THE ROLE OF THE ROAD TRAFFIC MANAGEMENT CORPORTATION IN RESEARCH

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ABSTRACT

One of South Africa's greatest challenges is to significantly reduce the carnage on our roads. On a continuous daily basis there are a great variety of role-players and stakeholders from many functional areas involved in efforts to achieve the desired reduction. The coordination of all these efforts; as well as to provide overall leadership in this regard, is the legislated responsibility and function of the Road Traffic Management Corporation (RTMC).

Through its Research and Development support unit the Corporation is, amongst others, responsible for monitoring and evaluating quality and safety in road traffic. In this regard consideration is given to the contents and findings of regular road traffic reports; as well as input from stakeholders, role players and the public in general. The cost effectiveness and potential impact of alternative measures are researched and evaluated and recommendations are formulated on improvements to be made within the broader field of road traffic management.

This paper describes the structures and procedures that the Corporation put in place in order to obtain the support, cooperation and participation of role players in addressing road traffic matters; as well as a brief summary of some relevant informal and formal research programmes.

1. INTRODUCTION

One of South Africa's greatest challenges is to significantly reduce the carnage on our roads. On a continuous daily basis there are many role-players and stakeholders from a great variety of functional areas involved in effecting the desired reduction. The coordination of all these efforts; as well as to provide leadership in this regard, is the legislated responsibility and function of the Road Traffic Management Corporation (RTMC).

The number of road traffic crashes is directly proportional to the level of lawlessness and driver misbehaviour on our roads. The main task of the Corporation is therefore aimed at, in collaboration with its provincial, metropolitan and local authority counterparts; as well as other role players, promoting law compliance and driver behaviour. The achievement of set goals, objectives and targets in this regard is monitored though continuous non-formal and formal research programmes.

There are many definitions and interpretations of the term "research"; however, research is commonly understood to be a human activity based on intellectual investigation, which is aimed at discovering, interpreting, and revising human knowledge on a great variety of

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different aspects. The Oxford dictionary describes research as to: "*investigate, study, explore, delve into, seek, examine, make inquiries*, etc". Research is in general an exploratory process, which is driven by curiosity, interest, or motivation to determine the current status of certain aspects, the reasons therefore as well as to seek solutions for improvement.

There are also many classifications and categories of research including, amongst others, basic research, (also called fundamental or pure research), scientific research, historical research, etc. Regardless the categorization thereof, in essence research is the process of setting of targets, collection of relevant information, analysis and interpretation thereof, or drawing of conclusions and making of recommendations. Research could therefore be regarded as a process that could lead to inventions and the generation of innovative ideas.

For the purpose of this paper research have been categorized only as "In-formal" and "Formal", where in-formal research include the tasks, projects or processes that are undertaken as part of the daily duties and functions of the Corporation and formal research those projects and processes that require the assistance of external institutions and research bodies.

2. BACKGROUND

Some of the main objectives of the Road Traffic Management Corporation Act, No. 20 of 1999, are to:

- Strengthen national and provincial governments' collective capacity to govern road traffic through partnerships with local government bodies and the private sector; and
- Enhance the overall quality of road traffic service provision and, in particular to ensure safety, security, order, discipline and mobility on the roads.

Some other supportive objectives are:

- To improve the exchange and dissemination of information on road traffic matters; and
- To stimulate research in road traffic matters and effectively utilize the resources of existing institutes and research bodies.

The Act further requires that managers of function units must perform or initiate research in respect of business groups, (section 30(b)), and that the Shareholders Committee encourage innovative projects which entail technology transfer through, amongst others, research and development, (section 40(1)(c)).

In order to perform the prescribed duties and of the Corporation, the Act provides for the establishment of the following ten main functional areas, see Annexure A:

- Road traffic law enforcement;
- Training of traffic personnel;
- Vehicle registration and licensing;
- Vehicle and roadworthiness testing;
- Testing and licensing of drivers;
- Road traffic information;
- Accident investigation and recording thereof;
- Communication and education;
- Infrastructure safety audits and traffic engineering; and

- Administrative adjudication of road traffic offences (AARTO).

The support functional units of the Corporation are:

- Research and development;
- Information technology;
- Finance;
- Administration and human resources;
- Legal services;
- Corporate functions.

In terms of the requirement of the Act to strengthen the collective capacity at all levels of government to govern road traffic, the Road Traffic Management Coordinating Committee (RTMCC) was established. The RTMCC is supported by a variety of Technical Committees, including the following:

- Road Traffic Education and Communication (RTEC)
- Law Enforcement Technical Committee (LETCOM); and the
- Research, Development and Information Technical Committee (RDITC).

Basically all of the main and support units of the Corporation perform their duties and tasks either through direct involvement with specific authorities or through joint discussions at quarterly meetings of the various technical committees.

3. THE RESEARCH, DEVELOPMENT AND INFORMATION TECHNICAL COMMITTEE (RDITC)

The (RDITC) is one of a number of technical committees that were created with a view to co-ordinate and facilitate activities and operations between the three tiers of government in order to reduce fragmentation and harmonise certain identified activities within the road traffic environment.

The role of facilitating and co-ordination of the Committee reside in the Corporation, with all the provincial, metropolitan and SAPS; as well as other permanent role-players and ad-hoc nominated representatives, as members of the Technical Committee.

The objectives of the RDITC are to promote, coordinate and enhance the collection and recording of road crash data; obtain and analyse traffic and crash data and prepare road traffic and performance reports and make recommendations on improved quality and safety in road traffic; promote infrastructure safety audits and identify, promote, undertake and manage road traffic engineering related road safety projects; as well as identify, undertake and manage research and development projects in the field of road traffic management.

The key focal areas of the RDITC are the following:

- Accident recording;
- Accident investigation;
- Incident management ;
- Infrastructure safety audits and traffic engineering;
- Special projects; and
- Identification of research needs.

In order to alleviate the workload on the Technical Committee and to expedite the

identification and conducting of projects, sub-committees have been created for the first five of the above key focal areas, (also see Annexure B).

The key focal areas of each of these sub-committees are as follows:

3.1   Accident Recording Sub-Committee
- To ensure the collection, control, verification and exchange accurate, comprehensive and up to date data on fatal road traffic crashes and to ensure that all fatal road crashes are recorded within at least 4 weeks after the occurrence thereof; and
- To ensure the efficient and effective operation of the National Accident Register (NAR) for the collection and recording of all categories of road crashes from Accident Report (AR) forms.

3.2   Accident Investigation Sub-Committee
- To identify crashes and promote special detailed investigations into major and high-profile fatal road traffic crashes and to produce detailed reports on such crashes within 6 weeks after the occurrence thereof; and
- To ensure improved quality in the investigation and recording of crash scenes; as well as reporting thereof through updating of the Crash Investigation Manual and undertaking of skills development programmes.

3.3   Incident Management Sub-Committee
- To review and update the Incident Management Manual;
- To conduct a national audit or survey and create a data base of all the available emergency and incident support services;
- To ensure the development and implementation of efficient and effective incident management systems in accordance with the Incident Management Manual to cover the road network adequately; and
- To ensure the development and maintenance of comprehensive records of progress made with implementation of incident management systems; as well as operational incident management systems and the scope and effectiveness thereof.

3.4   Infrastructure Safety Audits and Traffic Engineering Sub-Committee
- To review the South African Road Safety manual;
- To enable and promote the undertaking of infrastructure safety audits and skills development in this regard ;
- To review and update the Speed Limit Management Manual and promote implementation thereof; and
- To review and update the Roadblock and Driver and Vehicle Fitness Inspection manuals.

3.5   Special Projects Sub-Committee
- To oversee and participate in the establishment of an effective, efficient, comprehensive and user-friendly Central Crash and Information Bureau (CCIB) for use by all authorities in the short to medium term;
- In support of the CCIB, and included in the CCIB development project, to promote the expansion of the route numbering system to the current un-numbered rural road network in support of improved identification of crash and incident locations;

- To promote the conducting of independent annual Road Traffic Offence Surveys to determine the level of lawlessness amongst the various road user groups;
- To oversee and participate in the development and management of an overall Road Traffic Performance Monitoring and Management Model.
- To participate, together with the Law Enforcement Technical Committee (LETCOM), in the development of Project e-Force as a pilot project;
- To participate in the introduction of "static" vehicle number plate recognition systems at traffic control centres and toll plazas, together with the Law Enforcement Technical Committee (LETCOM);
- To promote the obtaining and analysis of additional road traffic information, such as operating speeds and overloading information on the road network for road traffic quality and safety analysis purposes; and
- With the assistance of the Corporation, promote the establishment of a library that will contain adequate and up-to-date information on related road traffic publications.

3.6   Identification of Research Needs

The main function of the RDITC itself, is to consider quarterly reports from the sub-committees in conjunction with regular updated road traffic and crash reports, the identification of road traffic and safety problems and to make firm recommendations for improvements in the broader field of road traffic management; as well as to identify or to consider requests for the conducting of formal research projects.

3.7   Composition of the Technical and Sub-Committees

The RDITC is chaired by a representative of the RTMC, who also provides a secretariat service for each meeting. The members of the Committee consist of nominated representatives of the following authorities and organisations:

- Provincial roads and traffic authorities;
- Metropolitan roads and traffic authorities;
- South African Police Service (SAPS);
- Road Accident Fund (RAF);
- South African National Road Agency Limited (SANRAL); and
- National Department of Transport (NDoT).

Representatives from the following organisations may be co-opted to assist the Technical Committee and or any of its sub-committees, as and when necessary:

- Other departments such as Health, Education and Justice;
- All toll road concessionaires (N3Toll, Bakwena & TRAC);
- South African Institute of Civil Engineers (SAICE);
- South African Road Federation (SARF);
- CSIR; and
- Global Road Safety Programme (GRSP).

3.8   Funding of Projects

In its annually updated Financial Plan, the Corporation make funds available for the undertaking of approved projects in terms of the key performance areas.

4. SOME CURRENT RESEARCH BY OR ON BEHALF OF THE CORPORATION

As indicated above, for the purpose of this paper research have been categorized as "In-formal" and "Formal", where in-formal research include the tasks, projects or processes that are undertaken as part of the daily duties and functions of the Corporation and formal research those projects and processes that require the assistance of external institutions and research bodies. Some current programmes in each of these two categories are briefly summarised below.

4.1   Informal research
In order to determine progress made towards achievement of the objective of reducing the carnage on our roads, the following information is required and collected on a monthly basis from various sources:

- Number of registered vehicles;
- Number of un-roadworthy and un-licenced vehicles;
- Monthly fuel sales, to calculate the estimated distance travelled;
- Number of driving licences and professional driving permits (PrDPs);
- Number of expired driving licences and professional driving permits (PrDPs);
- Human population; and the
- Number of crashes, fatalities, vehicles involved, etc.

The information is analysed and monthly reports are prepared that reflects changes in the number of crashes and fatalities; as well as rates and trends I this regard in terms of the vehicle and human population, million vehicle kilometres travelled, etc. These reports also provide an insight on the impact of road safety programmes and projects in general on the level of lawlessness and the road safety situation. It further assist in the identification of specific road user groups, types of vehicles, crash types, contributory factors to crashes, etc to enable the making of recommendations for incorporation in road safety communication and education, law enforcement and other road safety related programmes.

4.2   Formal research
Some current formal research projects of the Corporation include the following:

4.1.1 Annual road traffic offence surveys:
Road traffic offence surveys are conducted on an annual basis to determine the level of lawlessness with regard to specific critical offences that mostly contribute to the occurrence of crashes and the severity thereof. These offences include : speed; illegal overtaking; ignoring of red traffic signals; driving under the influence of alcohol; damaged or smooth tyres on vehicles and lights that are not functioning, etc. Provincial and annual rates and trends for individual offences are also determined.

This information is analysed in conjunction with the findings of the monthly road traffic and crash report for the identification of communication, education and enforcement projects.

4.1.2 AARTO:
The Administrative Adjudication of Road Traffic Offences (AARTO) Act, No. 46 of 1998, will be introduced only in Tshwane during 2008 as a pilot project. In this regard the term "pilot" refers to nothing less than a practical research project. The purpose of the research is, amongst others, to determine the ability of the National Contravention Register on NaTIS to electronically and without error, manage the expected numerous functionalities and processes to be performed on a daily basis. It will further test the election of the various

options available to infringers, (elect to follow court procedures, nomination of drivers, representations, etc); the utilisation and adequacy of the variety of forms; the effect of AARTO on traffic fine payments, etc. The main purpose of the pilot is therefore to test the total system and procedures under real-live circumstances in order to identify possible shortcomings and to make any amendments, if required, prior to the national roll-out.

4.1.3 *The National Road Traffic Law Enforcement Code (NRTLEC):*
The NRTLEC, which is required to be developed by the Corporation in terms of the Act, is basically finalised. The Code is quite an extensive and comprehensive document which covers a wide variety of aspects in the field of law enforcement and required a lot of prior research into current practices, procedures, etc. Amongst others, current procedures followed by authorities at the various levels of government for the setting of performance targets had to be researched, and included measuring and evaluation of achievement of such targets. The result is the provision of national standards in this regard to ensure optimal performance of enforcement authorities as well as individual officers.

4.1.4 *Project e-Force:*
Project e-Force is being developed as process in support of the NRTLEC, AARTO and improved traffic law enforcement in general. This project, which will also be undertaken as a research project, will also be piloted in the jurisdictional areas of Tshwane and Johannesburg during 2008. The main characteristic of this project is the utilisation of wireless, handheld computers by traffic officers to gain access from the roadside to driver and vehicle information on NaTIS. This will enable the easy and quick identification of drivers that are driving without valid licences and professional driving permits; driving while their licences are suspended; vehicles, the use of which is suspended, etc. The system will further provide officers with access to a table that contains more than 2,300 road infringements, penalties and demerit points, as well as enabling the electronic generation and printing of infringement notices. The information collected through this process will, amongst others, provide for evaluation of the effect of law enforcement on the level of lawlessness during particular times and days at specific locations; as well as the measuring of performance and achievement of set targets, as required by the NRTLEC.

4.1.5 *Electronic Vehicle Identification (EVI):*
A more recent basic research project that was embarked upon by the Corporation in an agreement with the CSIR and the support of the South African National Roads Agency Limited (SANRAL), is electronic vehicle identification. The purpose of this project is to investigate RFID tags and the effectiveness of such systems for vehicle identification purposes. Passive RFID tags are affordable and tamper proof, and can be put on every licensed vehicle in South Africa.

The aim is to embed tags within the licence disc that is currently being issued to licensed vehicles. Should the research prove to be successful, the EVI system will, amongst others, be able to:

- Allow real time vehicle identification;
- Flush out illegally licensed vehicles;
- Ensure optimum recovery of licence fees;
- Assist with identification of stolen vehicles;
- Assist with collection of toll fees in the proposed free-flow tolling systems;
- Assist with serving of outstanding warrants for traffic fines;
- Counter photocopied licence discs; and
- Allow for automatic electronic time-over-distance speed law enforcement along sections of road.

5. DISCUSSION AND CONCLUSION

As stated under the introduction above and substantiated by the examples given under 4 above, research is nothing less than the collection and analysis of information and the drawing of conclusions. Organisations and managers within organisations, need to continuously conduct research to enable the preparation of strategic and tactical plans, annual programmes, budgeting and financial reports. These are needed to set performance targets and measuring and evaluation of the achievement of such targets, the input for which is also considered to be of an "informal" research nature.

Although this may be regarded as "informal" and continuous in-house research, most organisations should also embark on "formal" research projects in order to obtain expert input, advise and recommendations on the improvement of systems, procedures, resources and service delivery.

Research, be it informal or formal, is an essential part of most, if not all of the daily functions and duties of any organisation. It is therefore essential that proper procedures and systems be in place for the identification and management of research needs.

In this regard the Road Traffic Management Corporation, being the custodian for road traffic management, put the required structures and procedures in place that will support the Corporation to obtain the necessary cooperation and participation of role players in the identification and conducting of research on a variety of road traffic matters in order to promote law compliance and driver behaviour.

Road Traffic Management Corporation (RTMC)

Functional Units

- Road traffic law enforcement;
- Training of traffic personnel;
- Vehicle registration and licensing;
- Vehicle and roadworthiness testing;
- Testing and licensing of drivers;
- Road traffic information;
- Accident investigation and recording thereof;
- Communication and education;
- Infrastructure safety audits and traffic engineering; and
- Administrative adjudication of road traffic offences (AARTO).

Support Units

- Research and development;
- Information technology;
- Finance;
- Administration and human resources;
- Legal services;
- Corporate functions.

Road Traffic Management Coordinating Committee (RTMCC)

Technical Committees :
- Road traffic law enforcement
- Training of traffic personnel
- Vehicle standards
- Licensing of drivers
- Communication & education
- **Research & development**
- Standards & procedures
- AARTO
- Traffic legislation

Sub Committees :
- Accident recording
- Accident investigation
- Incident management
- Infrastructure safety audits & traffic engineering
- Special projects