on considerations including rank space. Apart from this, the White Paper accepted all the other NTPS recommendations (McCaul, 1990:51).

SABTA, the official voice of the taxi industry at the time, was very concerned about the deregulation of the industry. They felt that the abolishment of all entry restrictions of an economic nature would create chaos and fragmentation of the industry, with too many taxi operators entering the market too soon (SABTA in Dugard, 2001). According to Mr. Paul Browning (in McCaul, 1990: 54), *"the taxi standards had dropped drastically since 1987 as permits had become freely available to any applicant."*

However the taxi industry was finally recognised as an integral part of the transport sector, the deregulation proved to be the root of many problems to follow.

3.3 THE PERIOD FROM 1987- 1994

With the deregulation process in 1987 government allowed market forces to determine entry into the minibus market, thus encouraging almost any applicant to be granted a permit to operate a minibus taxi. This resulted in the minibus taxi industry in South Africa growing at a phenomenal rate in the period from 1987 to 1994.

The position of the taxi industry over other transport modes was strengthened by the perception in the minds of commuters of it being a community-based industry, surviving against the apartheid authorities and without any subsidies. As one of the first avenues for black capital accumulation, the taxi industry almost immediately became a contested economic terrain, flooded with aspirant operators. By the mid-1990s, not only was the minibus taxi industry over-traded, but it was also eroding the market share of other modes of public transport.

Apart from the fierce competition that came into play between different taxi operators, taxis also started operating on high-demand corridors serviced by bus and rail. Taxi operators took this step in an attempt to boost their income as the original taxi routes have become so contested. This service replication reduced the level of service and potential cost recovery of a route or mode, which is clearly a case of destructive competition, as defined by Shaw (1998: 18), "competition between operators which reduces the potential for sustained cost recovery by individual operators, reduces the economy of scale benefits of higher-order modes and leads to the provision of poor and inconsistent service levels to users."

Thus, the ability of the bus and rail operators to recover cost is compromised by competing with the minibus-taxi. The bus and rail operators responded to the lower demand requirements by reducing service frequency (essentially to the inconvenience of commuters.) Besides the reduced service frequency, higher overall subsidies were now required by the formal modes due to lower cost recovery. Evidently, under conditions of destructive competition, the different modes compete directly with one another usually, through a trade-off in monetary cost and level-of service offered to users.

Unfortunately, violence also started playing an increasingly prominent part in the daily operation of the industry. According to Dugard (2001), *"the sudden permit free-for-all, set against a backdrop of the escalating community violence during apartheid's final years, established the scene for the sectarian taxi wars that have plagued the industry ever since."*

3.4 THE PERIOD FROM 1994 TO 1999

Following the general election in 1994, taxi violence continued and in fact, escalated. This happened in sharp contrast to other forms of political violence. According to Dugard (2001), of the Centre for the Study of Violence and Reconciliation (CSVR),

"the continuation of violence into the democratic era was mainly a result of the success of violence as a means of extracting profits, as well as the inability of the post-apartheid government to contain the violence". Prior to 1994, the taxi wars were relatively few in number. However, taxi violence has become more widespread, decentralised and criminal in character in the post-apartheid period (Dugard, 2001). This aspect is clearly illustrated in figures published by the Weekly Mail & Guardian in 1999, *"Taxi violence started scaling new heights causing 291 deaths in 1996, 281 in 1997 and 394 in 1998.*

At the same time road safety also seemed to deteriorate as evidenced by the following statistics (Weekly Mail & Guardian, 1999) "*even more people were dying in taxi accidents. Taxis constitute only 2% to 3% of vehicles on South African roads, but are involved in 17% of accidents. In 1998 taxis were involved in 70 000 accidents in which 900 passengers and 1 385 drivers were killed."*

In 1995 the government, through the establishment of the National Taxi Task Team (NTTT), took a critical step to deliberate the problems of the industry. The NTTT was launched to enhance the performance of the taxi industry and investigate ways of improving road safety, increasing financial margins and ending the conflicts. The NTTT held its first meeting on 20 April 1995 and comprised a chairperson from the National Department of Transport (NDOT), nine government officials from provincial departments of transport, ten taxi industry representatives, and nine special advisors. It held 36 public hearings around the country between August and December 1995, was deliberated in two taxi plenaries (assembly of all members) in February and March 1996, after which the NTTT's final recommendations were presented to the Minister of Transport in August 1996 (Dugard, 2001). The most significant recommendation was that the taxi industry be regulated and formalised as a matter of urgency.

The main proposals for regulation involved three linked processes (Dugard, 2001):

- A (frequently unobserved) moratorium on permit issuing.
- The registration of which taxis are operating and where they are operating.

- The special legalisation of illegal operators without permits.

In the meantime, the NDOT issued a White Paper on future transportation policy objectives in 1996. These objectives were defined to provide leadership in: *"The promotion of a safe, reliable, effective, efficient, co-ordinated, integrated and environmentally-friendly land passenger transport system."* The White Paper was *"designed for use in South African urban and rural areas and the Southern African region and was managed in an accountable manner to ensure that people experience improving levels of mobility and accessibility"* (Turner, 1999).

Following the White Paper, the Moving South Africa (MSA) project was launched in June of 1997 with a mandate to: *"...develop a strategy to ensure that the transportation system of South Africa meets the needs of South Africa in the 21st century and therefore contributes to the country's growth and economic development."*

The MSA's mission was to implement the vision set out in the White Paper on transport in a way that would be consistent with the key thrusts articulated above, in an environment of limited resources, capacity and time. The MSA strategy is based on twenty-year forecasts, which are in line with global transport trends. In essence the MSA project identified the critical problems in transport and proposed a framework for the sector to deliver a world-class service. The gaps between what customers need, and what the transport system is providing to them at the moment were identified as areas for development.

The analysis of passenger transport facilities and services by the NDOT confirmed and quantified that there is a critical lack of affordable access to transport. Further, the analysis proved that the public transport system is ineffective and inefficient, resulting in an increasing dependence on private cars. These problems are aggravated by inherited patterns of land-use, the continued dispersion of (particularly) urban development and the absence of integration between land-use and transport planning.

One of government's key tasks, identified by the MSA, was to create an enabling framework for the minibus taxi industry to recapitalise its assets and deepen its ability to compete fairly for market share (Turner, 1999). The aim was for restructuring and formalisation process to begin at a local level. On completion of this phase, a provincial and national infrastructure would be implemented to insure stability in the industry.

In short the MSA transport stipulated that services and infrastructure should be (Turner, 1999):

- provided at the lowest possible cost to the customer, to the taxpayer, to the environment, to safety; not only now but over the long-term;
- as affordable as possible to the users; and
- able to increase in flexibility and be able to respond to changing and specific sets of customer-needs, particularly for priority customers.

The combination of recommendations of the NTTT and MSA led to negotiations between the government and taxi organisations, which ultimately saw all taxi organisations agreeing to work together. As a result the South African Taxi Council (SATACO) was formed in August 1998 (Daily Mail & Guardian, 1999). The council has divisions in all nine provinces and now represents all minibus taxi operators. SATACO was formed as an industry-driven response with the aim to *"achieve peace and unity in the taxi industry and the development of economic benefits and empowerment for all those operators in the industry"* (SATACO in Dugard, 2001). The formation of SATACO had an immediately observable effect on the taxi landscape. In the year following its formation there was a decline in incidents of taxi violence across the country.

The aim of the regulation was to transform the taxi industry into a customer-friendly business, which would give relief to the 10-million regular taxi commuters, caught up in the fight for dominance among taxi associations. In a bid to end conflicts, SATACO and the NDOT have agreed to overhaul the issuing of new permits to emerging taxi entrepreneurs since most routes were already over-traded. The two

parties planned to introduce a colour-coded route system, satellite surveillance and a taxi-card fare system for commuters (Daily Mail & Guardian, 1999).

With the launch of the NTTT, for the first time, one gets the impression that the South African government recognises the taxi industry and takes well-intended action to relieve the problems in the industry. Although the MSA document has effectively identified the dilemma in the transport industry it did not present a detailed solution to the problems of the taxi industry in particular. And while formalisation and regulation seems to be the only answer, efforts by the authorities lacked co-ordination and momentum.

3.5 THE PERIOD BETWEEN FROM 1999 TO DATE

Responding to the perceived failures and problems of the regulation process since 1999, the government has shifted its focus to restructuring the taxi industry in terms of an ambitious recapitalisation programme. This bold programme envisages the creation of a new taxi industry, comprising larger 18 and 35-seater diesel powered vehicles and which will be regulated from the outset.

Under the recapitalisation plan, jointly developed by the Departments of Transport, Trade and Industry, Minerals and Energy, and Finance, the government will subsidise owners to help them buy the new 18 to 35 seat taxis (Weekly Mail & Guardian, 1999). The idea is to replace the current 140 000 units of 10 and 15-seater petrol powered taxis in the country with approximately 80 000 units of 18 and 35-seater diesel powered taxis. This is to take place over a period of five years and will amount to a total streamlining of the public transport system in the country (Turner, 1999).

Minimum requirements which have been set in this regard have been (Turner, 1999):

- black economic empowerment (BEE),
- job creation,

- and support of the local automotive manufacturing industry.

A further non-commercial goal of the recapitalisation project has been the regulatory management of the industry with a view of improving road safety and decreasing violence within the informal taxi industry. A final implication will be the legal, commercial and fiscal incorporation of all relevant business entities involved, with a major source of revenue for the South African Receiver of Revenue (Turner, 1999). This process will give the South African government a fiscal mechanism for controlling the roadworthiness of taxi vehicles by manipulating the capital depreciation period.

The restructuring will sideline umbrella taxi associations (mother bodies) in favour of a new, more formal, taxi association which is hoped to ultimately represent a new generation of more legitimate taxi operators. From the outset SATACO has allied itself with the government's restructuring programme, hoping to be a direct beneficiary, particularly regarding recapitalisation partnership deals on the new vehicles to be manufactured and also in terms of transport service contracts for government-subsidised routes.

However, as might have been expected, the establishment of SATACO and the proposed plans for the restructuring of the taxi industry have not been without their problems and have already provoked opposition from *"those mother bodies that regard restructuring as a threat to their violence-oriented business interests"* (Dugard, 2001). A month after SATACO was officially recognised, in June 1999, a splinter group of annoyed taxi associations called the National Taxi Alliance (NTA) was formed. Arguing that they represent the majority of the taxi industry, the NTA issued a statement to the media, in September 1999, stating that it did not recognise SATACO. Additionally, the NTA did not approve of the planned recapitalisation of the industry because they felt that *"the plans to restructure the industry were compounding the problems in the industry and were directly responsible for the present chaos and violence"* (Dugard, 2001). On top of this, the National Taxi Drivers' Organisation (NATDO), who claimed claims to represent the interests of taxi

drivers, embarked on a series of highly publicised protests against the recapitalisation process, fearing job losses as a result of restructuring (NATDO in Dugard, 2001).

In September 2001 delegates of all democratically elected taxi structures, Provincial Councils as well as mother bodies, gathered at the Durban Exhibition Centre for the "all in National Taxi Conference". The conference saw the launch of the South African National Taxi Council (SANTACO) - a new structure which will embody the aspirations of all taxi operators. The conference adopted a new constitution for the industry, elected a new leadership and took several resolutions on all pertinent matters in the taxi industry. Most important among these resolutions are improved road safety, cooperation with law enforcement, endorsement of the recapitalisation programme and improved service to commuters.

The major objective of the council was to streamline the industry and to enable taxi operators to speak with one voice in their dealings with government and to transform taxis into a service industry (Transport in Jo'burg, 2001). SANTACO has thrown its weight behind the government's plan to recapitalise the industry and agreed to work with the authorities to implement the proposed programme. However, since the conference in Durban the Department of Transport and SANTACO have clashed over who should procure and control electronic management systems to be installed in each bus. The systems will track the number of passengers and determine whether the buses are on the correct route. SANTACO president Tom Muofhe believes SANTACO should control the systems (Sunday Times, 2002).

The recapitalisation programme, which was originally due to be launched in October 2000, has been delayed due to various undisclosed factors. However, in his budget speech in May 2002 Minister of Transport, Dullah Omar, stated that *"the Government is in discussion with the South African National Taxi Council (SANTACO). Once an agreement has been reached and the best and final offer process completed, government will immediately announce the winning bids. In the meanwhile*

*consultations are taking place within government with a view to finalising all details relating to the operation of the recapitalisation programme." (*Budget Speech, 2002).

Mr Omar, also declared that the successful bidders to supply buses for the taxi recapitalisation programme could be notified by the end of June 2002 and that the first of the new vehicles should be on the road about three months later. None of this happened and in September 2003 Mr Lionel October, deputy director-general of the Department of Trade and Industry announced that it is envisaged that the process will reach finality by year-end 2003 and that the first fleet of 18 and 35-seater taxis is expected to hit the road during the first quarter of 2004. By November 2003 no announcement has been made in terms of the winning bidders or the rollout date for the plan.

The most recent development in the transport sector is the legislation contained in the National Land Transport Transition Act (NLTTA), Act No 22 of 2000. The transport policy envisaged in the MSA document will be implemented through this act. The Act set the scene for fundamental restructuring of land transport with and emphasis on public transport and will deal with issues like types of vehicles which may be used for public transport, operating licenses and as well as withdrawal of services in the rationalisation of public transport.

3.6 CONCLUSION

The growth of the taxi industry since the deregulation of transport in 1987 has been spectacular. Nevertheless the pace of expansion and ingenuity of the taxi industry must be seen in the context of the endemic violence and crime that have marred this remarkable informal enterprise since its inception. Yet, in some respects, with the formation of SANTACO, the taxi industry has completed a full circle, and now faces perhaps its greatest challenge. Recent developments embodied in SANTACO and the government restructuring processes suggest the potential for a non-violent taxi industry. While there are still risks that the government's restructuring programme,

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by raising the stakes, will exacerbate conflict between taxi associations as they attempt to make the leap from small to bigger operations, there are, for the first time, signs that the violence that has plagued the taxi industry since its inception might only be transitionary. However, the jury is still out on the future of the taxi industry, and current delays in the roll-out of the recapitalisation programme indicate uncertainty in the feasibility of the programme.

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Chapter 4: Identifying the core problem of the minibus taxi industry in South Africa

4.1 INTRODUCTION

In Chapter 3 the remarkable progress of the taxi industry from a marginal township activity to the dominant player in the South African public transport sector was explored. Nonetheless the intricate problems experienced by the industry also surfaced through the discussion. Poor road safety, low profitability and an aged vehicle fleet raise serious questions about the sustainability of the industry. Some even argue that the fact that the government had to institute a recapitalisation programme is *"a clear indication that the taxi industry has not managed to maintain and grow its investment"* and that *"its informal structure and rapid growth has disguised the fact that it is not economically sustainable"* (Browning, 2001: 1).

In view of the fact that the objective of this research project is to create a proposal for an economically sustainable taxi industry, the problems experienced by the industry provides a starting point for the process of converting the taxi industry into one that will genuinely create and maintain benefits and wealth for its stakeholders.

The list below presents a few of the more pertinent problems emerging from the description in the previous chapter:

- Poorly maintained and aged vehicle fleet
- Overtraded routes
- Conflict and violence in the industry
- Low profit margins
- High cost of vehicle purchase and maintenance
- Inadequate control over vehicle fitness, loading practises and working conditions
- Lack of skills and appropriate training
- Meagre road safety
- Bad working conditions for drivers
- High cost of finance and insurance premiums

On first sight, these problems seem to be unrelated. However, the objective of this chapter will be to analyse the relationship between the various problems in an attempt to identify which entities are only symptoms and what is in actual fact the core problem of the system. By exploring the cause-effect relationships, a better understanding of the dynamics of the industry can be attained, which is the critical first step in designing a policy to improve the performance of the industry.

4.2 THE CURRENT REALITY TREE

As indicated in Chapter 1, the Theory of Constraints (TOC) thinking processes will be utilised in the analysis of the system. As a first phase, a current reality tree (CRT) will be drawn up to illustrate the connections between the different entities that limit the performance of the industry. The CRT is a thinking process application tool that is used to identify a core problem, *"which can be thought of as the invisible constraint responsible for many of the system's current problems"* (Scheinkopf, 2000: 144).

Through the description of the cause–effect relationships that exists among the pertinent entities, one is guided to discover the common causes and identify the core problem. Thus, the CRT also explains how the core problem leads to all the symptoms or undesirable effects. This particular CRT will focus primarily on the taxi industry and not necessarily the wider public transport sector.

4.2.1 Construction of the CRT

In order to read the logic tree one must understand how the cause-effect logic is presented in the diagram. The CRT is made up of boxes, arrows, ellipses and circles – as indicated in Figure 4.1 and 4.2. Entities depicted as box shapes are features of the current reality. The boxes are numbered to facilitate referencing to the diagram in the written discussion. The arrows between them indicate the logical connection between the two entities, in the direction from "cause" entity to the "effect" entity. The

way to read the diagram is to precede the box on which the arrow originates with the word “if” and the box at the tip of the arrow with “then”. For example, if “vehicles are not replaced as the end of their economic lives” then “vehicles are generally unsafe”. The ellipses is read as “and“. Where two or more arrows are connected with an ellipse, it indicates that the combination of the causes (at the base of the arrows) is resulting in the effect (at the tip of the arrow). Circles refer to sections of the diagram that are provided on another page. In reading the diagram this link should be followed on the relevant diagram to get the full picture.

4.2.2 Conditions of legitimate reservation

The relationship between the different entities is diagrammed by using sufficient cause thinking. This simply means that one proves that something is the inevitable result of the existence of something else in the current reality by drawing on experience, intuition, common sense and fact. In the absence of anything that proves the opposite, the premise has to be accepted. For example, the fact that taxis are commonly unsafe is a result of the fact that the vehicles are not adequately maintained.

In order to test the validity of the relationships provided in the CRT, the conditions of legitimate reservations are employed. The “conditions of legitimate reservations” process is a systemic approach to challenge assumptions while using sufficient cause thinking.

The basic reservations deal with entity existence, causality existence and clarity as illustrated in Figure 4.1. The validity of these items can be verified by asking three fundamental questions:

- Do the entities exist?
- Is the cause-effect relationship between the entities valid?
- Is the diagram communicating what we intended it to do?

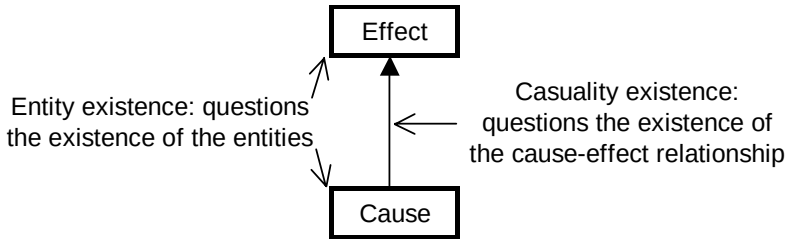

Figure 4.1 Basic reservations

If there is uncertainty about either the entity or causality existence, additional questions need to be posed to remove any doubt about the validity of the item (See Fig 4.2):

- Additional cause – are there additional independent causes for the given effect?
- Cause insufficiency – is the effect the result of a combination of dependent causes?
- Predicted effect – does a cause also result in additional effects?

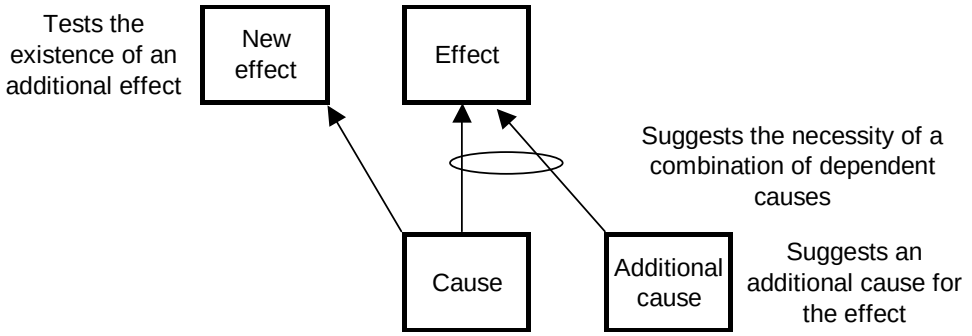

Figure 4.2 Additional conditions of legitimate reservation

4.3 IDENTIFICATION OF THE CORE PROBLEM

With the construction of the CRT explained; the process of identifying the core problem can now commence. A quick overview of the problems identified in previous chapters reveals that the issues can generally be grouped as either relating to traffic safety, conflict/violence or low profitability. The discussion will be carried out within these three broad categories, even though it is one structure of interrelated topics.

4.3.1 Traffic safety

To start with, perhaps the most visible and concerning problem, the appalling road safety record. In Chapter 3 it was stated that in 1998 alone taxis were involved in 70 000 accidents in which 900 passengers and 1 385 drivers were killed. The first section of the CRT deals with this problem. The discussion should be followed alongside Figure 4.3; numbers in brackets refer to the related entity in the CRT.

To examine the problem of poor road safety [100], one has to consider vehicle fitness [111], driver performance [112] as well as acceptable loading practices [113]. Vehicle fitness, in turn, is a function of two aspects – quality of vehicles purchased [121] along with how well the vehicles are maintained [122]. According to a report of the Gauteng Taxi Initiative (GTI), *"The majority of operators use bank financing to purchase their vehicles…"* (GTI, 1995: 251). Because of the high occurrence of conflict and violence in the taxi industry [210] together with the informal character of the industry [211], banks and insurance companies regard the industry as high risk [160]. Accordingly, they charge high interest rates [151] on vehicle loans and insurance premiums [150] for taxis. The higher than normal financial costs often result in operators buying the oldest and cheapest vehicles and also not replacing vehicle at the end of their economic life [120]. President Thabo Mbeki also voiced his concerns about the country's aging taxi fleet at the official opening of Parliament in February 2000, when he said, *"Ageing minibus-taxi, which were designed as family vehicles cannot be allowed to roam or roads condemning passengers to risk their lives by travelling in mobile coffins"* (The Star in Khosa, 2001: 1).

The low profitability [200] (which will be discussed in more detail in paragraph 4.3.3) of the taxi operation consistently leads to owners deferring or even ignoring essential maintenance [122]; the use of cheap and inferior parts, alongside services undertaken by unqualified mechanics further result in the deteriorating condition of the country's taxi fleet.

One will appreciate the fact that these issues actually form a viscous cycle where the industry's poor safety record essentially adds to the industry being regarded as high risk, leading onto higher insurance premiums. On top of this, the higher cost of repairing vehicles (e.g. that were involved in collisions) reduces the profitability of the business, which entrenches the poor financial performance of the industry.

Another big contributor to poor road safety is reckless driving [111]. The poor behaviour of drivers manifests itself in the following two ways:

- Due to pressure from owners to meet their quotas, drivers speed, overload and stop anywhere in an attempt to maximise their trips and passengers transported [180].
- Because of long working hours [170], drivers tend to be tired, irritated and not alert. In this state they are a danger to all road users [140].

Long working hours [170] are evident from research done by Lisa Jayne Ford, in which she learned that on average taxi drivers work from 5 am to 8 pm, which amount to 15 hours a day (Ford, 1989:151). The fact that there is no labour legislation specific to the taxi industry and common labour laws [181] are generally ignored by both owners and operators, results in exploitation of labour [170] through long working hours – ensuing drivers not being as alert as they should be.

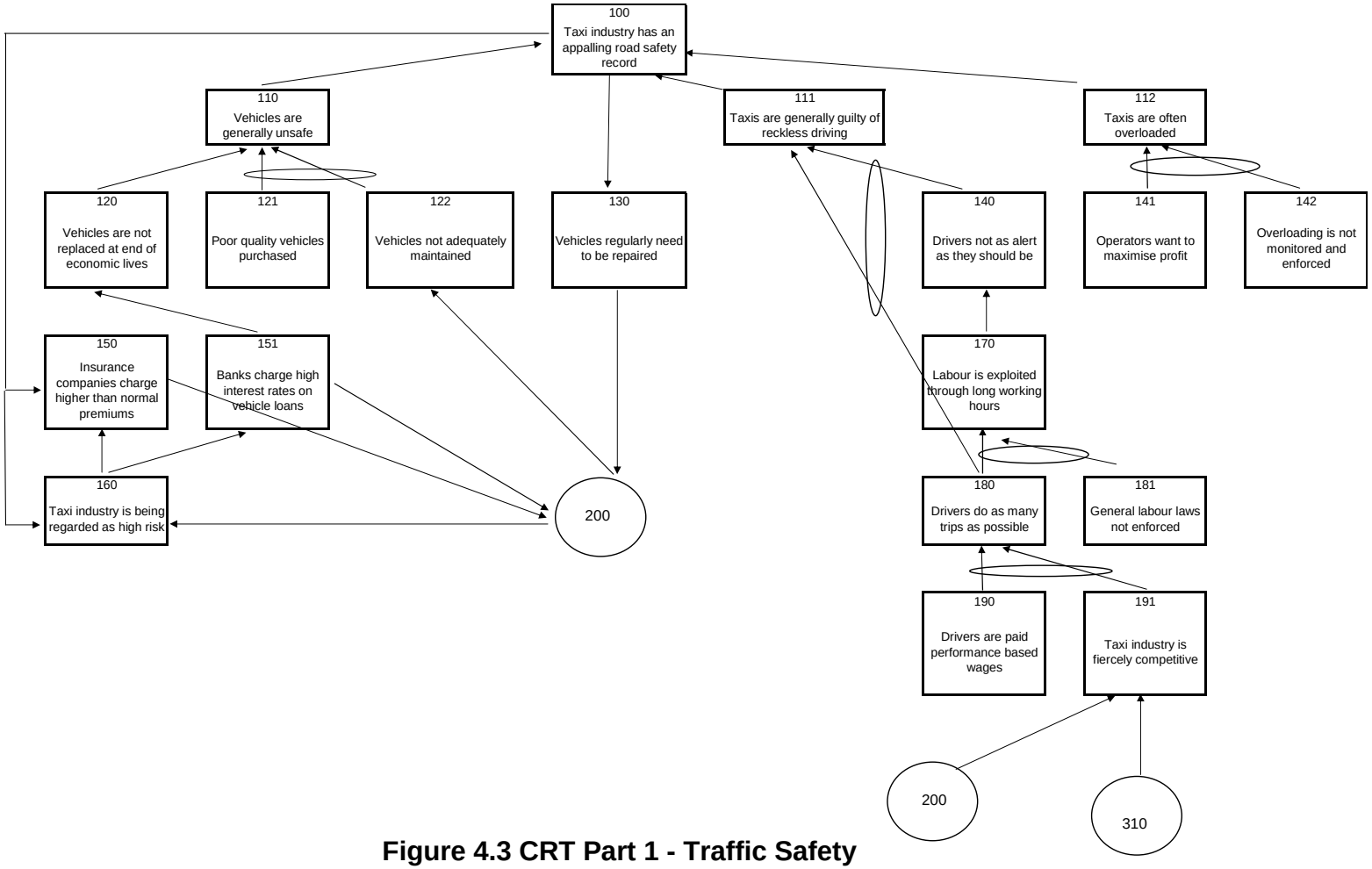

Figure 4.3 CRT Part 1 - Traffic Safety

In his research, *Labour Relations in the Minibus Taxi Industry*, Mahlangu (2002, 33) also found that minibus taxi drivers' working hours do not comply with the Basic Condition of Employment Act No. 75 of 1997. Furthermore, taxi drivers are exposed to unfair and often summarily dismissal, due to things like failure to meet quota (Mahlangu, 2002, 32). Fierce competition among taxi operators [191], coupled with the fact that drivers are paid performance-based wages [190] drivers tend to do as many trips as possible (Ford, 1989: 148) often lead to reckless driving in an attempt to maximise profit.

Another aspect relating to maximising profit [141] is overloading [112]. A sure way of increasing profitability is to maximise revenue per trip undertaken. In the taxi industry this is routinely achieved by overloading vehicles. Ford's research established that operators regularly carried as many as 19 passengers instead of the legal 15 (Ford, 1989: 144). Against the backdrop of inadequate control and enforcement of overloading by authorities [142] this is a daily occurrence and the consequence are very high fatality figures when such a vehicle is in an accident.

Essentially, reckless driving and overloading has the same primary driver, which is maximising profits – the more trips a driver can do with the maximum number of passenger the higher daily income he/she can earn. These two features (reckless driving and overloading) are fundamentals of a free market/deregulated system, which are exploited in an environment of poor control.

This discussion has highlighted many of the cause-effect relationships between the various problems resulting in poor road safety. However, these all appear to be symptoms of a deeper route problem than causes in themselves.

4.3.2 Conflict and violence

An equally alarming characteristic of the taxi industry in South Africa is the high prevalence of conflict and violence [210], which has a negative impact on the industry's reputation and risk profile. Basically, conflict can be classified as either conflict among different taxi operators/associations [240] or conflict between taxis and other modes, i.e. rail and bus transport [230]. Both these types of conflict often take on a very violent nature – as illustrated, in the previous chapter, taxi violence is the source of around 400 deaths a year. In addition, there is also a criminal element to the violence - as violence has proved to be a very successful means of income distraction.

The history of the struggle between taxi and bus/rail transport was introduced in Chapter 3. The volatile relationship is primarily an issue relating the government regulation and subsidies as well as the fact that taxis started operating on originally bus and rail routes [290]. The opposition the taxi industry has experienced from the bus and rail modes of transport is largely due to the unfair advantage taxis have as being part of the informal sector – *"they are free to operate a flexible service with very little government legislation"* (Ford, 1989: 94). Hence, taxis are a lot more flexible than bus and rail operators that have to stick to allocated routes and set time schedules [270]. On the other hand, *"…both rail and bus transport are subsidised whereas the taxi industry receives no subsidy and is therefore at a competitive disadvantage"* (GTI, 1995: iv) while taxis operate without any form of subsidy [271]. This state of affairs has been the basis for the ongoing aggression between taxis, bus and rail transport [230].

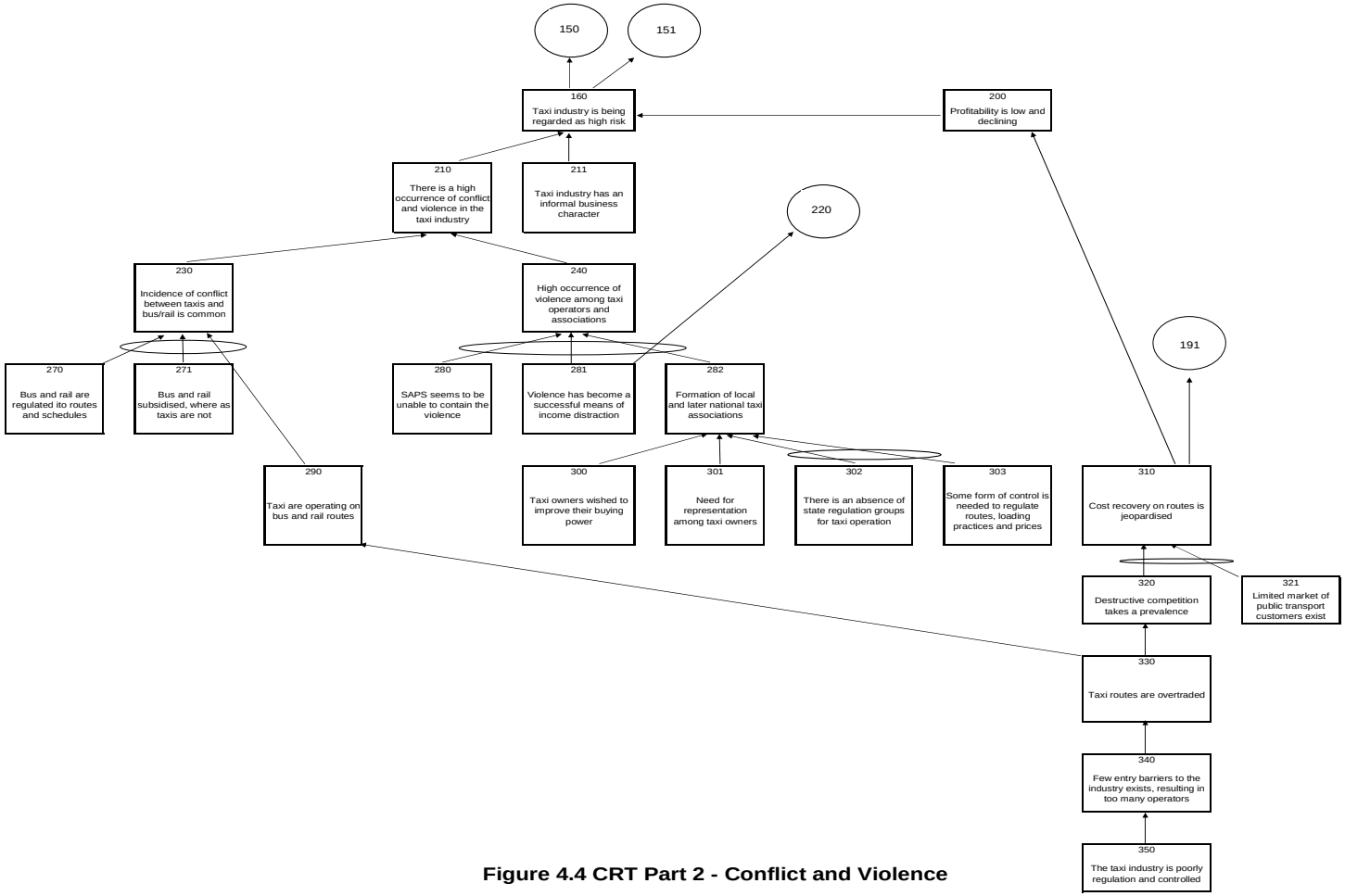

Figure 4.4 CRT Part 2 - Conflict and Violence

As for the conflict among taxis, the discussion turns back to the informal beginnings of their operation. In the early days of the taxi industry very few people had the money to buy minibuses [300] and because of the difficulties in getting vehicle finance, a few people would get together and form a local taxi association [282]. According to Ford (1989: 95), *"The emergence of local taxi owners' associations was a result of the great need to improve the members' buying power of vehicles and vehicle accessories and to represent their interests."* [301] Dugard's (2001) research revealed that in the absence of state regulation [302], *"groups of operators joined forces to form local taxi associations, which intervened to regulate loading practices and prices."* [303] With no entry barriers [340] for new taxi operators and a limited market [321], the competition between different taxi operators and has become fierce and in some cases violent on many of the lucrative routes. In an environment characterised by exploitation and aggressive competition between operators, following the rapid deregulation of the industry a range of national taxi associations or umbrella bodies sprung up around the country to protect the interests of the local taxi associations affiliated to them [282].

Set against a background where the South African Police Service (SAPS) seems to be unable to control violence [280], it was not long before umbrella bodies began to use their organisational strength to extract income [281], commonly through the use of violence (Dugard, 2001). Umbrella bodies operating in this fashion is ironically known as "mother bodies". The development of mother bodies has fundamentally altered taxi operations and taxi violence. Previously, operating a taxi route might have called for violence in order to protect that route, but currently violence is used by mother-body bosses to extract money (Dugard, 2001).

It should however be emphasised that not all umbrella bodies reverted to violence as a means of governance. SABTA, and the later SANTACO, has always claimed to operate in a legal manner (as discussed in Chapter 3).

For the first time a common theme emerges from all these problems. Poor regulation coupled with inadequate control seems to be a direct or indirect cause to nearly every one of the problems relating to conflict and violence in the industry.

4.3.3 Low profitability

Profitability is without a doubt critical to ensure the survival of any business. The MSA Financial Model found the taxi industry is currently investing only 40% of capital requirement for long-term sustainability (MSA, 1999: 19) and low profitability is the main reason for this low rate of reinvesting. In addition to this, low profitability creates an impediment on the day-to-day performance of the industry as it influences maintenance of vehicles, quality of vehicles purchased as well as drivers' salaries. The low profitability [200] of the industry can primarily be attributed to the destructive competition [320], poor financial management [221] and unfair income distribution between taxi owners and associations [220].

"The key distorting factor in South African urban public transport is that in addition to the effects of destructive competition, the modal hierarchy is most often the reverse of what would be regarded as economically efficient" (Vuchic in Shaw, 1998: 5). As has been quoted before, Shaw (1998: 6) defines destructive competition as *"competition between operators which reduces the potential for sustained cost recovery by individual operators, reduces the economy of scale benefits of higher-order modes and leads to the provision of poor and inconsistent service levels to users."* Any service replication which reduces the level of service and potential cost recovery of a route can be considered destructive competition. In current environment most of the destructive competition that exists is a result of taxi involvement in high-demand bus and rail corridors. Taxi operators took this step in an attempt to boost their income as the original taxi routes have become highly contested and vastly overtraded. This over subscription of routes can in turn be ascribed to the fact that because the taxi industry is unregulated, few barriers to entry

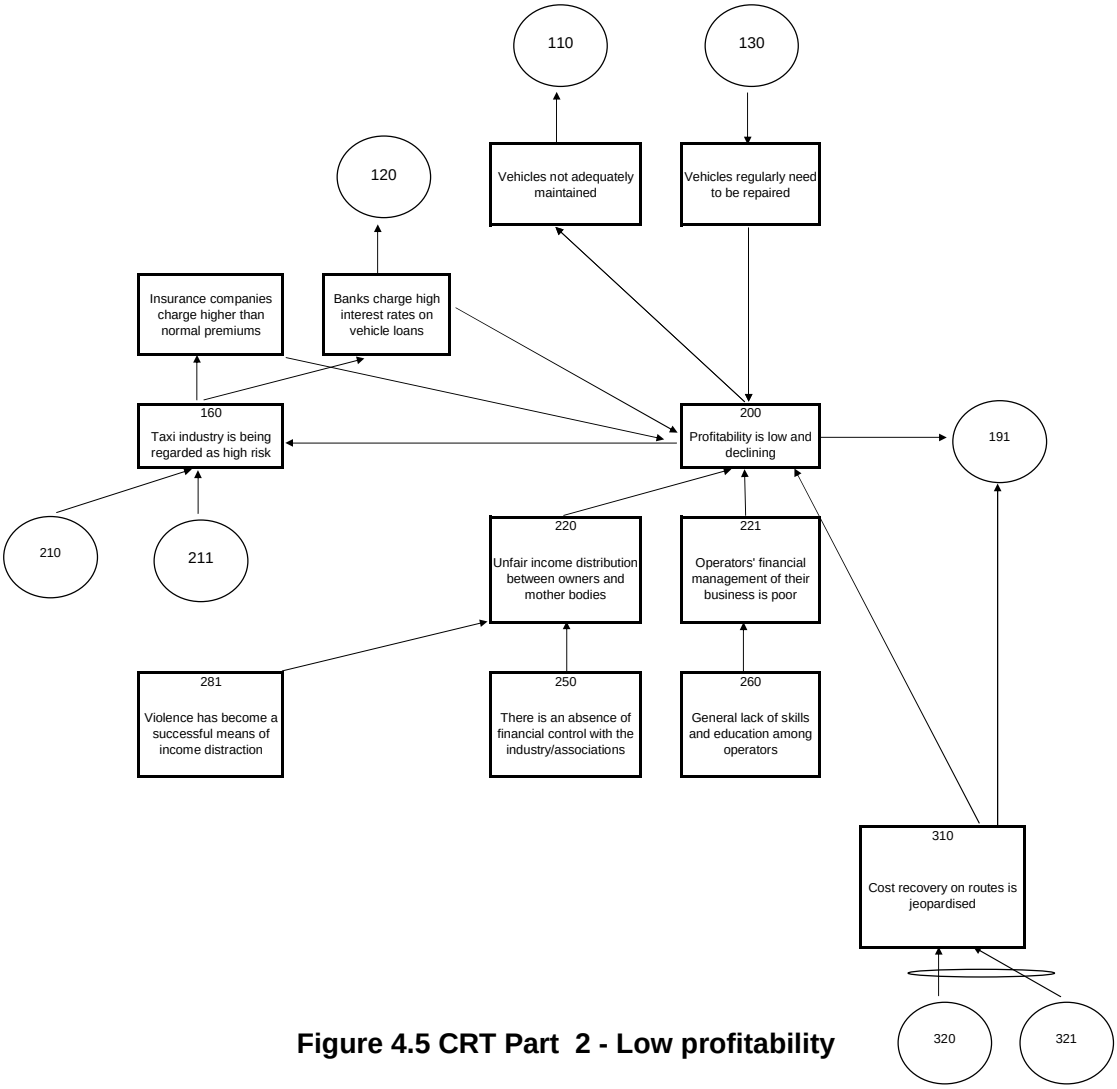

Figure 4.5 CRT Part 2 - Low profitability

exist and the industry is swamped with too many contenders [330]. Destructive competition [320] usually results in subsidies having to be increased to compensate to lower cost recovery ratios for bus and rail. The fact of the matter is destructive competition results in diminishing cost recovery [310] for all operators and has a negative effect on profitability.

A second source of low profitability in the taxi industry is poor financial management attributed to a lack of business skills and deficient financial education [260]. The research conducted by Ford (1989: 177) on the economic role of the taxi industry has revealed that taxi owners are commonly unfamiliar with concepts like profit, budgets, depreciation and return on investment – as illustrated by this statement - *"the investment of capital in order to provide a profit and therefore a return on that capital, is not understood"*. Hence operators often find themselves in a position where they cannot afford to replace a vehicle at the end of its economic life or repair a taxi that was in an accident. As the fares decided on by the local taxi association are not based on economic information, during some months, operators don't even make a profit. *"The result is often that in order to make ends meet, the vehicle has to be overloaded, get in as many trips as possible irrespective of the speed limit"* (Ford, 1989: 177). It stands to reason, that if the entrepreneurs knew more about the fundamentals of business in general and transport operation in particular they would be able to set pricing structures that enabled them to achieve a better return on their investment and ensure the sustainability of their businesses and ultimately serve their community far better in the long run.

As discussed in the previous paragraph, mother bodies are playing an increasingly central role in the taxi industry. However, in the absence of any formal financial control - there are usually no receipts, no audits and no taxation - a lot of revenue flowing into mother bodies goes directly into the pockets of association executives (Dugard, 2001). Therefore, whilst mother body executives earn astronomical salaries the taxi owners struggle to make ends meet.

The marginal profitability of the sector not only pose a threat to the sustainability if the industry, but is central to the industry's declining levels of service as it causes a vicious cycle of deteriorating performance. Shaw (1998: 7) found that because of low profitability taxis are forced to resort to violence, low driver wages and irresponsible driving to increase vehicle turnarounds as well as to minimise maintenance to reduce short-term operating costs. Again, poor regulation and control seems to be at the root of the industry's poor financial performance.

4.4 COMPARISON WITH OTHER STUDIES

In 1995 the Gauteng Department of Transport embarked on a comprehensive exercise to determine the most critical issues in the Gauteng taxi industry through the Gauteng Taxi Initiative (GTI). The steering committee of the GTI – consisting of representatives of taxi associations, metropolitan taxi forums together with local, provincial and national government official - was to prioritise the most critical issues out of 23 previously identified concerns. In September 1995 the nine most crucial problems were submitted to the NTTT, as follows (GTI, 1995: ii):

1. Regulation and Control
2. Conflict Resolution
3. Traffic Safety
4. Financial Support
5. User/Passenger Needs
6. Relationship between association
7. Cost of vehicle
8. Skills development and training
9. Fare structures

It is notable that first four issues correspond exactly with the fundamental problems identified in the CRT. Also both the GTI report and analysis of the industry by means of the TOC thinking processes identify "regulation and control" as the single most important issue impeding the performance of the industry.

Through the cause-effect logic of the CRT diagram it is thus illustrated how the core problem – poor regulation and control – is the origin of most of the undesirable effects in the current reality. Greater competition resulting from poor regulation and control *"…reduces margins, which encourages drivers to skimp on parts and servicing, hide excess passengers behind their tinted windows and drive like mad to boost their revenue"* (Ford, 1989: 184).

4.5 CONCLUSION

After a comprehensive analysis of the intricate cause-effect relationships between the most critical problems experienced by the taxi industry, it is evident that poor regulation and control lie beneath the key areas of concern. Through the CRT it was illustrated how poor regulation and control impact directly on the areas of low profitability, conflict and violence. Even though the problems relating to traffic safety seem to be removed from poor regulation and control, overtraded routes (stemming from the poor regulation and control) result in the overloading of vehicles and reckless driving which in turn promote poor traffic safety. Therefore, it is concluded that poor regulation and control is indirectly to blame for most of the problems that lead to the taxi industry's appalling road safety record and appears to be the core problem of the whole system.

University of Pretoria etd – Fourie, L J (2003)

Chapter 5: To what should the minibus taxi industry in South Africa be changed to improve its performance?

5.1 INTRODUCTION

In Chapter 4 it was established that the core problem of the South African taxi industry lies in the poor regulation and control that prevails. Although there are other problems (e.g. the general lack of business skills among operators, the success of violence as a means of income distraction and the fact that labour laws are generally ignored), poor regulation is the one problem that impacts on almost every aspect of the industry's operation. So it seems a logical to address this root cause in an attempt to bring lasting change to the industry. The question is, however, whether a regulated and properly controlled industry would bring an end to the problems threatening the survival of the operation?

In Chapter 4 the question "What to change?" was answered and found that some form of regulation is needed. The next step is to discover "To what to change to?" In order to answer this question the evaporating cloud (EC) and future reality tree (FRT) thinking processes will be employed. With the EC tool an "injection" (or direction) for a solution will be uncovered by scrutinising the necessary conditions for an economically sustainable taxi industry. With this "injection" in mind, the FRT will be applied to create a vision of the future and predict likely positive and negative effects of the "injection".

5.2 THE EVAPORATING CLOUD

As portrayed by Ford (2000, 225) *"every problem can be described by a conflict"*. The evaporating cloud is the second stage in the TOC thinking processes and is used to *"verbalise the core problem as a systemic conflict that is perpetuating the existence of undesirable effects"* (Ford, 2000: 225).

5.2.1 Construction of the EC

Figure 5.1 provides a generic version of the EC diagram. The first box on the left, entity A, give the common objective of the system. This goal represents a win-win situation that will benefit all stakeholders involved. The next two boxes, entities B and C, represent the perceived necessary conditions for the common goal A. The system requires both B and C for the A to exist. The two boxes on the right, entities D and D', are the prerequisites for the necessary conditions B and C respectively. The two necessary conditions cannot exist without their associated prerequisites. However, these two prerequisites, entities D and D', are perceived to be unable to co-exist in the current system. Therefore these entities are in conflict and the conflict ultimately results in the common goal not being achieved.

The arrows connecting the different boxes, represents the underlying assumptions. *"One of the most basic fundamentals of logic is that behind any logical connection there is an assumption"* (Smith and Pretorius, 2002: 75).

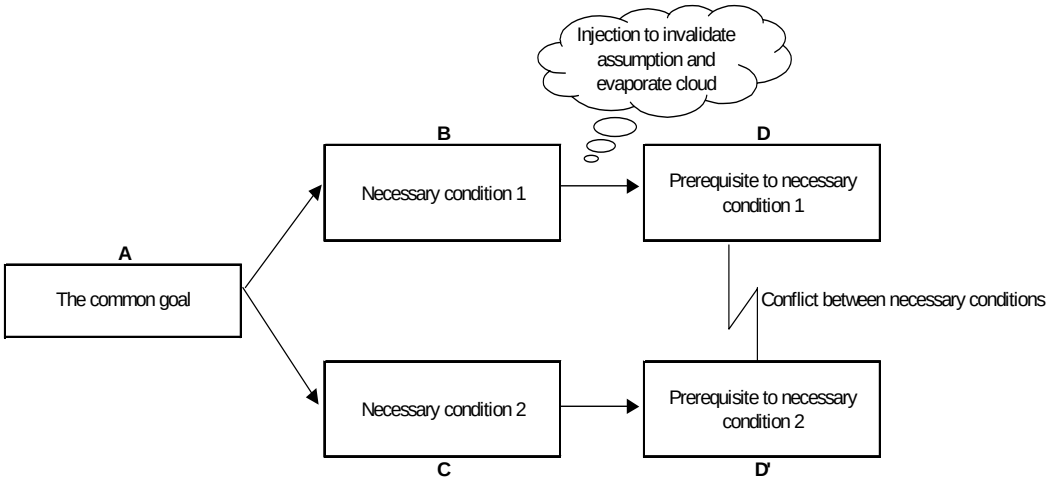

Figure 5.1 Generic Evaporating Cloud Diagram

By exposing these assumptions potential solutions can be identified to eventually resolve the conflict. This potential solution is also called an "injection". The injection invalidates the inaccurate assumption which will evaporate the cloud. *"…the technique is based on verbalising the assumptions hidden behind arrows, forcing them out and challenging them. It's enough to invalidate even one of these assumptions, no matter which one, and the problem collapses, disappears."* (Goldratt in Smith and Pretorius, 2002: 71).

5.2.2 Evaporating cloud for the taxi industry

An EC diagram will now be constructed for the taxi industry. The aim of the diagram is to resolve the conflict in an attempt to institute enhancement of the industry's performance. The discussion below should be followed alongside Figure 5.2.

In Chapter 1 the aim of the research was presented as designing a customer-facing public transport operation. Ultimately, all efforts will be futile if the service doesn't suit the needs of commuters. Although government take on more a role of an "enabler" whereas the taxi operators act as "service providers", their success is jointly dependent on buy-in from the commuting public. If taxi operators cannot provide the service at affordable prices and competitive standards, commuters will switch to other modes of public transport or private car usage. Also if government fails to provide an environment where operators can provide a successful business, 65% of commuters will be stranded. If the situation is left for long enough, the eventual shift to private car usage will result large-scale congestion. Hence, authorities and operators are in effect working together to reach the goal of providing safe, reliable and efficient public transport at a level of service that is attractive for customers. For this reason, the transport authorities and taxi operators will be viewed as a team in this chapter. When reference is made to stakeholders it will imply the combination of transport authorities and taxi operators.

In the first place entity A identifies the global objective of the system which is to provide an economically sustainable taxi industry, as elaborated on in Chapter 1. Being part of the wider public transport industry, the taxi industry's survival depends on its ability to be the preferred mode of public transport and its existence is only justified if it can provide the service in an economically sustainable fashion.
This goal of economic viability depends on two necessary conditions:

- Service is provided at acceptable levels of service (entity B)
- Operators are running a profitable businesses, now and in the future (entity C)

These two conditions are fundamental to the success of the industry as acceptable levels of service are a primary consideration in choice of public transport mode. Commuters will use the mode of transport that provides them with a safe and reliable service at the best price. On the other hand, taxi operators need an environment where they can operate a profitable business or receive some other form of incentive to provide the service.

Next entity D, "Stakeholders spend money on issues that don't generate profits/benefits now" is the prerequisite for the first necessary condition B. In order to be able to provide a safe, efficient and reliable service, operators will need to spend money on things that would not necessarily increase profits now. On the part of operators, proper vehicle maintenance, good working conditions for drivers and improved financial management will fall into this category. In terms of the government's efforts restructuring the industry in order to eliminate destructive competition and enforcing safety standards can be viewed as actions that will provide a benefits of a longer-standing character. This means taking a longer-term view and investing money on things that will not necessarily increase income now (it might well increase costs and reduce profitability in the short term) but will ensure the future survival of the industry. With this approach, stakeholders will continue being the

preferred mode of public transport and in effect be protecting future business opportunities.

Entity D', "Stakeholders do not spend money on issues that don't generate profits/benefits now", is the prerequisite for the second necessary condition" What this means is that stakeholders focus primarily on actions that will secure short term survival and any expense that doesn't have an immediate effect will be delayed or even disregarded. An example of this type of mindset is where only the bare minimum is spent on maintenance to keep vehicles running. Not spending on things that don't create profit by implication also means taking advantage of the things that will maximise profit. It is a well-known fact that no business can survive without a healthy cash flow. Controlling cost is absolutely crucial to warrant short-term profitability. For the taxi industry cost cutting measures include minimising driver wages and servicing routes that are allocated to bus and rail operators and other taxi associations in an effort to boost income.

As far as transport authorities are concerned it might well not be their intention to derive profit from public transport - but rather other benefits like mobilisation of the workforce and associated economic spin-off effects. Although government realises that regulation will improve performance of the sector, they are doubtful whether it will bring about changes of high political visibility in the short term. Transport authorities are therefore hesitant to embark on such an expensive exercise especially considering the potential financial implications – as a regulated system will most probably entail huge expenditure on infrastructure, administration, control and even subsidy provision. Therefore, in terms of the governments agenda, the prerequisite "Stakeholders do not spend money on issues that don't generate profits/benefits now", corresponds to the authorities' goal of applying limited resources to projects that will boast the most visible socio-political impact. The government might, for instance, feel that building houses will create more of an impact than regulating the industry.

It is the combination of these two apparently opposing prerequisites D and D', which is causing the conflict. Stakeholders are caught up in a conflict between focusing on controlling cost to maximise profit and investing money on issues that will ensure and enhance their position as preferred public transport provider. Closer scrutiny of the South African taxi industry reveals that in actual fact the conflict is a classic example of short-term profitability vs. long-term sustainability. On the one hand authorities realise the importance of road safety, good working conditions etc. but on the other they are reluctant to commit financial resources to enforce these standards. In the case of operators, they invite some form of regulation to protect their own business interest, but then they are also *"fiercely jealous of their independence"* (Browning, 2001: 3) and prefer to preserve the informal character of their businesses. The dispute between these two opposing objectives is a result of the poor regulation and control of the industry.

"The Evaporating Cloud method does not strive to reach a compromise solution, rather it concentrates on invalidating the problem itself…" (Goldratt in Smith and Pretorius, 2002: 71). Hence, the next step will be to surface the assumptions underlying the relationship between the different entities in the diagram in an effort to expose inaccurate assumptions which will provide direction for the resolution of the conflict. The assumptions underlying the relationship between the various entities are noted down on the arrows in the EC diagram and discussed below.

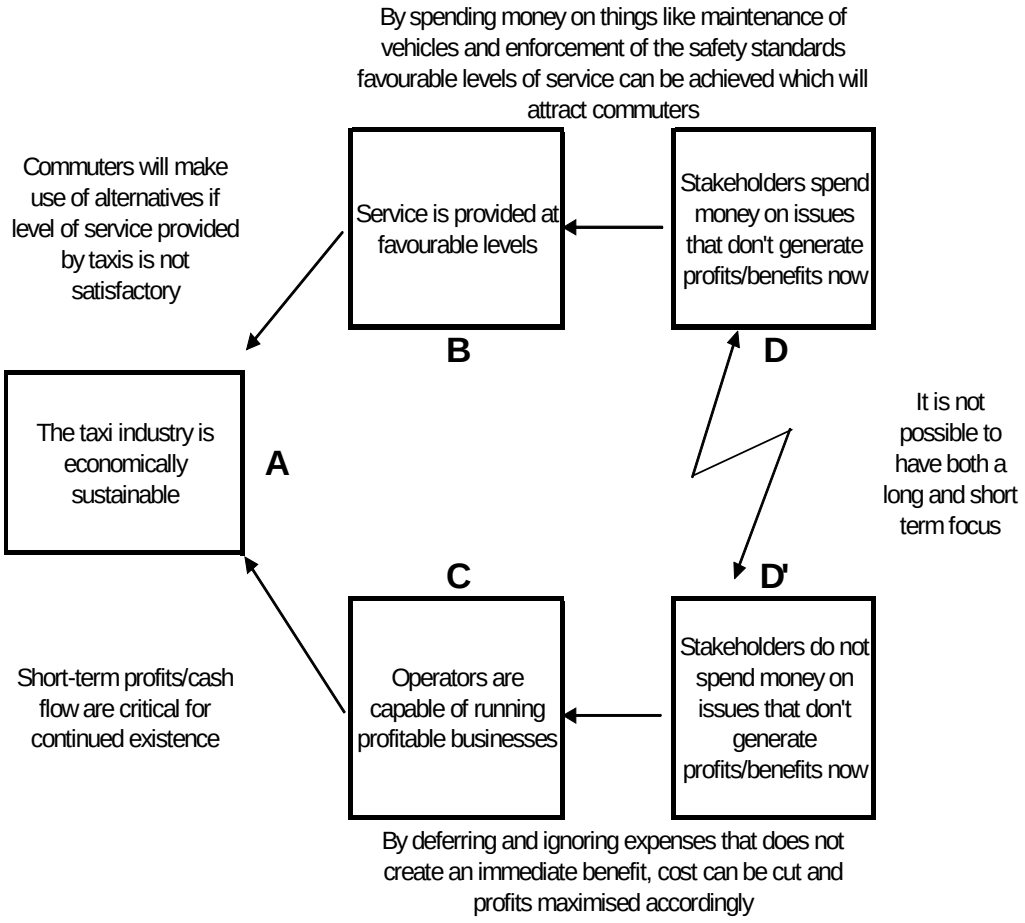

Figure 5.2 Evaporating cloud diagram for the taxi industry

The arrow connecting box B to the global objective A stands for the supposition that commuters will make use alternatives if level of service (LOS) provided by taxis is not satisfactory. In South Africa this will mean that passenger will switch to either bus or rail transport or even more likely to private car usage, in the event of taxis' level of service deteriorating even further. The arrow connecting D and B, presuppose that by spending money on things like maintenance of vehicles, education and training of drivers and enforcement of the safety standards favourable levels of service can be

achieved which will attract commuters. The arrow connecting box C to the common objective A is representative of the believe that unless a positive cash flow can be generated from the day-to-day operation of their businesses, taxi operations cannot survive. For the government it means that if they don't derive some socio-political benefit from the project in the short term (often before the next election), they would rather invest money elsewhere. Following this logic, the arrow connecting box D' to C, is based on the supposition that by deferring and ignoring expenses that does not create an immediate benefit, costs can be cut and profits maximised accordingly. The underlying assumption for the conflict between the prerequisites D and D' is that a business need to focus on either investing on issues that will create instant benefit or focus on creating an attractive product for their customer (which will not necessarily create immediate profit), thus either striving to maximise profit or capitalise on service levels.

A closer examination of these assumptions reveals various debatable ideas, but the one that stand out is the statement that "by deferring and ignoring expenses that does not create an immediate benefit, cost can be cut and profits maximised accordingly." Focussing all their efforts on short-term profitability and neglecting the longer-term issues, is a common mistake businesses make and it is evident that also in the taxi industry the scale is tipped in favour of short-term profitability. In actual fact, very little evidence of taking a longer-term approach is seen in the taxi industry. The condition of vehicles has deteriorated to such an extent that the long-term sustainability of the system is questionable. Poor maintenance leads to unsafe and unreliable service. Additionally, in the long run the destructive competition that prevails between taxi, bus and rail leaves the commuter with fewer choices (as these services are withdrawn) and the overall efficiency of the public transport system deteriorates. The system as it is now (unregulated and poorly controlled) does not really instil promise of a bright future for many of the operators.

This inaccurate assumption also provides clear direction for a solution that will invalidate the assumption and thus evaporate the cloud. In the case of the taxi industry the "injection" is to restructure and regulate the taxi industry in a way that will improve the overall efficiency of the system by giving due consideration to long-term economic sustainability without jeopardising the short-term survival of the industry. Shaw (1998: 30) in his research found that *"it will be necessary to pre-invest such that the conditions necessary for more rational choice between mode is possible" and "no real change can be achieved without improving the provision of public transport services to a level where it is no longer viewed as inferior alternative."* What is needed is holistic approach where investment is made for the radical restructuring of urban public transport with a strong emphasis on the longer-term promotion and sustainability of the service.

This kind of "quantum leap" change will require the following:

- Eradication of destructive competition through the application of appropriate modes and technologies and thereby maximising efficiencies.
- Improve the level of service of taxi operation to reduce the gap in service standards between public and private transport.

The idea is that the improved network at an enhanced service level will result in increased public transport modal share which will in turn lead to markedly improved profits per route.

Clearly then, this "quantum leap" approach of eliminating destructive competition and improving levels of service, does not only warrant long-term sustainability but also improved short-term profitability. What is more, by creating efficient and affordable public transport for the majority of the population, this project will have the type of high political visibility and impact the government is looking for. Nevertheless, a project of this nature will unavoidably require huge financial resources and political

commitment. In this regard it is important to note that the proposed approach might well require vast upfront investment, but will ultimately result in a lower overall system cost. The MSA (1999: 31) team also advised that actions to improve will require a capital injection, but that it should be *"viewed as an investment that creates the conditions for long term financial sustainability through lower system cost and increased revenue generation."*

Thus we have arrived at the answer to the first research question: *Can the mini-bus taxi industry survive doing business in an informal and unregulated fashion?* The answer is evidently no. Because of the deteriorating levels of service and low profitability the unregulated and informal operation creates, it is not sustainable and formalisation seems to be the only alternative.

5.3 THE FUTURE REALITY TREE

Once the "injection" has been established, a vision of the future can to be created - a replacement of the current reality. This is the second part in the process of determining the answer to the question "To what to change?" The injection ensuing from the Evaporating Cloud will be used as a starting point to the Future Reality Tree (FRT). In the FRT process all the positive and negative effects of the suggested injection will be diagrammed to visualise the predicted impact of the injection. The process is complete when all the objectives are achieved and the potential negative effects have been removed and *"at least one strong positive reinforcing loop has been created"* (Ford, 2000, 226). Naturally all the undesirable effects of the current reality must also be revoked.

5.3.1 Construction of the FRT

The FRT is a tool to predict the future outlook of the industry if the proposed solution is applied to the current reality. It is important to note that only the envisaged outcomes (positive and negative) are explored here, the actual implementation of the solution will be discussed in Chapter 6. The injection is *"…a condition, circumstance or action that doesn't exist now"* (Dettmer in Smith and Pretorius, 2002: 75). Various positive and negative effects will invariably stem from this new circumstance or action. The aim of the FRT is to examine these predicted effects in order to determine whether the proposed course of action does, in fact, provide a better future.

Similar to the CRT, examined in Chapter 4, the FRT explores the cause-effect relationships created by the proposed solution. The arrows between them indicate the logical connection between the two entities, in the direction from "cause" entity to the "effect" entity and the diagram should be read by preceding the "cause" entity with the word "if" and the "effect" entity with "then". The FRT consists of shaded boxes, rectangular boxes and ovals. Injections are indicated as shaded boxes and positive effects as rectangular boxes. The ovals indicate entities that used to be negative effects but because of the application of "injections" turn out to be desired effects. The entities are numbered to facilitate cross-referencing with the written discourse. These numbers will be provided in square brackets in the text.

The validity of the cause-effect relationships provided in the FRT should also be tested through the application of the conditions of legitimate reservations (explained in Chapter 4). First the basic reservations of entity existence, causality existence and clarity should be assessed. Subsequently relationships should be the checked for additional causes, a combination of dependent causes and additional effects.

5.3.2 FRT for the taxi industry

The injection following from the EC diagram recommended the restructuring [400] of the taxi industry in a way that will improve the overall efficiency of the system by giving due consideration to long-term economic sustainability without jeopardising the short-term survival of the industry. In essence the restructuring has two aspects to it:

- Rationalisation of the route network
- Enhancement of the level of service

Shaw (1998: 15) found that for any development of fundamental or quantum change to be successful, it must be supported by the following:

- The required funding must be available
- Enforcement must be effective
- It must have institutional buy-in

For the discussion below it will be taken that these three requirements have been met. Furthermore, the whole spectrum of public transport providers - i.e. bus, rail and taxis - will be included in the analysis, as it would not make much sense to rationalise taxi operation in isolation.

As indicated in Chapter 4, destructive competition between the different modes is fundamental to the whole issue of low cost recovery and profitability. Shaw (1998: 5) describes the South African urban public transport system as *"disjointed, uncoordinated"* and *"often using modes which are least suited to the associated demand conditions."* Therefore, the logical first step will be to rationalise the route public transport route network [510]. The primary objective with the rationalisation of the route network is to increase the efficiency of the public transport system through the elimination of destructive competition and associated conflict between modes.

The process will entail the following:

- Optimised route allocation
- Modes applied appropriate to demand conditions

The first benefit of a consolidated and coordinated public transport network is that operation will be more efficient [640]. The improved efficiency together with increased public transport modal share [650] (which will be discussed in the next paragraph) will lead to enhanced cost recovery [740] resulting in increased profitability [820]. Preliminary estimates by the *Moving South African* team indicated that *"modal optimisation on corridors could save up to 25% in costs"* (MSA, 1999: 31). The creation of operating efficiencies and increased profitability might well be the single most important motivation for the whole restructuring exercise.

A second advantage of the new structure is the fact that conflict and violence will be reduced [630]. In Chapter 3 it was mentioned that in absence of state regulation, taxi associations often use violence as a means of protecting routes and operations. With a properly organised route network which is effectively monitored and controlled, this type of behaviour will become unnecessary in will greatly improve the security situation in the taxi industry.

On the other hand, one of the biggest concerns among stakeholders is the potential job loses among drivers [720] that the rationalisation exercise may bring about. Some services might have to be withdrawn [620] where they are regarded as counter-productive to the efficiency of the network. However, regulating the industry will also create many new job opportunities [810] in terms of monitoring and control, maintenance programmes etc. Depending on the success of the restructuring, market share of public transport operation may grow so much that all these employees could be absorbed elsewhere, without necessarily increasing system cost.

Inevitably, the restructuring will not occur without a certain degree of resistance to change and an up flare in violence will most probably be the result [610]. Therefore, the whole process should be negotiated with all stakeholders in the public transport industry [710]. A central aspect of the negotiation will be to inform and educate operators and association about the reason for the regulation, the long term benefits for them as well as the how the process will be rolled out [710]. Taxi operators, owners and drivers should especially be educated as to the reasons for the changes and the long-term benefits of the restructuring. Sufficient time should be allowed for the implementation of the process.

The second requirement of the quantum leap approach is to improve the level of service of taxi operation to reduce the gap in service standards between public and private transport [520]. Even though modal shift from bus and rail to taxi was due to appalling levels of service of these formal modes (Shaw, 1998, 8) – much needs to be done to improve the safety record of the taxi industry.

In the introductory chapter the MSA's vision for urban public transport in South Africa was given as *"by 2020, urban customers will be able to participate fully in the various activities of city life by using a public transport network that provides as much city-wide coverage as possible and which is affordable, safe, secure, fast and frequent."* To accomplish this ambitious goal, service levels in the public transport industry will have to be improved dramatically. Taxis might provide a service that is faster and more convenient than bus and rail transport, but the service will have to be upgraded extensively to enhance service to a level that will result in increased public transport modal share.

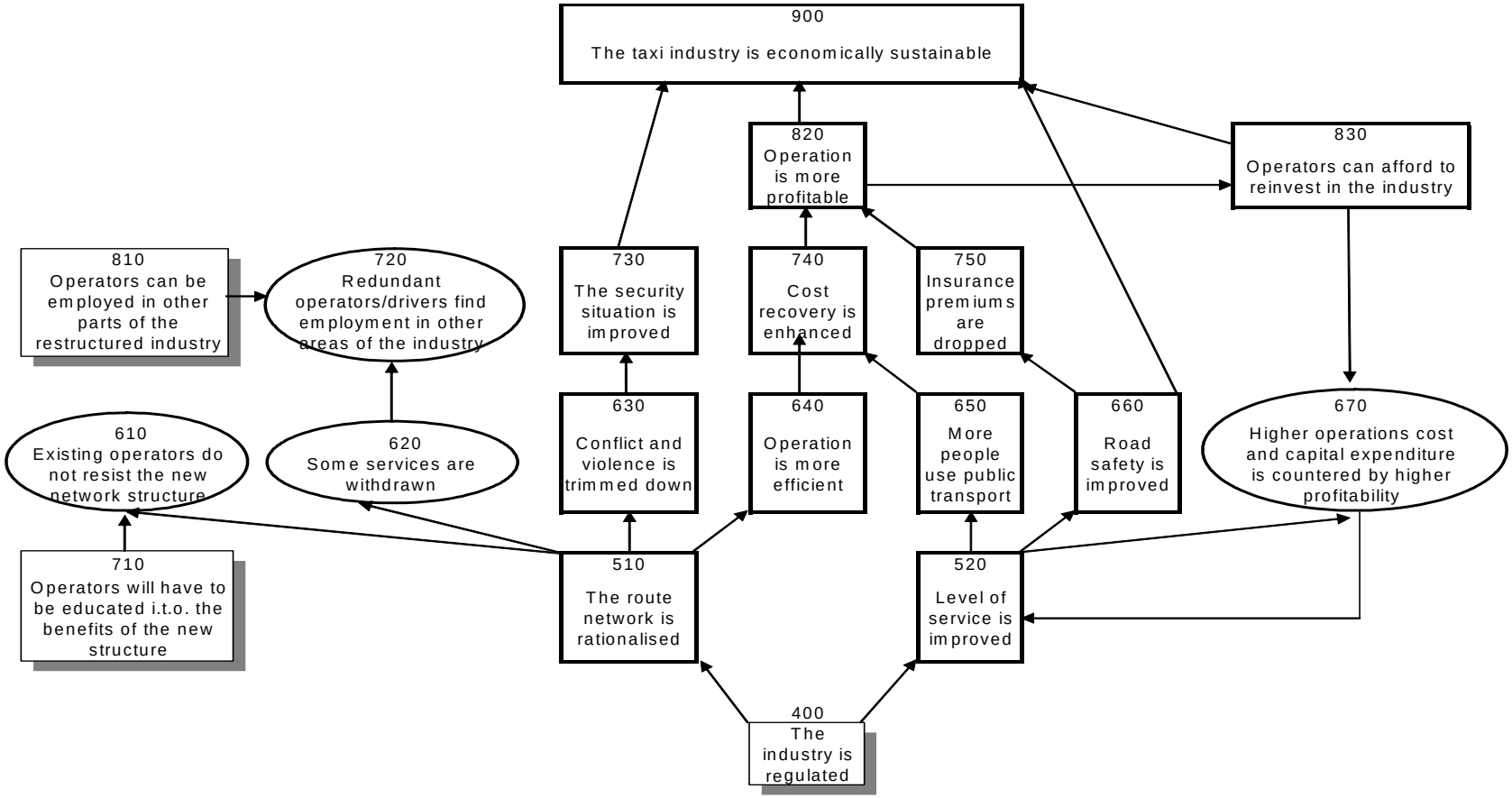

Figure 5.2 The Future Reality Tree

The first positive spin-off from the improved LOS will be that more people will use taxis as a mode of transport [650]. Initially, the improved system might only attract the "captive" market (people who can't afford a private vehicle) but in time groups like "selective" customers (people who can afford a car, but are willing to use public transport), like scholars and tourists might even benefit from the service. These increased passenger numbers and vehicle occupancy will enhance the cost recovery of the operation [740].

As examined in Chapter 4, poor road safety is one of the most alarming problems experienced by the taxi industry. The Moving South Africa (MSA) project established that the total cost of road accident was around R12 billion in 1999 (MSA, 1998: 73). Although taxis are not responsible for all these collisions, improving taxis' safety will definitely add to safer road conditions. Improved levels of service also imply enforcing the safety standards that will contribute to first-rate road safety [660]. By building up a good road safety record, operators will qualify for reduced insurance cost and finance charges [750]. This will sequentially also contribute to reduced operating cost and increased profitability of the operation [820].

These higher levels of service will necessarily come at a price – better maintenance of vehicles, increased labour cost etc [670]. Yet, with the increased profitability of their businesses operators should be able to meet these expenses [830].

The final step in the FRT process is to identify a reinforcing loop that will be self-regenerative. In the case of the taxi industry, the most encouraging fact is that because operators will be more profitable [820] they will be able to reinvest in the industry [830] – thereby improving levels of service even more [520]. There are other less prominent reinforcing loops (not indicated on the FRT to avoid confusion), e.g. the fact that operators will qualify for bigger loans from banks, because of improved

financial performance and lower risk profile. Also, the fact that security is improved will also contribute to a bigger public transport modal share. These re-enforcing loops mean that the performance will continue to improve and the overarching objective of an economically sustainable taxi industry is achieved [900].

5.4 CONCLUSION

The taxi industry is the dominant mode of public transport in South Africa. As such the economy relies heavily on the continued existence of the industry to mobilise South Africa's workforce – whether it is in its current form or some new structure. Regulation of certain key aspects of the industry's operation seems to be the only warrant of a sustainable taxi industry. Although regulation will not happen without a fair amount of resistance, the payoff in each of the areas reviewed will be far greater than the initial cost and effort. Regulation will require a healthy dose of political will and financial resources, but the pro-active regulation of the industry will prevent a more catastrophic course of action, namely an economy stalled by inefficient public transport system.

In the FRT the global objective of having an economically sustainable industry is ultimately achieved. The new structure has done away with three broad categories of factors limiting the performance of the industry identified in Chapter 4 – poor road safety, conflict and violence and low profitability. With improved profitability operators will also be able to undertake required capital expenditure to ensure survival. Certainly the most enticing aspect of the solution is the fact that system, not only sustains itself, but also will keep on getting better.

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Chapter 6: Implementation framework for the formalisation of the taxi industry

6.1 INTRODUCTION

The aim of this chapter is to accomplish the regulation of the taxi industry in a smooth and efficient way. With this goal in mind, milestones will be identified on the way there as well as obstacles that might derail the process. .

In Chapter 5 it was discovered that a quantum leap approach is the preferred way to achieve the transformation of the taxi industry into a high-quality public transport provider. Formalisation seems to be inevitable and two areas of focus where identified. The next step is to establish how this regulation should be implemented.

The final stage of the TOC thinking processes entails determining how to bring about the proposed changes that will ensure improved performance of the industry. Two final thinking processes will be employed for this task. The Prerequisite Tree (PRT) will provide a framework for implementation, while the Transition Tree (TT) will then be used to create a detailed action plan to accomplish certain smaller aspects of the implementation agenda. For the purpose of this research a full detailed action plan will not be developed, but examples of the transition tree will be developed to illustrate how the transition tree can be used to develop the detailed plans.

6.2 THE PREREQUISITE TREE

The need for the regulation was confirmed by the EC diagram and the positive and negative consequences of the regulation explored in the FRT. The next step is to work out how to implement the formalisation recommended in Chapter 5. The PRT is a diagram that describes the necessary condition relationships that are involved in realising the objective of the system.

6.2.1 Construction for the PRT

The prerequisite tree (PRT) is a tool to help us design an implementation plan for the regulation of the industry. The major step steps of the prerequisite tree process are (Scheinkopf: 2000, 196):

- Define the purpose for the prerequisite tree
- List the obstacles to achieving each of these objectives
- Formulate intermediate objectives that will overcome the obstacles
- Map the implementation order of these actions

The way the PRT diagram is drawn up is that the intermediate objective at the base of an arrow must be in existence before the obstacle (on the arrow) can be overcome and objective at the point of the arrow will be realised. Intermediate objectives are entities that describe milestones that must be accomplished in order for the obstacles to be overcome and objectives to be realised. Each arrow identifies a necessary condition relationship between an intermediate objective and objective, as illustrated in Figure 6.1

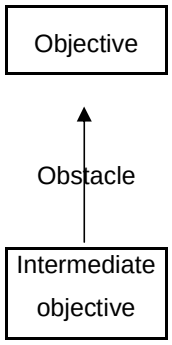

Figure 6.1 Design elements in the PRT

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Similar to the CRT, where two or more arrows are connected with an ellipse, it indicates that the combination of the intermediate objectives (at the base of the arrows) is overcoming the obstacle and achieving the objective (at the tip of the arrow).

6.2.2 PRT for the taxi industry

As stated in the introduction the purpose of this specific PRT will be to advance the performance of the South African taxi industry to a level of world-class quality, through the formalisation of the industry. In Chapter 5 it was established that the regulation has two aspects to it:

- Elimination of destructive competition through a rationalised route network
- Increased modal share through improved level of service.

In order to accomplish this defined goal there will naturally be some obstacles. Unless these obstacles are overcome, the system will be unable to achieve the stated objective. The discussion below should be followed using figure 6.2.

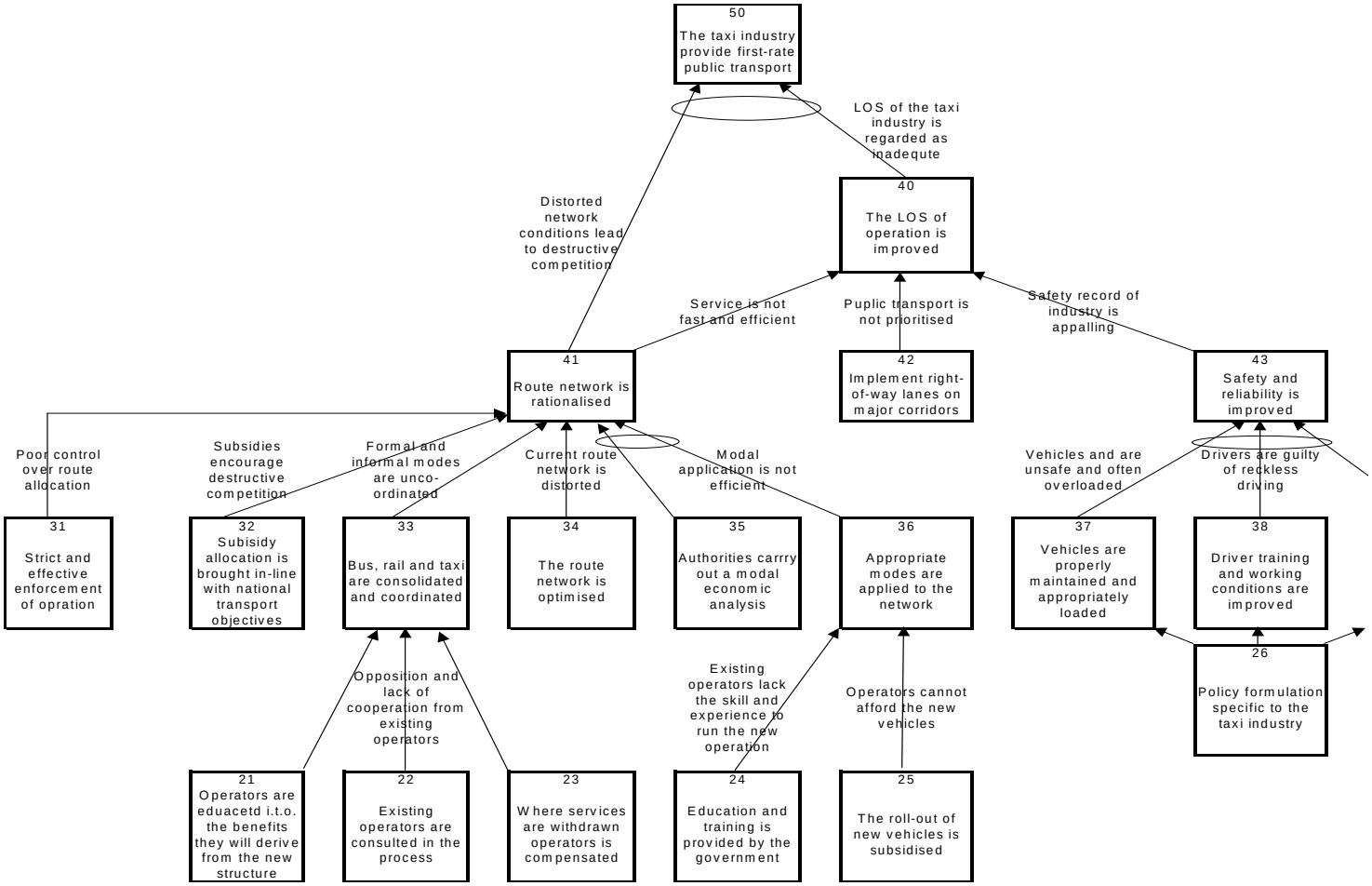

Figure 6.2 The Prerequisite Tree

It has been pointed out, on various occasions, that destructive competition lies at the heart of the current problems within the public transport industry. The overarching objective of rationalisation of the route network [41] will consequently be to eradicate destructive competition and replace it with a route network that support efficient operation and allows healthy competition [50]. The first obstacles that come to mind are:

- Current distorted route network
- Service replication because uncoordinated formal and informal modes
- A subsidy system that encourage distortion

The fact that formal (bus and rail) and informal (taxi) modes of transport have always been viewed separately has resulted in the current disjointed and uncoordinated structure of public transport in South African. The idea is to design an optimised arrangement [34] – suited to the South African urban form - to remove service replication and improve potential for cost recovery on routes. This is a complicated process and the Transition Tree process (described in paragraph 6.3) will be used to put this structure in place.

Once the optimal route network [34] (in terms of lay-out and hierarchical structure) has been determined; the proposed configuration must be compared to structure currently in place. Consolidating and co-ordinating existing operations provides the potential to improve the efficiency of the system. In some cases this might mean withdrawing a service where it has become inappropriate, either for reasons of oversupply or because of change to a new route. In others it could involve the realignment of an existing route or combining overlapping services [33]. This process will ultimately result in certain rail lines being abandoned, others being upgraded, mini-bus taxis being removed from certain high demand corridors and bus altering its function from low-demand unconsolidated routes to corridor-based routes of high frequency. The restructuring will undoubtedly evoke high emotion and

resistance from operators and therefore it is crucial that operators be consulted [22] in the process and educated in terms of the benefits the new structure will hold for them [21]. In cases where services are removed assistance should be provided to employ the existing operators in other parts of the network or as a final resort they should be compensated [23]. As with any other business, operators have invested time, capital and skill into their operations and their right to do business cannot summarily be dismissed.

As will be illustrated in designing the optimised route (paragraph 6.3), it will be necessary to subdivide the network into select hierarchical components. This will result in a system of a high-priority "backbone" as well as supporting feeder/distribution elements. Initially, existing taxi, bus and rail operators should be applied to the new network structure. However, alternative modal technologies should also be explored [36]. Various other modes, e.g. light rail, bus rapid transit and midi-buses, exist which could be very successfully operated on the line-haul routes in particular. With growing population densities in an urban environment, higher order modes could be cost-effectively employed. Transport authorities should be pro-active in this regard and test the feasibility of alternative modal technologies in the South African context [35]. Operators should be encouraged to be innovative and employ a mode that provide the right mix of capacity, operating cost and level of service to suit characteristics of the route they operate on. Operators should received financial support to upgrade to higher order modes that will lower the overall system cost [25]. It might also be necessary to provide education and training to ensure increase successful roll-out of modes [24].

At the same time, the Departments of Transport and Finance need to reach a resolution on the allocation of transport subsidies to provide clarity and direction as to what will happen in the future [32]. Shaw (1998: 6) highlighted that *"the method by which many services are currently subsidised support the destructive nature of*

competition." The idea here is to level the playing field for all transport operators and bring subsidy allocation in-line with national transport objectives. The researcher is of the opinion that operations must be designed in a way that makes them non-reliant on subsidies and transport subsidies should rather be invested on wider enabling functions like:

- Infrastructure – efficient modal interchange facilities
- Maintenance contracts – to improve safety standards
- Education and training - i.e. financial management, business development and customer service
- Pilot project to test investigate the viability of new vehicles/modes and to attract new business like tourists and scholars

Finally, the whole process will be futile if there is no control to ensure everyone plays by the rules. At this stage both government and successful operators would have invested huge amounts to provide rationalised service and measures of monitoring and control should be put in place to protect the operators by eliminating all forms of illegal operation. A creative means of service regulation is called for; one, which provides for limited but well exercised control and operator flexibility over the delivery of service [31].

The second part of delivering high-quality public transport is to deliver the service at improving levels of safety, reliability, affordability, speed and frequency [40]. To increase modal share public transport should become an attractive alternative for private car users.

The latter three requirements, namely affordability, speed and efficiency [43] will be significantly improved by the rationalisation of the route network [41]. Improved efficiencies and profitability will make the service more affordable for commuters and

frequencies can be increased. The fact that network will be optimised will reduced travel times.

In the current environment poor road safety is one of the main deterrents to use public transport. Accounts of accidents involving buses and taxis, often killing all passengers, are reported frequently. Hence, improving safety is instrumental in the whole exercise as this will change the perception in the minds of investors, commuters and the general public and will lay the foundation for expansion into new markets.

In order to see improvement in terms of road safety [43] various aspects need to be addressed. The causes of poor road safety were examined in Chapter 4 (in the Current Reality Tree) and can basically be summarised as issues relating to:

- The vehicle [37]
- Driving behaviour [38]
- Enforcement [39]

The issue of suitable vehicles has been touch upon on various occasions and basically boils down to the fact only vehicles designed for mass transit ought to be used for public transport should in South Africa. Vehicles used for public transport should be adequately maintained [37] – it is no use taking on the capital layout of appropriate vehicles and not keeping them in proper condition. If the government decides to subsidise the industry [26], this may well be one of the areas where subsidised maintenance contracts can be very well employed to uphold safety standards. These measures will also have a positive impact on the reliability of the service.

Related to this topic are safe loading and offloading practices. Both drivers and commuters should be educated in terms of safe boarding and alighting as well as the

dangers of overloading. Proper load/alighting practises [26] should be formulated and communicated to the general public to ensure that other drivers know what to expect from taxis and to be more accommodating to there presence on the road. Together with regulation in terms of vehicle fitness, general driving practice should also be reviewed [26]. Being a taxi driver is a very responsible occupation and it should be treated as such. Advanced driving courses for taxi drivers will be essential to promote responsible driving. Together with improved driver training and testing enhanced labour relations is required [38]. Better labour relations will encourage enhanced driver behaviour. In Chapter 5 we saw that labour legislation specific to the taxi industry is needed as several of the provisions of the Labour Relations Act is not relevant to the minibus taxi industry. Road safety will not improve if the above-mentioned safety standards are not imposed. Therefore, transport authorities should strictly enforce vehicle fitness, loading practices and proper driving [39].

The fact that certain route might be more efficiently served by other modes, than the ones in operation at present, have been highlighted in the preceding paragraph. New modes will possibly also require modal interchange terminals, e.g. many of the existing taxi ranks do not cater for bigger midi–busses. Having safe and efficient modal transfer facilities together will alternative mode – which boast higher levels of comfort and safety - will greatly enhance the attractiveness of taxis as a mode of transport. These terminals will open the opportunity for the private sector to invest and participate in the industry. A good example of this type of partnership is Taxiprop-BR and SANTACO, which agreed to work together to develop existing taxi and bus ranks into diversified retail and service outlets (Engineering News, 2003) .

A final step to increase level of service may be to set-up of right-of-way lanes to encourage the use of public transport [42]. To achieve this required level of efficiency and sophistication a more regulated operation will have to be implemented. This will give operators the exclusive right to service certain high-density corridors.

Public transport should also have a higher priority than private cars and this measure will further improve the speed and frequency of the operation.

The PRT provides a framework the creation of a high-quality as well as economically sustainable taxi industry [50]. This framework provides a guide to investment decisions by government and is essentially the answer to the second research question: *How can the taxi industry be transformed to deliver world-class service in an economically sustainable manner?*

At this point the researcher would like to emphasise that it is not the aim of the research is not to provide detailed implementation schedule but rather to provide a road map based on sound principles for the formalisation process and broad guidelines for policy formulation and government support to improve the performance of the industry.

6.3 THE TRANSISTION TREE

The transition tree is the final TOC thinking process. It is used to devise detailed action plans to implement the changes suggested by the other processes. In the transition tree (TT) we use sufficient cause thinking to link the present reality with the objective of the action plan.

A TT for the objective “The network is optimised” is will be developed here. Transition trees can be drawn up for each of the intermediate objective in the PRT. However it is beyond the scope of this research to delve into the level of detail required for each objective, e.g. the intermediate objective dealing with labour and safety policy formulation call for a very technical approach and so does the modal

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economic analysis. The PRT, however, provides an implementation road map for these goals, which can be delegated to the relevant authorities.

6.3.1 Construction of the TT

The intermediate objectives defined on the prerequisite tree (PRT) serve as the objectives for the TT. The TT tool is used to create a detailed action plan to accomplish an objective as set out by the intermediate objectives in the PRT.

The TT consists of three types of entities as shown in Figure 6.3. In the first place there are conditions of the current reality, presented as rectangular boxes, which serve as a starting point for the TT. The current reality should be constantly bore in mind in developing the action plan. The "injections" to transform the current reality are presented as shaded boxes. These injections are the action points of the action plan. The effects of the combination of the current reality and applying the "injections" to it are given in the ensuing rectangular boxes. The objective of the TT is achieved when the current reality is transformed to the objective (as initially set out), as a result of implementing the actions.

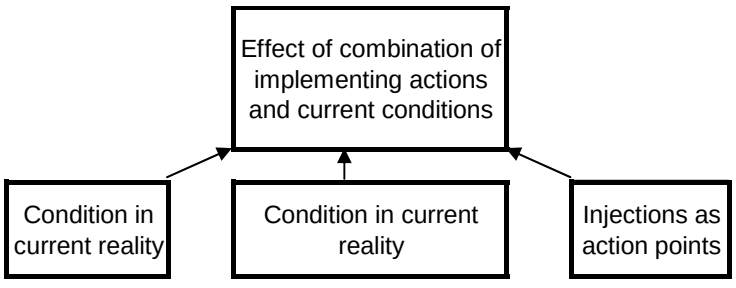

Figure 6.3 Generic Transition Tree

6.3.2 Transportation terminology

Before we move ahead, it might also be necessary to clarify some transportation terminology.

It is important to realise that transport networks usually consist of both a feeder/distribution system as well as a line haul function. As indicated in Figure 6.3 the feeder system serves to collect commuter from their various starting point. The line-haul function - usually a higher capacity mode like rail or bus - then transport the concentration of commuters to a node of distribution. The distribution system will distribute disperse the commuters to their various destinations.

Evidently, the feeder and distribution system has very similar characteristics where the focus is on access, as commuters need to be gathered from a low-density area. With the line-haul function, on the other hand, the focus is mobility and transporting a high number of commuters on a dedicated route. Further, desire lines indicate the routes off travel with the highest public transport demand, e.g. from suburbs to CBDs etc.

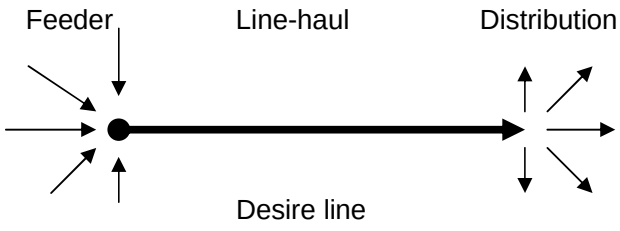

Figure 6.4 Simplified transport network

6.3.3 TT for the taxi industry

The objective of the transition tree for the taxi industry is to design an optimal route network (as was called for by the PRT) to facilitate the rationalisation of public transport operation. Consequently, the Transition Tree tool will be used to create a detailed action plan for the creation of an optimal public transport route network [6000]. The discussion should be followed alongside Figure 6.5.

In Chapter 4 the distorted character of the South African public transport route networks was discussed. Apart from the fact that service provision has not been coordinated between formal and informal modes (leading to service replication and reduced cost recovery potential) decentralisation of commercial development has altered the urban form. Travel patterns are no longer consistent with current public transport routes (this is particularly true for formal modes – bus and rail) and this has resulted in the continued marginalisation of public transport. Shaw (1998: 20) proposes that *"the poly-centric form of the city requires a renewed approach to network formulation which requires a hierarchical association between routes and corridors to be developed in which nodes play a key structural role."* The aim of the transition tree will be to transform the current distorted route network to one that will provide the potential to rationalise service delivery in a hierarchical sense.

The starting point of the diagram is the present distorted route network [1000]. This feature together with the fact that the desire lines in South African cities have changed [1001], demand a re-evaluation of the present urban form to identify of major activity nodes [1002]. Shaw (1998: 23) found that *"well planned nodes connected through high priority public transport create the necessary bi-directional flows to enhance cost recovery and create the impetus for the development of corridors"* [2000]. The combination of these conditions and the proposed action will

result in a multi-nodal route network that connects all the major travel origins and destinations [2000].

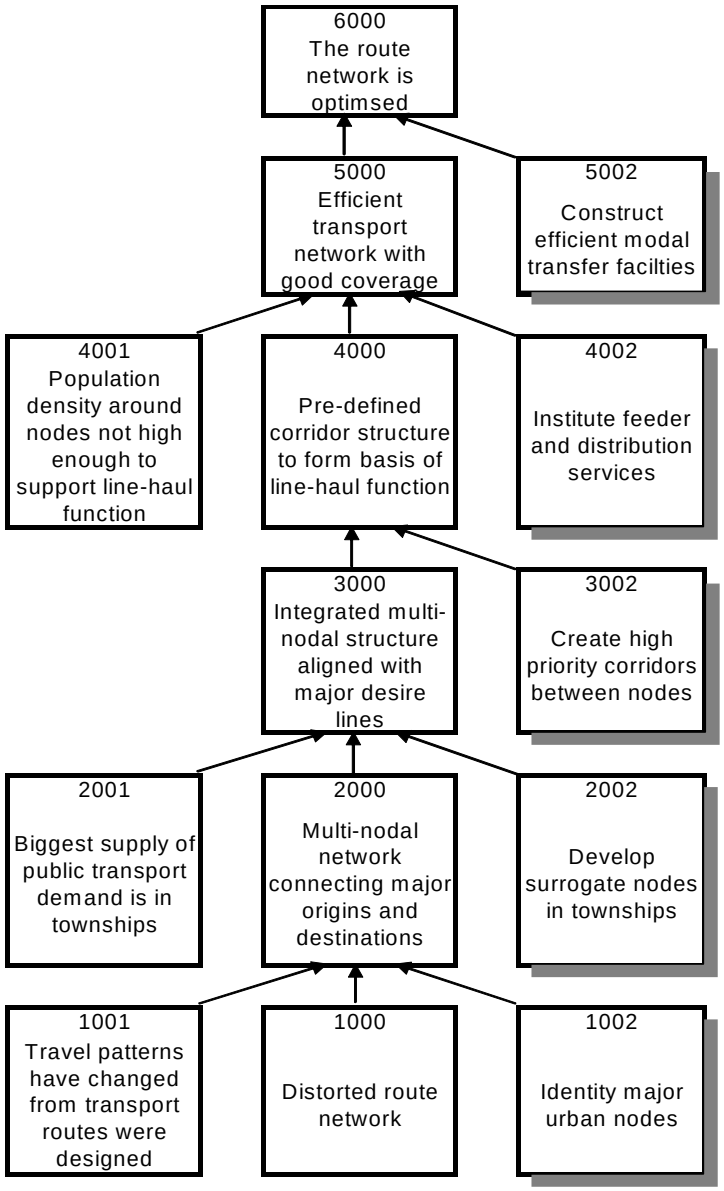

Figure 6.5 The Transition Tree

At this point it will also be necessary to develop "surrogate" nodes in dormitory townships [2002]. Townships provide the primary public transport demand [2003], but they often lack characteristic commercial development to be considered an activity node under normal criteria. This combination will provide an integrated multi-nodal structure aligned with the major travel desire lines.

The next step will be to create high priority corridors between the main activities nodes [3002]. These corridors will be serviced by a higher-order line-haul function [4000] on a pre-defined structure. The corridor approach is particularly well suited in the South African urban context with its distant high-density townships, low-density suburbs and the decentralised business nodes. The MSA team (1999: 28) established that *"densities created by corridor enhancement lower cost" and that "corridor-based public transport also improves the level of service offered to customers as speeds and frequencies increase."*

The next action will be put a feeder and distribution systems in place [4002]. With South Africa's dispersed land-use patterns, population densities around nodes will be too low to support the higher order network on its own [4001]. This will necessitate extensive feeder and distribution systems to achieve economies of scale and cost-effective capacity utilisation. Ridership volumes should dictate network characteristics, i.e. line-haul or else feeder/distributor. The restructuring of the transport network in terms of separate line-haul and feeder and distribution systems will result in a more efficient transport network with good coverage.

Taxis are very well suited to the assembly nature of the feeder/distribution service. Taxis can be used in townships, rural areas and suburbs, which are unlikely to reach densities requiring a higher order transport network. This network will support the higher order public network described above. It is important to note that distribution is included in this tier and could provide many new opportunities for operators who

historically only performed a feeder function. Depending on the demand conditions, regulation in terms of fare setting, schedules and routes would generally be unnecessary. Local taxi association can perform these functions in collaboration with their members. Local taxi association should agree on an area of operation with local authorities in order to reduce conflict and violence between bordering associations. Each association should stick to its assigned area and police its own members.

Finally, efficient modal transfer facilities [5002] need to be designed and constructed. Emphasis should be placed on minimising the inconvenience of transfers, such as waiting times and ticket purchasing.

With these elements in place the aim of an optimised route network [6000] has been achieved:

- Route network is consistent with current travel patterns
- Structural association of routes and modes suited to demand conditions

With this two-tier approach modes are employed which they are best suited for, ensuring efficiency of the system. The less formal operation of the feeder distribution system allows for emerging entrepreneurs to enter the market, whereas the line-haul tier offers the more established and skilled operators the opportunity to take their business to the next level.

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6.4 CONCLUSION

The prerequisite tree and transition tree present a framework to accomplish the formalisation of the taxi industry in an organised way. By identifying the obstructions on the way to formalisation, actions could be planned to overcome all these obstacles. With this, the full TOC thinking cycle has been completed - from identifying the problem to implementing the solution.

In the process the second research question, of how can the taxi industry be transformed to deliver world-class service in economically sustainable manner, has been answered. One can appreciate the fact that by using the strict logical framework of cause and effect, the seemingly complex problems of taxi industry have a fairly simple answer and through the systematic employment of the thinking processes a robust solution could be designed.

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Chapter 7: Conclusion and Recommendations

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7.1 INTRODUCTION

This is the final chapter in the "rethinking of the formalisation of the minibus-taxi industry in South Africa." The aim set out in the first chapter was to design a framework for the creation of an economically sustainable taxi industry within the wider sphere of public transport in South Africa.

The purpose of this chapter is to answer the research questions asked in Chapter 1 and to give a synopsis of the major findings of the research. A brief comparison with similar international studies will be given, followed by comments on the government's proposed recapitalisation plan as well as an evaluation of how the proposed formalisation fits in with another development in the public transport sector, i.e. the Gautrain rapid rail link. The chapter will be closed by giving some final recommendations, commenting on the limitations of the study and making suggestions for further research.

7.2 SUMMARY OF FINDINGS

Primarily the research set out to find answers to the following questions:

1. Can the mini-bus taxi industry survive doing business in an informal and unregulated fashion?
2. How can the taxi industry be transformed to deliver world-class service in an economically sustainable manner?

In Chapter 4, it was discovered that most of the problems experienced within the taxi industry stem from an environment of poor regulation and control. This factor has also been identified by other studies a major problem, but through mapping out the cause-effect relationships - "poor regulation and control" have been shown to be the

underlying cause of the majority of problems. Next it was confirmed, in Chapter 5, that the taxi industry will not survive without a degree of regulation. The process was taken one step further by showing how formalisation of the industry will improve the performance of the industry. Subsequently it was illustrated (by means of the prerequisite tree) how the formalisation can be achieved and the taxi operation be transformed into a high-quality, customer-focussed industry. Other leading findings of the research include the following:

- In order for the taxi formalisation to be successful, it should be viewed as part of the wider public transport industry. Only through the consolidation and coordination of all public transport providers can the efficiencies be achieved to make the sector sustainable. The service can still be delivered by the individual operators/associations/companies, but the overall operation should be synchronised to prevent service replication.
- Government should retain a degree of strategic control over the public transport sector. It is advisable that transport authorities have power over the enforcement of safety standards, integration of public transport and measure to relieve congestion. In case of the taxi industry, this would essentially mean gaining some control over certain aspect of the operation and including the taxi industry in formal transport planning.
- Enhancing financial margins is central to the whole process of formalisation. Taxi owners and association will only formalise their operations if it affords them the opportunity to increase their profitability. Any regulation driven by safety regulations, or other service level improvements, will not be sufficient motivation.
- As the taxi industry's main competitor is not bus or rail transport but rather private car usage, the success of the formalisation will depend on the ability of the process to improve levels of service to measure up to with what is

offered by a private vehicle. Public transport must be prioritised over private car use.

7.3 COMPARISON WITH INTERNATIONAL STUDIES

The following two studies are examples of similar regulation vs. deregulation evaluations in the public transport sectors of Chile, Peru and the United Kingdom.

7.3.1 Formalisation experiences in Chile and Peru

Mariana Schkolnik and Eliana Chavez conducted research on the regulation of the taxi industries in Chile and Peru. Victor Tokman (1989: 16-20) compared these two investigations on the basis that they were two relatively homogenous services, but being subject two different degrees of regulation. Initially, both industries formed part of the informal economy.

In Chile the taxi industry was regulated in terms of *"norms geared to protect the taxi users and the public in general"* (1989:17). The regulation included the following:

- Vehicle fitness
- Car insurance
- Driver ability
- Working hours
- Route allocation (Itinerary)

In Peru, on the other hand, all regulations were abolished. The effects of the regulation in Chile ensured the quality and reliability of the service and also resulted in good security and tariff transparency. However, in Peru the liberalisation resulted in:

- Inefficient use of capital, because of an increase of number of vehicles
- Decreasing levels of net income
- Vehicle maintenance and replacement been sacrificed
- Long-term deterioration of service levels

Tokman (1989: 17) concluded that *"the norms and rules geared to protect consumers can hardly be abolished to generate an eventual benefit the informals who would perform as new taxi operators or to the users of the taxi service."*

7.3.2 Deregulation if the bus industry in the UK

In 1987 the government of the United Kingdom (UK) decided to deregulate the metropolitan bus service. The justification for the exercise was the assumption that a competitive market will produce the benefits like:

- Cost savings
- Lower fares
- Improved service levels

In an Oxford Transportation Study conducted in 1991 (Pickup and Stokes, 1991: 232-236) it was found that ultimately the deregulation of the bus industry resulted in:

- Wage reduction
- Lower investment in vehicles and associated lower service levels
- Deteriorating working conditions
- Reduced profit margins

The overall diagnosis was that because operators were not generating adequate profit they were not in a position to make the necessary investment to compete with private motoring (Pickup and Stokes, 1997: 240). Furthermore, the deregulation has

removed busses from transport planner's "toolbox" at a time when integrated public transport as a means of relieving congestion is becoming increasingly important.

The impact of weak regulation and deregulation is clear from these case studies in Peru and the UK. The conditions of reduced income, insufficient investment in vehicles and deteriorating levels of service are comparable with the current situation in the unregulated taxi industry in South Africa.

7.4 COMMENTS ON OTHER DEVELOPMENTS IN THE PUBLIC TRANSPORT SECTOR

On 14 February 2000 Gauteng Provincial Premier, Mbhazima Shilowa, announced a proposed high-speed rail link between Pretoria, Johannesburg and the Johannesburg International Airport. This project together, with the recapitalisation programme, is a positive sign of government's commitment to modernise the public transport landscape in South Africa.

7.4.1 The Gautrain rail link

The proposed rapid-rail link between Pretoria, Johannesburg and the Johannesburg International Airport was proposed to relieve the congestion on the Ben Schoeman highway and other routes between Johannesburg and Pretoria. The Gautrain and the formalisation of the taxi industry will complement each other in the sense that the rail link will form part of the strategic backbone (as discussed in Chapter 6) and the taxi network can act as feeders/distributors for this mode (Vasques, 2003: 36). The spin-off effect of more commuters needing to get to a station will benefit the taxi industry. Furthermore, the two modes will focus on two different segments of the

market (rail link on middle - high income, and taxis on lower income) and will therefore not compete for the same customers.

7.4.2 The Recapitalisation programme

The proposed recapitalisation programme is widely regarded as one of the biggest exercises in restructuring public transport undertaken by any government in the world. Although the sweeping nature of the project is commendable there are two critical shortcomings with the programme:

- The first issue relates to the fact that the programme deals only with the replacement of the ageing taxi fleet, but does not address issued like destructive competition and route rationalisation. In Chapter 5 and 6 it was demonstrated that these problem are central to the problems of the industry. Furthermore, the recapitalisation programme will revamp the taxi fleet – through a capital injection of approximately R4 billion - but the plan does not deal with the consolidation and coordination of other modes of public transport. In research done in Latin America, Figueroa et al (in Shaw, 1998:17) found that capital-intensive public transport projects without the coordination and effective institutional and regulatory responses has had disastrous effects on the cost-recovery of the new systems; *"One of the key reasons identified for poor system performance was linked to the unwillingness on the part of government to deal effectively with issues of destructive competition between rail and other modes" (*Figueroa et al in Shaw, 1998:17).
- The second problem with the proposed the plan is that it is *"largely driven by safety considerations"* (Khosa, 2001: 27)**.** Although safety is a very important aspect of improving levels of service - it is not the only one. Also an industry

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driven by anything other than profit would most probably become reliant on subsidies and will therefore not be self-sustaining. Other than subsidised vehicles, the programme does not indicate how profitability will be enhanced.

7.5 FINAL RECOMMENDATIONS

The affirmation of the fact that the informal and unregulated character of the taxi industry is threatening its survival, indisputably calls for the formalisation of the industry. The formalisation will facilitate the integration of the taxi industry with other modes of transport as well as the formal economy. The process will also allow government to obtain a degree of control over the industry in order to provide effective transportation planning and oversee safety of the public. Enhanced profitability resulting from the new structure will enable operators to continue providing a service that is attractive for their customers.

The prerequisite tree encompasses the recommended implementation road map for the formalisation of the taxi industry. The intermediate objectives - e.g. optimisation of route allocation, clarity on subsidy allocation and policy formulation in terms of safety standards - set out in the structure should be delegated to the relevant government department and dealt with accordingly. This framework forms the platform for further negotiation and consultation for rollout.

Subsequent to the formalisation of the operational structure of the industry, a design for the formalisation of the capital structure of the taxi industry should be explored. Vast capital resources are currently invested in the taxi industry by thousands of vehicle owners. However, this capital is not recognised by financial institution. If this capital structure can be formalised it could be more productively employed to turn it into wealth-creating investments.

7.6 LIMITATIONS OF THE STUDY AND AREAS FOR FURTHER RESEARCH

Similar to most research projects, resources like time and finances limited the extent and scope of the study. Ideally the formalisation of the taxi industry should be looked at out of a multi-disciplinary perspective. A concerted effort of specialists in the fields of transport planning, operational analysis, labour relations, finance and the informal sector will be able to make a more powerful contribution. A further restraint was access to information from DTI and DOT on the recapitalisation programme. Finally, the fact that secondary data was used posed the risk of inaccuracies in the underlying data.

In terms of the areas for further research identified in the research project:

- Suitability of different modes (mini-bus, midi-bus, bus rapid transit, light rail et al) for public transport in South Africa
- Formalisation of capital structure of taxi industry
- Effective application of subsidy allocation for integrated public transport
- Measures to affect modal shift to public transport
- Comprehensive economic feasibility study of the formalisation process

7.7 CONCLUDING REMARKS

By using the rigour of cause and effect thinking and following strict logic rules, combined with intuition and knowledge, a very positive an exciting plan for the formalisation of the taxi industry has been designed. This plan gives commuters and non-commuters in South Africa the prospect of genuinely safe, secure and reliable public transport for the first time. It should also be acknowledged that the TOC thinking processes is a very powerful suite of tools that allow the researcher to develop robust solutions for complex problems.

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A final thought to encourage the call for fundamental restructuring can be drawn from the words of Albert Einstein: *"the significant problems we have cannot be solved at the same level of thinking with which we created them."*

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