FARM GATE – A CASE STUDY IN THE VALUE OF TELEMATICS AND PUBLIC POLICY DISCOURSE

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Abstract

The sharing of data in this way enabled the association to negotiate with local governments in the Australian State of New South Wales improved, network wide access to load roads in their local government area.

Participating local governments agreed to grant unprecedented, network wide access to their local roads in return for gaining access to aggregated, deidentified vehicle movement data.

The paper will explore how, from the perspective of an association, improved heavy vehicle transport outcomes were able to be negotiated between transport operators, road managers, local governments and telematics providers.

It will also examine the value of aggregated, deidentified data made available through the Road Infrastructure Management (RIM) application, and how strong data protection measures - including the independent role of TCA in collecting, aggregating, deidentifying and managing access to data to local governments - was critical to gaining the trust of transport operator, and overcoming concerns that vehicle data could be used for compliance purposes.

The paper will quantify the value of Farm Gate, and how improving the productive movement of livestock and primary produce from paddock to plate benefits local and export markets by reducing input costs.

Keywords: Telematics, telematics, intelligent access, primary produce, productivity local road access, supply chain resilience

1. Background

The safe and efficient movement of freight on public road networks is critical to the productive movement of goods and produce and the functioning of an economy.

These traditional methods include conformance with mass, loading and dimension requirements by transport operators and drivers, and adherence to restricted access networks and routes through roadside enforcement. Road infrastructure managers and regulators have had limited ability to derive insights into the movement of Restricted Access Vehicles (RAVs) across the network and identify safety risks and infrastructure limitations.

The introduction of Farm Gate extends the use of newer variants of intelligent access (Hill and Gordon 2021), which leverage the widespread use of telematics used by the transport industry, to provide road infrastructure managers with data-driven insights to adopt a risk-based approach to manage road access decisions (Hill and Greenow 2021).

2. Farm Gate Access – a chronological overview of its policy development

Farm Gate Access has been designed to make it easier to apply for and approve safe and legal access for higher productivity vehicles travelling on low volume council roads. It benefits local farmers, businesses, participating councils and the community (TfNSW, 2023).

Farm Gate allows operators to transport freight on local road networks under Notice using RAVs – reducing the need for traditional access permits. Central to the operation of Farm Gate is the Road Infrastructure Management (RIM) application.

Originally conceptualised by the by the Livestock, Bulk and Rural Carriers Association (LBRCA), Farm Gate is an industry-led initiative in response to the challenges faced by rural and regional heavy vehicle operators involved in the transportation of primary produce, namely livestock and grain.

The challenges faced by heavy vehicle operators emerged from the interplay of road access conditions, safe operating arrangements and legal operating requirement. The environment in which the transportation of livestock and grain occurs features a unique combination of issues, which are not encountered in other forms of heavy vehicle transport, including:

- The dependence on local roads in rural areas which provide access to farms or properties, from where livestock and grain are collected for transport (i.e. the ‘farm gate’);
- The operating restrictions placed on Restricted Access Vehicles (RAVs) operating on those local roads;
- Chain of responsibility obligations under the Heavy Vehicle National Law (HVNL).

Each of these will be explored in further detail, as follows.

2.1 Dependence on local roads

The transportation of livestock and regional produce relies on the utilisation of local roads, which connect farms and properties to networks of designated freight routes. In New South Wales, the responsibility for road infrastructure is allocated between three categories:

- State Roads – are the major arterial links throughout New South Wales and within major urban areas, and are the responsibility of Transport for NSW (TfNSW, 2008).
- Regional Roads – perform an intermediate function between the main arterial network of State Roads and council controlled Local Roads
- Local Roads – perform the function of servicing local communities and industry, and are the responsibility of local governments to fund, determine priorities and carry out works.

To manage the extensive network of roads for which local governments are responsible under the Roads Act 1993, Transport for NSW – in partnership with local government – established an administrative framework of State, Regional, and Local Road categories. The administration and management of State Roads is carried out and financed by Transport, and Regional and Local Roads are administered, managed and financed by local governments (TfNSW, 2023).

Collectively, around 90% of the New South Wales road network (by length) is classified as a local roads (LGNSW, 2023). Local roads are therefore a critical part of the local, regional, state and national transport network. However, with increased demand including higher productivity heavy vehicles, many local roads are no longer fit-for-purpose. Recognising the need to unlock the productive transport to support local and regional development, the Australian Local Government Association (ALGA) has identified numerous 'system gaps' which need to be addressed to improve road freight productivity (ALGA, 2023). These gaps include:

- All relevant route and vehicle information needs to be provided to local government road managers
- Local government staffing capacity and administrative systems need to be enhanced to process consents
- Adequate information on key road assets needs to be developed to inform council decisions
- Systems developed to share relevant information between neighbouring road managers to avoid discontinuity, and to inform investment decision-making
- Systems developed to reduce the administrative burden, in particular duplication of decision making.

Customarily, the first dot point has been managed through the issuance of vehicle-specific permits for RAVs to operate on the road network. Operators of RAVs must first obtain legal permission from local governments to travel on local roads. However, the efficiency and efficacy of decision making processes when considering RAV access on local roads is

impacted by the gaps highlighted in the subsequent dotpoints identified by ALGA (and which relate to items 2.2 and 2.3 below).

2.2 Operating restrictions placed on RAVs

A RAV is any vehicle which exceeds the overall dimensions of vehicles as defined in the Heavy Vehicle National Law (HVNL), which defines the width, height, length and some internal dimensions of vehicles (TfNSW, 2023).

Road access restrictions are placed on RAVs in the form of *vehicle conditions* and *access conditions*. In this context, *vehicle conditions* relate broadly to a vehicle's design parameters and may include prescriptive or performance-based standards (PBS) for vehicle design, configuration, components and/or safety features. Access conditions, meanwhile, relate broadly to the operating parameters of a vehicle and may include access restrictions where a vehicle can is legally permitted to operate on the road network, the maximum permissible mass, time-based restrictions, and/or vehicle speed limits (Hill and Greenow, 2021).

RAVs are able to legally operate on the NSW road network with a current notice or a specific permit (TfNSW, 2023). However, anecdotal evidence suggests not all RAVs obtain legal authority by obtaining a permit. This introduces further risk exposures with request to the legal obligations for vehicle operators, drivers and farm/property owners under the HVNL (see 2.3).

2.3 Chain of Responsibility obligations under the HVNL

Chain of Responsibility (CoR) is the part of Australia's Heavy Vehicle National Law (HVNL) that makes parties other than drivers responsible for the safety of heavy vehicles on the road. Everyone who works with heavy vehicles - from the business that employs a driver or owns a vehicle, to the business that sends or receives goods, is accountable for the safety of the heavy vehicle, its driver, and its load throughout the journey. See where your business fits in the Chain of Responsibility (NHVR 2023).

RAVs involved in the transportation of livestock and grain must, by necessity, be loaded on farms. Loading livestock and grain onto vehicles on farms is inherently problematic. A key variable which needs to be accommodated is the variable weights of livestock and grain, which can be challenging to accurately assess. This is compounded by the nature of farms and paddocks, which makes measuring axle mass and gross combination mass of vehicles difficult.

A consequence of the challenges with loading is that vehicles often leave the farm with loads that exceed regulatory limits, but are within the envelope of Higher Mass Limits (HML). Due to the higher axle and/or gross mass of the vehicle, the network of roads which a vehicle is permitted to travel is reduced. In many cases, this has the effect of legally restricting access to the local roads which connect the farm/consigner to RAV-approved network. However, in practice, the driver of vehicle must proceed to use the load road in the absence of an accurate measurement the vehicle's axle or gross load cannot be obtained. And even if an accurate measurement could be obtained, it is not feasible to reduce the load, or obtain a permit, to travel on the local road to connect to the approved RAV network.

Under the CoR, the farmer/consigner of the transport service incurs legal liability for breaches of road transport law, such as loading offences. These CoR obligations introduces significant legal risk to the transporter and farmer.

Farm Gate has been developed to address these three-interrelated problems together.

3. Farm Gate – how it works

Farm Gate works on the basis of enabling safe and compliant access for RAVs travelling between the 'Farm Gate' and approved RAV networks. The following types of RAVs are eligible to participate in Farm Gate:

- Semi-trailer combinations
- B-Double combinations Road Train combinations including:
    - Type 1 A-Double Road Train (up to 36.5 m)
    - Modular B-Triple Road Train (up to 35.0 m)
    - B-Triple Road Train (up to 36.5 m)
    - AB-Triple Road Train (up to 36.5 m).

To achieve safe and compliant access under Farm Gate, two assurance mechanisms operate in tandem which, when combined, enable legal RAV road access for first and last mile journeys by connecting RAV networks to the 'farm gate' (TCA, 2021):

1. Assurance over vehicle loading; and
2. Assurance over vehicle movements.

These two assurance mechanisms are described as follows.

3.1 Assurance over vehicle loading

A pre-requisite for vehicle operators to participate in Farm Gate is to be enrolled in one of two loading schemes (applicable to the type of produce being transported). The two loading schemes are the Livestock Loading Scheme and the Grain Harvest Management Scheme.

3.1.1 Livestock Loading Scheme

The purpose of the Livestock Loading Scheme is to allow livestock vehicles to carry a greater number of animals with fewer heavy vehicle trips by permitting axle loads equivalent to Higher Mass Limits (HML) with conditions to improve road safety and road infrastructure (TfNSW, 2021).

The Scheme provides increased mass limits for livestock loads, and includes measures to minimise road pavement wear, protect vulnerable bridges, and reduce the incidence of livestock vehicle rollovers. A key feature of the Livestock Loading Scheme is the Livestock Loading Calculator (LLC). The LLC was developed to assist vehicle operators (and their customers) to comply with animal loading densities and vehicle mass limits, and to manage chain of responsibility obligations.

To participate in the Livestock Loading Scheme, operators, vehicles and drivers must be enrolled to ensure:

- Operators understand the legal requirements and business requirements of the scheme;
- Vehicles satisfy minimum standards to be used in the scheme; and
- Drivers understand the legal requirements and business rules of the scheme including vehicle standards, route restrictions and mass limits.

Livestock Vehicles of an enrolled operator are permitted to travel on the routes approved under the scheme.

3.1.2 Grain Harvest Management Scheme

The NSW Grain Harvest Management Scheme promotes the safe and productive movement of grain. It is designed to decrease harvest risk, protect roads and to increase productivity and efficiency for the movement of grain (TfNSW, 2023).

Under the Grain Harvest Management Scheme, eligible heavy vehicles may exceed regulated total mass limits by up to 5% when delivering the following grains to participating grain receivers in participating council areas:

- Cereals that are wheat, barley, rice, oats, triticale, sorghum, maize or millets;
- Oilseeds that are canola, sunflowers, monola or safflower; and
- Pulses that are chickpeas, faba beans, lupins, mung beans, field peas, soybeans, vetch, or lentils.

To participate in the Grain Harvest Management Scheme, vehicle operators and drivers must comply with the conditions contained in the New South Wales Class 3 GHMS Mass Exemption Notice 2021, operate only in participating local government areas and on approved RAV routes.

3.2 Assurance over vehicle movements

Farm Gate leverages the use of the RIM application to provide assurance over vehicle movements.

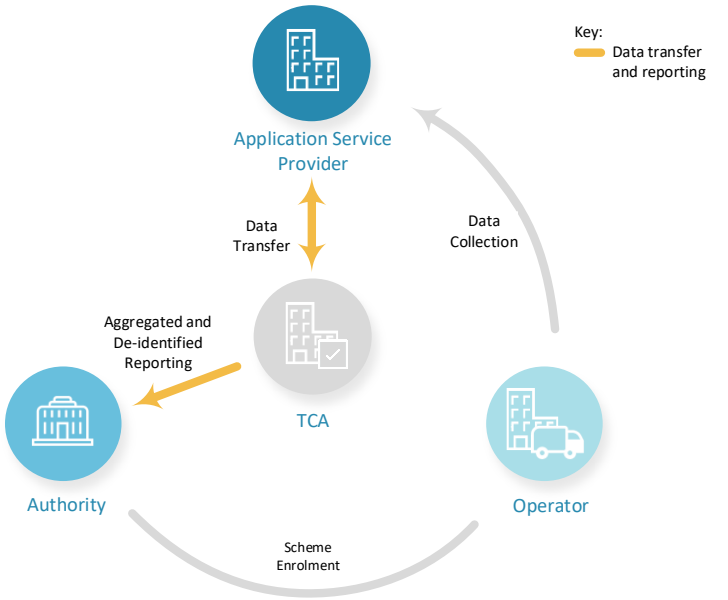
The RIM application is a newer variant of intelligent access. Introduced in 2019, the RIM application provides *non-identifiable* vehicle movement data to road infrastructure managers.

For this variant of Intelligent Access, TCA performs a critical role in collecting, securely storing, aggregating and de-identifying data received from service providers who offer RIM to transport operators. Figure 1 provides an overview of how data are collected and analysis reported through RIM. There are two key defining features of RIM:

- All data collected by service providers are transferred to TCA
- TCA aggregates and de-identifies all data before being represented in reports and visualisations to authorities (for RIM, authorities are primarily road infrastructure managers).

- Privacy-by-design principles are preserved through the aggregation and anonymisation of data collected through RIM.

Figure 1 – How data is collected and reported through RIM



TCA makes reports and visualisations to road infrastructure managers through the Telematics Analytics Platform (TAP). An example of the kind of reports generated through RIM is presented in Image 2, which shows the average speed across the strategic freight corridors in the Australian jurisdiction of New South Wales.

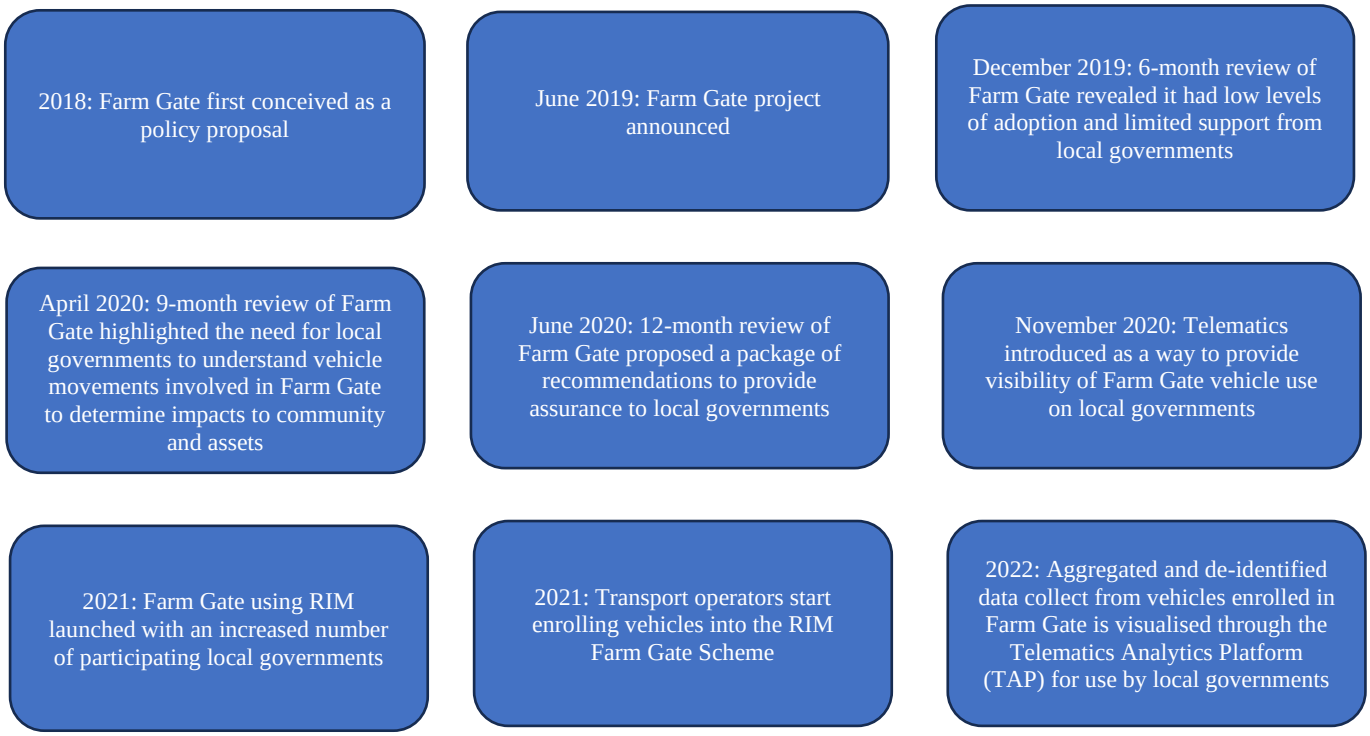
Image 2 – Example of reports made available through RIM (need a Farm Gate image)

4. How Farm Gate was negotiated – a summary

Farm Gate is the culmination of a series of consultation and engagement which took place between members of the LBRCA, Transport for NSW, individual local governments and the Local Government and Shires Association (LGSA).

Figure 2 presents a summary overview of the steps which took place to develop an agreed policy position on Farm Gate.

Figure 2 – Summary of overview of steps which led to Farm Gate



5. Benefits realisation

Farm Gate is an example of a successful policy development that involves complex relationships between stakeholders, which benefits farmers, businesses, participating local governments and the community.

The key benefits of Farm Gate Access which have been realised include:

- Enabling the use of more productive vehicles to safely transport grain and livestock from the farm gate to market, meaning fewer trips for the freight task.
- Reducing red-tape for farmers and transport operators by reducing the need for access permits.

- Increasing visibility for participating local government HPV movements across their road network to support infrastructure planning, maintenance and funding applications.
- Providing resources for participating local government to support decision-making about access for RAVs.

Transport operators and drivers have extolled the benefits of Farm Gate, and how it can be used as a model to advance the productive, safe and legal movements of heavy vehicles on local roads.

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