

# ***Rail Resource Management (RRM)***

## ***Post-implementation review & future directions***

***3<sup>rd</sup> International  
Rail Human  
Factors Conference***

***London  
March 2013***

**Jennifer Alcock  
Elizabeth Grey  
Dr Barbara Klampfer  
Louise Raggett  
Adrian Rowland**



**Rail Safety  
Regulators' Panel**



**INDEPENDENT  
TRANSPORT  
SAFETY  
REGULATOR**

**TRANSPORT  
SAFETY  
VICTORIA**



# Overview

- RRM in Australia: the story so far
- Post implementation review
- The need for a new approach
- Project overview
- Next steps



## RRM

Post  
Implementation  
Review and  
Future  
Directions



# The story so far...

**2005**

## **Project launch**

Sponsorship by TSV & ITSR  
Dédale appointed  
National endorsement  
Industry steering committee

**2006**

## **Best practice review**

**2007**

## **Launch of RRM Guidelines & Materials**

**RRM industry working group**

**2008-9**

**V/Line business case**

**V/Line pilot**

**Industry briefing**

**2010**

**2011**

## **RRM facilitator training**

**QR Coal implementation**

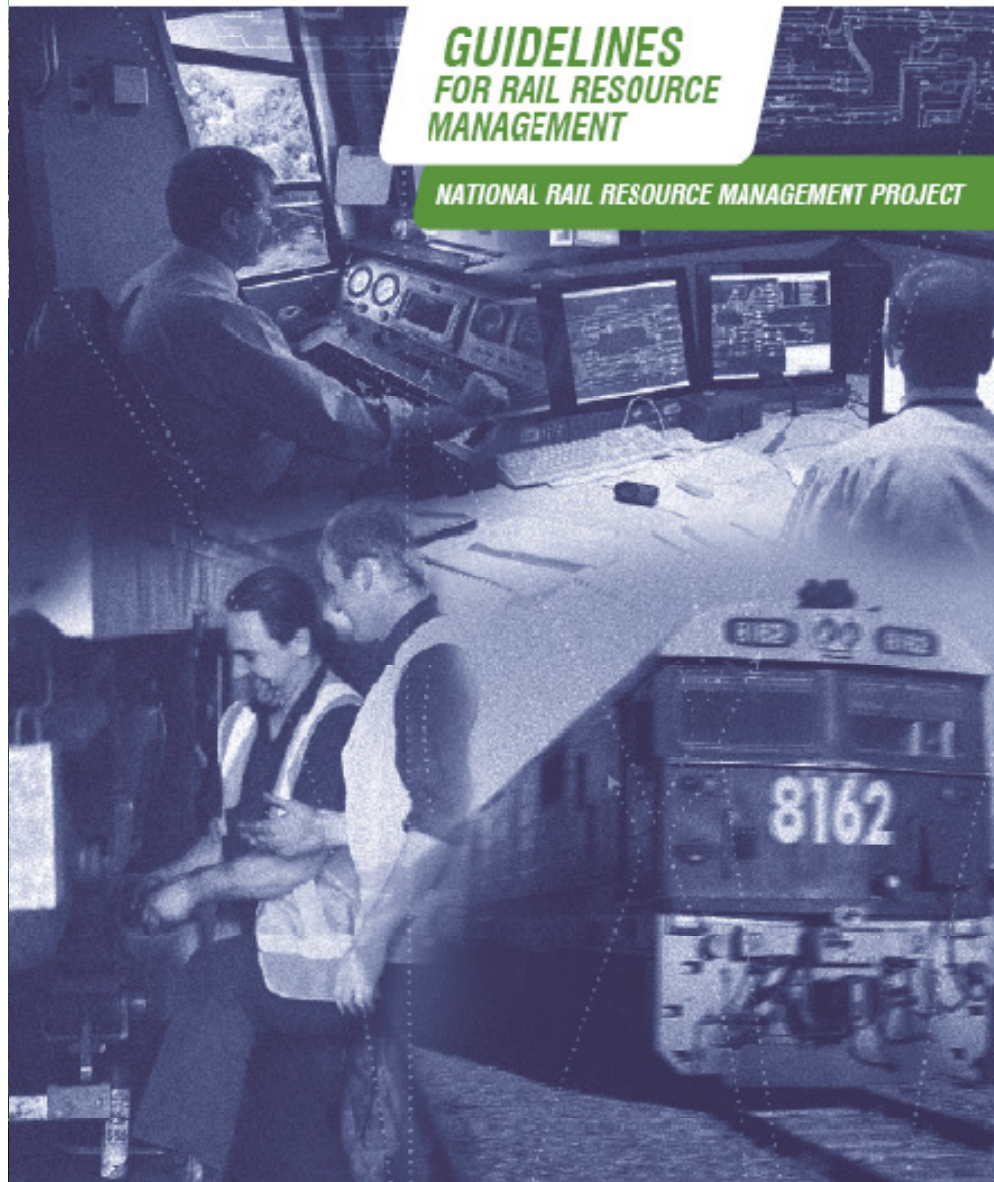
**2012**

## **Post implementation Review**

**2013**

## **Future directions?**





**Rail Safety  
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RELIABILITY  
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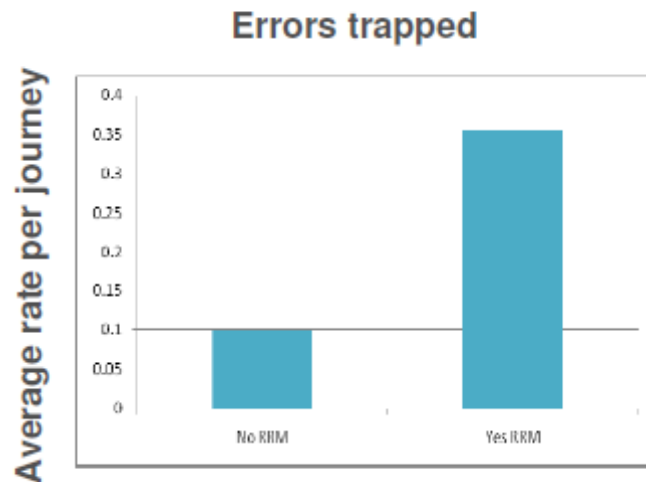
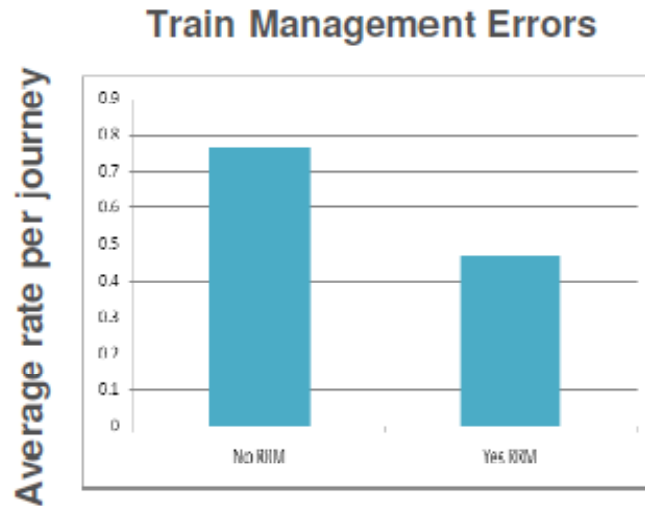
**ptsv**  
Public Transport Safety Victoria



# Setting a high standard

- Unique product for rail
  - Expert developers
  - Extensive consultation
  - Holistic approach
- Guidance on how to
  - develop
  - Implement
  - evaluate & maintain
- Comprehensive & generic
- Customisable

# Uptake of RRM



**How tailored NTS training has shown positive effects on error management in the Rail Industry**

Samantha Carter – Senior Human Factors Consultant  
1 August 2012

## Positive indications

- Positive evaluation of pilot
- Implementation by division of leading freight operator
- Anecdotal evidence of early scoping work
  - Passenger operators

## Post implementation review to ascertain:

- Awareness of RRM
- Use of materials
- Beliefs about human error as source of risk in rail





# The status of RRM 2012

On-line survey August 2012

58 Respondents

- Freight (8)
- Passenger(10)
- Infrastructure managers (20),
- Infrastructure maintainers (21)
- Tourist & heritage (16)




## Survey results

- 57% heard about RRM
- 10 have used materials
- 4 running RRM in some form
- 1 preparing
- 3 individuals keen but no organisational support
- 25% attributed human error as factor in less than 20% incidents




# Rated effectiveness of strategies to reduce human error

## *Most effective*

- 
- Supervision & support
  - Toolbox-talks/pre-work briefings
  - Procedures appropriate & relevant
  - Training
  - Incident analysis

## *Least effective*

- 
- Human error management RRM / NTS training
  - Human Factors awareness training
  - Advanced technology
  - Counseling & disciplinary action
  - Equipment/system design



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## Possible barriers?

- Industry HF readiness/capability
- Accessibility of RRM product
- Expertise & resources to customise tools
- Ability to take workers off-line
- Perceived cost/benefit
- Acceptance by management





# Future directions

## *Options considered:*

- Bridging program?
  - Increase understanding of human performance /error management
- ↑ RRM promotion/support?
- Change management approach?
- Target specific human performance issue using RRM tools?



# Human performance issue: Safety critical communications

- Identified regulator priority
- Known issue for operators
  - 1 April 2010- Strathfield- near strike track workers
  - 5th May- 2010- Newbridge- collision between XPT & track-mounted excavator
  - 13th April 2010- Kogarah- track worker fatality
  - 3 March 2011- Narrandera – run away wagon set derailling onto public road







## RRM

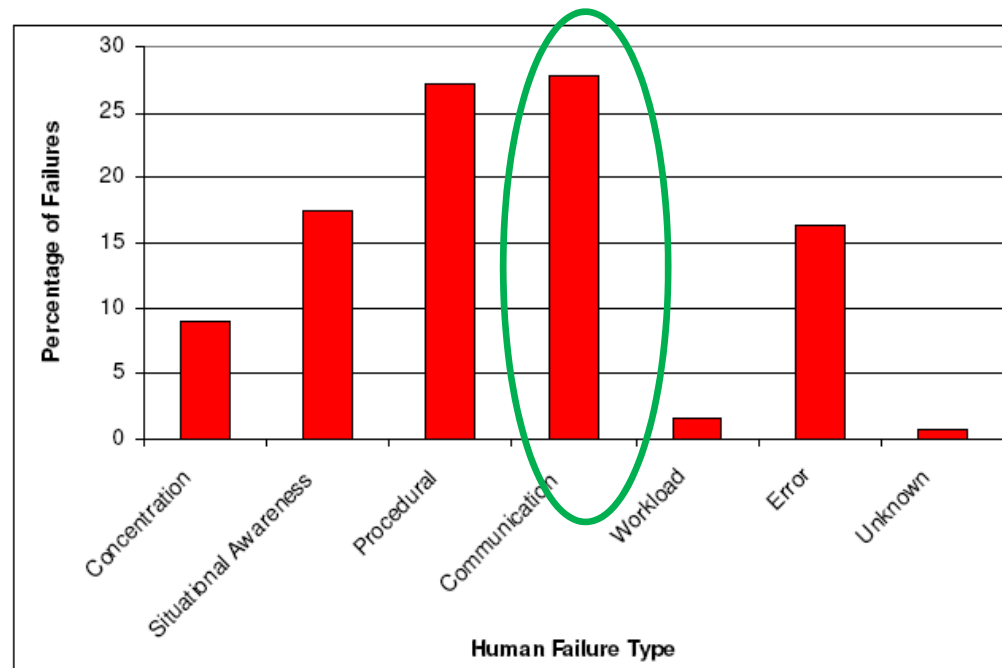
### Post Implementation Review and Future Directions



# Communication failures

- UK data: communication a factor in 33% of irregular working events (Network Rail, RSSB June 2012 T869 Bondsall-Clark K.)
- Local data: V/line analysis

## V/Line Incident Summaries







## RRM

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## Potential benefits

- Market to known need
- Reduce adoption barriers
- Provide measurable proof of concept
- Improved SCC behaviours
- Reduced SCC incidents
- Improved awareness of HF and potential of RRM to address HF issues



# Project overview



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## Phase 1 – Rail operator trial

- Identify SCC errors
- Measure current performance
- Customise RRM Materials for SCC
- Design and Implement trial
- Evaluate

## Phase 2 – Industry roll out

- Develop promotional materials
- Roll out product to wider industry
- Extend behavioural monitoring
- Evaluate

## Phase 3

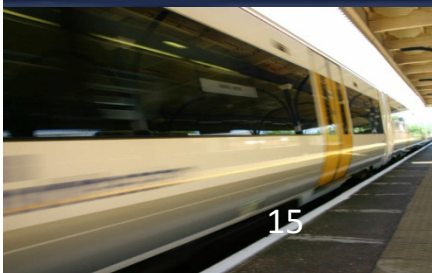
- Future applications for human performance improvement





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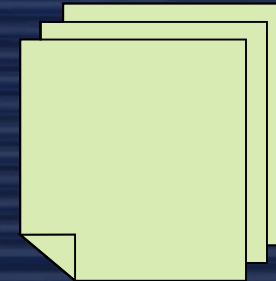
## Phase 1

- Conduct surveillance
- Establish a baseline measurement for current SCC performance
- Identify scenarios for RRM training

## Project overview



Accident reports



Behaviour	Behaviour marker	Yes/no	
			



# Project overview

## Design intervention

- Customise RRM and deliver training
- Use surveillance scenarios to customise case studies
- Create distributed team exercises to practice new skills in a safe environment

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*Rail Resource  
Management  
Training Toolkit*

### Communication

- ▶ Facilitator Guide ~ 4 Communication ~V1
- ▶ 4.0 Communication - Introduction ~V1
- ▶ 4.1 Communication - Assertiveness ~V1
- ▶ 4.2 Communication - Briefing ~V1
- ▶ 4.3 Communication - Debriefing ~V1
- ▶ 4.4 Communication - Confirming understanding ~V1
- ▶ 4.5 Communication - Inquiry ~V1
- ▶ 4.6 Communication - Keeping others informed ~V1
- ▶ 4.7 Communication - Providing clear information ~V1
- ▶ 4.8 Communication - Radio protocol ~V1
- ▶ 4.9 Communication - Shift handover ~V1
- ▶ PDF PowerPoint Slides ~ 4 Communication ~V1



# Project overview

Following a successful evaluation of phase1...

## Phase 2 industry roll out:

- voluntary participation
- Industry working group
- train the trainer course
- voluntary behavioural monitoring program
  - training program for observers
  - Implementing peer to peer observation program
- Collect data centrally



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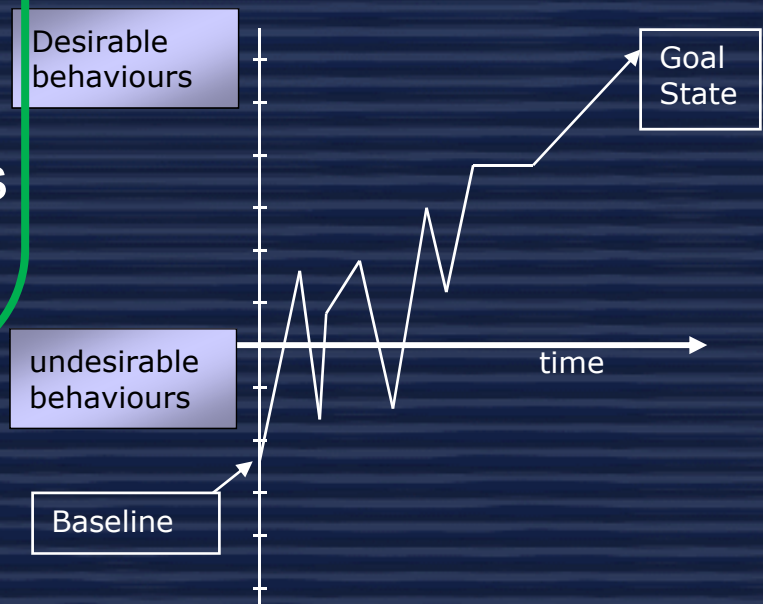
# Project overview

## Phase 2 – Evaluation

- Survey industry engagement
- Gauge awareness of HF issues
- Measure RRM uptake
- Monitoring SCC behaviours
- Decrease in incidents due to poor SCC?

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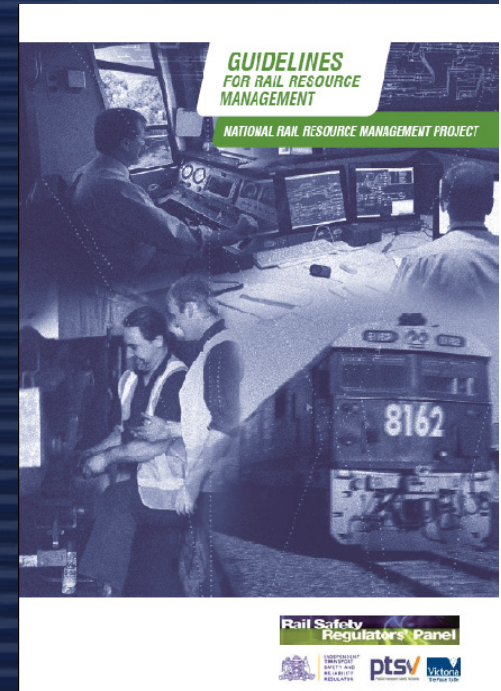




# Project overview

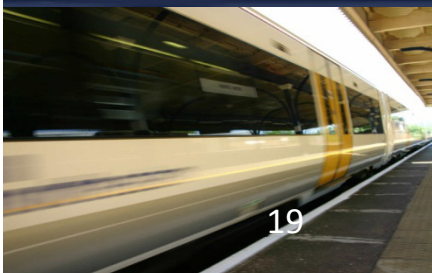
## Phase 3 – Future

- Guidance on customising further RRM training
- Apply tools to another human performance Issue?
- Support for uptake of full RRM programs?



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# Next Steps

- Detailed project planning
- National approval
- Engaging industry partners including RISSB
- Establish working/steering groups
- Identify potential 'champions' for Phase 1 trial



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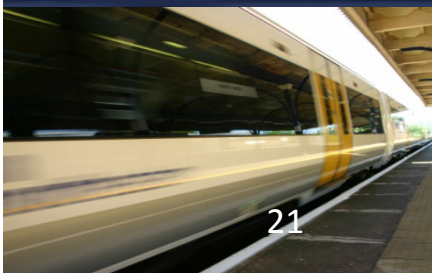
# Challenges

- Change in Australian rail industry
- Engaging support from industry partners and unions
- Technical constraints
- System constraints
- Economic pressures on industry and government



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## Independent Transport Safety Regulator (NSW)

[www.transportregulator.nsw.gov.au/human\\_factors.html](http://www.transportregulator.nsw.gov.au/human_factors.html)

[contact@transportregulator.nsw.gov.au](mailto:contact@transportregulator.nsw.gov.au)

## Transport Safety Victoria

[www.transportsafety.vic.gov.au](http://www.transportsafety.vic.gov.au)

[elizabeth.grey@transportsafety.vic.gov.au](mailto:elizabeth.grey@transportsafety.vic.gov.au)

THANK YOU &  
QUESTIONS?

