Understanding the National Telematics Framework

Title	Understanding the National Telematics Framework
Document No.	TCA-G50
Version	1.0
Date	August 2021
Status	Published

Contents

Appendices

1 What is the National Telematics Framework?

The National Telematics Framework:

- Provides a national platform for the use of telematics and related intelligent technologies

- Supports different applications across regulatory, contractual and commercial needs

- Supports different levels and models of assurance

- Is outcome-focussed and encourages innovation.

The adoption of the National Telematics Framework for the delivery of offerings and applications both for public policy and private decision making is a world first. It has positioned Australia as the leader in the delivery of such services through the advent of the digital economy.

The National Telematics Framework was established following a series of decisions made by ministers between 2003 and 2008 and was globally recognised as an International Standard (ISO 15638) in 2012.

2 What is the National Telematics Framework comprised of?

The National Telematics Framework comprises the following interrelated components:

Telematics Applications and Schemes

- Performance-based functional and technical specifications describe requirements for application service providers (ASP) to offer telematics application services
- Scheme documents are developed in collaboration with Authorities, and describe a use of a telematics application, along with roles and responsibilities of participants

Assurance

- Different levels of assurance can be supported based on the needs of Providers to deliver intended outcomes, management of risks and balancing costs and benefits
- Different assurance models allow device approval and level of oversight and audit to be tailored to the Provider and level of risk involved

Governance

Granting or cancellation of approvals, managed on behalf of road and transport agencies, regulators and other government agencies, including:

- Registration or certification of ASPs to provide telematics application services
- Fit-for-purpose approval of telematics devices and systems (e.g. type-approval)

Legal Agreements

- Consent agreements include privacy requirements to ensure data collected through telematics and related technologies is used only for disclosed purposes
- Standard legal agreements cover device approval and delivery of telematics application services

Data Transfer

- Standard methods and mechanisms for the transfer of telematics data between National Telematics Framework participants
- Definition of the communication interface between a telematics device and another system or device within a vehicle

Data Formats and Terminology

- Dictionary of common data elements across all specifications (to ensure interconnectivity and interoperability, to support any number of current and future applications)
- Definition of standard data formats and data record structure across all telematics applications

Data Analysis and Reporting

Data analysis and reporting to policy makers and program managers, in line with consent for the use of data, through the Telematics Analytics Platform (TAP)

Oversight and Audit

Fit-for-purpose oversight and audit programs, managed by TCA on behalf of government agencies and regulators

3   National Telematics Framework participants

There are four key participants in activities related to the National Telematics Framework: Authorities, Providers, Operators and TCA, as described below.

Authorities

- Creators of applications and schemes through the Framework

- Users of information, reports and analysis using data generated from applications of the Framework

- May appoint an administrator to perform its functions.
  Note: The functions associated with an Authority may involve a road authority or regulator, or both, as applicable to a scheme.

- Examples include government agencies, regulators and private sector entities.

Providers

- Providers of digital technologies and associated services recognised through the Framework

- May use digital devices and hardware from suppliers to deliver telematics applications and schemes

- May have one or more roles within the Framework. Examples include:

  - **Application Service Provider (ASP)** (if registered or certified to provide telematics application services)

  - **Operator ASP** (if registered or certified to provide telematics application services, and if also operating the vehicles it enrols in schemes of telematics applications)

  - **Supplier** (supplies telematics devices or connected devices)

  - **Operator Supplier** (supplies and installs telematics devices or connected devices exclusively in its vehicles that are within its custody and direct control, and operates those vehicles).

Operators

- Users of schemes created by Authorities and offered by ASPs through the Framework

- Operate one or more vehicles eligible to enter a scheme requiring a telematics application

- Example: transport operator.

TCA

Responsible for specific functions and services within the Framework, which include:

- Coordinating the interaction of participants within the Framework, as appropriate to the Framework activity

- Developing performance-based requirements for Providers

- Overseeing assurance mechanisms for Providers (which offer services recognised through the Framework)

- Managing the collection, storage and use of data, based on standardised consent arrangements entered into by users of applications and schemes

- Managing the Telematics Analytics Platform (TAP) and associated services

- Promoting a robust marketplace for Providers and other Framework participants.

4 Telematics applications and schemes

4.1 Telematics applications

A telematics application is a capability of the National Telematics Framework where data from participating Operators' vehicles is monitored using telematics devices and used to create information and reports for the Authority. The monitoring is provided by ASPs that are approved by TCA.

Typically, an application describes how vehicle location is monitored, although other parameters may be monitored as well. Information and/or analytics on vehicle activity are provided to the Authority, using an agreed delivery mechanism such as TAP.

Telematics applications can differ in complexity based on the level of assurance (see Section 5).

A telematics application comprises, as appropriate to the level of assurance:

Performance-based requirements for an ASP to offer telematics application services (requirements cover aspects such as vehicle enrolment, data collection and management, and data reporting to TCA)

Performance-based requirements for devices used in the application

Legal agreements that specify roles are responsibilities related to the provision of telematics application services and the approval and usage of devices used in the application

A consent agreement on data usage, signed by the Operator

A data delivery mechanism

A defined level of oversight, which may include an audit program as applicable to the level of assurance

4.2 Telematics application design and development

TCA develops telematics applications with Authorities in consultation, and where necessary, collaboration, with key industry stakeholders.

Telematics applications are designed using the principles of component architecture, allowing applications at different levels of assurance to utilise common ASP systems. Application design strategies make it easy for ASPs certified to provide application services at a high level of assurance to provide application services at lower levels of assurance.

Privacy-by-design principles are embedded into the requirements of functional and technical specifications, as appropriate to the level of assurance of the telematics application.

For example:

- For a telematics application at Level 3 Assurance, the ASP must adopt information security management practices that comply with ISO/IEC 27001 and 27002

- For a telematics application at Level 2 Assurance, the ASP only needs to implement a documented information security management system to protect confidentiality, integrity and availability

- For a telematics application at Level 1 Assurance, there are basic information security requirements and interfaces with TCA are secure.

TCA's testing methods related to ASP registration or certification contribute to standardisation in service provision across telematics applications.

4.3   Telematics application classes

Telematics applications are classified as monitoring applications or assessment applications. Certain responsibilities of key participants may vary, depending on the class of the telematics application.

A *monitoring application* is an application where the ASP provides all data to TCA, and TCA performs processing and analytics based on the data it receives. Reports and analysis derived from this data are viewable through TAP (different users have different access rights to TAP based on the data and information they have rights to view).

- Telematics Monitoring Application (TMA) and Road Infrastructure Management (RIM) are examples of monitoring applications.

An *assessment application* is an application where the ASP processes data against a set of rules supplied by the Authority and provides reports on vehicle activity that does not follow the rules.

- Intelligent Access Program (IAP) is an example of an assessment application.

4.4   Schemes of telematics applications

In the National Telematics Framework, a *scheme* is a specific use of an application linked to the delivering a policy objective of the Authority. TCA ensures that schemes operate within the parameters of the telematics application they are associated with, and in accordance with common scheme operating rules.

When associated with the appropriate telematics application, a scheme provides a solution to an intended purpose, and addresses current gaps or shortfalls with intended outcomes.

The RIM, TMA and IAP applications are most commonly used in conjunction with schemes.

For more information on TMA and RIM schemes, see our web page Schemes.

4.5   Data privacy and consent

As part of its role as administrator of the National Telematics Framework, TCA oversees structures and processes for the protection, control and use of telematics data.

Standard consent agreements include privacy requirements to ensure the data collected through telematics and related technologies is used only for disclosed purposes, and formally consented to by Operators.

ASPs must not:

- Sell, provide, transfer or copy any data collected through telematics applications

- Allow data to be accessed or viewed by any individual, organisation or group

- Disclose personal or confidential information.

ASPs must have documented quality systems and controls to manage data collected through telematics applications.

4.6   Data lifecycle management

Data collected through the National Telematics Framework is destroyed or de-identified under controlled arrangements, and as described in consent agreements. For example:

- Data generated through use of the IAP application is managed at Level 3 Assurance and is subject to requirements of the Heavy Vehicle National Law (HVNL). As such, the ASP destroys IAP event reports, enrolments, off-the-shelf conditions, map data and software of telematics devices and system applications after four years from the date received, and all other IAP data after one year.

- Data generated through use of the TMA application is managed at Level 2 Assurance. Unless otherwise compelled by law, TCA de-identifies TMA data it receives within one year from the date received.

- Data generated by the RIM application is managed at Level 1 Assurance. TCA de-identifies RIM data upon receipt.

4.7 Data formats and transfer

Incorporating elements described in the *Telematics Data Dictionary*, standard data elements, formats and data record structures are defined for use across all telematics applications and digital technologies (as applicable).

For more information, see:

- *Telematics Business-to-Business Data Exchange Functional and Technical Specification*
- *Telematics Data Dictionary*

Standard methods and mechanisms are defined for business-to-business (B2B) data exchange within the telematics applications of the National Telematics Framework. Standard business documents and reporting artefacts are defined for use in that exchange.

For more information on B2B data exchange, see:

- *Telematics Business-to-Business Data Exchange Functional and Technical Specification*
- *TMA and RIM Data Reporting Guide*
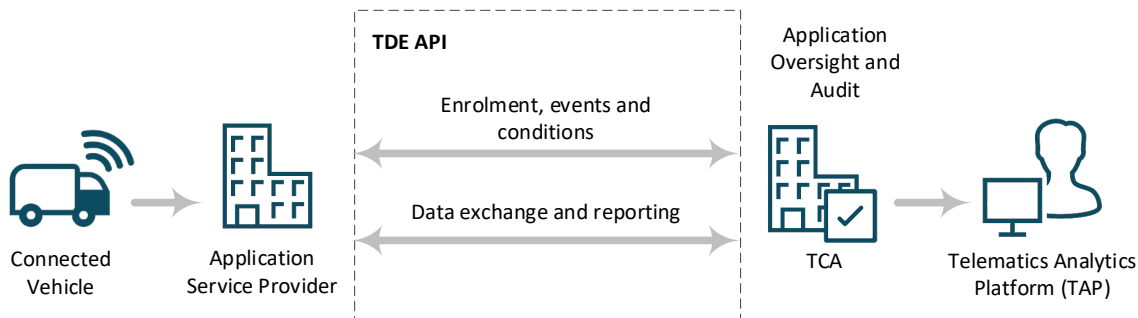
TDE API = Telematics Data Exchange Application Programming Interface

TCA has defined the device-to-device (D2D) communication interface between a telematics device and another system or device, used in the context of the National Telematics Framework.

For more information on D2D data exchange, see:

- *Interconnectivity of Telematics Device with Other Systems Functional and Technical Specification*

Standardisation of data formats, business documents, interfaces and transfer mechanisms promotes interoperability and consistency in the deployment and usage of telematics applications within the National Telematics Framework.

5 Assurance

Assurance in the information produced by telematics applications and devices is an important factor when that information is used to make decisions. TCA has defined levels of assurance that provide an assurance outcome. An assurance outcome reflects the intended use of the data and information produced by the application or device, the risks being managed and the needs and expectations of consumers and other stakeholders.

TCA provides assurance by assessing ASPs and their offerings at a defined level of assurance prior to the ASP being registered or certified, then providing the required level of oversight and audit once data is received. TCA also approves devices of Suppliers and Operator Suppliers for use at a defined level of assurance.

5.1 Levels of assurance

In the National Telematics Framework, different assurance outcomes from the use of telematics and related intelligent technologies can be derived from five interrelated dimensions:

- The stringency of performance-based requirements (where the number of requirements related to data assurance increases with the level of assurance)

- The assessment and approval process

- The oversight of in-service performance

- The management of changes

- The management, security and use of data (which is always set at the highest level).

A telematics application incorporates a level of assurance in its performance-based requirements, associated legal agreements and oversight and audit program.

Similarly, a telematics device may be approved for use at a medium or high level of assurance (Level 2 or 3). A device approved for use at a higher level of assurance can also be used in applications at lower levels of assurance.

For more information on levels of assurance, and how stakeholder needs are catered for based on the dimensions above, see our web page Levels of Assurance.

5.2 Assurance models

The National Telematics Framework supports multiple assurance models that allow dimensions such as device approval and level of oversight and audit to be tailored to the Provider and level of risk involved.

Factors that may influence the design of an alternative to standard models of assurance may include:

- Relevant accreditation(s) which are recognised under the HVNL

- Relevant quality management system(s) maintained by the Operator

- The use of safety management systems that may rely on the use of digital technologies

- The structure of business relationships between the Operator and technology partner(s).

For example, the approval of a telematics device can vary according to level of assurance:

- Type-approval is required of a telematics device used in an application at Level 3 Assurance (e.g. IAP).

- Approval may be in the form of type-approval or an equivalent approval mechanism acceptable to TCA when a telematics device is used in an application at Level 2 Assurance (e.g. TMA). The Provider must meet applicable requirements in the functional and technical specification, irrespective of the approval mechanism.

- Self-assessment is the only approval necessary when a telematics device is used in an application at Level 1 Assurance (e.g. RIM).

The following example illustrates how dimensions of change management and in-service performance of a telematics device may be tailored to the Provider:

- An Operator Supplier supplies and installs telematics devices in its own vehicles. Any change to the telematics device will be limited to the Operator Supplier, and there may be greater financial incentive to rectify any issue related to performance. Consequently, TCA may provide less oversight over the change management and in-service performance dimensions related to device performance.

- An ASP operates as a commercial entity and arranges (or oversees) installation, calibration and maintenance of telematics devices in vehicles of Operators. A change in telematics device behaviour will consequently have greater impact, requiring standard TCA oversight over the change management and in-service performance dimensions.

6 Operating within the National Telematics Framework

As part of its role as administrator of the National Telematics Framework, TCA manages the approval and entry of new Providers and approved devices to the Framework, and the suspension or exit of Providers from the Framework.

This level of oversight assists with:

- Service continuity if a Provider wishes to cease provision of application services
- Greater awareness of the supply of TCA-approved devices in the marketplace.

6.1 Approval to provide application services or devices

An ASP may apply to TCA at any time for approval to provide telematics application services within the National Telematics Framework. As part of this approval, TCA checks the ASP's financial capacity, including a minimum level of insurance, to help mitigate adverse effects on Operators related to the ASP's ability to provide the application services.

A Supplier or Operator Supplier may apply to TCA at any time for approval to recognise a telematics device or connected device at a defined level of operation. As part of this approval, TCA similarly checks the ASP's financial capacity, including a minimum level of insurance.

6.2 Termination of provision of application services or devices

An ASP notifies TCA in writing of its request to cease provision of telematics application services. The notice required is based on the level of assurance of the telematics application. For example:

- For applications at Level 2 or 3 Assurance, 60 days' notice is required
- For applications at Level 1 Assurance, 20 days' notice is required.

TCA provides the same notice when it wishes to terminate the Registration or Certification Agreement.

During this period, TCA and the ASP endeavour to minimise the impact on Operators and seek to transfer them to another ASP.

A Supplier or Operator Supplier notifies TCA in writing of its request to terminate a Type-Approval Agreement, giving 90 days' notice. TCA provides the same notice when it wishes to terminate the Type-Approval Agreement.

6.3 Suspension of provision of application services or devices

If an ASP is approved to provide services for telematics applications at Level 2 or 3 Assurance, TCA may include 'special conditions' in the Certification Agreement, subject to the ASP's ability to deliver the certified service. For example, a special condition could be a suspension of an ASP from accepting new Operators for a period of time.

Suspension clauses are included in Type-Approval Agreements for Suppliers and Operator Suppliers.

6.4 Pricing

TCA operates as a not-for profit entity with government oversight. TCA recovers costs from participants that use the National Telematics Framework (see Section 3) as follows:

- Government participants (comprising Australia's road and transport Authorities) fund core Framework functionalities, including the development and oversight of functional and technical specifications and other advisory material, and the availability of telematics applications for deployment

- Providers fund the services associated provided to TCA to enable their participation in the National Telematics Framework.

- Discrete activities sought from parties are recovered separately.

This 'user pays' approach ensures an appropriate split of costs between beneficiaries of the Framework, while also aiming to keep costs for any entity as low as practicable.

6.5 Publicity and representation

TCA provides assurance services relating to transport technologies and data. TCA allows the use of branded logos that are granted after the successful outcome of registration, certification or device approval.

It is important that each Provider uses the correct logo to reflect the agreement(s) TCA has with them.

TCA's logos and branding help stakeholders understand, at a glance, the level of assurance available from the Provider operating in the National Telematics Framework.

Providers must protect the integrity and value of TCA's logos and branding. Providers must not use them generally to promote services and products unrelated to registration, certification or device approval.

For more information on usage of logos and branding, see *Logos – Quick Start Guide for Application Service Providers (ASPs) and Suppliers* (PDF).

7 Contact us

We are here to help with all your telematics needs. To book a session with one of our business staff, email tca@tca.gov.au.

A   Acronyms and Definitions

A.1   Acronyms

Acronym	Definition
ASP	Application Service Provider
HVNL	Heavy Vehicle National Law
IAP	Intelligent Access Platform
RIM	Road Infrastructure Management
TAP	Telematics Analytics Platform
TMA	Telematics Monitoring Application

A.2   Definitions

Term	Definition
application	A capability of the National Telematics Framework that provides business value to stakeholders, delivered as an assembly of policy, business components and technical components, within the context of an identified level of assurance.
Application Service Provider (ASP)	A Provider that has been certified or approved by TCA to provide devices and services for the telematics monitoring of vehicles for one or more applications of the National Telematics Framework. *See also: Provider*
assessment application	An application where the ASP processes data against a set of rules supplied by the Authority and provides reports on vehicle activity that does not follow the rules. Except as required by a police warrant or court proceeding, the underlying data is not available to the Authority, to maintain the privacy of vehicle operations.
Authority	An entity, associated with a jurisdiction, responsible for the administration of one or more telematics applications. An Authority may appoint an administrator to perform its functions. *See also: jurisdiction.*
connected device	Any device or technology connected to a telematics device.
jurisdiction	A geographical area containing a road network (i.e. typically an Australian state or territory).
level of assurance	An assurance level that supports telematics applications, structured around the intended use of a telematics application, risks being managed, and the needs and expectations of consumers and other stakeholders.
monitoring application	An application where the ASP provides all data to TCA, and TCA performs processing and analytics based on the data it receives. The Authority can view the processed and analysed data using TAP. The underlying data may be available to the Authority depending on the consent arrangements of the specific application.
Operator	An entity that operates one or more vehicles eligible to enter a scheme.

Term	Definition
Operator ASP	A Provider that has been certified or approved by TCA to provide devices and services for the telematics monitoring of vehicles for one or more applications of the National Telematics Framework, and that is a registered operator of one or more vehicles that may be monitored through enrolment in a telematics application. *See also: Provider*
Operator Supplier	A Provider that supplies and installs telematics devices or connected devices exclusively in its vehicles that are within its custody and direct control, and which are used in telematics applications. *See also: Provider*
Provider	A provider of digital technologies and associated services recognised through the National Telematics Framework. May use digital devices and hardware from suppliers to deliver telematics applications and schemes, and may take on roles of ASP, Operator ASP, Supplier or Operator Supplier.
scheme	The generic term for a specific use of an application linked to delivering a policy or program objective.
Supplier	A Provider that supplies telematics devices or connected devices for use in telematics applications. *See also: Provider*
telematics device	The primary telematics unit which monitors vehicle parameters.