



IRT gets strategic

Since switching from an internal industry unit to a university-based research entity, Monash University's Institute of Railway Technology (IRT) has grown to become the highest revenue earner from industry-relevant contract research among the Group of Eight (Go8) universities and this year celebrated 41 years of excellence in railway research and technology development, writes **Ravi Ravitharan***

From its inception in 1972, the Railway Research Group at BHP's Melbourne Research Laboratories has conducted essential railway research. Its activities were mainly concentrated internally, providing technical support for BHP Iron Ore in its railway operations in the Pilbara region and market support for BHP Rail Products (initially OneSteel and now Arrium). The research team's successes, especially in wheel rail interaction, rail and track design, and maintenance management strategies, earned it industry-wide recognition and an extensive customer base external to BHP both within Australia and overseas.

In January 2000, supported by both the railway industry and BHP (now BHP Billiton), the Railway Research Group repositioned itself and established IRT within Monash University. This shift provided new opportunities for the entire railway industry to utilise IRT's services.

There have been a number of factors critical to IRT's success in conducting research and technology over a long period of time during which the rail industry has transitioned considerably. IRT has endured through the challenges that have arisen as a result of these industry changes and has successfully met these head-on through such measures including the transfer of knowledge and cooperation between organisations. The importance of long term commitment and continuity when outsourcing research and technology development activities, as well as the need for industry research partnerships to achieve tangible successes, have all been key to IRT's strategy so far.

IRT has become one of the leading technology service providers within the rail industry and has earned a reputation for successfully identifying critical issues in operation and maintenance related problems in railway systems, and providing comprehensive solutions utilising a range of technical support and services.

The institute has been accepted as a leader in solving wheel-rail interaction related issues, identifying improvements in railway materials, including rail welds,

and developing automated condition monitoring using instrumented standard wagons. These are the main areas noted as the technological priorities in the rail industry's technology roadmap, *On Track to 2040 – Preparing the Australian Rail Supply Industry for Challenges and Growth*.

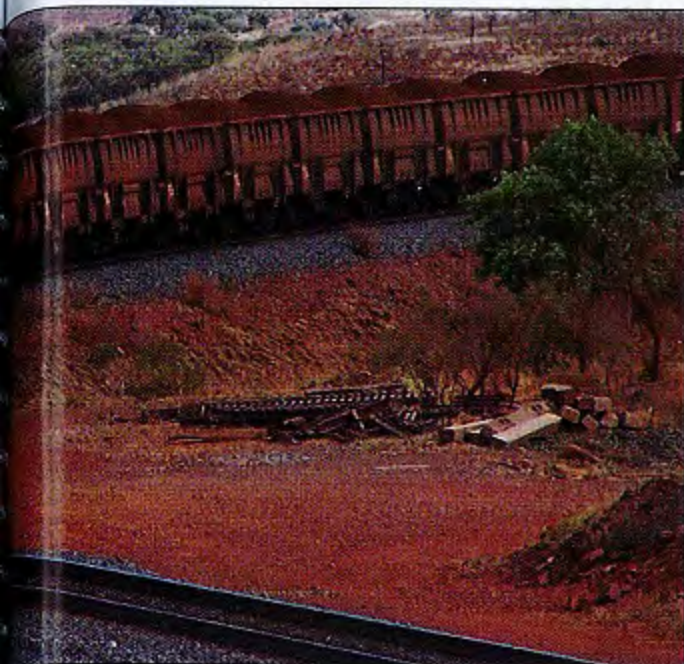
IRT's strategy has met success across a diverse customer base, encompassing heavy haul and passenger rail in several countries. The institute's client base includes BHP Billiton, Rio Tinto, FMG and Vale (Brazil) in the heavy haul industry, and mass transit and passenger services in Hong Kong, Singapore, Dubai, Taiwan, Kuala Lumpur and Melbourne. Most of these relationships have persisted across several decades.

Getting down to strategy

As a commercially competitive market-based organisation, IRT has strategically positioned itself as a one-stop technology access point for the rail industry, undertaking technology development and applied research activities under contractual arrangements. Positioning itself within a university has enabled IRT to be a consulting group that is not exclusively focused on profit generation. Instead, its main objectives are providing technological advancements to the rail industry and promoting rail as the preferred mode of transport.

Recognising that collaboration has the potential to transform railway technology, the institute's technical expertise is complemented and enhanced by its access to





All images this story courtesy IRT

specialist skills within Monash University, including light metals development and advanced manufacturing.

Comprehensive capabilities coupled with the complementary technical skills of its staff and industry know-how has given IRT a competitive advantage in attracting business and consolidating its reputation as a market leader, which has culminated into IRT becoming the the highest revenue earner from industry-relevant contract research among the Group of Eight (Go8) universities.

An important strategy for IRT has been to forge strong, long-lasting partnerships and

strategic alliances with its customers in order to provide value while maximising its own knowledge base at the same time. This approach has fostered and encouraged loyal and productive business relationships and sustainable partnerships.

IRT's commitment, collaborative and partnership approach have been critical to providing strong and lasting outcomes for the rail industry as the major objectives of the involved parties are complementary, rather than contradictory.

Such an approach has earned IRT an international reputation for effectively

solving railway-related issues in various disciplines including significant savings for its customers' operating and capital costs. Notably, these include cost savings from rail replacement volume (approximately 50%); improved performance of wheels (28% and 62% reduction in tread wear and flange wear respectively); increased axle loads by 25% (from 30 tonnes to 37.5 tonnes); and mitigating the risk of derailments, thereby saving millions of dollars through minimised supply chain disruptions.

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Harnessing the 'pool' concept

Significantly, IRT's adoption of the 'pool' concept when forming project teams has facilitated cross-fertilisation across several scientific disciplines and encouraged the efficient use of available resources. While drawing on existing resources (both in terms of expertise and technical equipment) to meet new customers' needs and requirements, IRT ensures it does not compromise contractual obligations to existing customers.

This approach has supported IRT's 'market-pull' marketing strategy which is in contrast to the 'research-push' approach commonly used in research communities both in Australia and overseas. As a result, IRT has minimal promotional requirements and relies mainly on word-of-mouth from existing customers, with interest generating from presentation of research papers at industry conferences.

IRT works with external organisations that are prepared to use research and technology as strategic devices to help sustain and improve their competitive advantage and enhance their corporate performance, including efficiency improvements. Such customers have benefited from the cross linkage that has been created between several railway operations with related issues. IRT's technical involvement with various railway operators has translated into quality enhancements and market requirements to the major rail suppliers. These projects have led to win-win outcomes for the entire rail industry as the knowledge gleaned has been applied to other projects.

IRT is in a position to influence the rail industry via its involvement in the railway-

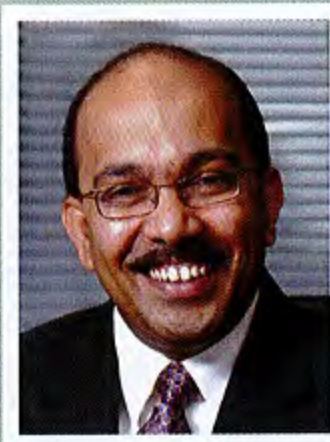


related product and services value chain across multiple location. As such IRT plays a gatekeeper role by recognising technological advancements in related industries and then sharing this knowledge with other players in the rail sector.

Internal congruence and aligned organisational dimensions in IRT have enabled it to face the challenges introduced during the fundamental shift from an internal research entity of a private organisation to an external entity operating in a university environment. A hands-on mentality has been top of mind as this is a crucial component for operating in an industry that, over the years, has gone through a number of revolutionary changes.

The strategies outlined have enabled the research staff at IRT to successfully conduct railway research and technology development activities, in face of internal and sector-wide transition. These activities have led to significant tangible and environmental

benefits to its customers within the rail industry and have earned the institute the coveted reputation as one of the most successful industry-focused research entities within leading Australian universities.



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