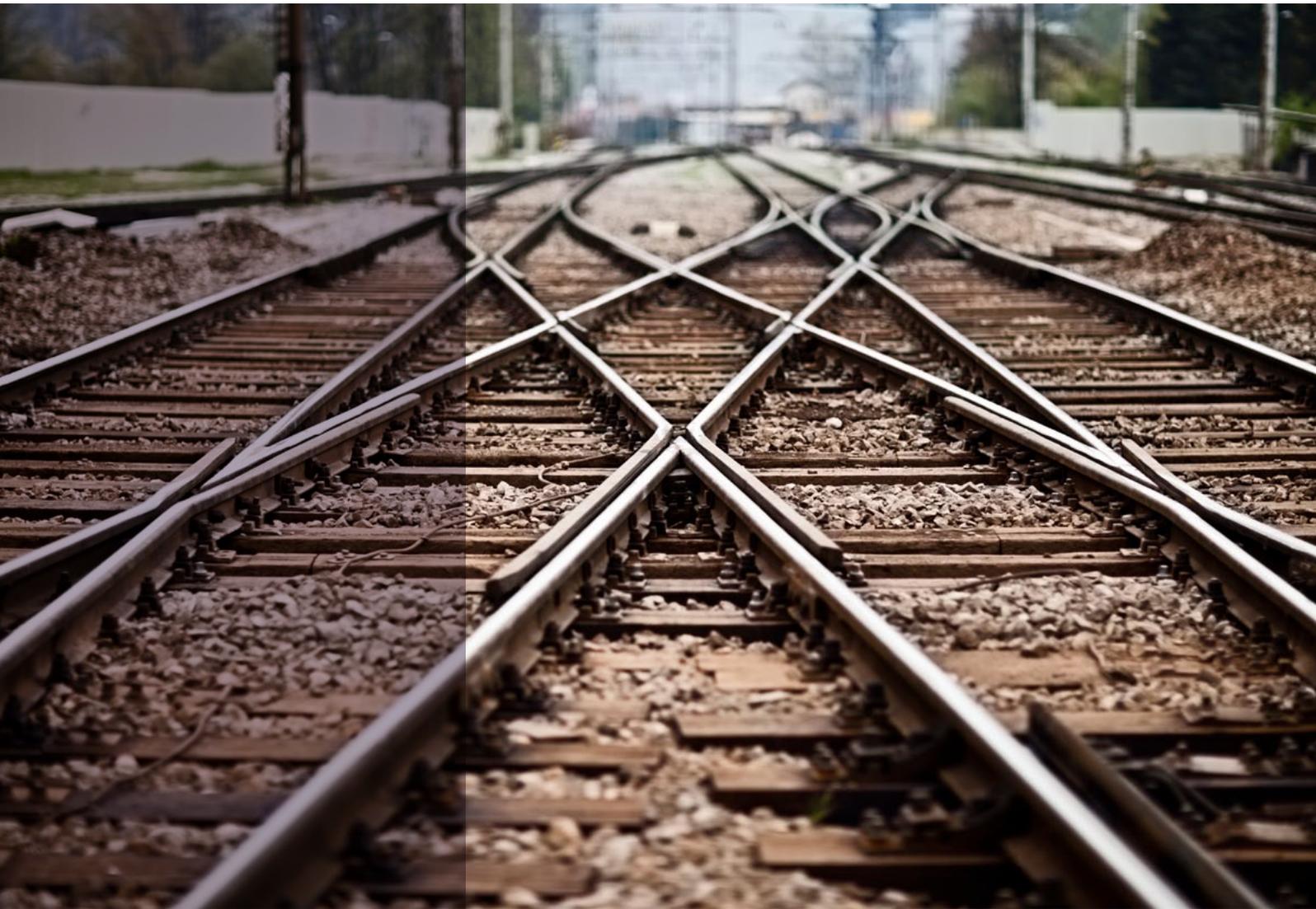




ROYAL
ACADEMY OF
ENGINEERING

Industry-Academia Partnership Programme



THAILAND

Under its remit as a delivery partner of the Newton Fund, the Royal Academy of Engineering has partnered with the Office of Higher Education Commission Thailand and the Thailand Research Fund to enhance engineering teaching, research and innovation outcomes in Thai universities by building bilateral industry-academia links.

Two projects funded through this scheme are targeted at improving education, innovation and research in railway engineering – *RailExchange: UK-Thailand rail professionals and education exchange* and *MetroExchange: Thai rail engineering education and research improvement by exchange of good practice in metro operations in Thailand and the UK*. These projects bring together researchers from Mahidol University in Thailand and Newcastle University in the UK with industry partners Bangkok Mass Transit System Plc (BMTS) and Nexus Tyne and Wear.



**Newton
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BUILDING COLLABORATIVE PARTNERSHIPS

A mutual interest in strengthening education in railway engineering led researchers at Mahidol and Newcastle universities to explore ways to develop their research and build a collaborative international network. The Industry-Academia Partnership Programme (IAPP) has helped them to achieve this. It allowed the collaborators to use their complementary skills to successfully deliver their first project *RailExchange*, which brought together rail professionals and researchers to generate new insights into rail engineering research while bringing improvements to education. This led to a second, ambitious education-focused IAPP project, *MetroExchange*.

IMPACT AND INNOVATION

The metro system in Bangkok is rapidly expanding. A five-fold increase is expected in the near future, extending network coverage from 100 kilometres to 500 kilometres, with the aim of improving transport services and reducing road traffic. The IAPP is helping researchers to support this expansion by improving the efficiency of rail systems design, freight transport, logistics and service management.

“Industry partners in both countries are interested in opportunities to benchmark performance, exchange good practice and learn from each other,” explains Dr Marin Marinov, Rail Education Group Manager, Newcastle University. “This can inform strategy as both face similar challenges in the future in relation to telecommunications and managing rolling stock.”

By driving performance improvements, the partnership directly impacts two metro

systems (in the UK and Thailand). “Engaging with academia is enabling Tyne and Wear (T&W) Metro to get an independent appraisal of what we are doing well and where there are areas of improvement,” explains Dr Aleksandrs Rjabovs, T&W Metro. “We hope that research activities planned as part of *MetroExchange* will inform aspects of operations management such as timetabling and rostering.”

MODELS OF ENGAGEMENT

Both the *RailExchange* and *MetroExchange* projects have been designed to benefit researchers at all levels by creating educational opportunities that enhance research skills, build networks and support professional development and leadership.

The proceedings of a joint conference, hosted at Newcastle university as part of *RailExchange*, have been published by *Springer* as the book *Sustainable Rail Transport Volume 2*. Visiting lecturers from Newcastle have also helped to enhance rail engineering curricula at Mahidol University by contributing to case studies and a new module-based teaching approach for a master’s programme in rail engineering. *MetroExchange* will enable the further development of these initiatives.

“Although *MetroExchange* is in its early stages, we have already created internship opportunities in industry for two Thai and UK students and there are plans for summer schools,” explains Dr Waessara Weerawat, Mahidol University. “We have also organised technical visits along with meetings and seminars with colleagues in other Thai universities to help broaden our network.”

As part of *MetroExchange*, the collaborators are also working on a new educational resource for children and young people, designed

around the workings of the metro system. This will be provided to schools to teach and inspire the next generation of rail engineers.

FUTURE PLANS

MetroExchange ensures that the partnership between Newcastle and Mahidol universities continues to grow in strength while increasing research and education capacity at both institutions. The collaborators long-term plans include joint funding bids, new research initiatives and, eventually, graduate employment opportunities in industry.

“Once the academia-industry collaboration model is established as successful, the academic partners are interested in scaling it up to involve other departments from the industry partners as well as apply it to other rail and metro companies in Thailand and the UK,” says Dr Weerawat.

“Engaging with academia has created new opportunities for us to participate in international projects. In return, we are supporting knowledge sharing through a number of industry forums, a summer school and short courses both in the UK and Thailand.”

Dr Aleksandrs Rjabovs, T&W Metro

UK-THAILAND INDUSTRY ACADEMIA PARTNERSHIP

As a Newton Fund delivery partner, the Royal Academy of Engineering works with the Office of Higher Education Commission Thailand to co-fund awards that strengthen capacity and develop capabilities within Thai engineering higher education and research institutions to carry out excellent teaching, research and innovation-related activities through collaboration with industry and UK counterparts.

NEWTON FUND

This project is supported by the Newton Fund, which is part of the UK’s official development assistance (ODA) and promotes economic development and social welfare by strengthening science and innovation capacity.

For more information

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