Compliance and enforcement framework for heavy vehicle telematics

Policy framework endorsed by the
Transport and Infrastructure Council
National Transport Commission
November 2014
**About the Transport and Infrastructure Council**

The Transport and Infrastructure Council brings together Commonwealth, state, territory and New Zealand ministers with responsibility for transport and infrastructure issues, as well as the Australian Local Government Association.

The Council’s objective is to achieve a coordinated and integrated national transport and infrastructure system that is efficient, safe, sustainable, accessible and competitive. Achieving this objective will support and enhance Australia’s economic development and social and environmental well-being.

Improved transport and infrastructure across Australia will help to create a more liveable Australia, with transport and infrastructure integrated into urban and regional planning to foster an inclusive Australia.

**About the National Transport Commission**

The National Transport Commission (NTC) is an independent statutory body charged with improving the productivity, safety and environmental performance of Australia’s road, rail and intermodal transport systems.

We develop and submit reform recommendations for approval to the Transport and Infrastructure Council. We also implement planning to ensure the realisation of reform outcomes, as well as coordinating, monitoring, evaluating and maintaining the implementation of approved reforms.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need for a framework</td>
<td>4</td>
</tr>
<tr>
<td>Our vision for the framework</td>
<td>5</td>
</tr>
<tr>
<td>Applying the framework</td>
<td>6</td>
</tr>
<tr>
<td>1 Framework principles</td>
<td>7</td>
</tr>
<tr>
<td>2 Data dictionary</td>
<td>10</td>
</tr>
<tr>
<td>3 How telematics can improve compliance and enforcement</td>
<td>14</td>
</tr>
<tr>
<td>4 When you will need certification or government approval</td>
<td>19</td>
</tr>
<tr>
<td>Background information about the framework</td>
<td>22</td>
</tr>
</tbody>
</table>
The need for a framework

THE KEY POINTS

• Telematics provide governments and industry with a tool to improve heavy vehicle compliance and enforcement outcomes.

• Many operators and drivers have been reluctant to adopt telematics for regulatory purposes because they are uncertain about how their data will be used by enforcement agencies.

• To ensure enforcement agencies use telematics in a reasonable and consistent way, governments will implement future policies, programs and initiatives in line with the Compliance and enforcement framework for heavy vehicle telematics.

Telematics is the capture of data within a vehicle and the subsequent use of that data both within the vehicle and remotely. Telematics systems typically comprise an in-vehicle device containing a series of sensors and inputs linked to a back-office that captures, sends, stores and analyses information electronically.

Telematics is a tool that offers significant benefits when integrated as part of management systems. The technology can be used by industry for different commercial purposes, such as collecting diagnostics about harsh braking, engine performance and as a tool for driver coaching, payroll and routing. Telematics can also be used for what can be termed ‘regulatory purposes’ – when telematics is used to meet a compliance or enforcement outcome. For example, an operator may use telematics to ensure that vehicle standards, or mass management requirements under chain of responsibility, are met.

Telematics can be used by governments to help enforce the law. The Intelligent Access Program (IAP) and the electronic work diary (EWD) are two initiatives in the Heavy Vehicle National Law (HVNL) that rely on telematics. Telematics could also support any number of other regulatory activities, such as speed management and dangerous goods monitoring.

Industry has told us that the lack of common and clear policies as to how telematics data will be used by enforcement agencies has been a barrier to uptake.
The Transport and Infrastructure Council’s vision for Australia’s transport future is an efficient, safe, sustainable, accessible and competitive national transport system. The Council’s objective is to achieve a coordinated and integrated national transport and infrastructure system.

Telematics can support this vision. We see an opportunity for telematics to sit at the centre of industry’s approach to heavy vehicle safety and become an essential compliance tool, underpinned by clear and consistent government use of the data.

THE VISION

Widespread use of in-vehicle telematics supported by responsive management and reporting systems have delivered better levels of regulatory compliance. This has led to increased accountability and self-regulation within industry and allowed more targeted enforcement of high-risk operators. Overall this has made a significant contribution to lowering crash rates among heavy vehicles, improving productivity and environmental impact.

National policy to provide certainty and consistency for industry

By increasing certainty and consistency in national policy, the framework is intended to encourage industry to adopt telematics and attain road safety, productivity and environmental benefits and ultimately contribute to higher standards of living.

A clear approach will increase industry confidence to invest. The aim is not to increase the regulatory burden for industry but to provide ways for industry to meet its compliance requirements more efficiently.

The framework supports intelligent, risk-based enforcement and provides direction on the level of assurance governments need from regulatory telematics.
Applying the framework

Figure 1: Who, when and how to use and apply the framework

WHO can use the framework?
- regulators
- enforcement agencies
- state and territory police
- industry

WHEN to apply the framework?
Government
Early development of policies, programs or initiatives that will use regulatory telematics

Industry
Developing or procuring telematics solutions
Developing compliance strategies and safety management systems

HOW to apply the framework?
The framework is made up of four parts:

1. Framework principles
   The framework establishes 10 principles that relate to the privacy, compliance and enforcement, minimum standards, regulatory efficiencies and consistent application. (Refer to page 7.)

2. Date dictionary
   The data dictionary, based on international standards, will ensure governments do not standardise proprietary systems that cannot interface with other applications. This will also make it easier and more cost-effective to adopt regulatory telematics and will support market innovation. (Refer to page 10.)

3. How telematics can improve compliance and enforcement
   The framework provides a reference on how telematics can be used to improve compliance and enforcement through roadside enforcement, responsive regulation, audit-based schemes, safety management systems, chain of responsibility and industry-based schemes. (Refer to page 14.)

4. When certification or government approval is necessary
   The framework establishes a method to determine when a telematics system or device should be certified or approved by governments. The test is based on the extent that enforcement agencies must rely on the data to prosecute offences. (Refer to page 20.)

Heavy vehicle telematics initiatives, polices and programs
1. Framework principles

THE KEY POINTS

• Telematics data can contain personal information, and sometimes sensitive information. This requires governments to have clear rules about accessing and using the data.

• Until now, policies relating to telematics have been piecemeal and application-specific, while privacy regimes have very low thresholds to exempt enforcement activities.

• The framework endorses principles of privacy, access, minimum standards and regulatory efficiencies across all current and future regulatory telematics.

Australian regulators and enforcement agencies, including police agencies, will implement heavy vehicle telematics initiatives, policies and programs in accordance with the following 10 framework principles.

Our commitment to privacy principles and clear reasons for accessing telematics data is not intended to restrict lawful and reasonable enforcement activities, but to ensure that enforcement is consistent, respectful and that it is clear to industry how the data will be used if they adopt the technology.

<table>
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<tr>
<th>Principle</th>
<th>Description</th>
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<tr>
<td>Principle 1</td>
<td>The access and use of telematics information must be consistent with Australia’s international human rights obligations: public authorities must not apply or enforce laws, policies or programs in a discriminatory or arbitrary manner, and no one must be subjected to arbitrary or unlawful interference with his or her privacy.</td>
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<td>Principle 2</td>
<td>When accessing telematics information for compliance and enforcement purposes, public authorities must be bound by privacy and information principles that are consistent with the Australian Privacy Principles – these principles should allow the aggregation of de-identified telematics data for research and planning purposes.</td>
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<td>Principle 3</td>
<td>Each regulatory application must clearly identify to the user which organisation has responsibility for personal information generated by the telematics system, and which organisations may access or hold personal information derived from the telematics system.</td>
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<tr>
<td>Principle 4</td>
<td>Information derived from telematics systems must only be accessed by public authorities for the regulatory purposes for which they were intended. For example, a telematics system installed only to meet regulatory requirements under the Heavy Vehicle National Law must not be accessed for any other regulatory, enforcement or investigatory purpose unless a court-issued warrant is obtained.</td>
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| Principle 5 | Each regulatory policy must set out:  
  • the purposes for which information will be collected  
  • which data will be accessed for these purposes  
  • the conditions under which this information will be sought. |
| Principle 6 | Public authorities that use telematics information for a regulatory purpose must develop and implement policies based on reasonable and proportionate enforcement. The treatment of telematics information should have regard to patterns of behaviour and the higher probability of detection. |
Privacy and protection of information principles

Principles 1, 2, 3 and 4 seek to protect operators and drivers from intrusive or unreasonable access to personal information by regulators and enforcement agencies. Framework principles consistently adopted at a national level are necessary given that enforcement activities are largely exempt from the Australian Privacy Principles and state and territory Information Privacy Principles.

Regulatory applications may coexist with commercial applications. For example, a telematics system may have an EWD to meet fatigue reporting requirements and a speed monitoring application for driver management purposes. The speed data is not collected to meet a regulatory requirement and an authorised officer undertaking roadside enforcement would have access to the EWD information and not the speed monitoring data. However, the speed data could be accessed in an audit or chain of responsibility investigation.

Compliance and enforcement principles

Telematics systems generate detailed and accurate data that can be transmitted wirelessly to operators, regulators and enforcement agencies. In many regards, telematics technology increases the probability of detecting driver and vehicle breaches. It is critical that drivers are not unfairly targeted because they use regulatory telematics and that regulators and enforcement agencies do not use telematics to focus on isolated small breaches. Rather, regulatory telematics should provide an increased evidence base to identify patterns of behaviours and to enable regulators and enforcement agencies to develop intelligent, risk-based analyses and to target high levels of noncompliance. In turn, drivers and operators will be able to demonstrate compliant behaviour. In the longer term, regulators and enforcement agencies will have opportunities to consider the balance of roadside and back office approaches.

Principles 5, 6 and 7 ensures drivers and operators have an informed understanding of the enforcement implications of using regulatory telematics. Publicly available enforcement policies, including where appropriate, information on the treatment of small breaches, will increase certainty and uptake in the industry.

Minimum standards of telematics

The level of assurance governments will require of a telematics system, including the performance, integrity and tamper-evident capabilities of the system, depends on the policy requirements of the application and the extent to which the data is used for enforcement purposes. Principle 8 seeks to address this issue.

To assist industry and governments, the framework establishes a method to determine when a telematics system or a device needs to be approved or certified by government.

The method to guide understanding of minimum standards is set out in Part 4: When you will need certification or government approval. It provides that the minimum standards of a telematics system should require a high level of assurance only when the data is explicitly gathered for an enforcement or supervisory intervention purpose, and particularly when the data is used to issue an infringement at the roadside.

<table>
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<tr>
<th>Principle</th>
<th>Details</th>
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<tbody>
<tr>
<td>Principle 7</td>
<td>Enforcement policies in relation to the use of telematics information should be publicly released where it is appropriate to do so, and when the release of the enforcement policy does not pose a risk to the integrity of enforcement or regulatory policy.</td>
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<td>Principle 8</td>
<td>The performance standard of telematics used for regulatory purposes is a policy decision to be guided by the objectives of the regulatory application under consideration. Where possible, standards should support interoperability and facilitate multiple commercial and regulatory applications. Telematics used for enforcement must meet evidentiary requirements.</td>
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<tr>
<td>Principle 9</td>
<td>The use of telematics to improve compliance should aim, where possible, to ensure greater safety and efficiency for industry and public authorities.</td>
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<td>Principle 10</td>
<td>These principles should be consistently applied to future regulatory telematics by participating public authorities. Public authorities should demonstrate and communicate to stakeholders why a departure from the framework principles is warranted.</td>
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Other compliance approaches, such as chain of responsibility, audit-based compliance and safety management systems, are not focused on enforcement-based infringements and do not have the same requirement to produce immediate and reliable data to establish an offence and to initiate a prosecution. Regulators and enforcement agencies will not seek as high a level of assurance from telematics systems generated for these alternative purposes. And when an operator uses telematics for entirely commercial purposes, or to generally increase their compliance, governments do not have a role deciding minimum standards for those systems.

**Regulatory efficiencies**

Regulatory telematics should aim to ensure greater safety and efficiency for both industry and enforcement. The introduction of regulatory telematics should have a net community benefit, taking into consideration reductions in road deaths and serious injury, and increased productivity and operational efficiencies. Principle 9 aims to address this issue.

**Application of these principles**

Industry seeks consistent treatment of telematics information across regulators and enforcement agencies, which in turn will increase certainty and confidence in telematics and drive uptake.

Principle 10 reinforces the development of initiatives, policies and programs that are consistent with the framework principles.
2. Data dictionary

THE KEY POINTS

• The data dictionary enables regulatory applications to be consistent with overseas standards and to be interoperable with other systems.
• Governments undertake to ensure that future certification or approval processes for regulatory applications are consistent with the data dictionary.
• The data dictionary can be accessed at http://dictionary.tca.gov.au.

The data dictionary establishes agreed language, meaning and data forms so that different technologies and systems can ‘speak to each other.’

Over the last decade telematics has shifted from single-purpose in-vehicle devices towards dynamic, multipurpose and intelligent platform-based approaches that use remote (including cloud) technology. The data dictionary must be sufficiently agile and performance-based to accommodate technology advances and to facilitate the affordable integration of commercial- and compliance-related telematics applications. The data dictionary must also be aligned with international standards to ensure Australia is keeping pace with global trends. The diagram below illustrates how common data from a single telematics system can be used for different compliance and commercial purposes.

Figure 2: Typical data elements by heavy vehicle application (Courtesy of Transport Certification Australia, 2014)
The middle band represents data a telematics device may generate. This includes the essential information that may be required for a range of applications, including vehicle identification number, speed, location and date/time. Not every telematics system will collect all of this data – for example, an EWD will not require information about a vehicle’s mass, while a mass distance location (MDL) application may not require the driver to be identified.

The other sections represent different applications, both regulatory and commercial. The market is developing solutions that integrate applications according to this model, which is based on international standards. It means that a telematics system can collect speed data used for fleet management, scheduling and logistics management, all of which are commercial purposes, and use the same data for a speed monitoring regulatory purpose.

**Privacy and access to data**

The data dictionary approach allows systems to be designed where an authorised officer only has access to data relevant to the regulatory application, and not data used for other purposes. This is illustrated in the next diagram.

**Figure 3: Managing the interface between heavy vehicle telematics systems and different compliance and enforcement approaches**
Data will remain private unless there is a clear enforcement purpose requiring access to it. For example, Application 1 may be the IAP, which is an access application that requires vehicle identification, but it would not be necessary to know the identity of the driver to determine whether a vehicle was on permitted roads. On the other hand, Application 2 may be an EWD, which does require driver identification because it relates to the driver’s work and rest times.

This approach also distinguishes between data accessed at the roadside, under audit conditions or other enforcement approaches, such as non-compliance reporting. For example, a back-office audit tool such as IAP would not have system capability to review compliance records at the roadside.

International standards

The relevant international standards are primarily contained within ISO 15638, Intelligent transport systems – framework for cooperative telematics applications for regulated commercial freight vehicles, known as TARV. TARV seeks to support commercial and regulatory functions within a single platform that can operate through open standards and in a competitive market (ISO 15638-5, Intelligent Transport Systems – Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) – Part 5: Generic Vehicle Information, 2012, p. viii).

TARV uses commercial system providers, a wireless interface medium and remote connection access. Data is not held by governments, but is held and managed by commercial service providers.

Figure 4: Applications set out in TARV

| ISO 15638-8 | TARV – | Vehicle access management and monitoring |
| ISO 15638-9 | TARV – | Remote electronic tachograph monitoring |
| ISO 15638-10 | TARV – | Emergency messaging system/eCall |
| ISO 15638-11 | TARV – | Driver work records |
| ISO 15638-12 | TARV – | Vehicle mass monitoring |
| ISO 15638-13 | TARV – | Mass data for regulatory control and management |
| ISO 15638-14 | TARV – | Vehicle access control |
| ISO 15638-15 | TARV – | Vehicle location monitoring |
| ISO 15638-16 | TARV – | Vehicle speed monitoring |
| ISO 15638-17 | TARV – | Consignment and location monitoring |
| ISO 15638-18 | TARV – | ADR (dangerous goods) monitoring |
| ISO 15638-19 | TARV – | Vehicle parking facilities |

(Except for ISO 15639-13 ‘Mass data for regulatory control and management,’ which is under development, each standard is at an Approved Technical Standard phase at the time of publication.)

One of the benefits of TARV as an ISO standard is the structured process to ensure development, maintenance and harmonisation across other standards. Existing applications in Australia are similarly based on this model.

A single telematics system could host any number of regulatory purposes if the essential features of TARV, including a common framework architecture, platform parameters and generic vehicle information, were adopted.
Explaining the data dictionary

*Interoperability* is the capacity for systems to work together. Depending on how systems are attempting to interact, this may require a common understanding of:

- communication protocols (a common language)
- data forms (a common set of words)
- meaning of the data (common word definitions)
- how the data will be used (such as whether the information is publicly accessible)
- what impact sharing the data will have
- constraints and assumptions.

The data dictionary will help exchange information across different telematics systems by setting an agreed language and a common understanding of data type (such as numeric, text or binary data types) and relationships between data. Each system may implement its own method of data management, provided that the interface adheres to the agreed definitions.

An open standards approach encourages a competitive market. It provides the groundwork to enable greater use of operators’ systems for compliance-related activities. Transport Certification Australia has developed a data dictionary based on TARV standards and in consultation with industry and governments.


The data dictionary provides requirements for compliance applications, including:

- Vehicle Identification Number
- timestamp requirements
- location (latitude, longitude and altitude)
- manufacturer’s identification.

The essential requirements are dependent on the specific application. The initial data dictionary supports five initial applications:

- recording work and rest hours
- mass monitoring
- speed monitoring
- vehicle location monitoring
- consignment location monitoring.

The data dictionary is a living document that can be updated and enhanced over time. This could include further data elements for new applications, as well as enhanced features such as archiving and version numbers, links to data sources and further information to assist correct usage.
3. How telematics can improve compliance and enforcement

THE KEY POINTS

• Telematics can improve compliance, responsive regulation, roadside enforcement, audit-based schemes, chain of responsibility and industry schemes and codes.

• The measurable benefits of telematics will depend on what applications are used, and how operators use the information to change systems, behaviours and culture.

Benefits of regulatory telematics based on international standards

There are significant opportunities for those who use telematics to monitor and manage fleets and to increase the safety culture and systems of an organisation. While these opportunities can partly be attained in commercial applications available today, combining commercial and regulatory applications into a single system can increase the benefits.

Example:

Drivers who use a written work diary today must round-up work and round-down rest in 15 minute blocks. This means that it is unlikely that the hours of work and rest recorded in a driver’s work diary are going to match schedules.

With an EWD, operators can align work and rest hour rules with scheduling software and – within a single system – ensure that drivers are compliant and that their own responsibilities can be addressed (the final report of the Operational Pilot of Electronic Work Diaries and Speed Monitoring Systems (NSW Roads and Maritime Services, 2013) provides more information about the potential benefits of EWDs).

The diagram on the next page shows how a single telematics device with a data dictionary can support both regulatory and commercial applications. The circles represent potential benefits for the community and industry. Community benefits, such as vehicle safety, are also of value to industry, which is why they sit inside the industry-specific benefits.

In addition to these potential benefits, Principle 2 of the framework allows de-identified data to provide a rich evidence-base for research to support policy and planning decisions. For example, de-identified EWD data can help us understand common work and rest patterns.

Other telematics data, such as network pinch points, could also be shared between commercial operators or provided by governments.
Figure 5: The potential benefits of regulatory and commercial telematics

Data

<table>
<thead>
<tr>
<th>Driver ID</th>
<th>Speed</th>
<th>Mass</th>
<th>Location</th>
<th>Position</th>
<th>Direction</th>
<th>Engine diagnostics</th>
</tr>
</thead>
</table>

Regulatory Applications

- Intelligent Access Program
- Electronic work diary
- Speed monitoring
- On-board mass
- Dangerous Goods record keeping

Commercial Applications

- Fleet monitoring
- Scheduling
- Logistics management
- Load efficiencies management
- Vehicle maintenance
- Payroll

Potential benefits

For Industry

- Efficient operations
- Optimised routes
- Agile supply chain
- Efficient driving

For the community

- Safe vehicles
- Optimised infrastructure
- Driver alertness
- Compliance assurance
- Safe roads
- Efficient vehicles
How telematics can improve compliance

Telematics provides industry and governments with a tool to improve accuracy, depth and breadth of the information to demonstrate and improve risk assessment and compliance. Some of the benefits identified through the EWD Operational Pilot are:

- improved data accuracy and transparency
- providing real-time data that enables operators to respond immediately to actual breaches and monitor performance over time
- in-vehicle driver information that enables drivers to plan their work and rest and to take action when alerted to an imminent or actual breach
- improved compliance with fatigue rules, which is expected to contribute to a reduction in heavy vehicle crashes (Roads and Maritime Services, Operational Pilot of Electronic Work Diaries and Speed Monitoring Systems: Final report, 2013, chapter 7).

These benefits will increase if telematics are used as part of an organisational focus on safety and safe systems.

In the longer term, telematics technology is a tool that can underpin a paradigm shift in enforcement. With the ability to intelligently assess risk and to identify high-risk operators and drivers increased, governments have the opportunity to re-assess the balance between roadside enforcement and audit-based activities. Compliance assurance in turn benefits highly compliant operators who can demonstrate their compliance and it places small breaches in context.

How telematics can improve responsive regulation

Responsive regulation is a compliance method that advocates an adaptive and proportionate response to noncompliant behaviour. It is based on a behavioural approach that can be used in different contexts, including roadside enforcement, chain of responsibility and audit-based schemes.

Telematics can complement responsive regulation because it helps to make informed assessments of compliance and to identify systemic behaviours. Telematics is an effective tool to positively influence drivers’ behaviours and attitudes. With the education and information provided by telematics, it is expected that the level of compliance will increase for those willing to do the right thing (the engaged and committed).

Telematics can also increase knowledge about road and traffic conditions, such as local speed information, which in turn provides the tools to increase compliance and safety.

Further, telematics systems provide a software platform to consistently present the law. For example, telematics applications can offer consistent driver warnings when next to take a break, in accordance with each work and rest rule for whichever fatigue option a driver is working under. Such applications can positively impact drivers’ perceptions of substantive purpose and procedural fairness.

Noncompliance may also be caused by opportunism, which can be driven by low barriers to entry and marginal returns on investment. When noncompliance is caused by an economic imperative, an element of opportunism exists – that the risk of being caught is lower than the commercial benefits. Because telematics can increase the likelihood of being caught – whether by enforcement agencies, employers or others in the supply chain – this is likely to increase compliance amongst people driven by opportunism.

How telematics can improve roadside enforcement

Roadside enforcement is the traditional form of road safety enforcement. It remains an important and valuable deterrent for noncompliance in the heavy vehicle sector. Roadside enforcement is based on highly visible enforcement activities that rely on an efficient system of identifying breaches, motivations for noncompliance, and subsequent action.

Telematics can improve understanding of the law, and subsequently compliance, by providing accurate advice, warnings, vehicle diagnostics and up-to-date network information. The traditional roadside enforcement is most effective when drivers and operators respond rationally and are deterred from future violations. The deterrent effect is markedly reduced when breaches occur as a result of an inadvertent mistake or lack of awareness of the law. An increased awareness and understanding of the law as a result of telematics applications will greatly benefit roadside enforcement.
The deterrent impact of roadside enforcement can increase as the probability of detection afforded by technology increases. For example, more accurate on-board mass measurement accessible at the roadside, or the comprehensive analysis of EWD records, increases the probability of detection and is likely to prevent the reoccurrence of some behaviour. Further, roadside enforcement measures will become less dependent on fixed infrastructure (such as weigh bridges) or the expertise of authorised officers (such as comprehending complex fatigue regulations). Compliance assessment software underpinned by telematics technology does not remove officer discretion at the roadside, but improves the evidence base for making discretionary decisions.

**How telematics can improve alternative approaches to enforcement**

Alternatives to roadside enforcement are intended to enhance a culture of safety in the workplace while increasing transport efficiencies. Examples include audit-based schemes, such as the National Heavy Vehicle Accreditation Scheme (NHVAS) for mass, maintenance and fatigue modules, and safety management systems. **Safety management system** is a term used to describe a planned, documented and verifiable method of managing hazards and associated risks while ensuring that these risk controls are effective. Civil aviation, maritime and rail are all transport sectors that have structured safety management systems. In the roads sector, advanced fatigue management could be considered a subset of the safety management system approach.

Telematics can be used in a number of ways to improve these approaches. On-board mass monitoring can provide remote and detailed data almost in real time. EWDs can improve driver scheduling and provide accurate and current information to enable an operator to actively manage fatigue. Telematics can also provide certainty to regulators that small breaches are being identified and actioned by operators within a self-reporting model, so that they can focus on high risk activities and organisations. Safety management systems could use telematics applications and systems to monitor, influence and improve driver behaviour within an organisational approach to safety.

A small number of larger operators have adopted safety management system principles as a business model, but they are not recognised in the law and they do not receive a regulatory benefit for doing so. Telematics information could underpin increased trust in the effectiveness and reliability of safety management systems.
How telematics can help meet chain of responsibility obligations

Chain of responsibility is a legal concept in the Heavy Vehicle National Law that recognises on-road offences may be influenced by off-road parties. It captures those parties whose influence on the chain may lead to compliance or noncompliance. It can include drivers and operators, as well as schedulers, loaders and other parties, as well as extending personal liability for corporate fault.

Information generated by telematics can be used by parties in the chain to assist their compliance with obligations. For example, driver information in an EWD may benefit schedulers who can accurately match EWD data with real-time scheduling and be responsive to drivers’ remaining work and rest hours. Real-time information will also allow fleet managers to proactively anticipate potential breaches.

Depending on the extent that telematics data improves risk management and compliance with the law, telematics may also assist parties to demonstrate that reasonable steps were taken to meet their chain of responsibility obligations. Installing telematics does not of itself demonstrate chain of responsibility: the technology is a tool that can be used as part of broader management, planning, systems and cultural changes. Chain of responsibility obligations can still be met without using telematics.

Industry has told us that establishing effective reporting systems will be a greater challenge than agreeing what data is collected by telematics. The market will have a key role developing and offering management and reporting systems that use telematics information, and this will be especially important for chain of responsibility.

How telematics can improve industry schemes

Industry schemes are an example of where a non-regulatory approach can use the power of customers, businesses, the media and other parties to bring about change.

Codes of practice and industry schemes, such as TruckSafe, are designed to promote safety and give confidence to customers along the supply chain that they are contracting high quality operators. They are used by industry to exceed minimum requirements of compliance and there are opportunities for telematics to contribute to – and build on – these approaches. The National Logistics Safety Code, introduced by the Australian Logistics Council, is used to assist industry to manage and maintain safety across the supply chain. The code is voluntary and can apply to all compliance-related activities within a supply chain, including fatigue and safe loading. The National Logistics Safety Code includes a recognition scheme when participants can generate marketing opportunities by demonstrating increased safety practices, reducing the risk exposure of customers and suppliers.

Alternative approaches include safety rating systems, such as Compliance, Safety and Accountability (CSA) in the United States, which encourage freight customers to use their purchasing power to choose safer operators. Schemes such as these may benefit from telematics information because they are data-rich approaches that require accurate and comprehensive information to assess the relative safety or performance of participants.

Managing the data effectively

We have seen that the benefits of telematics depend on how the data is used to address risks and to change behaviour, fleet performance and a safety culture. When purchasing a telematics system, operators should make informed purchasing decisions about follow-up support, staff training and data management practices, so that a system is established to effectively use the data being generated.

When new regulatory applications are released, agencies and peak bodies should consider working with industry to improve market knowledge and to highlight best practice safety and data management and how best to manage a growing amount of compliance data.
4. When you will need certification or government approval

THE KEY POINTS

- A higher level of assurance is required for applications or systems used by governments to enforce the law.
- If systems are not sufficiently reliable, tamper-evident or accurate, drivers could be wrongly accused of breaches, or a significant court resources could be wasted proving the accuracy of a system.
- The framework distinguishes between applications or systems that are used for enforcement, as opposed to other compliance or commercial activities.

This part of the framework supports Principle 8 Minimum standards of telematics and provides a guide to understand the circumstances where it is reasonable and appropriate for regulators or enforcement agencies to seek to certify or approve a telematics systems used for a regulatory purpose.

We recognise that certification and approval processes come at a cost. Not all systems used for a regulatory purpose will need government certification or approval. By carefully identifying when it is necessary, we allow industry to keep costs down and to innovate.

Why certification or an approval process is sometimes necessary

Fixed speed cameras or Safe-T-Cam in some states are technology devices that are used by enforcement agencies to issue infringements. The testing and calibration procedures for the technology are prescribed, and agencies must ensure that the cameras are accurate and reliable.

Emerging regulatory telematics, such as EWDs, can also be used as primary evidence to issue infringements – the difference being that the technology is inside the heavy vehicle and controlled by the operator and not fixed at the roadside. Agencies are not able to control the hardware and software in the same way as a fixed speed camera or Safe-T-Cam. This requires a balance. We want to encourage industry to innovate and integrate commercial and regulatory systems – but we also need the data produced by these systems to be sufficiently accurate and reliable in a court of law.

Not all telematics systems will need to be certified or approved

Regulators and enforcement agencies are not able to access commercial data unless they have a power to do so under a law. Conversely, governments will have an expectation that they can access regulatory information as a matter of course, particularly in roadside enforcement conditions.

In these cases – particularly if infringements are issued based on the telematics data – the telematics data is intended to be used for enforcement purposes and the evidentiary value of the data is critical. Governments require a higher level of assurance of integrity, security and performance for those systems that are being used for enforcement. Industry may have similar requirements but not necessarily to the same standard.

It is important to note that this framework does not relate to investigations, such as crash investigations or coronial inquests. Government agencies will continue to lawfully access data under relevant laws, regardless of whether a device is certified or approved for a regulatory purpose under the Heavy Vehicle National Law. However, when data generated by a certified or approved device is used as evidence, they will benefit from the increased reliability and accuracy afforded by these processes.
### How to determine the level of assurance governments need

**Figure 6: Method to determine whether a system needs to be certified or approved by government**

<table>
<thead>
<tr>
<th>Compliance approach</th>
<th>Will regulators and police use telematics to enforce the law?</th>
<th>Will industry use telematics to demonstrate compliance?</th>
<th>Will industry use telematics to generally increase compliance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadside enforcement</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Supervisory intervention order</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Audit-based compliance</td>
<td>DEPENDENT*</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Safety management system</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Chain of Responsibility</td>
<td>NO</td>
<td>YES**</td>
<td>YES</td>
</tr>
<tr>
<td>Meta-regulation</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

| If YES, a high level of assurance is required | If YES, a medium level of assurance is required | If YES, level of assurance a matter for industry |

* Level of assurance is dependent on extent to which audit-based schemes are subject to roadside enforcement.

** This is not an indication that telematics should be mandatory to meet chain of responsibility obligations. Telematics is only used to demonstrate legal compliance under chain of responsibility if parties in the chain choose to adopt telematics.
Adopting the method outlined on the previous page, the level of confidence required in the performance of the system is dependent on the requirements of policy and the compliance or enforcement approach taken:

- **Will the data be used by regulators and enforcement agencies to enforce the law?** If yes, governments should seek a high level of assurance. This would require a certification or approvals process.
- **Will the data be used by industry to demonstrate legal compliance?** If yes, governments should seek a medium level of assurance. A medium level of assurance could require common standards to be adopted with increased penalties for non-conformance, increased system auditing, third-party record keeping or a reverse onus of proof.
- **Will the data only be used by industry to generally increase compliance levels?** If yes, the level of assurance is a matter for industry.

Based on this approach, if an operator is using accreditation to both demonstrate legal compliance and increase its compliance levels generally, the minimum level of confidence in the integrity and performance of the system would be rated as medium, not low.

Other compliance approaches, including safety management systems, chain of responsibility and industry schemes, are not focused on infringements or other forms of enforcement action and do not have the same prosecutorial emphasis.

The alternative approaches to compliance shift the responsibility to operators and other parties to demonstrate legal compliance, accuracy and the reliability of the telematics system they use. It becomes less important for regulators and enforcement agencies to ensure a minimum evidentiary standard is met.

**What this means for operators’ systems**

The approach does not stop operators and other parties from using their own system for an enforcement purpose. However, the data must be sufficiently accurate to be relied on for enforcement. Operators’ systems used for enforcement purposes will be subjected to the same certification or approvals process as required by third-party service provider offerings.
Background information about the framework

Earlier strategies

In 2011, we released the National in-vehicle telematics strategy: the road freight sector, which recommended the development of an enforcement policy to support industry uptake of telematics. In 2012, the then Standing Council on Transport and Infrastructure approved the Policy Framework for Intelligent Transport Systems (ITS) in Australia to ensure that ITS use in each jurisdiction is compatible and that development occurs around a set of agreed compliance and enforcement policy principles.

Electronic work diaries operational pilot

Between 2011 and 2013 the feasibility of EWDs was tested in an operational pilot led by New South Wales. As part of that pilot, we examined enforcement and policy aspects of EWDs. The pilot raised issues of how telematics could change the current compliance and enforcement paradigm, with the potential for smarter, risk-based enforcement, improved use of resources and a review of the balance between roadside and back-office enforcement. However, many stakeholders agreed that these questions went beyond fatigue and that a broader framework solution was needed.

Project mandate

In 2012 the Transport and Infrastructure Senior Officials’ Committee agreed that, as part of our annual work plan for 2013–14, the NTC would lead work to develop a compliance and enforcement framework for heavy vehicle telematics.

We worked with industry, Australian governments, Transport Certification Australia and the National Heavy Vehicle Regulator to scope and direct the project. We identified many of the barriers to uptake of regulatory telematics and led the development of draft framework principles and a data dictionary.

Discussion paper

In December 2013, we released Developing a Compliance Framework for Heavy Vehicle Telematics – Discussion paper for consultation. It proposed framework principles, a method to assess assurance, and a data dictionary, and examined how telematics can be used as a tool to increase safety and compliance. The discussion paper also proposed that mandatory and voluntary options for telematics are dependent on specific applications and policy proposals.

Submissions were received from state and territory governments, police and industry. The need for, and direction of, the framework was supported. Submissions strongly endorsed a data dictionary that supports open and interoperable standards. Many submissions welcomed an approach that recognises that the level of assurance required of telematics is dependent on the purpose for which the technology is used.

The draft principles were refined through the consultation process, which is reflected in the final framework. A number of governments also sought to ensure the framework does not ‘close off’ mandatory options in the future.

Final policy paper

In May 2014, we published Delivering a Compliance Framework for Heavy Vehicle Telematics – final policy paper. The final policy paper put forward a proposed framework, including framework principles. The framework was endorsed by the Transport and Infrastructure Council in May 2014.

Acknowledgements

We thank all stakeholders across industry and government for providing feedback on the development of the framework. Your participation at workshops, one-on-one meetings and written submissions has been invaluable.

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