SAFETY AS AN INDISPENSABLE QUALITY REQUIREMENT IN TRANSPORT

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ABSTRACT

Safety is viewed as the first consideration in the operation of any transport system. This is evidenced by the Department of Transport's vision which emphasises safety as a requirement. Hence the vision is said to be that of providing a "safe, reliable, effective and fully integrated transport operation and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and costs in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable'.

According to Gubbins, (2003:3), transport permeates the whole of civilised life and it is like the arteries and the veins of the human body. The question is why safety in transport is so important and vital to the functioning of modern society? The approach in answering this question is the essence of this study. In the public passenger transport environment, the fundamental goal of any transportation system is to move people to where they need to go, safely, quickly with accessibility and affordability in mind. A safe transport system consists of a safe infrastructure and vehicles and these should provide mobility to the user in a more efficient and effective manner and thus improving the entire transport system.

The purpose of this paper is to conduct an extensive analysis on how safety can be enhanced in the transportation industry. It is believed that a safe transport system would improve the country's mobility and also enhance the quality of life. In as far as passenger transport is concerned, safety is the travelers prime concern. All modes of transport carrying passengers are subject to statutory safety standards. In terms of the Occupational Health and Safety Act, Act No. 85 of 1993, each employer should provide a safe work environment. It is therefore imperative that in all work environments, safety standards should be adhered to. This implies that a bus driver should view his or her bus as a plant that must comply with the safety requirements.

It is fundamental that safety be seen as an indispensable quality requirement in transport. This would ease or contribute towards the attainment of South Africa's economic goals. In order to achieve these objectives, the entire safety aspect should cover the whole value chain. An integrated approach is sought to obtain a sustainable transport solution in South Africa.

1. INTRODUCTION

For acceptable mobility, passengers need a reliable service, acceptable level of comfort, and most importantly, a high level of safety. A good service is, according to the Transportation Research Board, (1989:80), the one that is 'readily accessible with a high

level of frequency and a high level of certainty that the time it takes to get from origin to destination will be short'. The Transportation Research Board goes on to say 'the total travel time includes access time, waiting time, and trip time'. In terms of the supply chain perspective as applicable in the passenger services industry, the total travel time would include departure from home, access into a modal facility and waiting time, line haul transit time, waiting time and distribution service transit time. The primary objective of the operator should therefore be to move passengers from point of origin to destination safely within the acceptable travel time.

According to the World Bank Urban Transport Strategy Review, (2002), road accidents are a global pandemic. Nearly 0,5 million people die and up to 15 million people are injured in urban road accidents in developing countries each year. This is at a direct economic cost of between 1 and 2 percent of GDP in many countries. Accidents occur widely on roads between intersections rather than being concentrated at intersections, as is the case in industrialised countries. The majority of victims are poor pedestrians and bicyclists.

However, we need to accept the growing complexity of urban transportation problems. Providing an accident free and high quality transport service is an enormous complex subject. The annual number of fatal road accidents statistics as evidenced by the Department of Transport's annual statistics is enough evidence that there is a huge amount of work to be done to safe the lives of the South African travelling public.

TABLE 1: ANNUAL NUMBER OF FATAL ROAD ACCIDENTS

YEAR	PROVINCE									RSA
	GAU	KZN	WC	EC	FS	MP	NW	LIMP	NC	
1998	1,728	1,169	1,064	704	615	798	537	409	236	7,260
1999	2,067	1,181	1,169	549	589	608	545	382	252	7,342
2000	1,429	1,330	709	491	463	453	439	328	206	5,848
2001	2,182	1,960	1,211	596	775	843	551	427	209	8,754
2002	2,334	2,149	1,238	729	754	948	811	672	283	9,918

Source: Department of Transport Annual Transport Statistics, (2002:76).

On the basis of Table 1 above, the total number of fatal road accidents in 1998 was 7,260 and towards the end of 2002 the recorded statistics reached 9,918. This increasing road accident trend is a challenge that requires a concerted effort of various stakeholders to bring innovative ideas on the table. It is for this reason that the author had to bring to light a variety of simplified models which when applied by transport operators, would bring about quality service which would be characterised by a high level of safety and other related transport quality requirements.

This paper attempts to show what can be learned from the theoretical models currently in use. In his analysis of transportation studies, Small, (1992:5), regards travel as a derived demand. He goes on to say that travel is normally undertaken not for its own consumption value, but rather to facilitate a complex and spatially varied set of activities such as work, recreation, shopping, and home life. It is therefore important to ensure that the purpose for which travel is meant to achieve is not defeated. This means that if one has to travel to work, that must be done in time so as to maximise the value of working time. Alternatively, if travel is meant for recreation, this should be done in such a manner that the service user derives maximum benefit out of the service. The paper proposes some interventions that can be made to ensure that a transport service is rendered to accomplish the purpose for which it is meant.

2. PURPOSE OF PAPER

This paper gives an outline of fundamental principles to be considered in the operation of a transport system. It is suggested that if the safety procedures were followed, then the quality of service would be enhanced and thus contributing positively to the country's economic growth. It is believed that a safe transport system would improve the country's mobility and also enhance the quality of life. The paper will deal with aspects which when taken into consideration would eventually lead to improving the work environment and thus enabling the transport service provider to improve the service. For example, cultivating an acceptable cultural climate within an organisation may precipitate an enthusiastic work force that would be committed to providing a high-level quality service.

Safety should always be seen as the traveller's prime concern and other quality requirements such as reliability and affordability would follow. All modes of transport carrying passengers are subject to statutory safety standards. In terms of the Occupational Health and Safety Act, Act No. 85 of 1993, each employer should provide a safe work environment. It is therefore imperative that in all work environments, safety standards be adhered to. This implies that a bus driver should view his or her bus as a plant that must comply with the safety requirements.

3. THE STATUS QUO

The escalating accident rate in South Africa as shown in Table 1, has had a negative impact on national economic growth. This has caused the government to introduce various safety awareness campaigns such as Arrive Alive Although the White Paper on National Transport Policy vision explicitly states that the system would 'provide a safe, reliable, effective, efficient and fully integrated transport operations and infrastructure', it is virtually not always happening as stipulated in the policy. Clearly the above vision is faced with a myriad of factors that militate against the effective functioning of the transport system. Safety in transit is one of the major factors that need to be given attention if the acceptable transport quality service is to be achieved. This would also suggest fundamental principles that need to be considered in the course of providing a transport service.

4. FUNDAMENTAL PRINCIPLES

As the fundamental principles of the transport operations legislation, the general safety obligation transfers the responsibility of safety to owners and operators and encourages risk management. The main challenge in the South African situation is the question of maintaining a high quality service in a modal integration arrangement. Johnson, (2004:311-312) is of the view that if the high quality of service is to be maintained across all modes of transport, the following four customer service principles must be imbedded in the customer service strategy, these are, customer satisfaction, consistent service with continuous improvement, commitment by all stakeholders and a culture of productivity.

4.1 Customer satisfaction

The first principle, which is often cited in the marketing circles, is customer satisfaction. It begins with viewing transport users as clients or customers who demand and deserve the best possible service from transport operators. To measure this, transport authorities should introduce and implement a Customer Satisfaction Index study. This means that all modes of transport under a specific Transport Authority should be surveyed regularly to ensure that the service standards are adhered to. According to Johnson, (2004:312), in

America, this was first developed for the private sector, to measure the customers' level of trust. It has two major components-expectations from clients and their perceptions of the quality of service. Presumably, the result can indicate where improvements are needed particularly with regard to improving the safety and comfort level throughout the entire travel chain.

4.2 Consistent service with continuos improvement

The second principle suggests that a service must be provided in a consistent manner with ongoing efforts for improvement. It cannot be denied that an inconsistent service without significant improvement would make the transport user feel unsafe and therefore uncomfortable in transit. This calls for setting measurable service goals that could be implemented as proved in the National Performance Review report (Gore 1993). This principle calls for raising performance standards regularly through the search for better practices and services. A considerable effort of service research and development is needed throughout all modes of transport to ensure that an acceptable integrated service quality is provided in an improved manner.

4.3 Commitment by all stakeholders

The third principle is a commitment to quality by all stakeholders and the expectation that top leaders and managers will define. According to Gore, (1993:3), a common complaint about Total Quality Management programs has been that many top executives provided only limited support. These top executives naturally communicated to their subordinates that such programs were not important. If an acceptable service quality is to be achieved, top management should best demonstrate their support by empowering employees to make decisions within their competence on how best to do their jobs, and recognising them for doing them well. Gore, (1993:3) goes on to give practical examples on the implementation of the National Performance Review where he emphasised that all federal employees, from top to bottom had to be held accountable for their areas of responsibilities. The effective leaders are those who value promoting accountability and quality throughout an organisation. For our transport system to be effective in terms of responding to the needs of the travelling public, accountability and commitment to quality should be the order of the day among all stakeholders.

4.4 Culture of productivity

A commitment throughout the organisation to find and follow the best practices available or commit an organisation to a culture of productivity would bring together the three principles. A culture of productivity strives to identify the most effective and efficient way to carry out a particular function, from street sweeping to setting a transport operation in motion. This commitment echoes the "one best way" that advocates of scientific management sought a century earlier, but goes beyond that concept in its concern for means to measure even intangible results. In the assessment of a quality transport service, in addition to the safety aspect, one has to evaluate the cleanliness of a particular mode of transport. A mode of transport's productivity capabilities would require a more careful research and the organisational readiness to try new approaches. A culture of productivity should permeate the entire organisation and draw on the insights and skills of those who are closest to the traveling community, as they would constitute an agent of reform.

5. THE STRATEGY

The product of transportation is the capability to move either goods or passengers between specific origins and destinations at an expected service quality (Hensher et al, 1996:99). The application of the so called Performance Improvement Model in the passenger transport industry could be one of the strategies to be considered if the South African transport system is to be improved. In the daily management of transport operation, the performance improvement cycle has become an important element that offers a model for improving staff performance. It is important to stress that an effective service is reliant on the effective performance of personnel. This simply means that if an organisation wants to achieve a high level of quality service, the starting point is to ensure that the people tasked with executing the task are given attention. The people doing the work should be seen as an indispensable asset of the organisation and then they will in turn deliver an indispensable sustainable quality service. In trying to execute this strategy, a performance improvement model is indicated below. According to the model as illustrated in Figure 1, step 1 entails the assessment of performance needs, step 2 deals with the design of performance improvement interventions, step 3 covers the implementation of performance improvement interventions and step 4 concludes with the evaluation of performance improvement interventions.

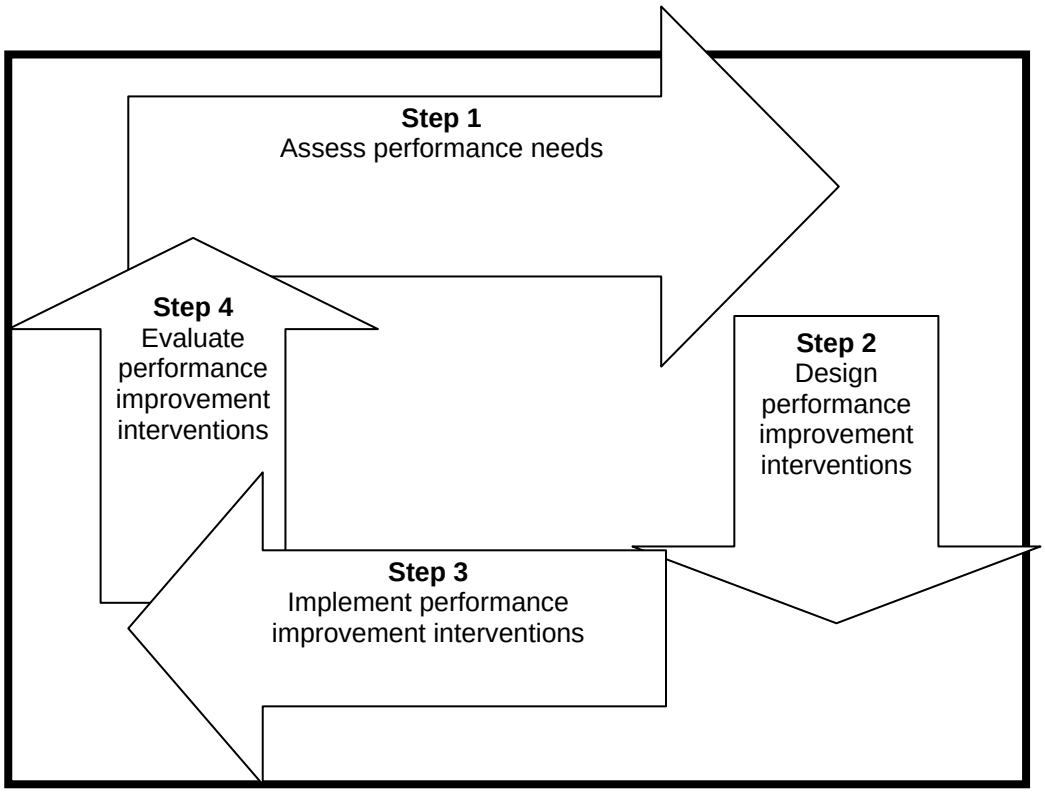

Figure 1: Performance Improvement Model

Source: Adapted from Shawkey and Hart, (2003:49)

5.1 Performance Improvement Model in the transport industry

5.1.1 Step 1: Assess Performance Needs

In trying to provide an improved service in the passenger services industry, the first step is to pinpoint skills, knowledge, environmental constraints or other weaknesses, and highlight

anything that hinders the flow of services to transport users. If skills and knowledge in the area of safety is lacking, it is important to note that sufficient capacity is built with regard to such an aspect. Lack of safety in transit can be attributable to various causes such as obsolete vehicles and equipment, poor transport management information system and incompetent staff within the travel value chain. If training is to be recommended, it should be focused on the areas that need improvement particularly with regard to the safety aspects in transport. The transport personnel's lack of skills and knowledge would undoubtedly lead to the demise of an organisation.

Before the performance needs of the individual can be determined, examine the organisational processes and identify the problems caused by the processes. If poor performance by the supply chain staff is the problem, the next step, a needs assessment, will determine if inadequate skills and knowledge are to blame. If poor staff performance is not the problem, then training will not be the solution.

5.1.2 Step 2: Design Performance Improvement Interventions

After the assessment is complete and the performance gaps are identified, organisational development or performance improvement specialists need to design appropriate performance improvement interventions, then develop a strategy to implement them. The plan to overcome the deficiencies identified during the assessment (step 1) described the proposed interventions for example such as on-the-job training. The performance improvement strategy usually includes a number of different interventions to be carried out during a specified period.

Step 2 also identifies the following:

- The target of the intervention
- Resources required
- Who to provide the resources
- How the intervention will be monitored and evaluated
- The changes in work process and organisational structures

If the performance improvement strategy includes training, it is important to find out:

- Who need to be trained
- Who need to provide the training
- What resources will be required
- The duration of the initial round of training
- Continuing required follow-up interventions
- Evaluation of the training strategy

5.1.3 Step 3: Implement Performance Improvement Interventions

For the purpose of maintaining the acceptable level of a quality service, organisations need to take cognisance of various interventions that need to be implemented. When the intervention dictates a change in the work environment, top management should actually take the responsibility. If the intervention is training, then provision should be made to train local trainers so that they should conduct most of the transport training after they have completed a rigorous training of trainer's course. As an intervention in the South African situation, linkages should be made with the Transport Education and Training Authority to provide appropriate transport training.

5.1.4 Step 4: Evaluate Performance Improvement Interventions

In order to ensure that the success rate of performance improvement is measured, an evaluation step is crucial. This is the forth step of the performance improvement model. At a minimum, it determines whether the intervention has improved the performance of the travel value chain staff. The evaluation may be broadened to examine the impact of improved performance on customers. This approach has the advantage of relating training and other performance interventions to the larger travel value chain and its needs, some of which are unlikely to be connected to training.

It is important to note that if organisational performance is to be improved, therefore customer service, levels 3 and 4 of this model are the most relevant. Evaluation should not be seen as the final step, but as part of a continuing process. Evaluations provide information about changes in the content, process, and priority of the interventions tried, and they help to identify the need for reassessment and further refinement of the interventions.

5.2 Accumulation of data as a means to enhance safety and security in transport

The first step to improve traffic safety is the development of a national road accident data collection and analysis capability or ensuring that the current NaTIS system is augmented. This should be followed by the formation of institutional arrangements to ensure that the data is transmitted to those who need them for policy purposes. Accident frequency and severity can be reduced by improved road design and traffic management policies. While some infrastructure investment is specifically safety oriented, there is a strong case for mandatory safety audits in the design process for all transport infrastructures.

The effective formulation, implementation and evaluation of safety strategies are reliant on the accumulation of accurate transport system data. It is therefore crucial that up to date data pertaining to the condition of the infrastructure be generated. The Road to Safety Strategy, (2005:3) recommends the use of crash data to identify all major danger spots on urban and rural roads to carry out the upgrade programmes. In addition to the infrastructure related data, the traffic flow and casualty data are needed to enable transport authorities to formulate appropriate strategies and policies that would result into the most effective operating transport system in South Africa.

6. A NEED FOR AN INTEGRATED STRATEGY

6.1 User requirements

If safety is to be maintained throughout the travel value chain, there should be a demonstration of co-operation among various stakeholders. This would involve *inter alia*, all spheres of government, the transport industry and the traveling public as well as the community. In its transportation planning process, government would not solve its mobility problems alone. An integrated approach is absolutely essential and this needs to also involve major employers, private transit providers and business in the planning and implementation of transportation programs.

The transport industry should adhere to the safety and economic specifications prescribed by transport authorities. A transport authority is an institutional structure in the municipal sphere of government, the purpose of which is ‘to improve transport service delivery in the local sphere of government by grouping transport functions into a single, well managed and focused institutional structure’. It is important to take cognisance of the fact that public

transport vehicle drivers come in much closer contact with their customers than do the operators of any other transportation mode, and they are directly responsible for passenger safety. In addition to their technical skills, public transport vehicle drivers should also possess a profound customer relation skill, as this is a matter of public interest. Overall, there should be compliance with regard to both technical and interpersonal skills as this need to be a requirement if total quality service is to be provided.

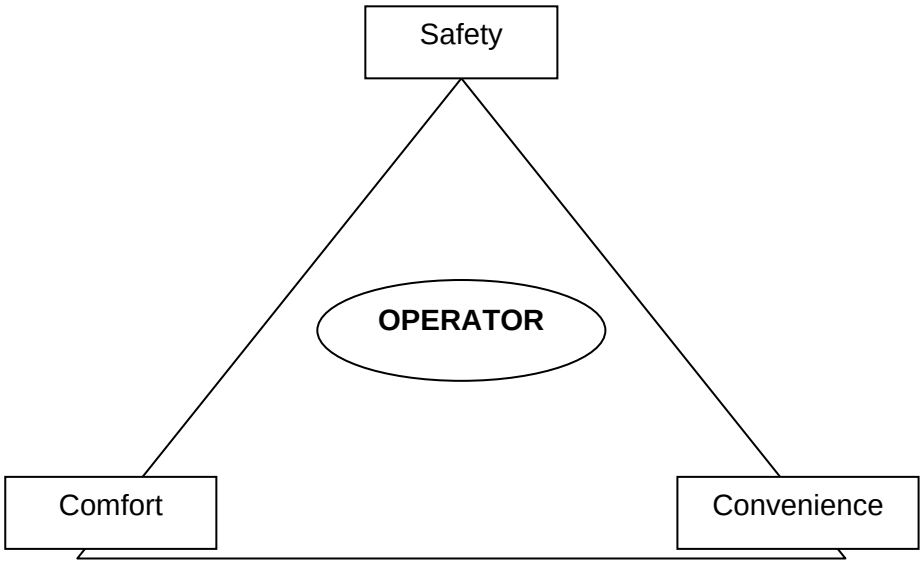

Figure 2: User requirements

Compliance should also be assessed from the technical and economic point of view. The vehicle should offer comfort and convenience to all passengers including persons with special needs. Comfort and convenience could be interpreted in the form of having a vehicle with adjustable seats that could easily accommodate persons needing special care in transit.

In the bus industry, it is accepted that low floor buses are more expensive than regular vehicles because of structural issues. If safety is to be given an undivided attention, all public service vehicles have to be accessible to persons with special needs, including those who use wheel chairs. It is important that the passengers' expectations be met in terms of providing proper ventilation, heating and lights.

Bus stops are for the convenience of passengers but their location has to respect the efficiency objectives of the operators. The first critical consideration is the spacing between stops. The shorter the distance, the easier will be direct access on foot by users, but the total running time of the vehicles on the street will increase. Consideration should also be given to the provision of overnight facilities for drivers driving long distances. The facilities should provide overnight storage of vehicles, cleaning as well as repairs.

Safety is also about the protection against evil elements and is seen as an indispensable quality requirement for customers. When the average wait for a means of transport is long, then an element of safety must be given much more attention. The bus shelter should be a structure that offers a considerable level of comfort particularly when the wind is blowing or temperatures are unfavourable. A shelter has to have the potential to accommodate large advertising displays and can be built by private enterprises at no cost to the local government. It is suggested that a fully adequate shelter have the following features:

- A large enough roof overhang to keep passengers safe from rainy weathers.
- Transparent walls on more than two sides to control wind, but with enough entry / exit points so that passengers do not become trapped.
- There should be adequate seats particularly for passengers needing special care.
- Litter baskets
- Adequate lighting
- Full information displays with schedules and maps
- Installation of heaters during cold weathers.
- There should be space for public and community announcements
- Ablution facilities and adequate sanitation.

Overall, the traveling public must be provided with a service that is safe, comfortable and convenient, as high lighted in **Figure 2**.

6.2 The involvement of the community

In Germany as well as in other countries, community involvement has become widespread since the 1970s, when environmental impacts of traffic and transport projects started to be discussed intensively. South Africa recognised a need for public participation when it enacted the National Land Transport Transition Act No. 22 of 2000. According to this Act, it is a requirement that the community and other stakeholders be involved in any planning that would potentially affect them.

In the launching of the Road to Safety Strategy, the emphasis was on consciously creating mechanisms that protect, empower and give voice to the most vulnerable road users. The aim is to make road users become effective participants in the transport system. Transport users need to be architects of their own safety rather than passive victims of the decisions or negligence of others. It is worth to emphasise that the solution to safer public transport lies in the hands of government, the transport industry and the traveling public or community. This means that a concerted effort should be directed at ensuring that every stakeholder joins efforts in providing a safe transport system. Adherence to the fundamental principles is believed to be helping organisations to improve their service qualities and thus contributing to their sustainable competitive advantage.

As the general safety obligation transfers the responsibility of safety to transport operators, it is suggested that all operators encourage risk management to be one of the core functions within their organisations. A constant evaluation of the compatibility of the service with the target market need to be a strategic must to be overseen by Transport Authorities. Operators should consider taking public and passenger liability insurance to ensure that transport users are not left in difficulties in the event of accidents.

There should be a significant increase in safety awareness that aims at changing the traffic patterns and pedestrian behaviour. There is therefore a critical need to develop and train staff for specific road safety co-ordinating measures at all three spheres of government. Partnering with the private sector on these initiatives could potentially yield fruitful results.

Personal security should be improved and this problem encompasses much more than the transport sector. It is important to analyse the nature and significance of insecurity in the urban transport sector and to devise policy instrument to counteract it. This might include the collection and analysis of data on personal security in the transport sector to enhance official awareness of the problem. This might also include commitment of police authorities to arrest and the courts to appropriately penalise offenders. Strengthening public participation in projects is very important. Some transport policy initiatives can contribute

directly to better personal security. For example, street lighting designed to improve pedestrian security can be included in street improvement particularly in urban renewal projects.

Organisations should look to enhancing operational safety in their work place as this could serve as a basis for business operational efficiency. There is no doubt that adherence to safety and operational efficiency can be a source of competitive advantage. For this to be sustainable, there should be effective performance monitoring as this can help organisations to ensure that they are on the path to financial stability and service excellence.

7. CONCLUSION

In conclusion, the overall safety strategy need to be fully aligned with government's commitment to accelerated service delivery and with the overall goals of coherence, cost effectiveness and customer service spelt out in the 1996 White Paper on Transport and in the Moving South Africa Strategy. The safety quality requirement should be seen as a critical element in the creation of an integrated public and private transport system across all modes of transport. The transport system should be safe, responsive, and be customer driven and sustainable in the long run. The quality of the vehicle and the relationship of the driver to passengers, convenience, privacy and security should be viewed as a dominant factor in the choice of a transportation mode.

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