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Models for Private Sector Engagement in the Delivery of Commuter Rail Services



Karl Venter and Richard Goode
Independent Consultant and TIPS

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by Karl Venter and Richard Goode

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Acronyms

BEE	Black Economic Empowerment
CAPEX	Capital Expenditure
CBD	Central Business District
DBSA	Development Bank of Southern Africa
DOT	Department of Transport (South Africa)
DPE	Department of Public Enterprises (South Africa)
EU	European Union
GDPTRW	Gauteng Department of Public Transport, Roads and Works
GO	General Overhaul
IFC	International Finance Corporation
ITP	Integrated Transport Plan
MIG	Municipal Infrastructure Grant
NLTTA	National Land Transport Transition Act
OPEX	Operating Expenditure
PPP	Public-Private Partnership
PTP	Public Transport Plan
SA	SA
SARCC	SA Rail Commuter Corporation
SATS	SA Transport Services
SOE	State-Owned Enterprise
TA	Transport Authority
UK	United Kingdom

Executive Summary

Improving commuter rail service delivery is a high-priority programme of the Department of Transport (DOT). Faced with a failing business, the DOT has launched a reform programme for commuter rail, foreseeing increased public investment and possibly an extended role for the private sector. The object of this working paper is to contribute to the emergence of a robust commuter rail reform programme that is built on sound transport principles. It presents a model for understanding the appropriate role and extent of public transport and the harnessing of the private sector to complement government-led reform.

Commuter rail services provide mass transport for the poorest category of commuters, providing 458-million passenger journeys in 2003. However, the effectiveness of the R2.5-billion spent on the service currently is in doubt. The state of the assets and the quality and extent of services are in decline, approaching a critical state. Dissatisfaction, accompanied by outbursts of public anger, is rising because of slow delivery by government on promised improvements in living and economic conditions of the poor who constitute the majority of our population.

Government has to find sustainable ways to improve performance and increase capital spending on infrastructure and rolling stock. It has recognised the urgent need to replace the current dysfunctional industry structure and has acted by launching a process to merge commuter and passenger rail assets into a single entity, PAXCo, under the control of the DOT.

A technical planning team has begun to develop a business plan for PAXCo. It envisages three phases – managed retreat and stabilisation, recovery, and service development and growth. The structures of government, management and supporting institutions have to be equipped to manage the fallout of a situation that will worsen before it gets better.

This paper provides an analysis of the situation and proposes a basic model for the successful and sustainable delivery of commuter rail services. We suggest a sustainable political equilibrium between the:

- People: citizens of SA and city communities, consumers of transport services and voters giving politicians a mandate to govern responsibly;
- Politicians/Government: representatives of the people charged with improving the economic and social prosperity of the country and the city, and responsible for the provision of transport services, including public transport; and
- Railway Management: those responsible for the efficient delivery and continuous improvement of urban railway transit services.

It is important that government focuses on determining to what extent (quantity and quality) services should be provided. Management needs to focus on continuous service improvement to customers, efficient operations and total life-cycle cost minimisation.

There is a simple model for determining how much should be invested in transport services, which is based on a concept of social value created. Social value is a monetary-equivalent expression of the economic, social and environmental product of any facility or service, in this case, urban railway transit. The model maintains that public funds should be allocated to projects based on maximum marginal social value created, up to a point where the marginal cost of investment is equal to the marginal social value created. It is also necessary to minimise the cost of investment capital. This paper briefly outlines the cost of capital to government, which is not only the interest rate of debt, but the political opportunity cost of other projects and of raising the tax rate. This

means that the cost of capital to government rises rapidly with increased spending demands, to the point where private capital becomes cheap.

Using this model, the paper is able to show the incentive structures that favour good performance from government and railway management. Further, it shows that mobilising funding from public and private sources can be mutually supportive and thus relax the fiscal constraint, increase investment and maximise the social value created.

It is argued that distant, monolithic public agencies characterise the current pre-reform situation and deliver poor and inefficient service. This conclusion has been reached by many when comparing public rail transport situations internationally. The focus needs to be on improving customer satisfaction based on commuters' increased sense of accountability for the service, demand for the service and willingness to pay. There are enormous positive social benefits such as improved prosperity, social integration, employment, recreation, health and quality of life.

Reform of commuter rail will necessarily proceed in phases. In the first phase, resources need to be concentrated on core routes, and services on others need to be reduced or abandoned. Management will be required to keep staff motivated and commuters in their trust while services are cut back. The second phase will achieve sustainability at service levels previously achieved and renew the fleet. In the third phase, evolutionary growth and development can occur in a sustainable political equilibrium.

Openness is the key to a sustainable delivery model and it includes:

- Public access to regular city transport planning meetings;
- Public processes for the appointment of the boards of city railways, including defined roles for civic organisations and consumer groups;
- Public access to quarterly board meetings, including management reports and discussions;
- Regular, public media briefings by railway management; and
- Publication of annual reports and railway service improvement plans, setting targets for delivery.

The increased access and the engagement of the media will lead to improved public accountability of public officials, politicians and railway management.

It is imperative that infrastructure spending is increased. Government needs to provide clarity on its objectives, timing and funding if it is to diversify the sources of funds, including funds from the private sector. Government has a critical role to play in creating an enabling environment for private-sector involvement. Fortunately, there are well-established legal and financial institutions for private sector contracting and trading of financial instruments. Government has an inescapable duty to determine the extent, quality and price of rail services. To date, government and State-Owned Enterprises (SOEs) have been poor asset owners and managers of commuter rail service delivery. However, there are international precedents where the state plays a critical and successful role in the ownership of key assets like commuter railways, and has created efficient environments for the delivery of quality services. Where the international precedent falls short is where a government becomes overly focused on managing operations directly. This leads to inwardly focused, conflict-driven management exposed to fluctuating political demands. In the end it is the customer that loses out.

Delivery of commuter railway services can involve different permutations of public and private sectors. This paper makes a strong case for devolution to local government, given its closeness and accountability to the users of the service, and its central role in urban transport planning.

1. Literature Review

Decisive action is required to realise government objectives of improved welfare and prosperity for South African (SA) citizens. Government is faced with multiple, competing and shifting priorities. Good results will only be obtained from well-constructed policies backed by budget allocations that can be translated into action by the various agencies in each sphere of government. Ranking priorities and collating competing demands into a coherent plan of action is the business of a democratic government. In order to translate policy into action, an intimate understanding is required of the roles and constraints of the various delivery agencies. Plans that are framed by an understanding of the constraints affecting the different agencies are easier to implement and more likely to deliver on the benefits they promise.

This paper provides a framework for the process of formulating an action plan to revitalise commuter rail services in SA. It aims to serve a twofold purpose, namely:

- To aid the production of plans by the DOT for commuter rail services that can deliver safe and affordable public transport.
- To create a framework within which fiscal constraints on resources for subsidised transport can be discussed in order to promote equity, efficiency and accountability in the application of public funds.

This document comprises:

- A discussion of the place of commuter rail in transport in SA;
- A summary of the current crises facing the commuter rail industry;
- A model for reforming the industry that maximises positive outcomes from the PAXCo project; and
- A potential framework for harnessing the private sector in order to deliver improved commuter rail services and the conditions that need to be created by government to make this possible.

An earlier version of this paper was presented to a forum of government officials in June 2005 with the support of the DOT. The forum benefited from the participation of international experts from the World Bank as well as from the Office for Rail Regulation in the UK. The authors are grateful for the comments on the paper made by participants to the forum.

1.1. Core government objectives

Government has set objectives for improving the welfare of the SA population and halving levels of poverty by the year 2014. This is a long-term objective that requires structural change in employment, skills generation and access to social services. To improve public transport is one of the primary drivers to achieve these goals.

1.2. Merits of commuter rail

Building a case for reform and revitalisation of the commuter rail sector has to contend with the current crisis affecting the sector. As a starting point it is necessary to assess its position in the passenger transport market.

The available data on passenger modal shares indicate that rail (commuter and passenger) has a small share (2.3%) of all journeys nationally (including pedestrian journeys), against 5.4% for bus, 21.3% for taxi and 15.4% for cars. In metropolitan areas served by commuter rail its modal share

is 6% against 6.2% for bus, 29.1% for minibus taxi and 26.3% for cars. Modal splits in public transport for metropolitan areas give commuter rail a 13% share, equal to subsidised bus services against a 60% minibus taxi share (National Travel Survey, 2004). While these figures give the best available indication of the overall modal split on a national basis, they are unable to show the position of rail in a meaningful comparison to other public transport modes in the high-density transport corridors served by rail. Hopefully, one aspect of the reform programme discussed below will be creating information systems for better public transport planning.

Drawing on surveys collated for the City of Johannesburg's Integrated Transport Plan (2003-2008), it is possible to compare the market share between commuter rail, bus and minibus taxi on comparable routes. For the three-hour morning peak period on the heaviest traffic routes from the southwest into the Johannesburg Central Business District (CBD), commuter rail handles over 150,000 passenger trips, compared to 50,000 passenger seats provided by minibus taxi and bus services respectively. Commuter rail faces a crisis because of a deteriorating asset base and worsening service levels. Commuter rail has not evolved with SA cities' development. Migration to the cities from rural areas is leading to very rapid urban growth. Poor town planning and control is leading to rapid urban sprawl. Transport planning and delivery has been fragmented and inadequate, unable to keep up with demand, leading to rapidly increasing congestion. Rail networks have not responded at all to the new realities of the cities, as the management of these networks is done at national and not local level. Uncontrolled, new, informal settlements by poor migrants and large populations of poor people in townships place them far from employment, amenities and services. Even state-subsidised housing developments have repeated old patterns of low-density housing located on the periphery of metropolises, adding to growth in non-rail serviced areas and dependency on road-based transport services (especially minibus taxis).

In order to derive maximum benefit from a publicly subsidised transport service, it is necessary to build on the inherent strengths of commuter rail:

- Economies of scale to move large numbers of commuters during peak travel periods to deal with the growing problem of congestion in SA's largest metropolitan areas. In situations of very high densities, road-based public transport solutions are more expensive when the full costs of infrastructure and externalities are captured.
- The lowest fare transport mode serving mainly low-income users currently.
- Environmental advantages in terms of energy efficiency, land use and reducing emissions.
- A very safe mode of transport. However, crime on trains and attacks while walking to and from stations are major problems, deterring potential users from using this mode of transport.

A well-functioning public transport system has positive social externalities that raise the social wage of users. Rail subsidies have high, direct welfare effects on key low-income passenger groups, increasing real disposable incomes, curbing cost pressure on nominal wages for wage earners, and reducing transport costs for scholars and poor households.

Commuter rail and bus services are the two subsidised public transport modes. Current commuter rail subsidies stand at R2.5-billion and will increase to R2.8bn in the 2006/07 fiscal. This sizeable commitment of public resources to commuter rail invites examination of the effectiveness of these subsidies.

This paper will show that the current levels of capital and operating subsidies are insufficient to achieve sustainable service recovery. Different approaches must therefore be examined, including devolution and involvement of the private sector.

1.3. State of the transport system

The existing transport system in SA does not satisfy the needs of users. Comprehensive transport solutions have to take into account the structure of SA cities and their historical development. Today's urban transport systems, and especially commuter rail, have been shaped by Apartheid. Transport systems were designed to move black labour from townships cordoned off by buffer zones to areas of employment. Transport services provided defined mobility between residence and workplace and did not support integration, accessibility or choice. The result was fragmented cities with unco-ordinated land use and transport planning. This lack of transport integration, together with the poorly distributed physical, economic and social infrastructure, has created urban spaces with numerous deficiencies. The majority of the population in cities live far from economic opportunities and social amenities, generating inefficient and costly demand for transport. The burden falls mostly upon the poor living in outlying townships.

Such inefficiencies have big impacts on commuters. In Gauteng, monthly public transport costs for 71% of commuters exceed 15% of their income. Almost 57% of this province's commuters spend an excessive amount of time travelling, many journeys exceeding two hours (GDPTW Strategic Plan, 2004–2009). Inadequate transport in all modes poses significant challenges:

- Trapped populations unable to access economic and social facilities;
- Excessive travel time cutting into productivity and recreational time;
- Diminished quality of life;
- Exposure to crime and violence because of low levels of security in transport services; and
- Reduced disposable income due to high transport costs.

1.4. Case for engaging the private sector

National government is highly involved in commuter rail services as owner of the assets, the operator company and the funder of the services. Transport planning is a preserve of local and provincial government.

The delivery of commuter rail services is a public good, so the role of government in planning, regulating and delivering commuter rail services is important. Involving the private sector to a greater extent than straightforward procurement of goods and services imposes some costs and risks. It would thus appear that the argument for maintaining commuter rail entirely in the public sector is strong.

However, it is evident that the current monolithic public-sector model has failed miserably to serve the needs of the people. Strong international evidence exists that supports the conclusion that in general the public sector is a poor operator of commuter rail services. Monolithic public enterprises delivering commuter rail services are susceptible to pursuing multiple objectives flowing from government policies. These policies have a political orientation instead of a customer-service orientation. Their institutional form tends to be bureaucratic, inflexible and frequently inefficient. From international experience, the best model seems to be that the public sector should focus on determining the extent and quality of service requirements, in order to contract the private sector to focus on delivering those requirements as efficiently as possible.

This paper goes on to examine ways to engage the private sector in commuter rail service delivery in order to raise the efficiency and quality of service provision. Engaging the private sector could take a number of forms with varying degrees of involvement in assets and operations. Irrespective

of the form that private sector involvement might take, public sector specification, funding and control must remain central to the eventual institutional structure. Government responsibility for integrated economic, social and transport planning must endure.

A key aspect of transforming the commuter rail service delivery is to increase capital spending on infrastructure and rolling stock. There are a number of ways in which this can be achieved, and which are discussed in the paper. These include:

- Accessing different pools of public funds, for example, the Municipal Infrastructure Grant (MIG) established to pool infrastructure funding for local government;
- Supplier-based funding, e.g. equipment leasing or Public-Private Partnerships (PPPs);
- Multilateral agency loans, for example, from the World Bank and the International Finance Corporation (IFC); and
- Commercial debt and equity markets, for example, municipal bonds.

In any event, success in raising service levels in commuter rail will require changes to:

- Transport policy and planning responsibilities;
- Funding levels;
- Industry structure;
- Regulatory/oversight efficiency; and
- Alignment of financial and operational incentives.

2. Commuter Rail Situation Summary

2.1. Technical background

Commuter rail services in SA are the statutory responsibility of the national SA Rail Commuter Corporation (SARCC). Currently the SARCC contracts with Metrorail, a division of the transport giant parastatal, Transnet. Dedicated commuter rail networks exist in four major cities of SA – greater Johannesburg, Tshwane (Pretoria), Cape Town and Durban. There are also commuter rail services operated on contract by the railway parastatal, Spoornet, in the Eastern Cape. A snapshot of the four big networks for 2003 is presented below:

2.1.1. Network size and financial position

Table 1: The size of the four major networks (2003)

	Johannesburg	Cape Town	Tshwane	Durban	TOTAL
Track km	915	610	337	365	2,227
Passenger journeys	175,788,190	154,847,064	75,345,151	51,785,051	457,765,456
Passenger km	4,394,704,750	3,871,176,600	1,883,628,775	1,294,626,275	11,444,136,400

These are not small railways. However, the rail share of public transport journeys in the cities is less than 10%, except for Cape Town, where it is about 60%. Minibus taxis carry over 60% of passenger journeys in the other cities. The ridership of the trains is almost exclusively economy class, serving the lowest income sections of the community. There is a residual first-class ridership on certain Cape Town lines. The economy-class travelling experience is without dignity, overcrowded and subject to crime and violence. This insecurity is cited by most travellers as their principal concern, both for train users and users of other, more expensive, forms of transport. Congestion in all cities is escalating rapidly, and trains are not carrying as much of this load as they should. The financial position of the major networks in 2003 is shown below.

Table 2: The financial position of the four major networks (2003)

2003	Johannesburg (R)	Cape Town (R)	Tshwane (R)	Durban (R)	TOTAL (R)
Fare revenue	353,100,000	286,100,000	141,300,000	104,900,000	885,400,000
Operating costs	784,000,000	489,000,000	269,000,000	335,000,000	1,887,000,000
Opex coverage (%)	45%	59%	53%	31%	47%
Subsidy	493,900,000	221,000,000	140,600,000	200,400,000	1,055,900,000
Capex	45,609,000	30,299,000	33,025,000	37,811,000	146,744,000
Surplus	17,391,000	-12,199,000	-20,125,000	-67,511,000	-82,444,000

Capital expenditure (CAPEX) in the regional networks does not include the nationally managed rolling stock general overhaul (GO) programme. The GO programme cost R328-million in 2003, resulting in a total capital programme of R475m. The GO throughput in 2003 was 260 coaches, compared to 450 to maintain fleet availability.

The 4,600 coach fleet is ageing rapidly, averaging over 30 years in age, and being condemned on safety grounds at a greater rate than the general overhaul (GO) programme can reinstate. By the end of 2005 it is estimated that almost 50% of the fleet will be out of commission. This imposes an impossible burden on the remaining fleet to maintain current service levels that have become unreliable to such an extent that schedules are being scaled back. Any effort to recover the situation will take time and a much higher level of spending than at present. It is therefore predictable that things will get worse before the positive effects of such a programme will emerge. A prioritised approach is therefore inevitable, where services are cut and frequencies reduced to concentrate on the highest density services to achieve a more reliable service.

Given the GO backlog of approximately 2,000 coaches, the level of GO throughput to restore the fleet to its full capacity over five years is approaching 950 coaches per year. Given the constrained industrial capacity, such an acceleration might cause the cost of GO to rise to about R2m per coach, implying a required spend of R1.9bn per annum.

These figures are not completely accurate, but they do provide a significant insight. It will be noted that the farebox coverage varies significantly, but on average is less than 50%. Also, capital expenditure (both fixed and rolling assets) is very low. A general guideline for CAPEX to be approximately equal to operating expenditure (OPEX) suggests that capital expenditure is about 20% of the level needed to sustain services. The result has been that assets have deteriorated rapidly, particularly the rolling stock. In 2004 and 2005 CAPEX has accelerated, but not to sustain the condition of assets.

Fare evasion is high, with unreliable estimates of about 60% on average across the network. If these are correct, there is potential for 100% coverage of OPEX by the farebox. This is unusual internationally, and would indicate that, at an operational level, and given the aged assets and their neglected condition, the services are being operated reasonably efficiently. This is significant in calculating the effectiveness of subsidy spend.

The effectiveness of management of services varies considerably between cities, with Cape Town performing significantly better than the others in almost all respects, while Durban lags behind most. This situation bodes well for the implementation of best practice and its extension to all cities and it suggests there is potential for significant efficiency gains.

The distribution of services and the extent of the network are inherited from the apartheid era, and do not match the dramatic growth in demand for low-cost commuter travel. It is to be expected that network extensions and frequency enhancements will exploit the economies of scale of rail and add to ridership very cost-effectively. Addressing overcrowding to offer a more dignified and safe travel experience will make a significant impact on the lives of millions of people from the poorest sections of our cities' populations. However, this positive scenario can only be considered once the rolling stock situation has been turned around to a sustainable level.

2.1.2. Network utilisation

International comparisons of network utilisation indicate that labour productivity is some three times that of the UK. Passenger utilisation rates are on average 2 to 3 times that of the European Union (EU). Given the poor condition of the fleet this indicates that management is husbanding the assets as best they can. Overcrowding will increase to even more unsafe levels as more of the fleet is retired.

2.2. Responsibility and accountability

The Legal Succession to the SA Transport Services (SATS) Act of 1989 created two SOEs:

- Transnet, a huge monolith encompassing many aspects of transport, including monopolies in rail, ports, airline and pipelines and some road-based activities and logistics. Transnet fell into the stable of the Department of Public Enterprises (DPE). Transnet was expected to be run on a commercial basis, but had to fulfil social goals too.
- The SA Rail Commuter Corporation (SARCC), responsible for the delivery of commuter rail services. It was intended to be a contract-management organisation, owning the assets [networks and rolling stock] and contracting for their operation and maintenance. SARCC fell into the stable of the DOT. The DOT was expected to fund the shortfall of expenses over revenue and determine the pricing and subsidy policies.

The SARCC contracted with Metrorail, a division of Transnet formed specifically to operate commuter rail services. This contract has proven very difficult to operate effectively, and with a series of management changes in both organisations, has resulted in loss of control over the assets and service delivery by the DOT and its agency, the SARCC. The result has also been no vision in terms of effectiveness or subsidy deployment. This is the primary motive behind the current consolidation project to produce PAXCo.

Transport policy from the DOT is enshrined in the National Land Transport Transition Act of 2000. This sets out a revised structure for the planning and delivery of transport infrastructure and services in SA. It allocates responsibility between the spheres of government (national, provincial and local). It states that metropolitan public transport is a local competence, although slightly fuzzy on rail. Local Transport Authorities (TAs) were to take on the role of producing Integrated Transport Plans (ITPs), including Public Transport Plans (PTPs), and submit them to the Minister of Transport for collation and allocation of subsidies and grants. While the TAs had not yet taken responsibility for rail, the SA Rail Commuter Corporation (SARCC) was to draw up a National Rail Plan in consultation with the local authorities and submit this to the Minister.

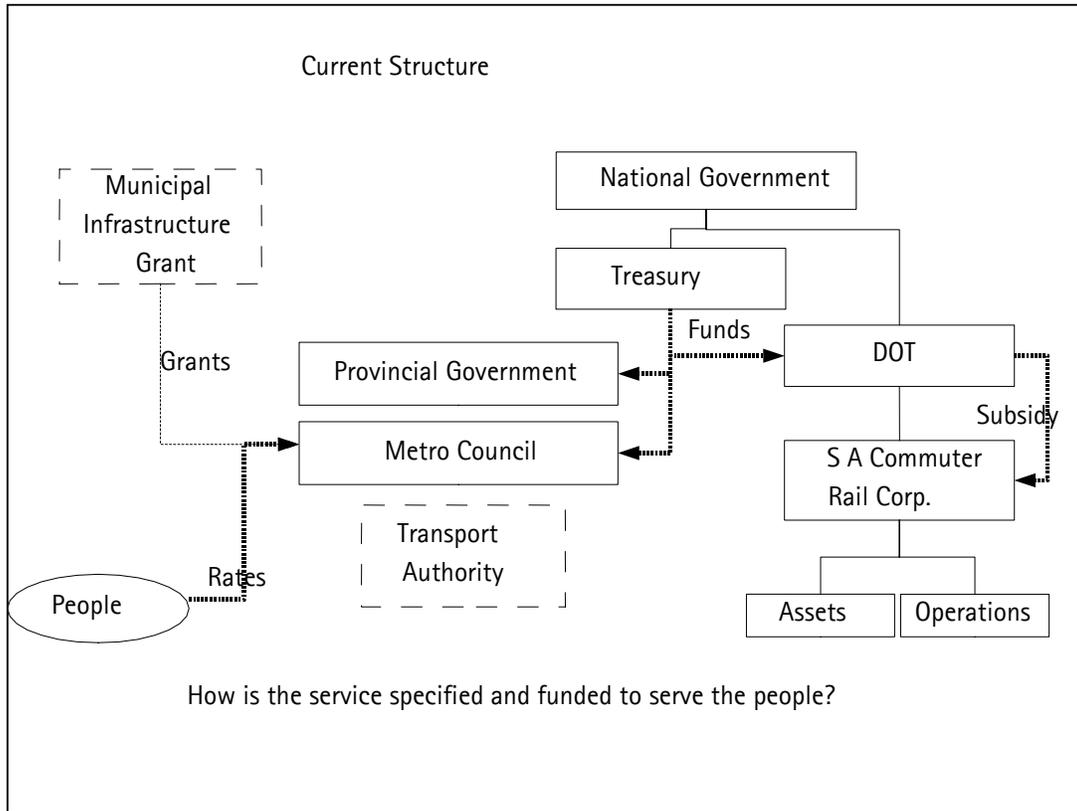
Only one TA (Durban) has been formed since then. Squabbles over political control between the provinces and the cities have hampered the formation of others. The result has been that the old, siloed thinking and planning for transport has continued. For example, bus and taxi routes and inter-modal facilities are planned in isolation and rail is ignored, as it remains the national realm of the SARCC. Effectively no development has occurred in railways, as funding via the DOT was always inadequate. An extension to Khayelitsha costing about R80m has been built with the intervention of the City of Cape Town.

The structure outline and funding flows are illustrated in Figure 1. The TA is indicated as a dotted line, as this effectively does not exist in relation to rail anywhere. The MIG is a new government mechanism pooling funds that would have been distributed in grants to hundreds of municipalities. Agencies and municipalities have to bid for funds for project plans. Competence in producing these plans and following the process of MIG have resulted in the Department of Water Affairs and Forestry winning a significant slice of the MIG, while other aspects of infrastructure are lagging behind due to incompetence in the responsible agencies or municipalities. Predictably, MIG will increase the trend to underspend in local government. It is, however, a serious resource to be considered for the railway case.

Accountability for service performance is entirely absent for rail commuters. Institutional linkages between users, their representatives and the SARCC are missing. Rail serves a large captive market as it is the least expensive option available to workers and students who have to travel by the

cheapest means regardless of the indignity or insecurity. Frustrated commuters have resorted to burning of trains and vandalism. These have become regular events and signal a breakdown in political accountability for public services. Recently, anger in the poorer sections of the population has erupted in low-level riots and demonstrations against state organs responsible for service delivery. This has now sharpened the focus of government on improved service delivery.

Figure 1: Structure outline and funding flows



2.3. Current crisis

Commuter rail services in SA are reaching a crisis point where the levels of service set out by the SARCC are unsustainable as the asset condition deteriorates to unsafe levels, particularly of the rolling stock. This situation is a result of a loss of effective control of the assets by the SARCC to the operating contractor, Metrorail. The contractual relationship between the SARCC and Metrorail has failed for a number of reasons:

- Ownership by the state of the two entities (the SARCC by the DOT and Metrorail, a division of Transnet, owned by the DPE) has led to political considerations overriding SARCC's commercial ones.
- Both the SARCC (DOT) and Transnet (DPE) ownership relationships are characterised by weak control and lack of transparency by the government department.
- Pressure on Metrorail to generate cash to service Transnet's large debt and actuarial liabilities.
- The progressive reduction of technical capacity in the SARCC to hold Metrorail accountable through inspection and reporting.
- Strangulation of the flow of funds from Treasury to DOT because of reasonable concern as to lack of controls on SARCC spending and uncertainty as to the effectiveness of the subsidy deployment.

2.4. Drivers of change

The situation had deteriorated to this point because of the lack of political voice of the users of the rail commuter services. This is changing as peaceful and violent protests accelerate over the lack of delivery of better living conditions promised to the masses of poor people flooding into our cities. Protests have restored some power to the political voice of these people but raise the prospect of a populist response to discontent that will undermine the objectives of sustainable development.

Our cities are growing at an unprecedented rate in an uncontrolled manner, and city planning needs to take initiative again and address spatial development and transport systems' implementation to deal with growing congestion. The historical and now unplanned settlement patterns forced on the poor burdens them in terms of travel costs to access employment and social services. Improving the integration of these communities into our city fabric and enabling our cities to cope with further growth will lead to wealth creation and social development.

3. Passenger Rail Consolidation

In order to address the failure of current structures to deliver effective rail commuter services, the Ministers of Transport and Public Enterprises initiated an urgent process in March 2004 to consolidate SARCC and Metrorail. This process has led to the unification of the board and executive management functions as of 1 June 2005, to be followed progressively by the business functions. The aim is to complete the merger by April 2006. The long-distance passenger service of Transnet, Shosholoza Meyl, will follow in due course.

The process of compiling a business plan is underway, and envisages three phases:

- Managed retreat and stabilisation;
- Recovery; and
- Development and growth.

The plan will identify the scale and scope of investment required, as well as the structures (including progressive devolution), funding models and the engagement of the private sector.

4. Goals of Reform

Any process of reform needs to have its goals clearly defined. Too narrow a focus on the immediate solution to the crisis often plants the seed for the next crisis. We need to think carefully about what the goals are, and how we balance them.

4.1. Efficiency

Efficient planning, design and control should result in transport services that are delivered at the lowest total social cost per unit within an entire metropolitan region using all the available modes in an integrated transport system. Total social cost includes all direct costs, such as maintenance and capital renewal, and externalities, such as environment and congestion.

Within each mode, costs vary in complex ways from geographic, spatial, demographic and transport network characteristics. The optimal transport system for a region at a point in time is thus typically a complex mix of interacting modal networks, involving private and public transport. As the city develops, so the optimal transport system evolves. The inherited transport system and other constraints generally mean that the optimal system is unreachable, but an understanding of the optimum is very helpful in improving the existing system.

The achievement of this goal has two dimensions:

- **Individual Mode:** The cost of delivery of each transport mode needs to be tended to a minimum. This includes the total social costs of private transport, such as emissions and congestion.
- **Modal Equity:** The total demand for transport is spread between modes in such a way that the aggregate social cost of transport is minimised. This is a significant challenge, as it involves:
 1. Distributing the modal networks in the region according to their comparative advantage, that is, providing them where they can be offered at relatively low marginal cost. In each part of the metropole, different modes have different cost profiles (production functions).
 2. Regulating demand to achieve the optimum balance between the modes. This is typically done by regulating the cost to the user using pricing mechanisms (fares, tolls), rationing (overcrowding, delays) and accessibility (time, distance). Users will typically choose the highest net value option according to their individual value system (the relative value of security, time, comfort, money, reliability, convenience, etc.).

Both the total costs of supply and net value to the user are complex quantities made up of more than money.

In order to make comparisons between different scenarios in a search for the most efficient feasible network, a model of the metropolitan region needs to be created, reflecting the various demand drivers and cost profiles (production functions). The demand driver model will be derived from a demographic and spatial model of the region.

4.2. Net social value maximisation

The transport system should be designed and managed to maximise the net social value created. Social value includes:

- Economic dimensions, such as production, employment, income per capita, reduction in costs of production, increase in real disposable income, value of time released, etc.
- Social dimensions, such as poverty alleviation, improved health, improved quality of life, environmental quality, security, etc.

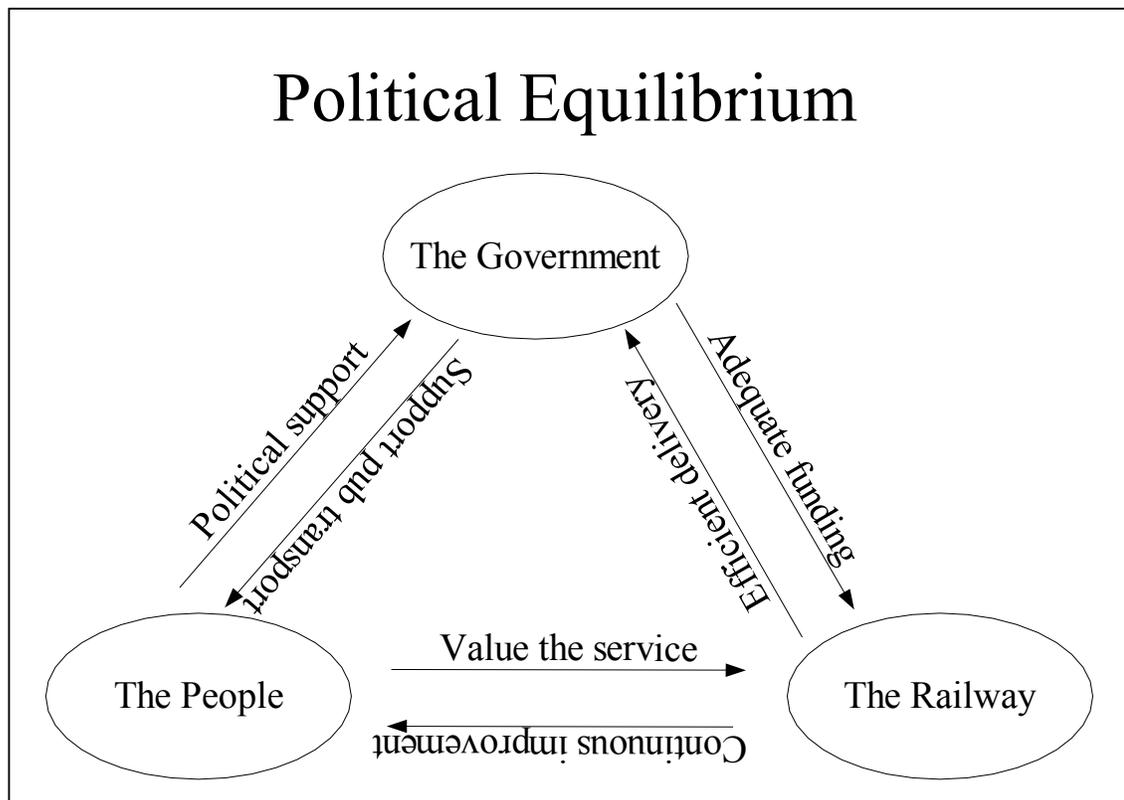
The net social value created is the excess of value created over total social cost.

In order for net social value to be maximised, a common frame of reference needs to be used which relates all the dimensions of value to monetary approximation. A model of the social value drivers of the metropolitan region needs to be created and applied to various transport system scenarios to compare their net social value creation. The social value drivers will be derived from a model of the social and economic fabric of the region.

4.3. Political sustainability

In a democratic society the ultimate arbiter of social value is the voter or the people. There has to be a stable equilibrium between the people, government and railway management in order for a metropolitan transport system to be appropriate to the needs of the people and the public transport aspects to be funded sustainably and managed efficiently.

Figure 2: Equilibrium triangle: government, the people and railway management



Where other sources of funds than government are used (from private sector involvement or dedicated loans) this triangle remains very important, and the government must help to remove obstacles and minimise the total cost of capital by creating an enabling and credible environment (for example, legislation, contracts, access to courts, etc.).

As a living example of the working of the axes of this triangle, we can point to a recent example on the People-Management axis. Most travellers cite the high level of personal insecurity through exposure to crime and violence as their primary concern when using the services or reason for their choosing other modes. The Constitutional Court ruled in 2004 that the state commuter rail entities had a legal obligation to ensure the security of passengers. R70m was allocated by the SARCC, the old Railways Police College was resurrected, and 400 recruits were trained and deployed for service in Cape Town to deal with crime on the railways. This released the existing security staff for revenue protection duties. Visible policing sent a credible signal to the public. The effect in the first month of deployment was an increase in ridership, a decrease in fare evasion (at least partly due to an increase in willingness to pay) with a revenue impact of R25m – a purely financial return on investment of 30% in one month!

4.3.1. Effective deployment of public subsidy

In the relationship with the people, the government should deploy public funds where necessary to maximise the net social benefit created. In doing so it should take cognisance of the balance of voter interests and communicate with voters via policy statements, etc. to stabilise the people's political satisfaction and support.

There is a strong case for local government to have the principal role in subsidy allocation. However, national government generally assists in making funds available, as the prosperity and efficiency of the cities is of national importance and their voters make up a large proportion of total national voters.

4.3.2. Proper role and standards for public transport

Transport policy necessarily involves deciding the level and quality of public transport provision in the transport mix of the region. This is ultimately the responsibility of government. It is also appropriate that the level of government closest and most accountable for public transport makes these decisions, i.e. local government. There is an indirect role for national government in that its contribution to the subsidy relaxes the budget constraint.

4.3.3. Appropriate scale and scope

The government has also to decide how much and what public transport to provide at what prices, and balance other considerations, such as externalities. The government also needs to inform the people of its actions seeking to maximise their satisfaction expressed through social stability and in the end the ballot.

4.4. Fiscal constraints

There will be fiscal constraints applied at various levels that will limit the amount of public money available. Efficient performance by railway management, evidence of good governance and direction by local government, resulting in voter satisfaction will tend to increase the flexibility of fiscal constraint. Other sources of money, such as the MIG, can also be accessed.

Being allowed to borrow from commercial and/or development banks or multilateral international institutions will achieve further relaxation.

Engagement of the private sector in aspects of infrastructure and service delivery further relaxes this constraint by levelling calls on the fiscus over a number of years, and reducing costs by efficiency gains as a result of competitive pressures.

5. Governance and Control

International experience points overwhelmingly to inefficiency and poor quality when commuter rail services are delivered by monolithic, vertically integrated government agencies or divisions directly. The result tends to be increasing operational shortfalls, calls on taxpayer support and dissatisfaction among customers. The reasons typically identified for this include:

- Confusion between the political, social and commercial goals set for management;
- Political appointment of senior managers with relative disregard for competence and capability;
- Weak oversight;
- Short budgeting cycles of government and volatility of political priorities resulting in chronic underfunding of assets and infrastructure and chronic reliability and capacity problems; and
- Political interference in management decisions.

In many cases of restructuring in developing countries this has led to wholesale concessioning of the service delivery and asset management to private concerns. Often, these processes have been precipitated by fiscal crises, creating an urgent need to reduce the cost of subsidy and to raise money from the sale of concessions.

Weak regulatory institutions have also been a characteristic of many developing countries' restructuring efforts, the result of lack of capacity or poor regulatory frameworks. Where there is an obvious lack of capacity to properly endow a regulatory agency, either technically or financially, the restructuring designers need to take this into account. Maximisation of competitive pressures in the delivery needs to be given special emphasis.

There are other examples, for example, in Toronto, where a stable, virtuous political equilibrium has been achieved around commuter rail services delivered by a state-owned corporation that is highly efficient with high approval ratings from the people. In cases like these, the bulk of functions are contracted out to the private sector, with the core function of the state-owned railway being the strategic management and development of the railway and to maintain or improve the political equilibrium.

5.1. Minimisation of operational cost

In any successful framework for the delivery of efficient railway commuter services there have to be credible, sustained and effective forces that lead the management of the railway to continually improve the delivery at the same time as reducing:

- The total cost per unit; and
- The call on the public purse.

Railway management can influence the total cost per unit, but the call on the public purse is partially a result of political decisions as to the control of fares for social reasons. A balance that seems to provide a sensible guideline is that the railway should be incentivised to cover its operational costs from the farebox, while the state covers the capital costs of renewal and expansion.

An intrusive independent regulator is one way to hold management accountable for improving efficiency. The government should give clear indications of:

- What sort of railway it requires; and
- How much it can pay for it.

The regulator must be able to negotiate a realistic plan with government and management. The regulator must then act perpetually to rebalance this agreement, and hold both the government and management accountable for their commitments. This approach places a high burden on the regulator, and demands that it be equipped with highly competent personnel and have significant powers to reward or penalise the management of the railway.

A more effective and less expensive way to minimise total operational costs is to subject the activities and functions to deliver commuter services to competitive pressure. This need not be exclusively to the private sector, as divisions or business units of the railway may be able to make competitive bids. There are a number of models of competitive engagement and they vary in effectiveness, depending on the exact nature of the function or activity being considered, and the competitiveness and capability of the potential market for supply.

The extremes of the competitive model are:

- The outright sale of all or parts of the network to competitive bidders; or
- Putting out to tender the supply of some products and services.

The latter is the status quo for most monolithic railways, as none of them manufacture all the products they need and provide all services. The use of commercial contracts to give clear signals to the railway (as a whole and individual parts) and hold it accountable is a useful, objective instrument, regardless of the model used.

5.2. Stewardship of assets (whole-life cost minimisation)

One of the greatest sources of dysfunction in political control of railways is that the cycles of the political world are about a tenth of the cycles of the railway. Carriages last 20 to 30 years, track assets last about 40 years, stations and permanent way lasts for 100 years.

It is important to structure the environment around the management of railway services to provide this long-term view, so that whole-life cost minimisation can be sought and achieved. Funding life cycles need to be matched with assets, e.g. with debt with maturities of 30 years.

Maintenance and replacement strategies need to be developed over decades, with the aim of incrementally improving the reliability of the service and reducing its cost.

Another implication of the long-term view is that management itself needs to be stable with low turnover and high degrees of teamwork. The workforce should also have these characteristics. A result of this is that successful railway communities have a stable, close-knit nature. There is, however, a tendency to identify more with the assets than with the customers.

5.3. Improvement of customer satisfaction

There needs to be a matching of service delivery with political cycles, which focuses management on continuous incremental service extension and quality improvement. Value can be created using innovation and service packaging rather than major investments in capital goods. This customer-orientation is an important part of the stable equilibrium of commuter rail service delivery. This counteracts the inward-looking tendency of the railway community.

5.3.1. Accountability

Customer satisfaction is won by providing a basic satisfactory service and improving on it continually. Customers' needs and desires of the service need to be taken into account, and management has to be attuned to these needs and desires. On the one hand this will come from feedback from the customer, and on the other hand from the political loop. Management must be able to balance the two.

Symptomatic of a successful balance is:

- A steadily increasing ridership and approval of the railway; and
- Continued funding and development cycles from the political sphere.

It is thus important when designing a commuter rail delivery structure that both points are incorporated. The current structure is unable to absorb either of these.

5.3.2. Willingness to pay

An alienated customer base is likely to be characterised by high levels of fare evasion. The most sustainable means of combating fare evasion is to increase the sense of value and ownership of the service by its users. Reduced fare evasion directly assists management in making more money available for the operation and development of the railway and customer services. Willingness to pay is thus one of the users' levers of accountability on management, and its systematic improvement provides a powerful signal to management of customer requirements.

5.3.3. Economies of scope and scale

There is clearly potential for the railway to carry a much greater portion of commuters than it does in our cities currently. Recovery of the condition of the assets and a longer term renewal strategy will enable the railway to take up its share. Extending access to the railway for more of the recent migrants to the cities and residents of informal settlements will make a contribution to their economic integration into the city's economy.

However, it is not only a numbers game, and attention needs to be focused on the packaging and quality of the traveller's experience. Improving the dignity and comfort of travel for the poorer sections of the community is important for their quality of life. There is scope to extend the customer base to the middle class as road congestion rises. Middle class travellers also offer scope to increase the farebox coverage of operating costs. Changing the mix of travellers also changes the way in which commercial, retail and leisure developments can be conducted. The use of the railway as a tool for spatial planning and development in the cities should not be underestimated.

5.3.4. Enhancement of city life and prosperity

The improvement of the commuter experience and its extension to currently underserved or stranded groups has the effect of increasing the available pool of candidates for employment and increasing the propensity of employers to take them on, as the direct and indirect costs of poor transport are minimised. The effect is one of improved competitiveness and increased economic activity.

The results that flow from this include:

- The enhancement of the value of property (residential, industrial and commercial);
- Improved access to education and social services, gradually leading to improved skills levels and health; and
- Greater dignity and civic participation, which affects the level of criminal activity, improve the working of democratic expression, and ultimately the responsiveness and accountability of government,

6. Phased Delivery

Any programme of reform cannot achieve all of this at a stroke. The momentum is in reverse at present and will take time to turn around. The immediate focus has to be on managing the retreat to positions that can be held, while sacrificing others. Once the situation has been stabilised, attention can turn to recovering to a position of full employment of current assets. Then one can look to the future and begin the process of evolution and development that will seek to keep the railway aligned to the needs of the cities.

6.1. Short term: stabilisation

6.1.1. *The corridor strategy*

The deteriorating situation in rolling stock means that the current service levels are indefensible. This situation will deteriorate further before any accelerated GO programme will have an effect. It leaves no choice but to focus assets and attention on those corridors where rail is serving most customers and where bottlenecks are least challenging. It will inevitably lead to service curtailment or suspension on other corridors. It may lead to diminished off-peak services even on the focus corridors. These are difficult choices and will not be popular with current users.

6.1.2. *Morale*

Staff morale is already battered by the inexorable decline of the railway, and they will face rising public anger in the stabilisation phase. It is very important for government and senior management to recognise this and provide support and assistance. It is not reasonable to expect the relatively junior local staff to face the brunt of public reaction, for others higher up took these decisions. Engagement with civic organisations and unions will be needed to help manage this transition phase. Clarity to the public and the staff will assist in creating a vision and appreciation of future improved services.

6.1.3. *Organisational capacity*

Management of a newly consolidated commuter rail entity will have to lead from the front to keep staff motivated and the public patient. They will need to be more accessible. Layers and rigid structures will have to be removed from organisations. Greater responsibility will need to reside in regional organisations. Decisions on the selection of corridors and service-level specification will need to involve local authorities.

The technical capacity of the organisations has been dangerously eroded, and decisions will need to be taken on whether and to what extent technical functions are done in-house. Contracting out these functions in sustainable parcels is likely to be the most effective way of applying local and international resources to the problems of accelerated asset condition recovery. This is not an exhaustive description of the organisational challenges, but it serves to highlight the fact that the organisation will need to be reinvented. The regions will need to become more empowered and autonomous, with strong, direct links to local government. Local government will need to reorientate itself to take more control and responsibility for funding. The engagement of the private sector and mobilisation of capital from diverse sources provide the most feasible way to maximise the resources deployed and minimise the tactical retreat to sustainable positions from which to begin the march forward.

6.1.4. Asset condition

This first phase is essentially concerned with identifying what assets are available and deploying them most effectively to keep as many of the services going as possible. This involves a careful inventory of rolling stock, in particular, and planning how to use them.

The immediate and parallel process must mobilise to accelerate the asset condition recovery programme, also mainly rolling stock. It will likely take three years for the programme to begin to have a significant effect.

6.1.5. Institutional capacity

The new commuter rail organisation will need to be placed into an institutional situation where the role of government at the local level is significantly enhanced. Local government will have to restructure its transport planning processes urgently to take this into account. This new partnership will have to be built very quickly, and there is a role for national government to assist in this process by giving clear signals, including the diversion of funding, and/or new funding, and/or engagement of multilateral institutions, such as the World Bank, the IFC, the Development Bank of Southern Africa (DBSA) and the African Development Bank.

The routing of funding flows from Treasury will need review, again to give effect to the increased local role for planning and delivery of commuter services.

The use of contracts to mobilise the private sector on an unprecedented scale will pose a challenge to both local government and the commuter rail organisation in the specification and design of these contracts, and the processes whereby they are competitively tendered.

The capacity in the private sector in this industry has gradually withered with the lack of investment over the years. Clear signals and facilitation by government at local and national level will be required to engender the confidence to gear up capacity, engage with international technology partners and invest in new technology developments. There is no doubt that, given such strong signals, the private sector will mobilise.

6.1.6. Accountability

The management of the railway and politicians need to be exposed to pressures from their customers directly. The links on the sides of the triangle of People-Politicians-Management need to start to be forged to lay the foundations for a stable, virtuous balance in public transport provision. This is required to get the political sustainability model working. Once politicians and management have a sense of approval and displeasure transmitted from the people, the axis of accountability and support between politicians and management will begin to work.

A new model of engagement with local communities on their transport needs will have to emerge. The old habit of hiding in inaccessible offices will have to be replaced with a more local, accessible character. To do otherwise will incur uncontrollable anger in communities impatient with slow or no delivery and empty promises.

A new age of accountability needs to come to pass. A very powerful tool in its achievement is the positive and rich engagement of the media.

6.2. Medium term: sustainability

6.2.1. *Renewal of fleet*

The renewal of the fleet with a new generation of rolling stock is important to change the technical (reliability), financial (life-cycle cost minimisation) and customer service characteristics of the commuter railway. There is about a five-year lead time for the development and production preparation for such a programme.

Care must be taken to ensure that there is an orderly transition from the old fleet to the new.

6.2.2. *Capacity building*

Management

Successful transformation of management structures of the commuter railway is needed to transform the commuter experience. A new approach to the selection and incentivisation of management will be required, as compared to typical approaches applied to date in government agencies. Care will be required to design and implement management transformation programmes. Customer-focussed, output-driven orientations are essential.

Skills

The technical and management skills needed by the railway to achieve a sustainable, continuous improvement in the contribution of the railway to the economic and social development of our cities are severely depleted. A conscious programme of skills development and recruitment is required.

Governance

The history of regulatory institutions and government oversight of agencies and SOEs in SA is not a glorious one. Attention has to be paid to structure and various mechanisms of control and governance. Public scrutiny is a powerful force in this regard and warrants re-examination of how to use the media to this end. A much greater use of contracts is warranted. This has to go hand-in-hand with a greater maturity in their on-going management, coupled with the opportunities they create for the use of competition as a disciplinary force for efficiency and innovation.

The non-road transport sector in SA is dominated by SOE monopolies, including commuter railways. National and city government should understand more holistically the social and economic development potential of transport, including public transport. This must replace the narrow, siloed view of SOEs as localised profit maximisers and sources of political patronage.

In order to achieve this broader appreciation of the developmental role of transport, a new class of technocratic institution is required. These could be quasi-regulatory agencies, independent bodies or interdepartmental, inter-sphere institutions. Their function should be to assist the national and city governments make rational planning and implementation decisions, placing transport in its wider context and ensuring its proper functioning.

Service frequency and coverage

Having retreated in the short-term to a tactical point where services can be sustainably delivered with the diminished fleet of today, and starting a fleet resuscitation process to improve fleet availability and reliability, a trajectory of recovery can begin. The aim should be to arrive at a point where service frequencies are selectively improved and lost services gradually reinstated. This is

not to say that the aim should be to arrive at the old timetable in its heyday, but to arrive at a point where the services are most appropriate to the demand and capacity to supply. This will probably involve small capital projects to decongest key points and make high-priority network extensions.

The aim should be to produce an already evolving railway that better fits the needs of our cities and their people. It will be a long-term process, but the sustainability process will conclude when the structures, assets and services are in a sustainable condition, and the People–Politicians–Management triangle is in a virtuous cycle of convergence.

6.2.3. Improvement in revenue

Willingness to pay

As symptoms of the virtuous cycle of sustainability, ridership and willingness to pay should increase, as the service is valued more by the people. This will lead to revenue improvements. One should also see a reduction in vandalism and theft. The example of the Cape Town Railway Police experience is instructive here.

A battle for the hearts of the people will ensue as railway management will have to win back those commuters who left because of the service retreat necessitated by neglect of the past.

Increased ridership

Increasing frequencies and marginal, high-priority network and station extensions will add to the upward revenue trend. All such marginal additions should be weighed in terms of revenue contribution. The political considerations of wider social value maximisation should be expressed as contracts with the railways to increase the revenue. It should not be left to railway management to make decisions regarding social priorities.

6.2.4. Cost management

Instituting an internal benchmarking process between the city railways and an organised process of spreading best practice will be an effective way of continuous improvement in cost-effectiveness.

The functions of the new technocratic institutions should include supporting city railways in their efficiency drives.

There is no substitute for management's understanding of the drivers of the sustainability model and its co-dependence on politicians in terms of delivery of continuous service improvements to users and efficiency improvements in operations.

6.3. Growth and development

6.3.1. Inter-modal co-ordination

A key characteristic of a future-oriented transport-planning regime that should emerge in the cities from this process is that there is a transport system-wide view, balancing the modes and their interaction for maximum social and economic value for money.

6.3.2. *Redesign of urban transport networks*

Eventually, the city planners should be using transport networks to shape and change our cities for better efficiency, sustainability and quality of life.

7. Basic Principles

7.1. Maximum positive net social value creation

A successful railway delivers continuous improvement in efficiency, quality and scale at a marginal financial cost (including fares, subsidy and cost of capital) less than the marginal net social benefit (defined as the total value of the economic and social effects, including financial returns and externalities, such as emissions, congestion, quality of life, employment, etc.).

An optimal situation exists when the marginal financial cost is equal to the marginal net social benefit derived. This means that the scale of delivery has been expanded to a point where the net social value created is at a maximum. Delivery below this point means that money is being spent elsewhere less effectively. All government investment decisions should be weighed this way including the various transport choices, and allocation ideally made on this basis. This is too lofty an ambition, so we constrain ourselves to public transport (or maybe only commuter rail) in a city.

7.2. Balance between the people, the government and the railway

The basic architecture of the structure, institutions and relationships built to deliver commuter railway services in the cities needs to take into account the People-Politicians-Management triangle. When this is in balance, it ensures a sustainable environment where public funds are optimally deployed and railway management has a customer-focus and is disciplined to deliver continual quality and efficiency improvements.

A well-working triangle will tend to the optimal situation of net social value maximisation, as it is the 'invisible hand' signalling the real values (prices) of the various aspects of social value.

7.3. Structure determines behaviour

People respond to implicit incentives of the game in which they find themselves. Official performance agreements, organograms, mission statements and corporate strategies do not cut it. Power lies in control over resources. Generally an organisation delivering such a large product as commuter rail services will have greater resources than a regulator or government department, with the added advantage of having all the information under their control. Taxpayers' money is cheap (almost free!) and government officials will generally not overly exert themselves to ensure its proper use.

What this means is that greater forces than the typical oversight model employed over government agencies will have to be brought to play to ensure success. The People-Politicians-Management triangle and its relationships provide a model to build such a balance of forces. The fate of both politicians and management need to be in the hands of the people, ultimately, and there needs to be a mutual dependency between the two. This brings about discipline in both of them. In a situation where one is dominant over the other, the customer focus withers, and one either ends up with an expensive railway offering poor service or a railway starved of funds and its senior management buffeted by changing political objectives. The result is the same: an unsustainable railway situation with dissatisfied and poorer people and cities.

7.4. Provide clear delivery specification

A precondition for a confident specification of output required from the railways deploying available funds from all sources in the most effective way is an effective model of our cities and of the drivers of total net social and economic benefits from a number of inputs. These inputs can comprise investment in infrastructure, subsidies to target classes of transport user, distribution of users and travel demand, etc. The model must be able, for example, to estimate the following:

- The effect of an increase in the use of a particular mode of transport on economic growth (and in which sectors), changes in income distribution, employment growth, emissions, use of other modes (and therefore increase or decrease of congestion), the value of freed-up time, other externalities, etc.
- The elasticity of demand with price and perhaps other factors, such as security

These models can then be used to evaluate and optimise scenarios of intervention to identify the most beneficial ones for the available funding. They can help to determine how expanding the funding sources can increase the net social value generation.

Having established the optimal mix of transport infrastructure and public transport provision, specifications can then be drawn up for the delivery of public transport services and infrastructure. Attention must then turn to the most effective means of procuring these outputs.

7.5. Focus government on determining the outputs

What is clear is that the trade-offs expressed by the different values associated with the various dimensions of net social value created involve critical political choices, including the means of delivery and funding. It should therefore always remain the competence of local and national government.

This principle can only be relaxed when a high degree of stability has been achieved and the People-Politicians-Management balance is working very well. Under these circumstances, management can take on more of the determination of the development priorities of the railway, but they are always likely to need to revert to government for major capital projects, and need ongoing subsidy. This means that the government always has its hands on the principal levers in the event that management does not perform in this strategic social function. The example of Toronto again comes to mind, where politicians are volunteering to give management more autonomy, as confidence in management is very high, and popular approval is rock solid.

7.6. Focus management on simple mandate

The management of the railway must be clear that their role and incentives are to ensure the efficient delivery of the outputs. They need to be aware of their context in the People-Politicians-Management triangle, and make sure that they are communicating effectively with both the people and the government and delivering continuous improvements in service quality and efficiency.

This is best achieved when the board overseeing management has a clear mission, is independent of political influences and has freedom to seek the best management and incentivise them. Too close an association of the government and the board will tend to create a negative feedback loop where management starts to pick up political risk and incentives, which will undermine the clarity of their focus on performance. The clear mandate needs to be on efficiency and customer service.

Railways are seductive as machines. The temptation to become internally focused on assets and operations and over-specify technology need to be reduced. One way is to contract out most of the asset- and operations-oriented functions on a competitive basis. The design of such contracts is not a simple job, requiring sophisticated management.

7.7. Enabling environment for private-sector involvement

The complaint is often heard, "The private sector is not doing its part in creating jobs and transforming society!" This springs from a fundamental misunderstanding of the rules of the game in which the private sector plays. The key driver here is a disciplined relationship between shareholders and management through capital markets. Although there are inefficiencies in this relationship, its primary function is to allocate capital to where it yields the highest return for a given risk. It disciplines management to work to provide these returns by the threat of capital flight to better opportunities. Government intervention in this market to achieve social or political ends merely changes the distribution of returns: the capital blindly flows to follow. Government's black economic empowerment (BEE) procurement preference policies bias returns to BEE-compliant companies to some extent, and so capital allocation will be biased to exactly the same extent. The goals of BEE are those of government, not of the private sector.

This understanding is essential if the power of the private sector is to be harnessed effectively to achieve social goals.

A key driver of private capital allocation is the risk of an investment. Government can borrow at the lowest rate of interest, as it has the ultimate security of being able to raise taxes to pay the interest and capital. Taxpayers do not have the option of not paying! Any investment in a business whose client is government has a higher risk than that of government. It may have miscalculated the price that it is contracted to receive or face other risks, such as interest rate or input price hikes (for example, labour) which are not compensated for in the contract. It may therefore yield a lower return than expected or go bankrupt. It must therefore pay more for debt, and even more for equity capital.

Taxpayers' money also has a price: set by competing demands for it from parts of government. The return on public investment is measured in political rather than financial terms. This is right, as the quality of a government is not only measured in the financial return to the Treasury. A government is disciplined by political means. In a democracy this is by the people being able to determine who is in government and dismissing those who do not deliver an acceptable balance of benefits and minimised taxation. If this is working properly, government will generally be attuned to deliver benefits (including non-financial ones) and social engineering (income redistribution) that will increase the general welfare of the people sufficiently to keep them in power.

So, why not have government just use taxpayers money and/or borrow to buy products and services directly? The answer lies in the fact that when you add the political opportunity costs of public money to the interest rate, the total cost of borrowing or taxing can rise above the cost of capital of a private sector entity delivering the same outputs. Further, government often does not make purchasing decisions that could obtain greater efficiency by buying various products and services, or using innovation to apply them more effectively. The private sector is much more financially risk sensitive, and therefore inclined to innovate for greater efficiency to increase profit.

So, as a general rule, where a particular output can be clearly specified by government that can be produced by a combination of technology and labour, the government is better off buying the

output from the private sector and allowing the competitive pressures to maximise innovation and efficiency in delivery and minimise financial cost.

Government can reduce the efficiency of this process by confusing this simple process by increasing the risk borne by the private sector, for example by being able to arbitrarily change the terms after contract. Non-independence of the judicial system that is the only resort to obtain enforcement of the terms of a contract, for example, is a huge risk. Corruption in contract award will raise the costs of bidding and reduce the competition to provide the best solution. Poor monetary management introduces excessive currency and interest rate risks. Poor government creates risk of social instability. Naïve and inexperienced bureaucrats may set terms and conduct negotiations in a manner that increases risks on both sides.

There are external issues that can increase the risks of investment, e.g. illiquid debt and equity markets, exchange rate volatility and exchange control.

In order to reduce the costs to government and obtain the most efficient solutions, government must create an enabling environment that reduces unnecessary and extraneous risk to a minimum or allows potential investors to manage the risks. It is important that the risks are shared in a way that minimises the total cost – political and financial. The risks should be shared in a way that is related to the rewards expected by each. An example of risk that the private sector can take on efficiently is technology and performance risk, and their profit should be related to this. Government can underwrite the demand estimates and put in place external measures to assist in their achievement, and reap the political rewards of an electorate grateful for improved commuter rail services.

What are some examples of this enabling environment for foreign and local investors?

- Sufficiently independent and sophisticated legal and financial institutions to provide comfort that contracts can be enforced and financial services secured cost-effectively. This includes the ability to place debt and sell equity into a reasonably liquid market. A deep foreign exchange market is important. In SA these are not significant risks.
- Clarity of policy purpose and execution by government, so that potential investors are clear as to the sensible political motives and the behaviour of officials. Here, SA scores less well. There has not been a significant engagement of the private sector in partnership to deliver infrastructure or services in a consistent and transparent manner. There have been too many instances where government officials have teased, vacillated, delayed and eventually not concluded a deal, while the potential investors have wasted much money and time. The onus is on government to signal credibly that it means business, and truly seeks a partnership where the risks and rewards are shared optimally, and the goals are politically and economically sensible.
- A stable political environment with no risk of arbitrary expropriation of property or revenues, and a predictable tax regime.
- Exposure to civil unrest, crime and violence can be insured for at manageable cost or underwritten by the government.
- Stable economic fundamentals for long-term investments in for example railways.

Investors can accommodate most of the above risks, but they raise costs. Multilateral institutions, like the World Bank, have agencies and products that mitigate many of the typical risks at reasonable rates, especially where they can help mitigate them through established relationships with the host government. The involvement of the World Bank and its affiliates in itself gives comfort to foreign investors.

8. Options and Choices for Delivery

We now discuss some of the key variables that need to be decided for the implementation of the new commuter rail entity. Many of these also have a time component, as they may change over time for tactical, technical or political reasons.

8.1. Structure

8.1.1. National versus devolved

It is desirable, a constitutional aspiration and a stated policy that public transport should eventually devolve to the level of government closest to its delivery. For the cities it is clear that they are accountable to the users and the general population of the city for an efficient transport network.

Historical centralisation and the parlous state of the assets requiring urgent remedial action mean that the process must start before devolution can occur.

The ideal arrangement seems to be to involve the cities directly in the urgent decisions and in the design of the solutions, so that any strategy or contractual arrangement conceived in the stabilisation process will traverse any devolution processes smoothly. The process is likely to produce some cities that are eager to take early control, while others may need more time.

Access to the Municipal Infrastructure Grant, restructuring loans to the cities by commercial and multilateral institutions and the preferences of the Treasury will all change the dynamics of funding which will be vital in setting the pace for devolution.

How quickly government will move to devolution is a moot point. The conditions that need to be met for institutional capacity to accept responsibility for rail are directly related to the priority and resources allocated to the political decision of what would be an appropriate time frame to achieve devolution. It is understood that National Treasury favours devolution as soon as practical on the grounds that it will encourage more integrated public transport planning and funding.

8.1.2. Ownership

Private ownership of key social assets, such as commuter networks or rolling stock is an emotive political issue. It is, however, not a key issue for the engagement of the private sector. What's more important is the effective control of the assets where this reduces performance risk. The value of an asset to the private sector, whether owned or not, is the income stream attached to it over time.

Concession arrangements have been commonly struck where the assets' custody is passed but the legal title remains with the public sector.

A point for consideration is that the public sector should be concerned with the output (train availability and reliability) rather than the ownership. It may, however, be sensible from a public sector risk management point of view to own the assets.

Regardless of the ownership, the assets have very little value outside the dedicated task of providing commuter rail services. While there is a critical shortage of rolling stock in SA, there may be a market in other cities, but as the rolling stock crisis abates, there will be no practical

value in the private sector owning the assets for their own sake. The track is completely a captive asset. These therefore provide no security to debt holders of either the public or private sectors.

There may be public accounting reasons to nominally have the assets owned by the private sector provider, as the associated debt burden and contingent liabilities are not accounted for in public accounts. This should have very little real economic impact.

8.1.3. Mandate and accountability

The transport sector in SA is characterised by ill-defined and overlapping functions, powers and mandates, with the DOT and the DPE competing in government. The role of the SOE Transnet is that of an effective extra-governmental policy-maker, regulator and taxer.

It has been argued above that there should be a mutual dependence of equals in the government and the management of the railway. The board overseeing management should enjoy the maximum possible independence in the execution of their mandate. Any regulatory body should be independent of political or commercial influences. The functions, mandate and motives of each institution should be clear.

It seems unlikely that such a situation can be achieved immediately in SA. The lack of experience by government of the operation of independent bodies means that there is likely to be a strong sense of insecurity and a desire for official controls. The lack of experience at creating competent SOE management structures and governance mechanisms increases the political risk of any significant innovation.

The role of local government needs to be managed carefully as they are an important role player that has had no say at all up to now. A role for each of the cities in taking much greater responsibility for planning and delivering rail services needs to be engineered quickly. Squabbles between provincial and local government spheres have stymied the implementation of the National Land Transport Act (NLTTA). Central government will predictably be reluctant to cede powers traditionally held.

Whatever structures are designed for the start-up phase need to be sufficiently flexible to be evolved and experimented with, so that an efficient structure can be achieved in good time with minimised political risk. An important principle is to improve the accountability of government and the railway to the users and beneficiaries of the railway as quickly as possible. Logically this means local, and the routing of public funds and political responsibility through local government.

9. Roles for the Private Sector

It is argued above that the strategic focus of railway management should be on efficient delivery of continuously improving commuter rail services to users of the railway. The detailed functions and operations can effectively be contracted out to the private sector. These functions include:

- Customer services
 1. Revenue collection
 2. Public information (timetables, real-time train info, delays and cancellations)
 3. Security and policing
- Stations
 1. Inspection, repair and maintenance
 2. Ambience (gardens, colour schemes)
 3. Retail
 4. Toilets and facilities
- Rolling stock availability and reliability
 1. Rolling stock design
 2. Rolling stock manufacture
 3. Maintenance and overhaul
 4. Scheduling and fleet planning
 5. Recovery reserves
 6. Train crew
 7. Cleaning
- Permanent way availability and reliability
 1. Track inspection, maintenance and renewal
 2. Structures inspection and maintenance
 3. Signalling system
 1. Design
 2. Reconfiguration
 3. Upgrade
 4. Repair and maintenance
 4. Electrification and power
 1. Inspection, maintenance, repair and renewal
 2. Design and upgrade
 3. Bulk power procurement

- Traffic management
 1. Timetable management
 2. Signal operation
 3. Delay and incident recovery
 4. Delay attribution

This is not an exhaustive list, but serves to illustrate a hierarchy of functions, where the highest level is for services critical to delivering the end product to the customer (service availability, reliability and quality). Underlying these are technical, operations and engineering functions. The point of the hierarchy is that these lower-level functions can be procured separately or bundled as output-defined services at the higher level. There is a continuum of options available. The private sector can be involved in any or all of these.

The unavoidable responsibility of the public sector is to determine the extent and quality of services and fare rules.

The models of private sector engagement range from procurement of specific products or service right through to the outright sale of the assets and buy-back of the outputs required. The exact partition of the business and mix of private sector engagement modes will be determined by local and national political considerations and the current and future functions of the railway in the development of the cities.

9.1. Funding

9.1.1. *Credible bids for public funding*

An improvement in visible delivery from commuter railways and transparent accounting for the deployment of public funds will increase the confidence of Treasury that it is money well spent. This will increase the propensity to make funds available. This will be even greater if integrated planning and management led by the cities is optimising the spending, so that total funding for transports is being spread across infrastructure and modes in the most beneficial way.

Improved planning will also increase the probability of successful bids from the MIG and the new Public Transport Fund.

9.1.2. *Control mechanisms*

The best control mechanism is openness in reporting and accounting.

Commuter rail organisations should publish detailed financial and performance accounts, hold public meetings regularly, hold many or all board meetings in public, have a continuous programme of press and public relations operating, and voluntarily engaging with city and national government about its performance and plans.

The contract between the 'city' government and the railway should be public and regular reports of the performance metrics should be published. In this way, even if the government is failing to hold management accountable, the press will.

Appointments to the board should be a public process, with a clear structure. Typically, key government structures should be able to nominate representatives. Civic organisations, business and even public elections should provide the balance. The government representation should not be more than half.

Appointments to the board and the conduct of its meetings and members should be open for scrutiny by the public. This imposes discipline on the board and its members. It also provides an ideal opportunity to receive signals from the people about the value of the service and how it needs to improve. If the public understands the constraints facing the railway and government there will be a greater willingness to pay, either through taxes or fares. A sense of empowerment will also encourage interested and capable citizens to engage by communicating with the board and management or serving on the board.

9.1.3. Relaxing the fiscal constraint

A major advantage of bringing the delivery closer to the users in the cities is that it increases the options for funding and service delivery. By commuter rail becoming a part of the city's vital infrastructure and services, the city's funds become available to enhance national grants. It also provides greater access to the Municipal Infrastructure Grant. As cities are now moving to raise debt, they have the choice to use this source to increase funding options. Here, the World Bank, DBSA and the African Development Bank can lead specific development finance-raising drives.

Engagement of the private sector can bring total life cost improvement through innovation and efficiency, reducing the absolute funding requirement and improving the output. It can also provide temporal smoothing, by using private debt and equity. It can absorb some risks that increase certainty for the public sector in the budgeting process at the heart of government finance. The effect of these is to reduce the requirement for funding expensive to government, such as large upfront, irregular payments and uncertainty in budgeting for future payments. The effect is to increase the total amount of capital available and to reduce its total cost (when including the government's internal drivers of cost of funds).

9.2. Delivery specification

9.2.1. Integrated transport planning

The best means of arriving at a specification of what is actually required from the railway is through a process of integrated transport planning at the city/regional level, and a dialogue with Treasury and other sources of funding. This process should be transparent to the people and covered by the press. This is part of the working of the People-Politicians-Management triangle.

9.2.2. Optimisation of benefit within financial constraints

A key condition of the integrated transport planning process should be the maximisation of net social benefit to the point where marginal financial cost is equal to marginal net social benefit created. One of the key constraints will be the availability of funds from all sources, and this should be reflected in a rapid increase in the financial marginal cost as this constraint is approached. The price of capital from the public sector should reflect the political and financial opportunity cost to government of other applications of the money.

9.3. Service recovery and procurement

9.3.1. Limited resources

Clearly there has been a depletion of skills and experience in the railway over the years. Morale is low. The supply industry for railway infrastructure and equipment has been starved of demand,

and has withered accordingly. Government has kept commuter rail functions at an inappropriately distant point from users, while seeing its own capacity dwindle to oversee and direct efficient delivery of services appropriate to users.

So, the resources are depleted to define the service requirement, empower management to deliver it with personnel and capital and for suppliers to design and deliver the necessary infrastructure and equipment. But these can all be repaired and restored. The private sector has access to international technology and skills if it has a sustainable demand for products and services. The capacity to define outcomes and assure their achievement can be restored by designing an appropriate structure, empowering local government and management within a transparent accountability framework. The key here is the working of the People-Politicians-Management triangle. Government can procure specialist services and skills, and local suppliers have the option to mobilise international resources.

9.3.2. New technology

Innovation and access to appropriate technology is only a question of moving onto a forward-looking footing, and proper planning and evaluation of costs and benefits.

9.3.3. Long lead times

Railway rolling stock and infrastructure generally have long lead times in terms of delivery, typically five years. This means that planning and delivery have to be looking at least five to 10 years. It also means that the current assets are going to have to provide the basis for the recovery of the services while the delivery of the new is underway.

9.4. Lessons from elsewhere

9.4.1. The monolithic SOE

What benefits can SA derive from an examination of railway restructuring that has taken place around the world? As the commuter rail industry moves into a transitional phase to establish PAXCo, an examination of selected aspects of the history of railway reform would seem to be a logical starting point to glean lessons from history, avoid obvious pitfalls and ease the process of change.

Railway reform around the world has been driven by three broad factors: competition from other transport modes, pro-market policy frameworks and fiscal crisis. Railway companies are typically large, rigid, hierarchical and highly compartmentalised organisations under state ownership. Further, public ownership was regarded as essential to manage the natural monopoly infrastructure services, to protect consumers and serve national or strategic interest. State-owned railways employed large workforces, generally highly unionised, making these enterprises politically important constituencies in their own right.

In developed economies state-owned railways were perceived to be monolithic, unresponsive to customer needs and with low levels of productivity improvements. In developing countries the poor financial performance of the railways was the dominant factor driving change where governments recognised that they could not afford the substantial drain from loss-making, state-run railways. Between 1990 and 2000, railway ownership patterns in the Americas, Australasia and parts of Europe changed dramatically, with privatisation in various formats replacing the monolithic SOE, with private companies operating concessions. Privatisation was more far-

reaching in freight operations whereas the state tended to retain a larger role in passenger rail services on the grounds of public interest over pricing and service levels. Privatisation in passenger rail services tended to take the form of shorter duration franchises than long-term concessions awarded in the freight sector to allow the state greater scope for rebidding contracts if performance objectives were not met. In all instances management's focus was narrowed to address core rail operations unlike under previous public sector mandates that imposed non-commercial obligations on the services, typically excessive employment levels and running regional services in excess of demand.

Assessing the generalised performance of post-privatisation railways returns positive results in higher traffic levels, reduced tariffs and higher labour productivity. Nevertheless, privatisation has failed in a number of instances. In 2004 the New Zealand Government reacquired Tranzrail it had sold in 1993. In the UK Network Rail took over the rail network to establish government control over the funding and specification of the rail industry's outputs.

SA's commuter rail industry structure has itself undergone changes prior to the current PAXCo consolidation exercise. The formation of the SARCC and contracting services from an operator (Transnet) were intended to create a responsive industry structure in place of the monolithic SA Transport Services. As this paper has shown, deficiencies in that structure have led to deficient management and control and under-investment that have precipitated the current crisis.

9.4.2. Mixing social and political with commercial goals

One of the largest challenges confronting railway reform has been to establish fair treatment for employees where large numbers are surplus to the requirements of a focused and commercially oriented enterprise. Large labour forces are a legacy of public sector social policies, frequently combined with rural development objectives that justify maintaining rail services with limited demand. Rail privatisation in Mexico was built around a social programme to manage extensive labour shedding involving retraining, retirement and compensation with retrenchments.

Public transport provision invariably combines social goals and political goals with commercial goals to some extent. Policy objectives directed at equity, access, limiting environmental impacts, and targeting support for particular categories of people, e.g. people with disabilities or the indigent are not entirely separable from the commercial goals of achieving efficiencies and matching marginal cost to marginal revenues and reducing subsidies. However, in instances where a commuter rail enterprise is mandated with social or political goals unrelated to efficient movement of people, social welfare declines. Targeted subsidies are more effective instruments for reaching vulnerable groups.

In this paper an incentive alignment model linking government, management and commuters has been presented to focus the enterprise on the provision of the most efficient service and provide value to commuters and government.

9.4.3. Empowering the change agent

Railway reform is a highly complex process of managing change. Railway management is the subject of change and so the driving force needs to come from outside the rail enterprise. A good example of effective change agents is found in the concessioning of commuter rail and subway services by the state government of Rio de Janeiro. The implementing agent was mandated by a compact team from the state planning and finance department, supplemented with external expertise, and not from the transport ministry, in order to lift it above transport industry lobbying.

10. Conclusion

Commuter rail services are currently in a perilous state. Fortunately a reform process is underway to reverse the deterioration of services and create a sustainable business that uses public subsidies efficiently and optimises mass transit services in metropolitan areas.

Significantly higher levels of fixed investment are required to put the SA economy on a growth path that can create jobs and reduce poverty. Public investment levels are set to rise in the core energy and freight transport infrastructure sectors. This paper has shown the requirements for a major increase in the funding of commuter rail services and ways in which better public transport outcomes could be achieved that would directly benefit low-income commuters, as well as having a positive, general impact on the welfare and prosperity of SA cities. Government has at its disposal a range of options to mobilise private funding and expertise that will relax the fiscal constraints for commuter rail while at the same time retaining unambiguous control over the specification of outputs and regulation of services.