

Regulatory Intelligence Strategy

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1 Purpose

The Office of the National Rail Safety Regulator (ONRSR) is committed to achieving its vision of safe railways for Australia.

This Regulatory Intelligence Strategy will support ONRSR in improving its regulatory efficiency and effectiveness by targeting its finite resources to address the greatest risks to rail safety. The aim is to deliver the greatest rail safety benefit to the Australian community.

Regulatory intelligence is the application of applied analytics to data and information to gain knowledge and insights to guide regulatory practice.

The purpose of this Strategy is to enable ONRSR to better use regulatory intelligence from data, information, field knowledge, and applied analytics to:

- > inform regulatory decisions, compliance and enforcement activity
- > provide information and insights to the rail industry, particularly so industry can benefit from a national perspective, including through ONRSR's engagement and education program
- > anticipate and respond to current and emerging safety risks and challenges, leading to a more proactive regulatory approach
- > monitor and report on ONRSR's performance and industry's rail safety performance

This Strategy outlines ONRSR's approach to continuing to develop and apply regulatory intelligence. ONRSR intends to harness our data and information assets, apply analytics capabilities, empower our people to put data, information and insights into action, enabling a risk-informed intelligence-led regulatory approach.

2 Scope

Building on the work ONRSR has already done to expand its capability and capacity to undertake data analysis, it is ONRSR's intention that its decision-making and operations at all levels are informed by quality data and information, effective analytics, and evidence-based insights. This Strategy has four focus areas which are summarised below.

1. Data and information use, management and governance – A key activity will be defining the types of regulatory decisions and activities that can be informed by intelligence and as a result more targeted at areas of greatest risk. The focus area also seeks to improve data and information collection, integration, and exchange, including formalising the capture of field knowledge. These activities will be supported by the development and implementation of data governance and information management frameworks including security measures and data standards.
2. Systems, models and tools – ONRSR will plan and implement a gradual update of its systems to enhance data and information collection and accessibility and models and tools to identify and prioritise safety risks, inform regulatory decisions and activities and to monitor and report on the performance of ONRSR and rail transport operators. ONRSR will implement use cases to test and demonstrate value.
3. Transparency and accountability – increase industry knowledge of safety improvement opportunities and confidence in ONRSR through greater sharing of information and insights.
4. People, capability and culture – ONRSR seeks to build a positive data and information culture driven by senior leadership. ONRSR will invest in building and maintaining capability and data literacy at all levels of the organisation.

This Strategy will leverage previous ONRSR achievements including the development and implementation of the National Rail Safety Data Strategy, the National Level Crossing Portal, and upgrades to software and technology including the Tool for Rail Administration and Compliance (TRAC).

The [Review of the Rail Safety National Law](#) recommended the evolution of ONRSR's relationships beyond individual accredited parties to allow it to perform its industry-wide safety promotion and education role more effectively, considering its unique national perspective. The Review suggested that better sharing of data and information would allow for the identification of potential safety issues, insights into causal and contributing factors, and the possibility of benchmarking operator and sector performance.

This Regulatory Intelligence Strategy and Engagement and Education Strategy guide ONRSR's response to these findings and recommendations.

There is no intention for ONRSR to duplicate data analysis undertaken by individual rail operators who have responsibility for the control and management of railway operations.

3 Legislative and strategic context

3.1 Objects of the RSNL

The objects of the RSNL state that the law is established, among other things, to provide for the:

- > effective management of safety risks associated with railway operations
- > safe carrying out of railway operations
- > continuous improvement of the safe carrying out of railway operations
- > provision of advice, information, education and training for safe railway operations

These objects underpin ONRSR's role in using data, information and insights to improve its effectiveness and efficiency and to achieve our vision of Safe Railways for Australia. ONRSR's functions under the RSNL further articulate how this role is carried out.

3.2 Functions under the RSNL

The RSNL sets out ONRSR's functions:

- > To administer, audit and review the accreditation regime under the RSNL
- > To work with rail transport operators, rail safety workers, and others involved in railway operations, to improve rail safety nationally
- > To conduct research and collect and publish information relating to rail safety
- > To provide, or facilitate the provision of, advice, education and training in relation to rail safety
- > To monitor, investigate and enforce compliance with the RSNL
- > To engage in, promote and coordinate the sharing of information to achieve the objectives of the RSNL, including the sharing of information with prescribed authorities (such as the Australian Transport Safety Bureau and the Rail Industry Safety and Standards Board).

This Strategy will enable ONRSR to more efficiently and effectively perform its functions. This Strategy also supports and informs the implementation of the ONRSR Engagement and Education Strategy.

3.3 Rail Safety Regulation Model

Delivery of ONRSR' rail safety regulation model continues to evolve. This model has four core components:

- > Compliance – monitor and secure – A risk-informed program of audits, inspections, site visits, and information to support rail transport operators to comply with the RSNL and to improve rail safety management performance.
- > Continuous safety improvement – using data, information and applied analytics – to identify safety risks and prioritise for action, to inform the national work program and to define safety problems and develop programs to improve safe management of rail operations.
- > Investigation – influence and enforce – examine incidents to identify and address immediate risks to safety, to inform safety improvements by understanding what happened and why and to identify breaches of the RSNL.
- > Education and Engagement – share and inform – a program of activities to share safety information, insights and learning from our work and partnerships and collaborations to amplify and support achievement of ONRSR' safety objectives.

Implementation of the Regulatory Intelligence Strategy will enable the ONRSR' Regulatory Model to evolve.

3.4 Strategic Directions 2024-2027

This Strategy supports delivery of the following four strategic priorities in ONRSR's Strategic Directions 2024-2027:



**INFLUENCE SAFETY PRACTICES AND
BUILD SAFETY KNOWLEDGE AMONG
RAIL TRANSPORT OPERATORS**



**LEVERAGE DATA AND INTELLIGENCE
TO ENHANCE OUR APPROACH TO
RISK-BASED REGULATION**



**ENSURE OUR PEOPLE ARE
VALUED, SKILLED AND ENGAGED**



**POSITION ONRSR AS A
FUTURE-FOCUSED REGULATOR**

4 Principles

In conjunction with ONRSR's organisational values - Integrity, Respect, Independence, Diligence, and Excellence - we apply the following principles in designing our approach and delivering our data, information and insights functions:

ONRSR's data and information are:

- > discoverable – visible and accessible to ONRSR and to rail safety workers, rail transport operators and the public (as appropriate)
- > usable – fit for purpose and support ONRSR's decision making
- > secure – protected and secure

ONRSR's approach:

- > identifies and manages data and information risks including governance, privacy, security and commercial confidentiality
- > supports better decision-making by providing timely, reliable and high-quality data, information and insights
- > uses all available information sources including data reported to ONRSR, publicly available, purchased, acquired from partners, field knowledge and from the conduct of ONRSR regulatory functions and activities

5 Our future state

ONRSR will effectively use intelligence practices and products, derived from data, information, applied analytics and information collected in the field, to inform regulatory decisions, functions and activities and to guide delivery of risk-based regulation so that ONRSR:

- > has a more complete understanding of risks to rail safety and effective controls for rail safety management.
- > is able to identify causal and contributing factors to incidents, and trends in risk and safety performance.
- > has greater understanding of the ability of an individual operator and industry sectors to eliminate and manage risk. This will inform the regulatory approach adopted to secure compliance or support improvements in safety.
- > shares more data and information publicly to facilitate the continuous improvement of risk assessment and management across the rail industry.
- > is positioned to monitor its own performance and that of industry, including the effectiveness of any initiatives to improve safety.

The implementation of this Strategy aims to progressively achieve the future state outlined below:

Focus Area	What the future state looks like
Data and information use, management and governance	<ul style="list-style-type: none">> Regulatory decision-makers are supported by relevant and timely intelligence products and tools in the office and in the field.> Risks to rail safety are identified and prioritised in the planning and execution of regulatory functions and activity.> Operators' compliance with regulatory requirements is monitored and reported using agreed measures.> The ONRSR data model supports better a) understanding of the risk profiles of individual operators and industry sectors, b) regulatory decision-making, c) identification of greatest risks to safety, planning of strategic compliance and safety improvement programs.> ONRSR manages and transforms data and information effectively, analysis is systematic and uses innovative techniques to obtain insights from its data and information sources.> Data and information repositories are in place with organisation-wide data governance, information management and quality assurance processes along with a plan to meet future data and information needs.> The Data Governance and Information Management Frameworks are fit for purpose and are the central references for quality standards, procedures, ethical framework, and data and information sharing guidelines, increasing consistent data and information handling and reducing rework.> Data and information sharing arrangements are in place.> ONRSR uses data, information and analytics to support its vision of Safe Railways for Australia.
Systems and tools	<ul style="list-style-type: none">> Data and information collection systems are designed and applied to enable internal stakeholders to contribute to the intelligence processes and products.> Decision makers are provided with an interface for ONRSR data and information that is easy to access, navigate and update.> Systems and processes are in place to capture and analyse field knowledge.> Data, information and insights are readily accessible for use through intelligence tools and products along with self-service dashboards and reports.> Data and information management and exchange platforms are in place, including specifications for sharing and receiving data and information.> External stakeholders are provided with data and information exchange solutions that are integrated with the ONRSR website, which are easy to access, navigate and update, which supports legislative reporting obligations and facilitates information sharing.

Transparency and accountability

- > Our intelligence products and insights inform regulatory decision makers, raise awareness of risks to safety for rail operators, duty holders and rail safety stakeholders to enable better decision making for improved safety outcomes.
- > ONRSR shares data, information, and insights for industry and public benefit, transparently to provide timely and relevant advice to improve rail safety performance and management. Information and insights are embedded into the delivery of the Engagement and Education Strategy and Annual Program.
- > ONRSR employs online regular reporting on our own and industry performance automated and as near real-time where possible.
- > Models and tools are in place to monitor and report on ONRSR's regulatory activities and outcomes to provide transparency and to demonstrate the effectiveness of ONRSR's risk-based regulation.

People capability and culture

- > Data, information, applied analytics and research functions are aligned to enable the best use of ONRSR's resources.
- > All ONRSR people have the capability to use data and information, and tool and products specific to their roles, with data and information responsibilities and accountabilities clearly outlined. Specialist support is available for more complex data and information needs.
- > Training programs for baseline and specialist skills scheduled and operating.
- > Regular executive communications promote innovative and best practice data and information practices.
- > A test and learn culture is established with insights and learning regularly shared.

6 Our approach

This Strategy will be implemented through a range of activities and programs that collectively will increase ONRSR's ability to use intelligence for the benefit of industry and its own operations.

ONRSR will do this through the development of insights to guide regulatory practice at all levels of the organisation, inform initiatives to improve safety, and to respond to emerging risks, understand precursor events and circumstances. ONRSR will use intelligence to identify the regulatory interventions and strategic compliance initiatives that will deliver the greatest reduction in risk and/or improvement in safety.

ONRSR's intelligence products are intended to support and complement the application of expertise and experience of ONRSR's regulatory decision makers. Any intelligence products will:

- > make findings in consideration of expert knowledge and a broad range of information sources
- > provide timely insights relevant to the individual decision-maker

6.1 The three levels of intelligence

Intelligence will be developed and considered at all levels of decision-making in ONRSR: strategic, program, and tactical.

Strategic	Inform and develop matters of policy, strategy and long-term capability development for ONRSR.
Program	<p>Compliance monitoring – support decisions for distribution of effort and issues of focus for the annual work program.</p> <p>Engagement and education– inform the identification, prioritisation and problem definition of matters to be included in the annual program.</p> <p>Safety Improvement:</p> <ul style="list-style-type: none">> inform and support the development of strategic compliance or coordinated regulatory approaches for risks or safety issues at an industry sector or national level.> inform the identification, prioritisation and problem definition of sector level safety issues to focus programmed responses.
Tactical	<p>Inform and support the prioritisation, selection and design of regulatory activities such as audit and inspection scope, along with responses at an individual rail operator (or other duty holder) level.</p> <p>Accreditation – guide the scoping of assessment processes and support decisions of competence and capacity.</p> <p>Compliance monitoring, education and engagement – support decisions to respond, schedule, select, scope, and target regulatory activities.</p> <p>Investigation – support decisions to initiate, scope and focus investigation activities.</p>

6.2 Implementation of this Strategy

ONRSR will implement this Strategy over three horizons: foundation, evolution, and embed (the future state).

ONRSR will implement each horizon through annual work programs structured around the four focus areas. Implementation of the annual work programs will achieve a gradual uplift in ONRSR's ability to use data, information and analytics to derive insights that:

- > inform key regulatory decisions
- > compliance and enforcement strategy and activity
- > improve the sharing of safety information and lessons with industry
- > anticipate emerging issues
- > better enable ONRSR to monitor and report on industry performance

Regulatory Intelligence Strategy – 3 Horizon Implementation

Foundation		Evolution	Embed
	<ul style="list-style-type: none"> > A data model is in place > Data analysis is responsive to operational needs > Intelligence products are in development > A trust model is in development > Enhanced public reporting is in place > National Level Crossing Portal is in place > Minimum viable data and information architecture is in development > System requirements and product map for ONRSR portal are in development > Governance is in place for critical data assets and information > A capability program for people and technology is in development > A change management program is in place > KPIs for measuring ONRSR performance and effectiveness are in place 	<ul style="list-style-type: none"> > Data analysis informs risk prioritisation, and planning and execution of regulatory activity. > Intelligence products are used to inform regulatory decision-making > A trust model is in place > Internal and external self-serve data dashboard and reporting is in place > Benchmarking data for operators is published > Bespoke data analysis tools are in planning > Measurement of ONRSR's performance and effectiveness are publicly reported > Governance is mature, data stewards are in place. > Insights and intelligence tools are included in training for ONRSR teams > System improvement plan is executed to meet data model needs > Data capture and management systems are mature 	<ul style="list-style-type: none"> > Formal review and feedback process in place for continuous improvement of intelligence products > Trust model is refined > Published data, information and insights refined and further developed in line with stakeholder expectations and feedback > Bespoke data analysis is in place in response to requests from stakeholders > Intelligence training in place relevant to each role.

7 Roles and responsibilities

The generation, application and communication of regulatory intelligence is undertaken by a range of regulatory officers and team members across ONRSR. Who performs analysis will be determined in consideration of the nature of the information being managed, assessed or analysed and the type of decision it is informing. All the activities listed below may be undertaken by multiple teams but are generally led by one team. The lead for each activity is outlined below.

Safety and Regulatory Insights Team

The Safety and Regulatory Insights team is the lead for:

- > identifying, obtaining and managing data and information sources
- > developing and maintaining the ONRSR data architecture
- > developing tools and products to support regulatory decision-making, monitor compliance and improve safety
- > developing operator risk profiles, sector risk profiles and industry risk profiles
- > applying analytics to identify safety risks and insights
- > monitoring safety risks and trends within sectors and across the industry

Policy and Programs Team

The Policy and Programs team is the lead for:

- > scanning and scenario planning to identify future and emerging safety risks and issues
- > coordinating the process to identify and prioritise safety risks and issues
- > defining the safety problems to be solved across rail sectors
- > developing and coordinating safety improvement programs
- > evaluating the effectiveness of safety improvement programs

National Operations Team

The National Operations team is the lead for:

- > identifying the main regulatory decisions to inform with data, information and insights
- > implementing risk-based tools and models to target resources to areas of greatest risk through the national work program
- > applying risk-based tools and models to support regulatory decision-making
- > capturing field knowledge and information from operators and regulatory activities
- > ensuring consistency in approach to risk-based regulation across rail safety officers

Rail Safety Officers

Rail safety officers (RSO) are the lead for:

- > using a risk-informed approach in their regulatory interactions with individual rail transport operators - through audits, inspections, and the provision of information and advice.

- > focusing on addressing the management of critical safety risks and issues arising from rail operations and ensuring that effective control measures are in place to manage risk SFAIRP.
- > securing compliance and promoting improvement in an operator's management of risks to safety.

Business Technology Services

The Business Technology Services team is the lead for:

- > providing and maintaining systems and platforms for the capture, management, use and governance of ONRSR's data and information (defined by the Data Model)
- > the data architect and engineering functions for the management of ONRSR's Data Model
- > providing and maintaining the technical stack of systems, platforms and applications that enable ONRSR's data and information analysis
- > managing data and information integrity and security in accordance with enterprise policies and standards

8 Evaluation

ONRSR is committed to evaluating the effectiveness of this Strategy so as to identify and implement improvements. We use a mix of formal and informal mechanisms and sources to gather feedback, including:

- > Independent periodic stakeholder survey
- > Ad hoc stakeholder research as part of the strategic business planning
- > Feedback from individual stakeholder interactions
- > Efficiency and effectiveness metrics
- > Formal evaluation of interventions.

We will review this Strategy 5 years after publication.

9 Glossary

Term	Meaning
Data	<p>Raw, unorganised facts and figures, often presented in various formats like numbers, text, images, or audio. Data is collected according to pre-decided standards.</p> <p>Raw data, also known as primary data, does not explain anything on its own.</p>
Data literacy	<p>The ability to read, understand, question, communicate, and use data. It includes the capacity to engage with data responsibly, understand its limitations, advocate for its use, and understanding the importance of capturing data accurately.</p>
Data model	<p>The purpose of a data model is to organise and structure data for efficient storage, retrieval, and manipulation in databases or other systems. It includes a structured classification system that organises terms, labels or concepts in a consistent way.</p>
Field knowledge	<p>Information captured during the course of performing regulatory activities and engagements. Generally, it is unstructured and informal human sources of information that needs further analysis to determine its value.</p>
Information	<p>Information is data that has been organised, structured, or contextualised to make it usable for a specific purpose. It represents a meaningful arrangement of elements that can inform decisions, actions, or further processing. Information can also arise outside of formal data, such as from communication, intuition or knowledge.</p>
Insights	<p>Insights are the result of analysing and interpreting information to uncover underlying patterns, causes, risks and trends.</p> <p>They go beyond surface-level observations to reveal what is significant, helping to understand why something is happening, what it means, or what may happen next.</p>
Intelligence	<p>Intelligence is the product of integrating and evaluating insights to support informed decisions and effective action. Intelligence presents a coherent understanding of an issue, trend, or risk, whether past, present, or emerging. It brings together diverse sources of information and insight to create a structured and contextualised view that guides regulatory decisions.</p>
Trust model	<p>A trust model assesses how much trust can be placed on an operator based on its commitment to do the right thing and its capability to do it well. High trust exists when both intent and ability are clearly demonstrated.</p>