

## PERCEPTIONS OF THE ROAD TRANSPORT MANAGEMENT SYSTEM (RTMS): PROMOTING VOLUNTARY CERTIFICATION



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### Abstract

This paper investigates perceptions of the Road Transport Management System (RTMS) accreditation scheme as well as the impact of RTMS awareness workshops aimed at increasing certification in South Africa. The RTMS is a voluntary, self-regulation scheme that encourages consignees, consignors and road transport operators toward best practice in road transport. The surveyed views of various stakeholders provide insights into perceptions of the RTMS. Respondents indicate that improved safety, operational efficiency and reduced road crashes are perceived as attractive benefits to implementing the RTMS. The main obstacles to certification are a lack of awareness of the RTMS and a poor understanding of the requirements for becoming certified. The RTMS workshop achieves its objectives of imparting knowledge of the RTMS as well as motivating workshop participants toward RTMS certification. Effective marketing of the RTMS workshop should be implemented with a view to attracting road transport operators that are not RTMS-certified to attend such workshops.

## **1. Introduction**

South Africa has 12.5 truck crash-related fatalities per 100 million kilometres travelled. This is 4 to 10 times higher than European countries such as Denmark, France, Germany and Switzerland (OECD, 2011). Logistics costs typically comprise a significant percentage of a country's gross domestic product (GDP). In 2015 logistics costs were 7.85% of GDP in the USA (Logistics Management, 2016) and an estimated 11.7% of GDP (50% higher) in South Africa (Havenga *et al.*, 2016). This negatively impacts South Africa's manufacturing competitiveness and impedes economic growth and employment creation.

The Brake and Tyre Watch is a South African industry initiative, where various technical experts provide training to traffic officials regarding truck inspections. Heavy vehicles are pulled off the road and checked for vehicle defects with a specific focus on brakes and tyres. During 37 events conducted between 2006 and 2017, 712 vehicles were inspected with 486 being discontinued, i.e. 68% of vehicles were found to have defects requiring the vehicle to be prevented from continuing its journey (Brake & Tyre Watch, 2017).

The unacceptably high truck crash fatality rate and poor truck brake and tyre maintenance in South Africa suggest that law enforcement alone is unable to ensure compliance with the road traffic legislation (Nordengen, 1998). Consequently, the Road Transport Management System (RTMS), SABS standard SANS 1395:2014, has been established to address this challenge problem by complementing law enforcement efforts with voluntary compliance.

The RTMS seeks to not only foster a corporate culture of observing the law, but also to promote good corporate governance. The RTMS provides a framework for developing management systems for a road transport company to ensure adherence to good practice. The system is intended to help the road transport operator achieve legal compliance, improve driver wellness, reduce corporate risk, and improve profits. Road transport operators have reported significant improvements in all these aspects of performance after becoming RTMS-certified. South African case studies show a 40%–45% reduction in overloading (Nordengen & Oberholtzer, 2006), a 66% reduction in crashes, and a 24% reduction in fuel consumption and CO<sub>2</sub> emissions (Nordengen & Naidoo, 2014).

One of the main instruments of skills development and capacitation toward RTMS certification are the RTMS workshops, which are conducted in various provinces throughout the year and arranged by the CSIR and RTMS National Steering committee members. As at 04 May 2018, 249 South African transport fleets were RTMS certified. This represents less than 5% of the national road transport fleet. The number of companies is steadily increasing but with the demonstrated potential benefits from RTMS case studies, it would be desirable if a greater uptake of RTMS certification could be achieved.

An important step towards this end is to gain insight into the diverse stakeholder perceptions around the RTMS, as well as to evaluate the impact of the RTMS workshops in promoting voluntary certification. This paper sets out to survey the perceptions of road transport stakeholders with regard to RTMS certification as well the impact of the RTMS workshops in promoting voluntary certification.

## **2. Literature Review**

Pink (2009) argues that strong evidence exists against the use of carrot and stick motivators; intrinsic motivators are stronger behaviour change agents. This supports the voluntary compliance used by the RTMS as a stronger driver for change than regulation and enforcement.

Yeo and Moore (1998) found that voluntary accreditation schemes for road transport comprising management-based compliance could improve the productivity of scheme members, improve the effectiveness of conventional enforcement as well as improve compliance outcomes. They reported that in Australia, road transport operators had elected to join the accreditation program seeking financial benefit, industry or company image, risk reduction, and employee morale. They further suggested that the attractiveness of voluntary accreditation may increase with tangible benefits such as increased mass limits for certified road transport operators.

A survey of Swedish road transport companies found that 72% of companies surveyed reported that voluntary accreditation contributes to a company's profitability at a high or the highest possible level of fulfilment, 84% reported high or the highest possible level of fulfilment in road traffic safety, and 85% reported high or the highest possible level of fulfilment in overloading compliance (Johansson, 2012).

In South Africa, the Load Accreditation Programme (Nordengen, 1998) implemented voluntary accreditation for road transport, which focused primarily on reducing overloading. The Load Accreditation Programme built on the success of the Australian road authorities with their National Heavy Vehicle Accreditation Scheme (Nordengen & Oberholtzer, 2006). This led to the implementation of the RTMS in 2005 (Nordengen & Pienaar, 2008), and finally the SANS 1395 standard. Since its inception, the RTMS has attained significant success as a road transport voluntary certification programme in South Africa with improved road safety, legal compliance, and operational efficiency being recorded. Companies implementing the RTMS have reported benefits such as up to 66% reduction in crashes, reduction in overloading, reduction in speeding incidents, and typically a 20% improvement in fuel consumption (Nordengen & Naidoo, 2017).

Further benefits include reduced turnover of drivers due to HIV and health issues, improved driver wellness, decreased absenteeism, reduced vehicle breakdowns, improved fleet utilization as a result of reduced downtime, improved driver behaviour, better control and confidence in the company, reassurance that drivers are fit to drive a heavy vehicle and improved employee motivation (Nordengen & Naidoo, 2014). Given the operational success achieved by companies that have been certified, one would expect a high level of adoption of the RTMS in South Africa.

The quality of policy transfer and local adaptation of voluntary road transport self-regulation has been assessed through interviews of 12 stakeholders in diverse roles in the South African road transport sector (Walker, 2015). Whilst the number of interviews is small given the number of stakeholder groups that were interviewed, the insights are still meaningful. This study found that the ineffective implementation of law enforcement was a key reason why some stakeholders favoured self-regulation. A respondent cited market forces where European and American clients favoured a programme that would demonstrate good governance, particularly regarding driver wellness. It was proposed that a voluntary self-regulation programme could improve relationships between regulatory authorities and road transport operators. The inability of enforcement to adequately address overloading was further described as posing a threat to the road network with a significant negative impact on productivity and safety (Walker, 2015). Whilst the interviews provided excellent feedback on the quality of implementation and local adaptation of the RTMS as a self-regulation programme, it focused on interviewees from within the RTMS fraternity.

It is vital that the perceptions of road transport operators that have not yet been certified, as well as those that have not yet embarked on RTMS certification be surveyed in order to understand the impediments to widespread RTMS adoption. These views could shed light on possible hindrances to a more widespread voluntary adoption of the RTMS. The impact of the RTMS workshops in promoting voluntary certification also needs to be assessed.

### **3. Research Aims**

The aim of this research was to determine the perceptions of the RTMS in South Africa through feedback from road traffic authorities, banks, insurance companies, the RTMS steering committee, and road transport operators as well as to measure the impact of the RTMS workshops with a view to improving voluntary certification.

The perceptions survey of road transport operators included those that are RTMS-certified, those operators that had begun working towards RTMS certification and those operators that had not yet decided to become RTMS-certified. The results will guide the RTMS Steering Committee as well as policymakers toward better alignment of the RTMS accreditation scheme with industry needs.

The survey gauging the impact of the RTMS workshops in promoting certification is also vital in order to gain insight into its effectiveness, and also how promoting certification may be improved. It is anticipated that this research will lead to measures that will result in an increase in voluntary certification.

### **4. Methodology**

This study was conducted in two parts, i.e. part A-the perception study of road transport stakeholders and part B-a survey to gauge the impact of the RTMS workshops. Part A was designed around the key principles of the RTMS and taking into consideration the work of Nordengen and Naidoo (2014), Walker (2012) and Yeo and Moore (1998). Part B was designed taking into consideration the work of Toure-Tillery and Fischbach (2014), which describes the measurement of motivation using self-reports and distinguishes it from other measures of responses. The same authors caution that “this approach is limited to people’s conscious understanding of their own psychological states and can be further biased by social desirability concerns” (Toure-Tillery & Fischbach, 2014: page 329). Kelly et al. (2004) provide a guide to good practice in survey research which was helpful in the overall research design.

The surveys were validated through interaction with road transport professionals, as well as Nordengen who is an expert in the RTMS and who has contributed significantly to the literature. Leedy and Ormrod (2014) advocate expert focus group testing of the survey instrument prior to the administration of the surveys.

Ethics clearance was obtained for the surveys through the School of Mechanical, Industrial and Aeronautical Engineering at the University of the Witwatersrand (Clearance MIAEC 001/16 and 006/18). “Google forms” was used to create an online research instrument.

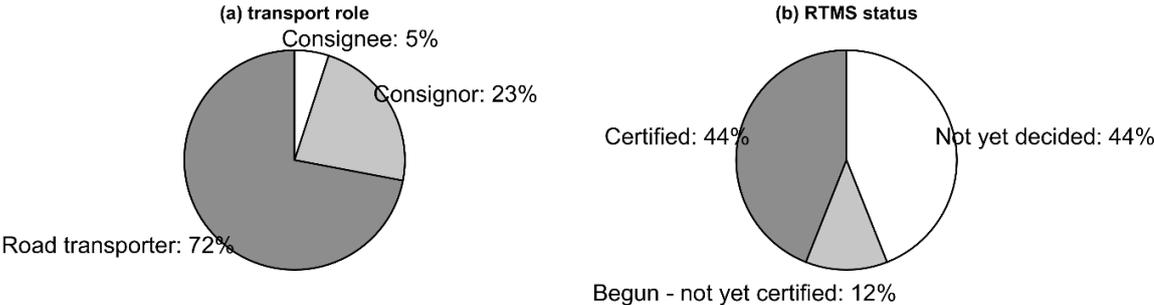
The National Bargaining Council for the Road Freight and Logistics Industry (NBCRFLI), the Road Freight Association (RFA), the Transport Forum and the Institute of Road Transport Engineers (IRTE) were contacted by email and requested to forward a participation information sheet with an internet link to an online survey to their members. Furthermore, participation information sheets with the internet link to the online questionnaire were also distributed at transport presentations organised by the Transport Forum and RTMS workshops. More than 1 000 road transport operators, consignors and consignees were sent email survey requests. In addition a survey form was sent via email to commercial banks, insurance companies, traffic authorities, the RTMS steering committee and the Department of Transport. The perception study online survey was completed by 56 respondents which represents a response rate of approximately 6%. The number of respondents could be viewed as a limitation of the study; however, the researchers believe that the nature of the sampling pool could be regarded as adequately representative of the industry perspective.

For the study into the impact of the RTMS workshop, pre and post RTMS workshop surveys were deployed at an RTMS workshop held in Johannesburg in April 2018, to measure the impact of the workshop in increasing knowledge of what is required for RTMS certification and the shift in motivation toward RTMS certification. Printed survey questionnaires were handed out to RTMS workshop participants together with a Participant Information Sheet and Consent Form. Consenting participants filled in the forms pre and post the workshop.

**5. Discussion**

**5.1 Perceptions of the Road Transport Management System**

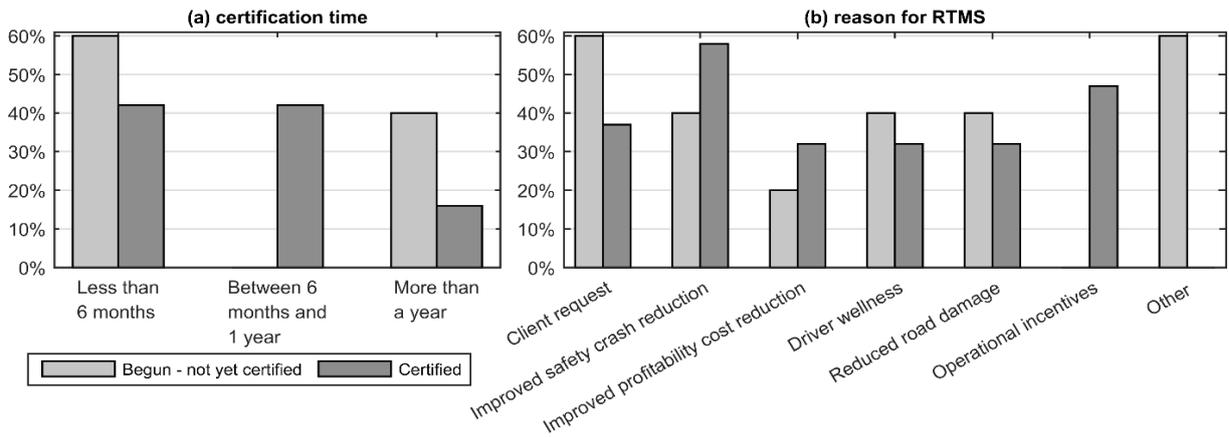
The majority (79%) of respondents were from the FMCG, Courier, Bulk, Automotive, General Cargo, Containers, Hazardous Cargo, and Abnormal Loads sectors. Most of the respondents (82%) were middle/senior management or business owners/directors. Respondents were asked to indicate their function within the logistics chain and their RTMS status. Figure 1 shows that 72% of respondents were road transporters, 23% were consignors and 5% were consignees. Of the survey population, 44% were RTMS-certified, 12% had begun the RTMS implementation but were not yet certified, while 44% had not yet decided whether or not to become RTMS-certified.



**Figure 1-Perception survey respondents’ (a) transport role, (b) RTMS status**

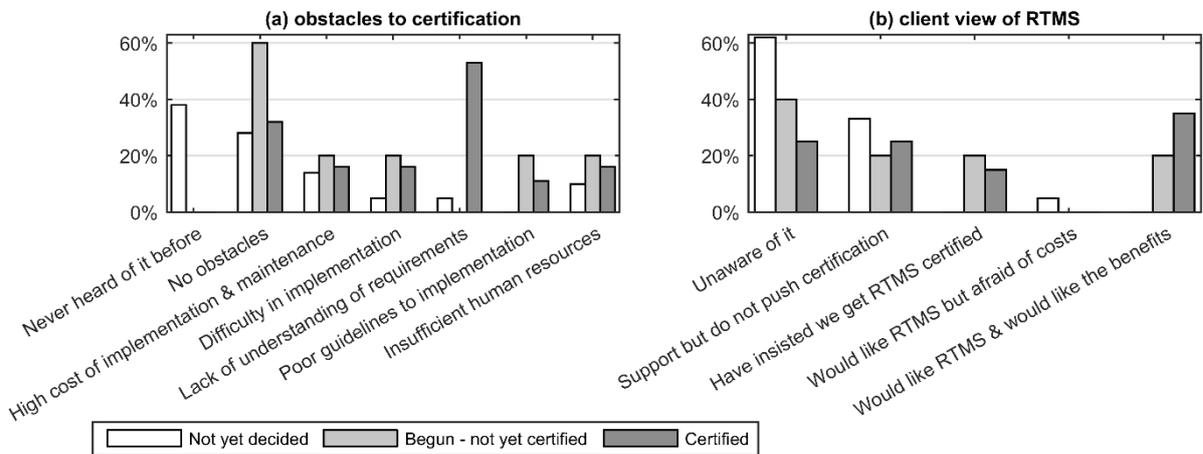
When asked to indicate how they became aware of RTMS, 35% of the RTMS-certified companies indicated that they had heard of the RTMS from clients while 40% of the companies that were working toward certification became aware of the RTMS through various workshops, meetings, courses and personal communication. A large number of companies (35%) that had not yet decided to implement the RTMS had no prior knowledge of the RTMS. This implies that clients are a strong influencer for RTMS uptake, as are the road transport meetings and workshops. It also suggests that there is a need for improved awareness of the RTMS.

Respondents were also asked to indicate the reasons why they became certified and also the duration of their certification process. 42% of the RTMS-certified companies attained certification within 6 months, while a further 42% took between 6 months and a year, and nearly 16% took more than a year. Of the respondents that were still working towards RTMS certification, 60% had been working at it for less than 6 months, and 40% were at it for over a year. The 40% of candidate RTMS companies taking longer than a year are cause for concern. They may be having trouble aligning their efforts with the RTMS. These results are depicted in Figure 2.



**Figure 2- Respondents in terms of (a) certification time & (b) reason for RTMS**

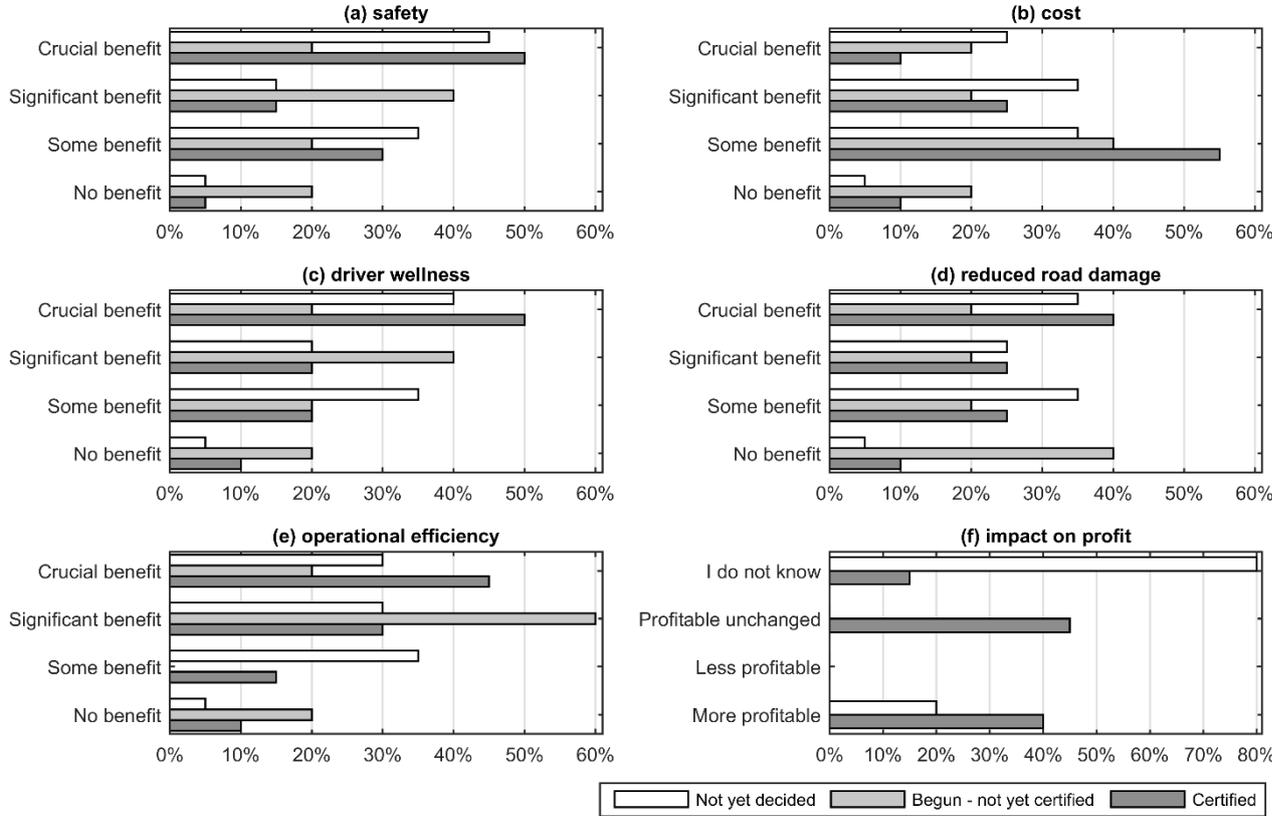
When asked to indicate the challenges to certification, the main obstacle was cited as a lack of understanding of the RTMS requirements. Respondents indicated that 25% of the clients of RTMS-certified companies were unaware of the RTMS, while 25% supported RTMS certification. 15% of respondents reported that clients insisted on certification; and 35% indicated that clients liked RTMS certification and the associated benefits. These results are depicted in Figure 3. For companies working toward RTMS, 40% indicated that their clients were unaware of the RTMS while 20% reported that clients insisted on certification; a further 20% said clients were supportive of RTMS certification and 20% reported that clients liked the RTMS and the associated benefits. 62% of companies that had not yet decided to implement the RTMS report that their clients had no prior knowledge of it. Once again it can be seen that clients are a strong influencer in the decision to attain RTMS certification.



**Figure 3- Respondents' (a) obstacles to certification & (b) client view of RTMS**

Figure 4 shows the perceived benefits of the RTMS in terms of safety, cost reduction, driver wellness, reduced road damage, operational efficiency and impact on business profits. 30% of RTMS-certified companies identified some safety benefit in the RTMS, 15% identified significant benefits, and 50% indicated crucial benefits. Of the companies working towards RTMS, 20% reported some safety benefit, 40% reported significant benefits, and 20% reported crucial safety benefits. Safety is therefore a significant perceived outcome of the RTMS. Figure 4 shows that 50% of RTMS-certified companies found some cost reduction benefit, 25% found significant benefits and 10% indicated crucial benefits. Among the companies still working toward RTMS certification, 40% indicated some cost reduction benefit, 20% indicated significant cost reduction benefits, while 20% indicated crucial cost reduction benefits. This indicates that there are cost reduction benefits realised in 85% of RTMS-certified companies. Among RTMS-certified

companies, 20% found some benefit in driver wellness, 20% found significant benefits, and 50% found crucial benefits. Of the companies still working toward implementing RTMS, 20% find some benefit, 40% find significant benefit, and 20% find crucial benefit in driver wellness. Driver wellness is therefore a significant outcome of the RTMS.



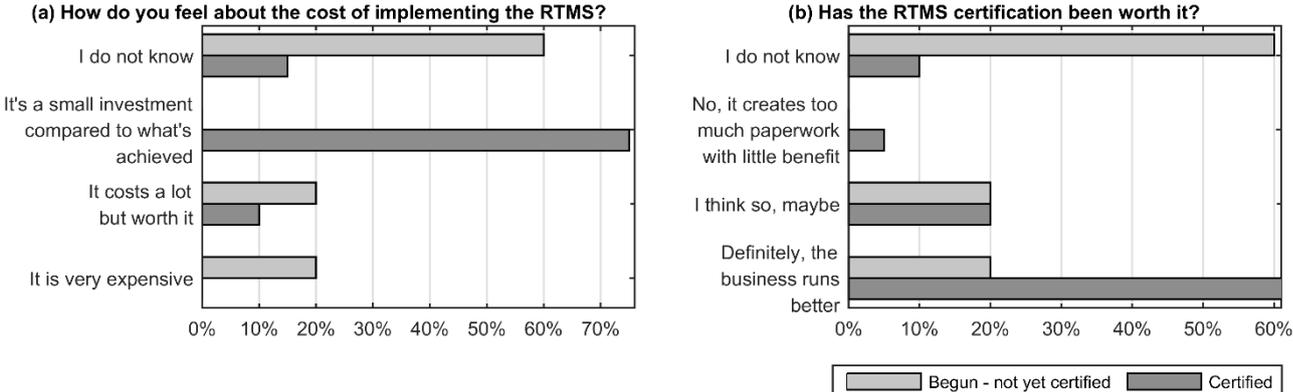
**Figure 4-Respondents' perceived (a) safety, (b) cost, (c) driver wellness, (d) reduced road damage, (e) operational efficiency & (f) impact on profit**

Ten percent of RTMS certified operators believe there is no benefit in terms of reduced road damage, 25% reported some benefit, 25% reported significant benefit and 40% reported crucial benefit. Of the companies working towards RTMS certification, 40% reported no benefit, 20% reported some benefit, 20% reported significant benefit and 20% reported crucial benefit in terms of reduced road damage. It is suggested that the difference in perceived outcome is due to a change in awareness of the impact of overloading and improved vehicle design on the road network as respondents progress through their own RTMS awareness “evolution” and come to realise that there is a significant benefit in reduced road damage.

Fifteen percent of RTMS certified operators reported some benefit in improved operational efficiency, 30% reported significant benefit, and 40% reported crucial benefit in operational efficiency. In the companies working toward RTMS certification, 60% reported significant benefit in improved operational efficiency and 20% reported crucial benefit in improved operational efficiency. Significant improved operational efficiency has therefore been achieved as an outcome for an overwhelming majority of stakeholders in RTMS certification.

While only 40% of RTMS certified companies reported greater profitability as a result of the RTMS, 45% reported no change in profitability and in companies working towards RTMS, 20% reported increased profits as a result of the RTMS, while 80% did not know if there would be an increase in profit. Whereas there is some evidence of improved business profits, it does not appear to be consistent and widespread.

Figure 5 shows that of the companies that are RTMS-certified, 70% believe that the RTMS is a small cost in relation to what it achieves. In companies that are working towards RTMS certification, 20% believe it to be an expensive exercise, 20% believe it costs a lot but is worth it, and 60% did not know. The RTMS is perceived to be worth the costs involved by the overwhelming majority of RTMS-certified companies but it is less clear to companies still working toward RTMS certification. The majority of RTMS-certified companies (60%) believe that it has been worthwhile and that the business runs better as a result of the RTMS, while 20% of the companies working towards RTMS certification definitely derive benefit from it, and 20% believe there may be a benefit, while 60% did not know. RTMS certification is regarded as worth the effort for the overwhelming majority of RTMS-certified companies but this is not so apparent for companies working toward certification.



**Figure 5-Respondents’ opinions on (a) cost and (b) worth of RTMS**

The survey responses from the RTMS Steering Committee show that they believe that the RTMS has been effective in reducing crashes, minimising overloading, reducing road traffic offences, and achieving self-regulation amongst certified companies. The costs to implement the RTMS are regarded as minimal in comparison with the benefits for the operator, and it is viewed as having a good return on investment. The reduction in crashes, reduction in fuel consumption, and improved operational efficiencies provide the payback to RTMS-certified operators.

Lack of awareness of the value of RTMS certification, lack of exposure to management systems, and lack of buy-in from staff and management are seen as impediments to the widespread adoption of the RTMS. One respondent suggested that more work needs to be done in aligning the RTMS with the road traffic legislation to improve compliance. The respondents were unanimous in agreement that the RTMS has been successful thus far. In response to ways in which to improve the number of companies that are RTMS-certified, one respondent suggested that a “toolkit” approach be implemented with templates and procedures to assist companies that have difficulty in developing a system. Another suggestion was that more of the achievements of RTMS certified companies should be marketed to demonstrate the benefits. When asked for advice to companies seeking RTMS certification, the respondents suggested making a start, taking the first step, doing a gap analysis and implementing a project plan, with internal audits guiding the process.

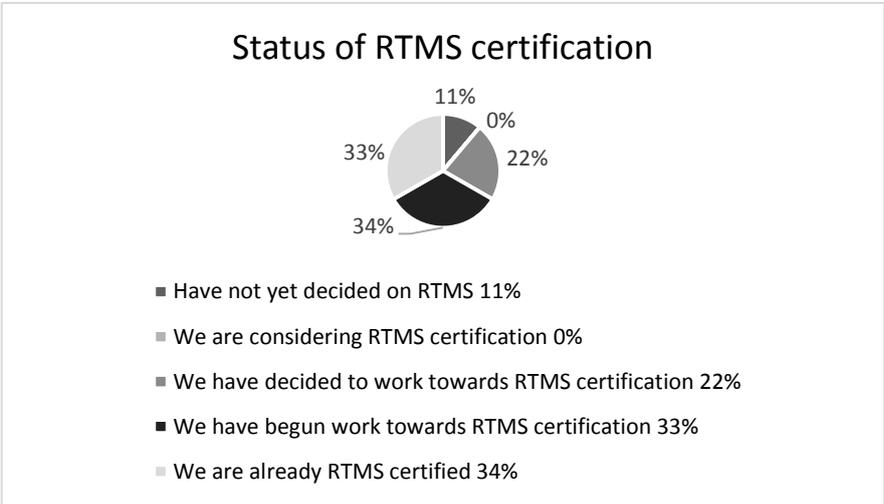
Significant responses from insurance and finance companies indicate that there is a general lack of awareness of the RTMS amongst road transport operators and that there are no systems in place to measure its effectiveness. They do not encourage their clients toward RTMS certification and they believe that more work needs to be done to promote an awareness of the RTMS, its objectives, and its achievements.

Survey responses from road traffic authorities indicate that they see the role of the RTMS to support legislation and promote compliance. It is viewed as having achieved this objective, as well

as improving safety and productivity, while reducing breakdowns and maintenance costs. More effective marketing of the RTMS, as well as improved operational incentives and consignor awareness of the RTMS benefits are viewed as strong drivers for increasing RTMS certification. Suggestions for improved monitoring of the RTMS achievements are to collect data regarding crashes, maintenance costs, and costs of logistics operations. A caveat is in the observed gap in roadworthiness of vehicles and the manner in which they are operated, as compared to the standard to which they are certified. Some work needs to be done to ensure alignment of processes.

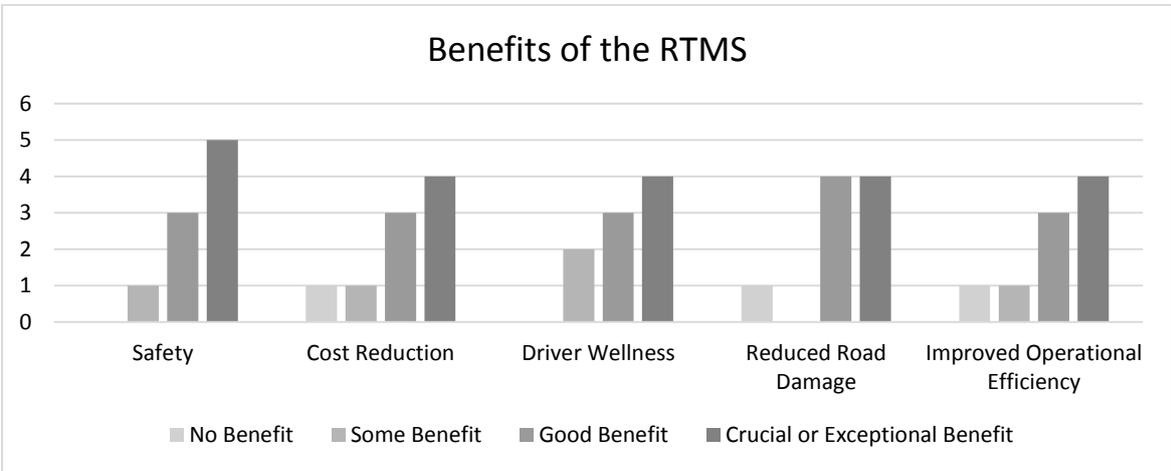
**5.2 Impact of the RTMS workshop**

The surveyed RTMS workshop was hosted on 10 April 2018 in Johannesburg and had 66 participants. Of these, 40 delegates represented a total of 17 road transport operators. 9 of the 17 road transport operators completed the survey with results shown in Figure 6. Of these companies, 1 was undecided, 2 had decided to work toward RTMS certification, 3 had already begun working towards certification and 3 companies were already RTMS-certified.



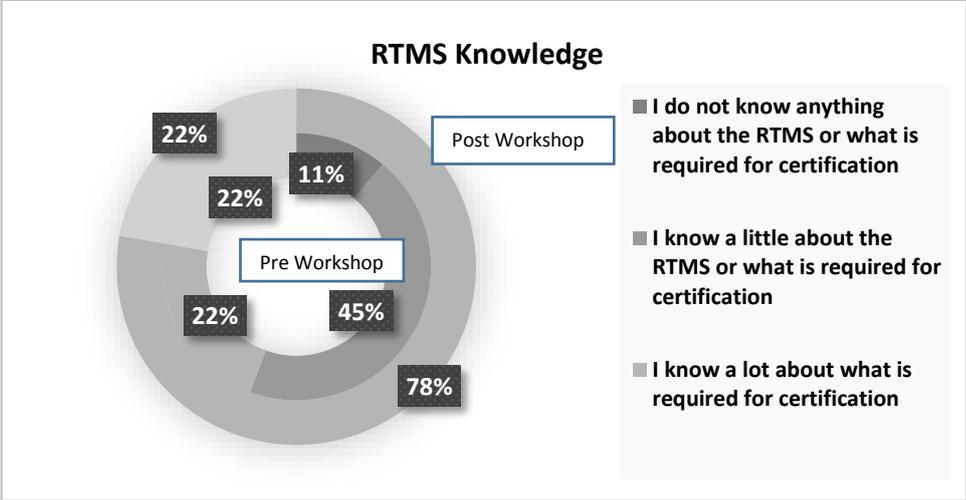
**Figure 6-Respondents’ status with respect to RTMS certification**

Figure 7 shows that participants are largely convinced of the benefits of the RTMS in terms of safety, cost reduction, driver wellness, road damage, and improved operational efficiency.



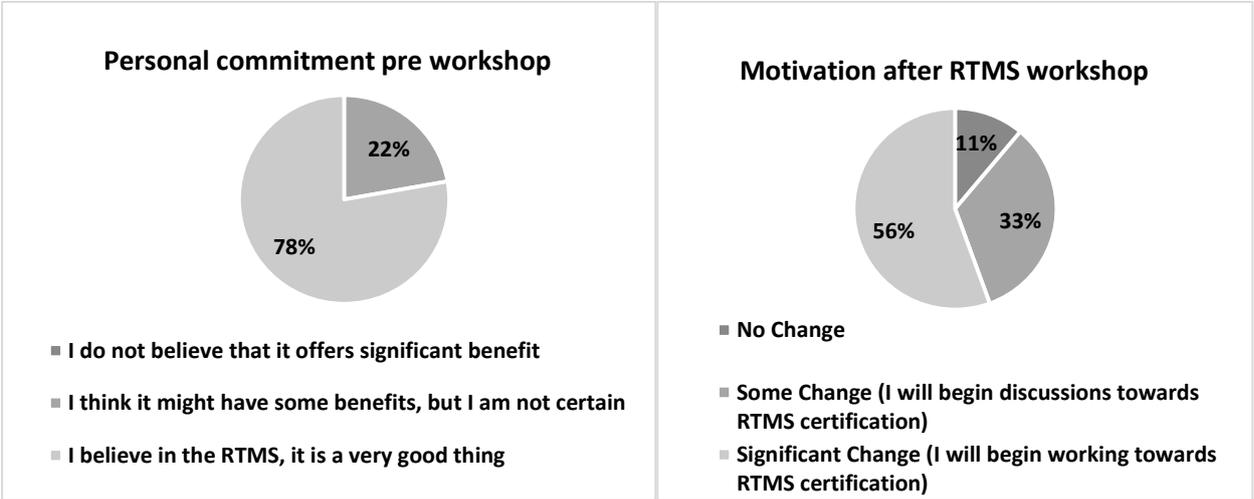
**Figure 7-Respondents’ opinions on the benefits of the RTMS**

Figure 8 shows that before the RTMS workshop, 11% did not know anything about the requirements for certification, 45% knew a little, 22% knew a lot and 22% fully understood the requirements for certification. After the workshop, 78% know a lot, and 22% fully understood the requirements for RTMS certification. There was a distinct improvement in the knowledge of the RTMS by the workshop participants.



**Figure 8-RTMS knowledge pre and post the RTMS workshop**

Figure 9 shows that 22% of participants think the RTMS might have some benefits, and 78% believe that the RTMS is a very good thing. 11% of participants experienced no change in motivation, and 33% of participants felt some change in their motivation toward RTMS certification, while 56% felt significant change in their motivation.



**Figure 9- a) Personal commitment pre RTMS workshop and b) Motivation after the RTMS workshop**

Workshop participants’ suggestions for improvement to the RTMS workshop were:

- Increase awareness of the workshops
- Provide more information on the internet
- Provide an agenda
- Provide documentation on the RTMS
- Have a 5 minute Q&A after each presentation

**6. Conclusions and Recommendations**

RTMS-certified road transport operators reported significant perceived benefits in improved safety, reduced crashes, improved fuel consumption, operational efficiency, as well as operating profits and regard the RTMS as well worth the effort and investment. There is significant alignment between the objectives of the RTMS and the user experience of the RTMS in practice. It is recommended that the RTMS steering committee embark on initiatives that will increase awareness of the improved road transport sustainability achieved through the RTMS. Clients of logistics service providers are key influencers in the decision to become RTMS-certified, and their role should be leveraged in promoting the RTMS and the mutual benefits of its objectives.

The process of RTMS certification needs to be made more clear and transparent. More effort needs to be expended in the marketing of the RTMS and its benefits. In addition, improved operational incentives may contribute significantly in the drive to increase the levels of RTMS certification. The RTMS is perceived as having achieved its stated objectives of improved operational efficiency and profits, increased levels of compliance, reduced damage to road network, improved road safety and driver wellness. The main challenge now is to create the right conditions for increasing the number of companies that attain certification. The RTMS workshops achieve a significant impact in imparting the knowledge required to attain RTMS certification, as well as to motivate participants toward certification. The representation of companies that were new to RTMS certification was rather low in the workshop, and it is recommended that efforts should be expended to increase awareness of the RTMS workshops to attract new companies toward certification.

In light of the RTMS achieving goals that address various stakeholders' interests including that of the company shareholders and clients, drivers as well as those of society, the promotion of the RTMS should be a national strategic imperative in South Africa.

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