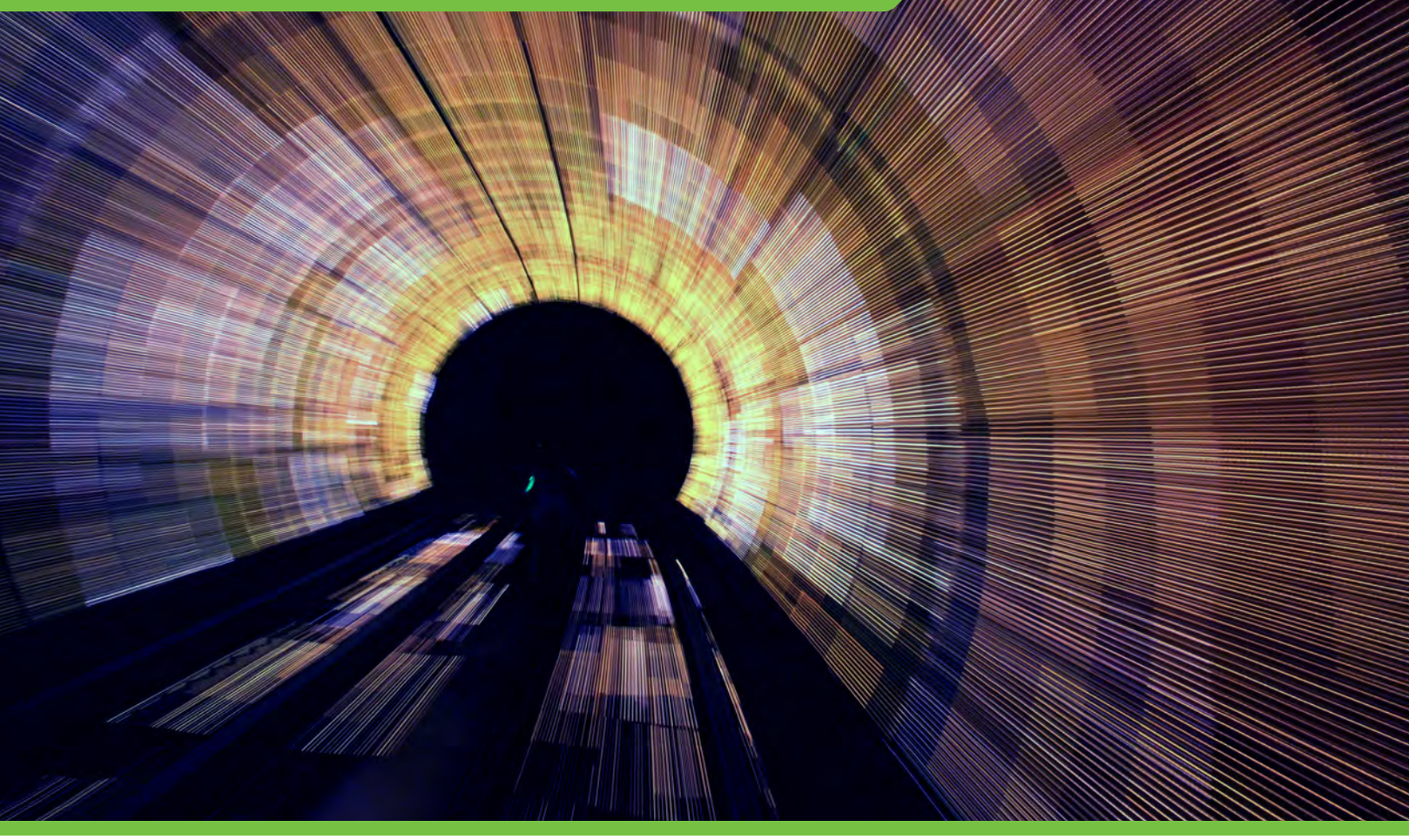
SMART RAIL

A Route Map to Harmonise the Industry's Digital Future

AUSTRALASIAN RAILWAY ASSOCIATION



Why a Route Map?

The focus of the Route Map is for industry to develop a long-term vision for technology in the rail industry over the next 20/30 years.

It is intended that the Route Map will provide a framework through which next generation rail technologies can be integrated and supported in the Australasian rail environment.

The aim is to help ensure systems are interoperable and the right data is available to deliver cross-industry benefits, including safer operations, improved reliability, opportunities for innovation and reduced costs through efficiencies, automation and technology selection.

The Route Map will establish a common view of priorities, themes, timelines and actions.

Smart rail scope

Two ARA facilitated industry Route Map workshops have identified three key focus areas underpinned by a range of enablers.

Focus	High Level Description
High performing railways	World class asset management, widespread predictive maintenance informed by remote condition monitoring systems that maximise reliability/availability at reduced cost. Maintenance programming/techniques that minimise the impact on services.
Train control	Control systems that know where the trains are, and tell them how to behave. With the ability to optimise for capacity / performance / cost / safety / reliability / energy / efficiency / carbon emissions in real time.
Customer experience	Door to door journey planning, options for overcoming perturbations and/or choosing routes/modes based on preference (e.g. journey time / environmental impact etc).

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Enablers	Description
Data/information/ comms	This is the backbone of the route map. This enabler considers collection of required data, turning it into valuable information, and providing timely availability to where it is needed to support the other layers described below.
Funding cycles	To help with planning.
Major asset life expiration	As indications of possible opportunities for technology insertion points.
Efficient management of interfaces	Between rail companies (to enable interoperability with minimal network specific systems) as well as with other modes (for services such as the door-to-door journey). This will require interface standards, data standards, and will impact access agreements.
Policy/regulation	Encourage industry (and especially its supply chains) to innovate, reduce the barriers to innovation e.g. have confidence not to be risk averse.

Industry benefits

The Route Map will provide a basis for defining the industry direction, industry development initiatives and the industry research program.

It will support greater harmonisation and alignment, which will reduce long-term cost across the industry while delivering increased reliability (robustness, resilience and recoverability to support certainty and predictability), cyber security and safety (public and OH&S).

Short term benefits will include the facilitated exchange of knowledge and ideas from across the Australian rail sector and injection of external insights from research and industry leaders.

Building a Smart Rail Route Map

There are two key phases in the development of the Route Map; the Development Phase and Implementation Phase.

Development Phase defines the high-level vision and future for Smart Rail. It involves definition, development, consolidation, review, prioritisation, phasing, socialisation and launch of the Route Map.

The core work in the Development Phase is estimated to take six months, and will involve identifying and prioritising the initiatives to go forward in implementation. Effectively, industry will own and define the Route Map, while researchers will provide the support to manage the complexity and help build the Route Map.

Research component

The research component will allow leverage of Australian research project funding models, providing an approach to support industry to develop an effective and implementable Smart Rail Route Map. It will also provide for:

- navigating through published literature, reports, strategies, and roadmaps
- identification of key emerging trends, including technology horizon scanning
- identification and mapping the complexity across the Smart Rail focus areas
- access to the latest research, methodologies and tools to support road mapping, knowledge gathering and analysis.

Time frames

Following confirmation of funding, it is estimated that the core work in the Development Phase would take approximately six months, involving the identification and prioritisation of initiatives to go forward in the Implementation Phase.

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