RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD
ABN: 58 105 001 465

# RISSB Product Proposal (and Prioritisation)

*(The information you provide in this form will be used to help stakeholders determine where this project sits within the railway's priorities.*

***The more thorough your submission, the better the decision-making process in prioritising new ideas.***

*Light blue italicised text is for guidance and can be deleted as the form is completed. Feel free to write more words, text boxes will expand as necessary.)*

| **Primary information** | |
|---|---|
| Type of product being suggested: | Guideline |
| Title of product being suggested: | Introducing and Managing Communication Based Train Control (CBTC) Systems and Operations in Australia |
| Date of suggestion: | 31/01/2019 |
| Reason for suggestion: | Common problem across Australia with further implementation across a range of operational areas (passenger and freight transport) in the future likely |
| Railway discipline area: | Infrastructure, rolling stock, train control, safety |

**Scope:**

A guideline document outlining the high level requirements for consideration from the concept stage, through the design stage to the implementation of Communication Based Train Control (CBTC) and the ongoing management and operation of the system. The guideline could cover all related areas which includes but is not limited to: Stakeholder engagement and management (communication, consultation, user reference groups and information), system design considerations (potentially an overview of SFAIRP justification for scoping?), Operational concepts, training and competence, baseline system and asset standards (SIL ratings), use of GPS, Wi-Fi, beacons and more broadly communications systems and protocols. The guideline could also consider guidance in relation to monitoring, maintaining and improving the CBTC system.

A key focus area could be in relation to guiding operators in relation to best practice control centre design. This could include physical layout as well as core skills of signallers and train controllers to operate in a CBTC world i.e. does the role become more of a combination of signaller, train controller and fleet controller rather than three distinct roles.

The guideline should be relevant to train operators looking at implementing a change from traditional signalling systems to CBTC and provide overall guidance in relation to key deliverables to ensure a safe and efficient change.

The guideline could also discuss / cover mixed mode operations where CBTC is looking at being introduced in brownfield locations and the high level requirements to be considered / managed.

A real enhancement to a guideline would be to ensure that it covers political and industrial relation considerations to highlight the challenges of implementing a CBTC change in a workforce that may not be accepting of the change.

**Objective:**

The objective of the guideline would be to ensure efficient design, implementation and use of CBTC in Australia

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**Hazard identification:** *(what safety hazards would the proposed document seek to address)*

| | | | |
|---|---|---|---|
| 1 | Train to train collision | 6 | |
| 2 | | 7 | |
| 3 | | 8 | |
| 4 | | 9 | |
| 5 | | 10 | |

**Benefits:** *(enter wherever applicable in below categories)*

**Safety**

Enhance understanding in relation to CBTC and the removal of human error in decision making and train operations. Would support the establishment of SFAIRP argument to justify the investment for rail operators.

**Interoperability[i] / harmonisation[ii]**

The guideline would allow for harmonisation of approach across the rail industry in Australia. Would help rail operators to work together to explore opportunities for development and improvement as well as grow local skill and content.

**Financial**

The guideline would minimise the potential for mistakes in the design and implementation of CBTC in Australia. The guideline would support efficient use of resources and sharing of knowledge and information across the rail industry to improve rail services.

**Environmental**

Not applicable

**Impacts:**

The guideline could be constrained by commercially confidential information in relation to CBTC functionality, etc.

i ***Interoperability*** is the ability of a process, system or a product to work with other process, systems or products (aka compatible systems through managed interfaces).

ii ***Harmonisation*** - the act of bringing into agreement so as to work effectively together (aka uniformity of systems).

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# Other items to aid RISSB project planning

*(This information will help RISSB plan the project should it be successful at prioritisation.)*

**Structure:**

*(Any advice on how the product should be structured e.g. 'as per asset lifecycle' etc. This might be general advice, or it could be a first attempt at an actual 'contents page' if possible.)*

1) Scope of guideline
2) Communication, consultation and stakeholder management
3) CBTC Concept consideration
4) CBTC Design considerations
5) CBTC Training and Competence
6) CBCT Implementation
7) CBTC Operational concepts
8) CBTC SFAIRP information

**Reference / source materials:** *(This is very important; it will directly impact the tone/style/flavour of the product. It will also have a big impact on the research we will ask our Author to undertake and therefore impact timescales/cost. Do this section carefully because addition of new material later could impact on those. It may also be important here to stipulate reference / source materials that the SC would like to avoid.)*

| # | Reference / source material | Available from |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

**Assumptions:**

*(There are many assumptions that are common across all RISSB projects – industry stakeholders will provide input and do it in a timely way, the promised reference materials will be available etc. This section is for assumptions specific to this project.)*

**Constraints:**

*(As above)*

**Australian Standards considerations:** (only applies if proposed product is to be a Standard)

| | |
|---|---|
| Does proposed Standard duplicate an existing Australian Standard<br>*(Where such duplication occurs, justification or explanation shall be included in the standard)* | *No* |
| (if yes – please list) | |
| Will proposed Standard be developed for conformance assessment purposes?<br>*(relates only to inspection and testing activities subject external certification)* | *No* |
| (if yes – please detail expected certification activities) | |
| Are there are any International Standards on the same subject | *No* |
| (if yes – could Int.std.be adopted or used as a basis for this development | *yes / no* |
| (if no – please provide reasons) | |

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| **Expected effort required at key stages:** | |
|---|---|
| Activity *(There are other activities in a RISSB project which are well understood and easier to control. This section relates to some of the more variable activities.)* | # Days *(Baseline estimates for consideration)* |
| The Author's research into the reference / source materials. | |
| The Author's further (if required) development of draft headings for the document (including any work that may be required on the scope, purpose and hazard references). | |
| The Author's production of the draft content building on the above. | |
| The Author's production of a further draft based on Development Group comments on the above. | |
| The Author's development of the 'post public consultation' draft based on the guidance of the Development Group in addressing public comments. *(Try to imagine the subject of the product, how complex/political it is and therefore what the reaction might be at public consultation.)* | |
| Independent validation[iii] (applies only to standards). | |
| The Author's finalisation of the product incorporating Development Group's validation comments. | |

[iii] Independent validation is to:

1. Check that clauses relate to the identified hazards
2. Check that the standard is of comparable quality to other similar domestic / international standards
3. Check that the standard is fit for the Australian railway (and is therefore nationally applicable)
4. Provide a recommendation for any deficiencies from the above