Challenges facing the Road Freight Industry in South Africa and a Performance-Based Standards (PBS) approach to heavy vehicle design

Paul Nordengen
SA RTMS National Steering Committee
Research Group Leader: Network Asset Management Systems
CSIR Built Environment
CONTENTS

- Background and problem statement
- The Road Transport Management System – self regulation
- Some observed successes
Road Transport Efficiency & Safety

- High standard of infrastructure (capacity, road surface, road markings, road signs, stopping facilities, road reserve)
- Minimum incidents/crashes including breakdowns
- Compliance with traffic regulations
- Safety & security (effective law enforcement)
- Efficient emergency response
- Seamless cross-border transit
Key Elements in Road Freight Transport

- Road infrastructure: roads, bridges, roadside furniture, signs, road markings, eToll gantries
- Vehicles: design, maintenance & operation
- Drivers: skill, health, fatigue
Key Elements in Road Freight Transport

- Road infrastructure: roads, bridges, roadside furniture, signs, road markings, eToll gantries

- Vehicles: design, maintenance & operation

- Drivers: skill, health, fatigue
Reality Check
Reality Check
Reality Check
Reality Check
### Excess heavy vehicle maintenance and repair costs

<table>
<thead>
<tr>
<th>Road condition</th>
<th>Average maintenance and repair cost (R/km)</th>
<th>Average percentage increase in the truck maintenance and repair cost</th>
<th>Average percentage increase in company logistics cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>R 0.96</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fair</td>
<td>R 1.24</td>
<td>30%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Bad</td>
<td>R 2.11</td>
<td>121%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>
# Brake & Tyre Watch Results

<table>
<thead>
<tr>
<th>Location</th>
<th>Inspected</th>
<th>Discontinued</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Deep</td>
<td>24</td>
<td>21</td>
<td>88%</td>
</tr>
<tr>
<td>Middelburg</td>
<td>35</td>
<td>24</td>
<td>69%</td>
</tr>
<tr>
<td>Centurion</td>
<td>41</td>
<td>17</td>
<td>42%</td>
</tr>
<tr>
<td>Midway KZN</td>
<td>26</td>
<td>10</td>
<td>38%</td>
</tr>
<tr>
<td>Kroonstad</td>
<td>8</td>
<td>7</td>
<td>92%</td>
</tr>
<tr>
<td>Brackenfell, W. Cape</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Pietermaritzburg</td>
<td>12</td>
<td>11</td>
<td>92%</td>
</tr>
<tr>
<td>Port Elizabeth</td>
<td>15</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>Rustenburg</td>
<td>7</td>
<td>5</td>
<td>72%</td>
</tr>
<tr>
<td>Polokwane</td>
<td>11</td>
<td>10</td>
<td>91%</td>
</tr>
<tr>
<td>Midway KZN</td>
<td>24</td>
<td>20</td>
<td>83%</td>
</tr>
<tr>
<td>Bloemfontein</td>
<td>24</td>
<td>20</td>
<td>83%</td>
</tr>
<tr>
<td>Nelspruit/Komati</td>
<td>13</td>
<td>12</td>
<td>92%</td>
</tr>
<tr>
<td><strong>TOTAL (40 events)</strong></td>
<td><strong>723</strong></td>
<td><strong>494</strong></td>
<td><strong>68%</strong></td>
</tr>
</tbody>
</table>
Heavy Vehicle Fatal Crash Rates

Fatal truck crash per 100 million vehicle kilometres travelled

Source: OECD report, Moving Freight with Better Trucks, 2010
Road Freight Challenges
The Reality: A Culture of Non-compliance

• Inputs
  – Overloading
  – Poor vehicle fitness (servicing & maintenance)
  – Poor driver fitness (fatigue, health, training)
  – Reckless driver behaviour
  – Border post delays
  – Bribery & corruption – impact on compliant and non-compliant operators
  – Inadequate periodic maintenance (roads)

• Outputs
  – Poor road safety
  – High cost of road transport/logistics
  – Deterioration of infrastructure
  – High levels of emissions
Regional Road Transport Issues

QUALITY OF LIFE
- Road safety
- Congestion
- Cost of logistics
- Road condition

GLOBAL COMPETETIVENESS
- Transport efficiency
- Cost of logistics
- Congestion
- Cross-border delays
- Optimum road maintenance

HEAVY VEHICLE TRANSPORT
- Road condition
- Congestion
- Energy consumption
- Emissions

"maintaining and preserving natural systems"

SUSTAINABLE ENVIRONMENT
- Road crashes
- Road condition
- Energy consumption
- Emissions
OVERLOAD CONTROL

National Overload Control Strategy
Implemented by National, Provincial and Local Authorities

Infrastructure & Equipment
- Main routes (major facilities)
- Alternative routes (minor facilities/screening)
- Monitoring (HS-WIM)
- Alternative weighing equipment
- Private weighbridges

Self-regulation
- Road Transport Management System (RTMS)
- Performance-Based Standards (PBS)

Information sharing & Public Awareness
- Overload website
- Overload information booklet

Operations
- Human Resources
- PPP
- Training
- Guideline document for law enforcement

Legislation
- Consignors/Consignees
- 5% Tolerance
- User charges
- Habitual Overloaders
- Public Prosecutors
- Alternative weighing equipment
- AAR10

Co-operation
- Provinces
- Local authorities
- Department of Justice
- Private sector

Road Safety

Fair Competition between modes & operators

Infrastructure Protection
National Heavy Vehicle Accreditation Scheme

April 2000

STANDARDS SOUTH AFRICA

Recommended practice

Road transport management systems

Part 1: Operator requirements — Goods

This document does not have the status of a South African National Standard.

Published by Standards South Africa

1 Dr Stiegman Road Groenkloof Private Bag X191 Pretoria 0001
Tel: 012 438 7911 Fax: 012 344 1568 International code +27 12
www.stansa.co.za
© Standards South Africa
SOUTH AFRICAN NATIONAL STANDARD

Road transport management systems
Part 1: Operator requirements — Goods
RTMS: Overloading trend in forestry

Percentage Overload

Vehicle Volumes

Month Ending

Industry Target (4%)

Overloaded (>2%)
Overloaded (>5%)
Total Trips
Percentage Overload
Previous Industry Target
Linear (Percentage Overload)
RTMS: Overloading trend in sugar
Case Study: Dawn Logistics

Embracing the RTMS challenge

If ever you’re looking for an example of the vast improvements that can accrue in all areas of a transport company’s operations via the implementation of the Road Transport Management System (RTMS), look no further than Dawn Logistics writes Patrick O’Leary.
## POSITIVE RESULTS

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FINES</th>
<th>CRASHES</th>
<th>DRIVER ERROR</th>
<th>BREAKDOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>218</td>
<td>37</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>2014</td>
<td>232</td>
<td>26</td>
<td>11</td>
<td>46</td>
</tr>
<tr>
<td>2015</td>
<td>56</td>
<td>17</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>2016</td>
<td>48</td>
<td>26</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>2017</td>
<td>46</td>
<td>20</td>
<td>5</td>
<td>22</td>
</tr>
</tbody>
</table>

- **Crashes**: Decreasing trend from 2013 to 2017.
- **Fines**: Decreasing trend from 2013 to 2016, then increasing in 2017.
- **Breakdowns**: Decreasing trend from 2013 to 2017.

### Graph:
- **Crashes** (blue line with crosses)
- **Fines** (red line with squares)
- **Breakdowns** (green line with diamonds)
- **FLEET** (purple line with x's)
POSITIVE RESULTS

Driver behaviour:
Driver speeding is monitored on a daily basis through our tracking system and all events are addressed with drivers daily on debriefing
• 2013 = Unknown
• 2014 = 60 127 (201 fleet = 299 speeding events each truck per year)
• 2015 = 8 689 (252 fleet = 34 speeding events each truck per year)
• 2016 = 4 722 (257 fleet = 18 speeding events each truck per year)
• 2017 = 4 925 (257 Fleet = 19 speeding events each truck per year)

Driver awareness and safety
Has increased due to training, educating, posters and truck information manuals
Driver motivation has increased due to Driver of the month and driver of the year awards. Selected by tracking system which monitors drivers behaviour and gives the drivers a monthly score.
**POSITIVE RESULTS**

**Driver wellness**
Fatigue managed eliminates risk  
Chronic conditions managed eliminates risk  
Alcohol testing eliminates risk

**Fuel consumption:**
Consistently improved, we monitor fuel on a daily basis and we are running above industry average.

Since implementation (2013) our fuel consumption of km per litre has increased by 23% (2017)

This is influenced by good maintenance processes and driver behaviour – Speeding, defensive driving, harsh braking, driving economically, Which RTMS promotes in their accreditation.
ZZ2 (Tomato producers): Reduction in Insurance Claims
Vehicle Delivery Services: Reduction in Speed violations
POSITIVE RESULTS AND OUTCOME AFTER IMPLEMENTING RTMS

Weighbridges or weigh mats at all depots:
All trucks are weighed before exiting and any defaults are fixed before trucks leave the yard
• 2013 and before = unknown
• 2014 = 3
• 2015 = 0

Risk of breakdowns/crashes/fines:
Strict daily routine inspections and regular tyre surveys, maintenance checks have improved our downtime, and any issues are repaired before trucks leave.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FINES</th>
<th>CRASHES</th>
<th>DRIVER ERROR</th>
<th>BREAKDOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>218</td>
<td>37</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>2014</td>
<td>232</td>
<td>26</td>
<td>11</td>
<td>46</td>
</tr>
<tr>
<td>2015</td>
<td>56</td>
<td>17</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>2016</td>
<td>28</td>
<td>26</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>
Fuel consumption
Consistent improvement. Fuel monitored on a daily basis and we are running above industry average. Since implementation, fuel consumption has improved by 20%
Primarily as a result of improved driver behaviour – defensive and economical driving, reduction in harsh braking and speeding.

Speeding occurences
2013: Unknown
2014: 60 127 (299/truck/yr)
2015: 8 689 (34/truck/yr)
2016: 4 722 (18/truck/yr)
CONTENTS

- PBS approach to vehicle design
- PBS pilot project in South Africa
- Pilot project monitoring results
Key Elements in Road Freight Transport

• Road infrastructure: roads, bridges, roadside furniture, signs, road markings, eToll gantries 😊

• Vehicles: design, maintenance & operation

• Drivers: skill, health, fatigue
 PBS Pilot Project Objectives

Investigate the Performance-Based Standards approach to heavy vehicles design and operations as researched and implemented specifically in Australia, Canada and New Zealand with a view to improving heavy vehicles operations in South Africa through:

• Reduced road wear (per tonne.km)
• Reduced vehicle trips i.e.
  • Reduced congestion
  • Reduced safety exposure risk
• Improved safety performance
• Improved transport productivity
• Reduced emissions (per tonne.km)
Problem statement
Problem statement
Problem statement
### Performance-Based Standards

<table>
<thead>
<tr>
<th>Prescriptive Standards</th>
<th>Performance-Based Standards</th>
</tr>
</thead>
</table>

#### What the vehicle looks like

<table>
<thead>
<tr>
<th><strong>Governs mass and dimensions</strong></th>
<th><strong>Constrains productivity</strong></th>
<th><strong>Constrains innovation</strong></th>
</tr>
</thead>
</table>

#### What the vehicle can do

| **Governs actual on-road performance** | **Allows heavier and/or larger vehicles** | **Promotes innovation** |

Images courtesy of the Australian National Transport Commission
Smart Truck Pilot Project: Timeline

**Phase 0**
Preparation
- Go-ahead from DoT
- Refining PBS framework for SA
- Knowledge/skills development

**Phase 1**
Proof of concept
- Get more industries on-board
- Get all provinces on-board
- Monitoring data and research

**Phase 2**
Intensive monitoring
- Implementation strat.

**Phase 3**
Formalisation
- Promulgation
- OR phase out

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PBS committee established</strong></td>
<td><strong>1st PBS vehicles</strong></td>
<td><strong>100m km of data collected</strong></td>
<td><strong>Decision to implement</strong></td>
<td><strong>Formal adoption</strong></td>
</tr>
<tr>
<td>2 vehicles 1 province</td>
<td>DoT support granted</td>
<td>245 vehicles 6 provinces</td>
<td>Decision not to implement</td>
<td></td>
</tr>
</tbody>
</table>

Qualification awarded
- Technology output
- South African PBS assessor accredited
# Performance-Based Standards: Safety

<table>
<thead>
<tr>
<th>Manoeuvre/Test</th>
<th>Performance Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low-speed 90° turn (5 km/h)</strong></td>
<td>Low-speed swept path&lt;br&gt; Tail swing&lt;br&gt; Frontal swing&lt;br&gt; Steer-tyre friction demand</td>
</tr>
<tr>
<td><strong>High-speed lane-change (80 km/h)</strong></td>
<td>Rearward amplification&lt;br&gt; High-speed transient offtracking</td>
</tr>
<tr>
<td><strong>Rollover</strong></td>
<td>Static rollover threshold</td>
</tr>
<tr>
<td><strong>High-speed pulse steer (80 km/h)</strong></td>
<td>Yaw damping coefficient</td>
</tr>
<tr>
<td><strong>High-speed on uneven road (90 km/h)</strong></td>
<td>Tracking ability on a straight path</td>
</tr>
<tr>
<td><strong>Various (driveability standards)</strong></td>
<td>Startability&lt;br&gt; Gradeability A&lt;br&gt; Gradeability B&lt;br&gt; Acceleration Capability</td>
</tr>
</tbody>
</table>
Low-Speed Offtracking
Low-Speed Offtracking
Low-Speed Offtracking

Standard Semi-Trailer
High Speed Transient Offtracking

PBS Lane Change Manoeuvre (SAE J2179)

Course and test specifications:
- 2.5 second period
- 24.5 m/sec (55mph)
- 61 m (200 ft) maneuvering section
- 1.46 m (4.8 ft) lateral displacement
- 0.15 g peak lateral acceleration

Traffic cone pairs
- 4.58 m (15 ft) stripes placed 0.6 m (2 ft) apart*

Preliminary straight start section, traffic cone pairs, 30.5 m (100 ft) spacing
- Initial Straight section, 6.1 m (20 ft) spacing
- "Maneuvering" section, 3 m (10 ft) spacing
- Exit section, 6.1 m (20 ft) spacing

* not drawn to scale
High Speed Transient Offtracking

baseline

PBS

www.csir.co.za
Rollover stability: Baseline (legal) vs PBS
Performance-Based Standards: Infrastructure

Infrastructure

Pavements

Pavement Vertical Loading
Pavement Horizontal Loading
Tyre Contact Pressure Distribution

Bridges

Bridge Loading
Road Wear Performance Standard
2 Span Bridge: Max Negative Bending Moment Load Ratio (10% Baseline Overload)

- Timber Logistics Services Baseline Vehicle with 10% overload
- Worst Performing Single Tandem Trailer Vehicle 10%
- Worst Performing Single Tridem Trailer Vehicle 10%
- Worst Performing B-Double Vehicle 10%
- TLS PBS Vehicle
- NBC PBS Vehicle
- Unitrans Fuel Quad
- SAB PBS Vehicle
PBS in Africa ??? ....
PBS Pilot Project in South Africa
PBS Pilot Project in South Africa

SMART TRUCK PROGRAMME

RULES FOR THE DEVELOPMENT AND OPERATION OF SMART TRUCKS AS PART OF THE PERFORMANCE-BASED STANDARDS RESEARCH PROGRAMME IN SOUTH AFRICA

April 2017

Compiled by: Smart Truck Committee and CSIR Built Environment

www.csir.co.za
Access: Route assessments
Access: Route assessments
Access: Route compliance
Access: Speed compliance

Location: M13, eThekwini Ward 18, Pinetown, eThekwini Metropolitan Municipality, KwaZulu-Natal, 3610, South Africa

This is an automated message. Please do not reply. For any queries please call Avani Africa on (010)900 4494.
Forestry baseline and PBS vehicles

- 22.0 m, 56.0 tons
- 24.0 m, 64.1 tons
- 27.0 m, 67.5 tons
- 25.8 m, 67.5 tons
- 25.0 m, 70.0 tons
Buhle Betfu Rigid drawbar
Timber Logistics Services Rigid drawbar
Mining side-tipper
Unitrans
BAB Quad
Unitrans B-Triple vs BAB Quad
Mining Road Train: Rearward Amplification
SG Coal B-double
Unitrans Fuel Quad
Fuel Quad Case Study

**PBS COMBINATION**
- 18.5 m

**BASELINE COMBINATION**
- 22 m

**MASS**
- PAYLOAD
  - GCM: 38t
  - 56t: 68%
- DISTRIBUTION
  - 58%
- PAYLOAD
  - GCM: 32t
  - 55t

**FUEL**
- 1.2
- L/Tonne Payload/100km
- 16.94% LESS FUEL CONSUMED BY THE PBS VEHICLE
- 1.4

**TRIPS**
- 27
- TOTAL RETURN TRIPS
- 31
- R 2 076 323 SAVING PER 1000 TONNE-PAYLOAD TRANSPORTED

**ROAD**
- 0.37
- ROADWEAR/Tonne Payload
- 0.41
- 9.5% LESS ROADWEAR/Tonne-Payload

**SAFETY**
- 1.37
- ACCIDENTS/MILLION KM
- 2.24
- 39% LOWER CRASH RATE FOR PBS VEHICLES
- R 261 000 ACCIDENT COST SAVING/MILLION KM

**PBS COST SAVINGS PER 1000 TONNES**
- R 2 083 370
Beefmaster B-triple for cattle
SA Breweries PBS combination
SA Breweries E. Cape PBS combinations: Efficiency improvements

<table>
<thead>
<tr>
<th></th>
<th>Kms Travelled</th>
<th>Kms Saved</th>
<th>Hours on the road</th>
<th>Hours Saved</th>
<th>Fuel Used (ℓ)</th>
<th>Fuel Saved (ℓ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec-16</td>
<td>33 250</td>
<td>13 253</td>
<td>621</td>
<td>248</td>
<td>23 940</td>
<td>3 962</td>
</tr>
<tr>
<td>Jan-17</td>
<td>74 642</td>
<td>29 720</td>
<td>1 477</td>
<td>588</td>
<td>55 059</td>
<td>7 558</td>
</tr>
<tr>
<td>Feb-17</td>
<td>63 854</td>
<td>25 519</td>
<td>1 245</td>
<td>497</td>
<td>46 564</td>
<td>7 060</td>
</tr>
<tr>
<td>Mar-17</td>
<td>82 108</td>
<td>32 349</td>
<td>1 614</td>
<td>636</td>
<td>60 497</td>
<td>8 117</td>
</tr>
<tr>
<td>Total</td>
<td>253 854</td>
<td>100 841</td>
<td>4 957</td>
<td>1 969</td>
<td>186 060</td>
<td>26 697</td>
</tr>
<tr>
<td>% Savings</td>
<td></td>
<td>28.4</td>
<td></td>
<td>28.4</td>
<td></td>
<td>12.5</td>
</tr>
</tbody>
</table>
ZZ2 B-triple for tomatoes
B-double Tautliner Case Study

**PBS Combination**
- Payload: 48t
- GCM: 72t
- Mass Distribution: 66%

**Baseline Combination**
- Payload: 34t
- GCM: 56t
- Mass Distribution: 61%

---

**Fuel**
- L/100km: 67
- L/Tonne Payload/100km: 1.4
- Tonne-Km: 4,210,592
- Fuel Consumption: 53
- Fuel Consumption Reduction: 9.39%

---

**Trips**
- Total Return Trips: 22
- Fuel Cost Per Tonne-Km: R 0.15
- Fuel Cost % of Transportation Cost: 35%
- Total Cost Per Tonne-Km: R 0.44
- Saving Per 1000 Tonne-Payload Transported: R 641,682

---

**Road**
- Roadwear/Tonne Payload: 0.159
- 7.5% Less Roadwear/Tonne-Payload: 0.172

---

**Safety**
- Accidents/Million Km: 1.37
- 39% Lower Crash Rate for PBS Vehicles: 2.24
- Accident Cost Saving/Million Km: R 261,000

---

**PBS Cost Savings Per 1000 Tonnes**
- PBS Cost: R 642,781
# Overtaking evaluation of baseline and longer PBS vehicles

## Comparison of Overtaking Times Taking Speeding into Account

### Baseline/22m PBS

- Speed: 80 km/h
- Overtaking time: 9.20 s

### Baseline

- Speed: 100 km/h
- Overtaking time: 10.96 s

- Speed: 110 km/h
- Overtaking time: 18.17 s

### PBS - Timber

- Speed: 80 km/h
- Overtaking time: 9.68 s

### PBS - Tautliner

- Speed: 80 km/h
- Overtaking time: 9.95 s

Reduction in overtaking time vs. speeding baseline equivalent @ 100 km/h:
- PBS - Timber: 226 hours per PBS vehicle per year
- PBS - Tautliner: 262 hours per PBS vehicle per year
### Overtaking evaluation of baseline and longer PBS vehicles

<table>
<thead>
<tr>
<th></th>
<th>Time to Overtake (s)</th>
<th>Increased Time for 1 vehicle pass</th>
<th>Pallets on truck</th>
<th>Weight per Pallet (KG)</th>
<th>Trips to Move 100 Pallets</th>
<th>Overtaking Time for 100 Pallets</th>
<th>Increased Time for 100 Pallets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>9.2</td>
<td></td>
<td>28.3</td>
<td>1350</td>
<td>3.5</td>
<td>32.5</td>
<td>30.7%</td>
</tr>
<tr>
<td>PBS</td>
<td>9.95</td>
<td>8.2%</td>
<td>40</td>
<td>1350</td>
<td>2.5</td>
<td>24.9</td>
<td></td>
</tr>
<tr>
<td>Overspeeding baseline (100 km/hr)</td>
<td>10.96</td>
<td>19.1%</td>
<td>28.3</td>
<td>1350</td>
<td>3.5</td>
<td>38.7</td>
<td>55.7%</td>
</tr>
<tr>
<td>Overspeeding baseline (110 km/hr)</td>
<td>18.17</td>
<td>97.5%</td>
<td>28.3</td>
<td>1350</td>
<td>3.5</td>
<td>64.2</td>
<td>158.1%</td>
</tr>
</tbody>
</table>
PBS Bi-articulated Bus
PBS Bi-articulated Bus
Smart Truck Pilot Project: Impact

- **Total trips saved per year**: 74,067 trips (22%)
- **Total fuel saved per year**: R 26.64 M (12%)
- **Total km saved per year**: 8,693,848 km (22%)
- **Greenhouse gas emission**: 6,246 tons CO2 / year (12%)
- **Roadwear reduction**: R 24,448 per vehicle / year (13%)
- **Accidents per million km**: 1.37 vs 2.24 for baseline vehicles (39%)

Note: Statistics are reported as at June 2017
## Smart Truck monitoring: Cost of crashes

<table>
<thead>
<tr>
<th></th>
<th>Km (million)</th>
<th>Crash Rate (per million km)</th>
<th>Cost/crash</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Trucks</td>
<td>90.27</td>
<td>1.45</td>
<td>R 300 000</td>
<td>R 39 268 000</td>
</tr>
<tr>
<td>Legal Trucks</td>
<td>132.57</td>
<td>2.25</td>
<td>R 300 000</td>
<td>R 89 483 000</td>
</tr>
<tr>
<td>Cost savings</td>
<td></td>
<td></td>
<td></td>
<td>R 50 215 000</td>
</tr>
</tbody>
</table>

Cost savings: R 50 215 000
Thank you