



Leaders in Rail Research

Research Briefs

From the CEO

The CRC for Rail Innovation is moving towards its first birthday. The first year has seen many achievements including the commencement/approval of 26 research projects. The research program is now well and truly underway and I am delighted that four new participants have recently committed to join the CRC.

The \$100m seven year research program is diverse in nature and twice as large as that of the first Rail CRC (CRC for Railway Engineering and Technologies).

There are six interrelated research themes emerging. These are:

- Reduction in emissions/climate change
- Unleashing rail capacity
- Improving rail safety
- Developing human capital
- Urban mobility and
- Application of technology

The CRC is working closely with its participants, including the ARA in each of these areas.

Reductions in Emissions/Climate Change

The CRC has a \$500k program underway to model transport emissions and examine a range of initiatives to underpin a comprehensive rail climate change strategy.

Unleashing Capacity / Network Performance

With increasing fuel prices and the resources boom driven by buoyant Chinese and Indian demand, many parts of the Australian rail network are reaching capacity. This applies equally in the urban passenger, interstate freight and bulk haulage systems. Unlocking capacity through technology, smart systems such as positive train control and infrastructure initiatives is critical to unleashing rail's potential. The CRC's research program will work with the rail industry to progress initiatives aimed at unlocking capacity and improving network performance.

Improving Rail Safety

Rail's safety record is generally very good compared to competing modes of transport. However human factor issues and the vexed challenge of level crossings (where rail is generally the recipient of poor road traffic discipline), are key focal points of the CRC's safety research.

Developing Human Capital

The CRC is working with the ARA and other Participants to develop exciting initiatives in this area. It is self-evident that this issue needs to be tackled on an industry-wide basis rather than a collection of ad-hoc small initiatives.

Urban Mobility

Fuel price rises and urban congestion have led to major increases in urban passenger rail demand. The CRC's four passenger participants (Railcorp, QR Passengers, TransAdelaide and Public Transport Authority of WA) are committed to work with the CRC to develop research areas such as demand management and vandalism/graffiti.

Technology

The recent RISSB Rail Technology Workshop highlighted the many exciting technology developments occurring in Australia. These include ARTC's ATMS (Automotive Train Management System), Railcorp's adoption of ETCS (European Train Control System), Rio's introduction of ATO (Automatic Train Operation) and QR's development of the Westect ATP (Automatic Train Protection) system. In addition there are a myriad of train health and information systems.

The CRC for Rail Innovation plans to work with the ARA, RISSB and the rail industry to help develop technology directions based on principles such as interoperability, open systems and standardised protocols. Technology has enormous potential to unlock capacity and improve safety. Great care needs to be taken to ensure that a 21st century technology version of the 19th century multiple gauge legacy is avoided.

These are exciting times for rail and it is good to know that the largest ever rail research program in Australia will underpin future development.

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University of Wollongong PhD Graduate Named Young Railway Engineer of the Year 2008

Sakdirat Kaewunruen, a recent PhD graduate from UOW's School of Civil, Mining and Environmental Engineering, has been awarded '2008 Young Railway Engineer of the Year', an award granted by the Railway Technical Society of Australasia (RTSA).

Dr Kaewunruen was awarded the Peter Schmidt Memorial Scholarship for Best Performance in Engineering Postgraduate Research in 2006 for his research in a new design concept for railway concrete sleepers, under the supervision of Dr Alex Remennikov from the School of Civil, Mining and Environmental Engineering. The research was part of a larger project under the Co-operative Research Centre for Railway Engineering.

The research involves extensive experimental and numerical studies that integrate multidisciplinary sciences including civil/structural engineering, impact engineering, reliability and risk engineering as well as computational methods. Dr Kaewunruen's

contribution on new design concepts for concrete sleepers is being recognised by the Standards Australia committee CE/2, where it will incorporate some of his work in the upcoming AS1085.14 revision.



New Participants on Board

TransAdelaide, Public Transport Authority of Western Australia and TTG Transportation Technology have committed to join the CRC as Supporting Participants.

The additional participants will provide the CRC with scope to examine progressing additional transformational change projects such as increasing system capacity, further climate change research as well as passenger related projects including demand management and managing vandalism/ graffiti.

