Measuring fleet safety performance and development of a fleet safety management audit tool

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Work-related crashes and fleet safety

- Vehicle crashes largest cause of work-related fatalities (Safe Work Australia, 2013)
- Many more injuries & vehicle damage - estimated 20-30% fleet vehicles crash annually (Haworth et al, 2000)
- High financial cost (e.g. NSW 2008-09: $22.3 million for workers & $83.9 million for commuters) (WorkCover NSW, 2010)
- Fleet vehicle crash costs estimated to account for 13-15% of all fleet spending (Haworth et al, 2000)
- Measuring fleet safety performance focused on: crashes, casualties & costs
Fleet safety performance – measuring outcomes

• Measuring outcomes - traditional focus e.g.
  – fleet vehicle at-fault crash rate
  – fleet vehicle repair costs
  – fleet vehicle insurance premium costs
  – traffic infringements
  – LTIFR
  – workers’ compensation costs
  – first aid injury rate
Measuring outcomes for fleet safety – the strengths

- Strengths:
  - relatively easy to collect
  - easily understood
  - linked with fleet safety performance
  - widely used as a measure of fleet safety performance
  - comparisons across industries & within enterprises can be conducted

Reason, 1999; Mitchell, 2000
Measuring outcomes for fleet safety – the limitations

- Limitations:
  - valuable when outcome indicators are high, but meaningless when the indicators are low
  - may involve under-reporting e.g. near-misses
  - can measure injury/damage, not necessarily the potential seriousness of the crash
  - can be influenced by changes in management practices

Mitchell, 2000
Other ways to measure fleet safety performance

• Process, positive or lead performance indicators
  – focus on the management of fleet safety
  – monitor the processes which should produce good fleet safety outcomes – e.g. vehicle selection; vehicle maintenance; training; safety audits
  – highlight areas where systems & procedures can be improved

Mitchell, 2000
Process performance indicators used elsewhere e.g. rugby league

- % of off loads after tackles
- % handling errors while in possession
- completion rate of sets of six
- % time in possession of ball
- number of hit-ups
- player confidence
Measuring process performance indicators for fleet safety – the strengths

- Strengths:
  - timely identification of poor performance
  - ‘what gets measured gets done’
  - may act as a driver for performance improvement
  - are pro-active: measure control, prevention
  - detailed information can be collected

Mitchell, 2000
Measuring process performance indicators for fleet safety – the limitations

• Limitations:
  – may not be easily measured
  – could be time-consuming to collect
  – may be difficult to compare for benchmarking purposes, if companies are using different indicators
  – relationship between process indicators & outcome indicators in fleet safety is not known

Mitchell, 2000
Relationship between outcome and process performance indicators e.g. Australia Post

- Developed a set of process indicators to measure OHS performance
- Monitored performance in 500 facilities in NSW
- Identified relationships between:
  - induction training & reduced MH injury rate
  - risk assessments & fewer slips, trips & falls
  - increase in the number of OHS issues raised in team briefings & reduced injury rate

Simpson, 2000
Measuring process indicators for fleet safety using a fleet safety management audit tool

- Process performance indicators for fleet safety
- Need a consistent way to measure performance for fleet safety across companies/industries
- Focus on light vehicle fleets (i.e. cars and vans less than 4.5 tonnes)
- Identify the extent fleet safety is managed using best practice techniques – self audit
- Provide an indicator of progress in managing fleet safety
- Benchmark performance with other companies
Method: development of the fleet safety management audit tool

Four stages:

1) Literature review

- Identify best practices in light vehicle fleet safety management

Databases search
n=1,042 journal articles

Google and website search
n=76 documents

Reference lists
n=74 journal articles

n=82 retained for detailed review
Method: development of the fleet safety management audit tool

2) Questionnaires and semi-structured interviews with fleet managers and drivers
   - 15 fleet managers and 21 drivers recruited from Australasian Fleet Management Association (AfMA) members
   - Information about their fleet
   - Experience with fleet safety management practices
   - Fleet safety practices that had reduced/increased crashes, injuries or near-misses
   - Sample of current industry knowledge
Method: development of the fleet safety management audit tool

3) Developed a draft of the audit tool
   - evidence from research literature
   - information from interviews
   - objective criteria to assess performance

4) Usability trial
   - 5 organisations trialled the draft audit tool
   - usability survey – language clarity; coverage; ease of use; potential usefulness
### Fleet safety management audit tool

<table>
<thead>
<tr>
<th>Main categories</th>
<th>Sub-categories</th>
</tr>
</thead>
</table>
| 1. Management, systems and processes                 | 1.1 Management commitment  
1.2 Fleet safety management  
1.3 Communication regarding fleet safety               |
| 2. Monitoring and assessment                          | 2.1 Monitoring fleet safety performance  
2.2 Vehicle crash and incident investigation  
2.3 Performance monitoring and recognition             |
| 3. Employee recruitment, training and education       | 3.1 Driver selection and assessment  
3.2 Employee fleet safety induction  
3.3 Driver training                                   |
| 4. Vehicle technology, selection and maintenance      | 4.1 Fleet vehicle selection  
4.2 Fleet vehicle maintenance                          |
| 5. Vehicle journeys                                  | 5.1 Journey management                                                          |
Fleet safety management audit tool

• Each sub-category has 4 levels with criteria to indicate if company is:
  – Level I – performing at high standard
  – Level II – performing well, but room for improvement
  – Level III – performing OK, but considerable room for improvement
  – Level IV – performing poorly

• Company rates its performance based on strategic and operational criteria provided for each of the 4 levels
## e.g. 1.1 Management commitment

(1: high performing)

<table>
<thead>
<tr>
<th>Level</th>
<th>Strategic criteria</th>
<th>Operational criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A. Management commitment is formally required and assessed for fleet safety management and/or performance. This occurs across management levels.</td>
<td>A. <strong>All levels of management</strong> (executive, senior &amp; middle management &amp; front line supervisors) have documented responsibilities &amp; performance criteria specifically for fleet safety management.</td>
</tr>
<tr>
<td></td>
<td>B. Management accountabilities are linked to fleet safety management and/or performance objectives.</td>
<td>B. <strong>There is a system in place</strong> to assess fleet safety management and/or performance against performance agreements or statements of responsibility.</td>
</tr>
<tr>
<td></td>
<td>C. There is recognition by management of the need to allocate resources specifically to fleet safety management and to commit adequate resources.</td>
<td>C. <strong>Dedicated and sufficient resources</strong> are allocated to manage fleet safety.</td>
</tr>
</tbody>
</table>
### 1.1 Management commitment (II: performing well)

<table>
<thead>
<tr>
<th>Level</th>
<th>Strategic criteria</th>
<th>Operational criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Management commitment is formally required and assessed for some management levels for fleet safety management and/or performance.</td>
<td>A. Some, but not all levels of <strong>management</strong> (executive, senior &amp; middle management &amp; front line supervisors) have documented responsibilities &amp; performance criteria specifically for fleet safety management.</td>
</tr>
<tr>
<td></td>
<td>B. Some management accountabilities are linked to fleet safety management and/or performance objectives.</td>
<td>B. <strong>There is a system in place</strong> to assess fleet safety management and/or performance against performance agreements or statements of responsibility.</td>
</tr>
<tr>
<td></td>
<td>C. There is recognition by management of the need to allocate resources specifically to fleet safety management.</td>
<td>C. <strong>Some resources are allocated</strong> specifically to manage fleet safety, but not all requests are funded.</td>
</tr>
</tbody>
</table>
### e.g. 1.1 Management commitment  (III: performing OK)

<table>
<thead>
<tr>
<th>Level</th>
<th>Strategic criteria</th>
<th>Operational criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Management commitment is limited to front line supervisors or middle management and is not assessed for fleet safety management and/or performance.</td>
<td>A. Front line supervisors or middle management are responsible for fleet safety management.</td>
</tr>
<tr>
<td></td>
<td>B. No front line supervisor or middle management accountabilities are linked to fleet safety management and/or performance objectives.</td>
<td>B. There is no a system in place to assess fleet safety management and/or performance against performance agreements or statements of responsibility.</td>
</tr>
<tr>
<td></td>
<td>C. There is recognition by management of the need to allocate resources specifically to fleet safety management.</td>
<td>C. Resources allocated to manage fleet safety are embedded within other program budgets so that there is competition for funds.</td>
</tr>
</tbody>
</table>
**e.g. 1.1 Management commitment** (IV: poor performing)

<table>
<thead>
<tr>
<th>Level</th>
<th>Strategic criteria</th>
<th>Operational criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>A. Management commitment is not demonstrated for fleet safety management and/or performance.</td>
<td>A. There are <strong>no documented responsibilities</strong> regarding fleet safety management and/or performance.</td>
</tr>
<tr>
<td></td>
<td>B. No management accountabilities are linked to fleet safety management and/or performance objectives.</td>
<td>B. There is <strong>no system in place</strong> to assess fleet safety management and/or performance against performance agreements or statements of responsibility.</td>
</tr>
<tr>
<td></td>
<td>C. Management allocate no, or limited, resources to fleet safety management.</td>
<td>C. <strong>No, or minimal, resources are allocated</strong> to manage fleet safety in the organisation. If resources are allocated, these tend to be embedded within other program budgets.</td>
</tr>
</tbody>
</table>
### Fleet safety management audit tool - scoring

<table>
<thead>
<tr>
<th>Categories</th>
<th>Rating</th>
<th>Categories</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Management, systems and processes</strong></td>
<td></td>
<td><strong>III.</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Management commitment</td>
<td>3 2 1 0</td>
<td>1.2 Fleet safety management</td>
<td>3 2 1 0</td>
</tr>
<tr>
<td>1.3 Communication regarding fleet safety</td>
<td>3 2 1 0</td>
<td><strong>IV.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2. Monitoring and assessment</strong></td>
<td></td>
<td>2.1 Vehicle crash and incident investigation</td>
<td>3 2 1 0</td>
</tr>
<tr>
<td>2.2 Monitoring fleet safety performance</td>
<td>3 2 1 0</td>
<td>2.3 Performance monitoring and recognition</td>
<td>3 2 1 0</td>
</tr>
<tr>
<td><strong>3. Employee recruitment, training and education</strong></td>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
<tr>
<td>3.1 Driver selection and assessment</td>
<td>3 2 1 0</td>
<td>Sub total</td>
<td></td>
</tr>
<tr>
<td>3.2 Employee fleet safety induction</td>
<td>3 2 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Driver training</td>
<td>3 2 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Vehicle technology, selection and maintenance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Fleet vehicle selection</td>
<td>3 2 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Fleet vehicle maintenance</td>
<td>3 2 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. Vehicle journeys</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Journey management</td>
<td>3 2 1 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### TOTAL SCORE

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>0-7</th>
<th>8-14</th>
<th>15-21</th>
<th>22-28</th>
<th>29-36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Well below best practice</td>
<td>Below best practice</td>
<td>Approaching best practice</td>
<td>Achieving best practice</td>
<td></td>
</tr>
</tbody>
</table>
What’s next?

• Fleet safety management audit tool to be included on the Australasian Fleet Management Association website

• Ability for organisations to upload self-audit and outcome results – anonymous

• Determine if audit results (process performance indicators) are reflective of fleet safety outcome performance

• Need industry input for ongoing tool refinement
Conclusion

• Collecting information will not improve performance

• Using the audit tool will provide organisations with information on the strengths/limitations of their current fleet safety management

• Insights as to how to improve fleet safety management and performance

• Copy of audit tool:
Acknowledgments

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• Fleet managers and drivers who participated in the interviews and the managers who participated in the usability testing of the audit tool