Reliable and Resilient Transport Infrastructure towards Smart and Sustainable Urban Systems

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Summary.

Transportation and transit systems make significant difference to the public and provide positive contribution towards the environmental, social and economic sustainability of the communities they serve. They exist to provide social and economic connections, and people quickly take up the opportunities offered by increased mobility. Broad spectra of transport technologies and advancements have been devised by our predecessors and have enhanced the quality of everyday life. This presentation will highlight collaborative research in order to promote and encourage further collaboration in research, development and innovation in improving safety, reliability, resilience and sustainability in transportation and transit systems. The collaborative research are aligned with United Nation's Sustainable Development Goals, especially:

- Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable;
- Goal 12. Ensure sustainable consumption and production patterns;
- Goal 13. Take urgent action to combat climate change and its impacts.

The presentation involves a wide coverage of timely issues on railway track technologies and innovations focusing on broad aspects of rail infrastructure in order to address global grand challenges and UN's sustainable development goals with great social and economic importance. The goal is to provide an insight on advanced methods, technologies and concepts for the design, operations, construction and development towards sustainability of assets, infrastructures, as well as interdependent and interconnected rail transportation systems. The presentation will also provide highlights of world-class research and education at the University of Birmingham, U.K.

About speaker:

Dr Sakdirat Kaewunruen is a positive, self-motivated technical manager and specialist with extensive experience across civil, transport and rail industry in public and private sectors. He has extensive expertise in transport infrastructure engineering and management, successfully dealing with all stages of infrastructure life cycle and assuring safety, reliability, resilience and sustainability of rail infrastructure systems. He has outstanding skills in business management and continuous improvement of customer experience, he held visiting appointments at various institutions, including Massachusetts Institute of Technology (MIT), Chalmers University of Technology's Railway Mechanics Centre in Gothenburg Sweden, The University of Tokyo, University of Illinois at Urbana Champaign and Railway Technical Research Institute in Tokyo Japan. He has over 350 technical publications and evidence-based consultancy reports, and has served on the editorial boards of many international journals.

Dr Sakdirat Kaewunruen has extensive industry experience in the field of structural, civil and track engineering both in industry and in academia. With over 14 years in rail industry and regulatory environments prior to joining academia, he has wide variety of specialisations, including rail engineering, track design, track components, structural and geotechnical engineering, maintenance and construction. He is a Chartered Engineering in both Civil and Structural Colleges, and has research and practical experience internationally in railway systems and infrastructure engineering. His professional work had involved many industry projects worth over £5billions and has supervised/participated in railway research projects worth over £8milions (in Australia, UK, Japan, USA, Sweden, China, Malaysia and Thailand). His industry and research work has won him numerous international and domestic awards. A few recent awards include Stephenson's Best Paper Award (2017), Institute of Structural Engineers Midlands' Research Award (2016), and Japan Society for the Promotion of Sciences Long-term Fellowship (2015-2016). He has membership in EU-Cost Actions: TU1404 (Towards the next generation of standards for service life of cement-based materials and structures), CA15125 (Designs for noise reducing materials and structures), CA15202 (Self-healing as preventive repair of concrete structures) and TU1409 (Mathematics for Industry Network). Dr Kaewunruen is the UK Principal Scientist for ISO and BSI standard committees for railway sleepers (using concrete, plastic and composite materials) and recycling of rolling stocks. He successfully coordinates EU-funded RISEN and is a CI of S-CODE. He is also a committee member of Concrete Society Midlands and is Chief Editor of Frontiers in Transportation and Transit Systems.