

Transport
Research
Institute

Transport Research Institute Edinburgh Napier University

Annual Report 2015



*Informing decisions.
Shaping policy.*

Our vision

“To be internationally recognised by academics, public policy makers, the transport industry and investors for the relevance, quality and rigour of our research in areas that contribute to a growing economy and more sustainable and healthy mobility.”



Welcome

Transport Research Institute Annual Report 2015

What is Transport Research Institute and who is part of it?

The Transport Research Institute (TRI) is Scotland's largest and longest established transport research group. Established in 1996 we have an enviable track record in delivering high quality transport research, consultancy and other knowledge transfer projects in applied settings.

The skills TRI brings to the table covers everything from hard engineering through economics, business and mathematical modelling to sociology and psychology. As part of Edinburgh Napier University we offer a high level of objectivity, and we work with partners at other academic institutions across Scotland and beyond.

This combination of expertise and objectivity means we can provide rigorous and reliable analysis to help inform decisions and develop more effective policies. We have strong links with industry so we know what the real world applications of our work could be. We work at a strategic level with European Commission

research programmes, as well as national and local governments around the world.

Staff associated with TRI are from various Schools and Departments across the University. A number of current TRI members are staff and research students based within the School of Engineering and the Built Environment. However, membership is open to University staff and research students working in transport related research areas across the university, including health and life sciences, computing science and business.

2015 HIGHLIGHTS



TRI's new Director Professor Tom Rye joined us in January 2015 and set to work developing and implementing a new strategy for TRI, as it is now no longer a stand-alone research institute, but a part of the School of Engineering and the Built Environment, and a home for anyone in the University who has an interest in transport research and teaching. The key objectives of the TRI Strategy are as follows:

- To enhance our position and reputation as one of the UK's preeminent transport research centres.
- To further develop our research into teaching and vice versa.
- To improve quality and quantity of REF outputs for REF2020 in comparison to REF2014, and their impacts, and increase number of staff who are in REF.
- Increase our external research income.
- To increase the number of transport staff with grants.
- Develop TRI's links with (broadly defined) industry.

During 2015 we delivered a number of key activities to help meet our objectives. In September we hosted 15 visitors from Sweden's K2 National Public Transport Research and Knowledge centre. They exchanged experience and research ideas with TRI staff and also two K2 researchers and a TRI researcher, Jonathan Cowie, gave an evening seminar on public transport research with a particular focus on bus regulation to an invited audience of Scottish public transport industry experts.

In January 2015, Richard Llewellyn and Tom Rye took part in a workshop with four other experts to give their views on a document that will be used by the Council's engineers and planners for designing all street schemes, from the simplest maintenance of a footpath through to building new residential areas or a second tram line.

In July, a group of senior managers from Ningbo University, China, including the Director of Human Resource Department and Dean of Faculty of Maritime and Transport, visited TRI to

discuss joint PhD training and staff exchange plans on the basis of an memorandum of understanding (MoU) signed between Ningbo University and TRI.

With support from the Scottish government, TRI held a one-day Electric Vehicle showcase. This proved to be a very popular event, with over 80 people attending. The event included presentations from government, industry and academic representatives. We were pleased to welcome Derek Mackay MSP, Minister for Transport and Islands, Edinburgh's Lord Provost and speakers from the Scottish Government, Urban Foresight, Edinburgh College, Lothian Buses, Scottish Renewables, ESB ecars Ireland, Automotive Leasing, CEO 203020 taxis, Tesla, EVAS and Edinburgh Napier's PhD student Aisling Doyle. Electric vehicles were displayed from Mitsubishi, Nissan, Tesla, Toyota and VW at this event. Tours of on-site supporting infrastructure and display stands were also organised. Due to the success of this event, another one will be held on 12 October 2016.

In November, 42 researchers from as far afield as Nigeria and the USA visited TRI for a 2 day seminar on Smart Urban Mobility. A number of presentations from this event are being developed into papers for a special issue of Transportation Research: Part A.

In addition, Tom Rye taught on the existing MSc Transport Planning and Engineering, and our research income continued to be robust, based mainly on EU sources of funding.

Later in 2015 we bid for four new Horizon 2020 projects in the field of sustainable transport as well as for a Leverhulme-funded Centre of Excellence in Smart Urban Mobility.

In addition, we forged a relationship with consultant Systra so that we are eligible to bid on consultancy projects via the Scotland Excel framework. Our research work is further boosted by the total of 10 PhD students who are now studying with us, bringing our total complement of researchers, students and staff working at TRI to around 22.

TRI are pleased to announce the creation of the TRI Middle East Transport Research Centre to specifically target transport research investigations and projects in the Middle East.

ADVISORY BOARD

We'd like to thank our dedicated Advisory Board members for their continued support throughout the year. Our Advisory Board comprises: Prof George Hazel (Chair), Prof Richard Allsop (Emeritus Professor of Transport Studies at UCL), Alex Macaulay (Partnership Director of SEStran), Dr Kit Mitchell (Emeritus member of TRB and member of CIHT), Martin Richards (Executive Chairman of MVA until his retirement), John Martin (Transport Consultant), Neil Paulley (Visiting Professor at the University of Surrey, retired), Prof Keith Dickinson (Higher Education Consultant & Academic Adviser), Dr Steve Cassidy (Managing Director, Viaqqio Ltd, part of the ESP Group), Neil Johnstone (SYSTRA), Kirsty Lewin (Sustrans UK Board Member), Nazan Kocak (City of Edinburgh Council) and Laurence Kenney (ChargePlace Scotland Programme Manager at Transport Scotland).



STAFF NEWS

Academic visitors who spent time at TRI during 2015 include: Ruggiero Lovreglio from the Politecnico di Bari, Italy returned to TRI for almost 6 months in 2015; Arkadiusz Drabicki spent March with us from Politechnika Krakowska, Poland; Lia Camporeale Politecnico di Bari, Italy was with us from April to October researching Public Transport and Modelling Design; Lao Zhenya (Husky) came over from China from August to October to research Transport problems in China and the comparison in traffic fatalities between UK and China; Thu Hang Nguyen (Chippy) returned for 2 months from Thai Nguyen University, Vietnam; Xiaohong Gao (Lecturer) from Faculty of Maritime & Transportation, Ningbo University, China for 6 months to study Logistics Management; Lourdes Milagros Chiyong Ruesta, Peru researched bus following modelling in urban and rural areas in Edinburgh; Stephan Malane came over from Germany for 5 months to study cabin comfort energy efficiency for electric vehicles; Pablo Caceres joined us from Chile for 2 months also looking at energy efficiency; Caterina Malandri spent 5 months from the University of Bologna, Italy to study Evaluation of Public Transport Vulnerability: Analysing Spill-over Effects in the Case of Stockholm and Transport modelling.

Alf Baird left TRI in April 2015.

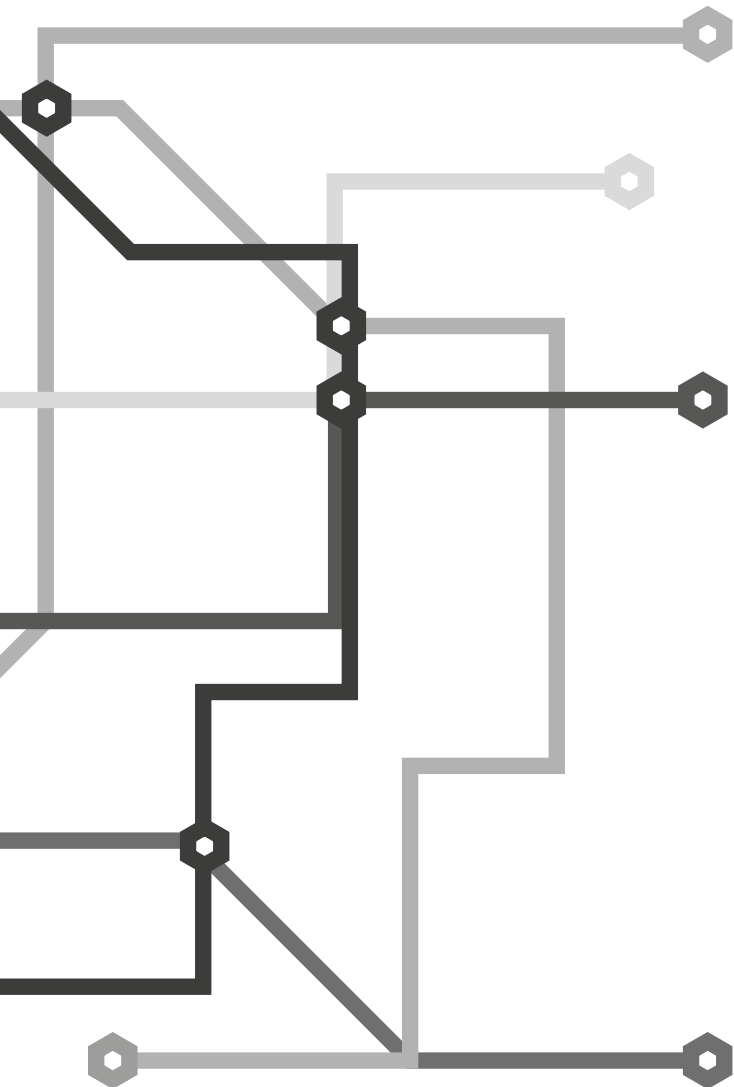
James Cooper left TRI in June 2015 to work in the US after having spent over 15 years with us.

Dong Wook-Song left TRI in July 2015 to take up a post at World Maritime University in Sweden.

Michelle Wagner left TRI in July 2015 to further her career in research project management at the University of Glasgow.

Michael Carreno left TRI in August 2015 after having spent over 15 years with us.

Margaret Grieco retired from TRI in December 2015 and has now set up her own consultancy business, the Hossack Institute of Highland History.





Professor Tom Rye



Dr Andrew MacIver

STAFF ACTIVITIES 2015

Professor Tom Rye is a member of the STAR Steering Group Committee. Tom was returned as Chair Elect for Universities Transport Studies Group to take up his post in January 2016. Tom appeared on Reporting Scotland and Good Morning Scotland in November to talk about the business case for the proposed extension of Edinburgh tram to Newhaven. In March, Tom spoke at a public meeting organised by Spokes, the Lothian and Edinburgh Cycle Campaign, on the future of transport in Edinburgh's city centre. Tom was invited to speak at a "Mobility Management Masterclass" in April which was organised by Erasmus University, Rotterdam. He explained to the audience how land use planning law and practice has been used in the UK in order to incorporate mobility management measures into large new developments such as hospitals, universities and large offices. Tom was a keynote speaker at the German Institute for Urbanism on transport planning in UK and Sweden, April 2015 with a presentation entitled "The planning and cooperation culture in mobility planning in Scandinavia and the UK with a focus on Lund, Sweden". He was also a keynote speaker at the second EU conference on Sustainable Urban Mobility Plans, Bucharest, June 2015, speaking on the topic of "Sustainable Urban Mobility Plans for all cities. Is it really paying off?"
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Dr Andrew MacIver is Subject Group Leader, Civil & Transportation Engineering External Examiner, Caledonian College of Engineering, Muscat, Oman Visiting Lecturer, Shanghai Normal University Member of Edinburgh Urban Design Panel (together with Tom, Richard and Jason).
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Dr Jason Monios was guest editor for special issues of the Journal of Transport Geography and Research in Transportation Business and Management, as well as continuing as reviewer for 16 international journals. He published several journal papers and book chapters, presented at a number of conferences, including charring sessions on world ports at ECONSHIP Chios and port strategy at IAME Kuala Lumpur, as well as completing a new book for publication in 2016. He served as expert adviser to the Scottish Parliament on their national freight consultation, in addition to sitting on the Edinburgh Urban Design Panel. He continued as fellow of the Royal Geographical Society, member of the International Association of Maritime Economists and

joined the committee of the Scottish Transport Studies Group. He completed the delivery of the three-year EU-funded GreCOR project and undertook a consultancy project advising on dry port location and expansion strategies in Riyadh, Saudi Arabia. Jason also led the development of a new MSc in Maritime Transport and Logistics to commence in 2016.
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Dr Yuhong Wang - In 2015, Dr Yuhong Wang was elected as a council member of the Asian Logistics Round Table (ALRT) conference. He was also appointed as a member of the Academic Committee of the International conference on Logistics, Informatics and Service Sciences (LISS 2016). He also continued as a reviewer for several peer-reviewed transportation journals.
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Dr Kathryn Stewart continued to be treasurer to the UTSG executive committee until January 2016. She has continued as programme committee member for the STAR conference and scientific committee member for the International Symposium of Travel Demand Management and represents TRI at the Edinburgh Transport Forum. Kathryn is also a member of the Scottish Branch committee for the IMA (Institute of Mathematics and its applications).
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Dr Achille Fonzone took part in ISTTT21 in Kobe in August and presented his paper there. In September he was invited by Transport for London (TfL) to give a talk at their First Research Forum. His topic was "RTPI – Does it make any difference?" He was invited to be a member of a PhD examination committee at KTH, Stockholm, for a dissertation on "New opportunities in urban transport data". Achille was invited to give a talk in a seminar on "Real-time Travel Information: Prediction Challenges and Behavioral Implications". Achille gave an invited webinar for the TRB Traffic Flow Theory committee on "A model of bus bunching under reliability-based passenger arrival patterns" on 4.12. Achille was involved in the workshop on Smart Urban Mobility, and with Tom and Wafaa, he is coordinating the editing of the related special issue of Transportation Research part A.
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STAFF ACTIVITIES 2015 continued

Richard Llewellyn served as Junior Vice Chair for the Scotland Region committee of the Chartered Institution of Highways and Transportation and has responsibility as training officer. In addition, Richard represents the CIHT on the STAR Conference programme and steering group committees. He sits on the City of Edinburgh Council Urban Design Panel, providing comments on developments in advance of planning applications being submitted. He is also a Member of the City of Edinburgh Council Transport Forum group, commenting on transport matters around the city.

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Professor Wafaa Saleh continued chairing the committee of the International Symposium on Travel Demand Management at the 7th meeting held at Tucson, Arizona in April, being a member of the scientific committee of the International Symposium on Transportation Network Reliability (INSTR), with the 5th meeting held in Kyoto, Japan in August 2015, and attended and presented papers at the WASD meeting in Istanbul. Wafaa visited Princess Norah University in Riyadh and was invited to give a keynote presentation at the Transport Safety & Injury Control Conference in Doha. She has completed the second project with Tabuk University on road safety secured funding for a new project from Qatar Research Foundation on Road safety in Qatar. Wafaa is leading the TRI Middle East Research Centre with colleagues from TRI (www.tri.napier.ac.uk/c/areas/areaid/12484). She is continuing, to successful completion, PhD supervision at Edinburgh Napier and is an examiner at a number of international universities in the area of transport modelling and travel demand management. Wafaa is continuing to be active in terms of publications, a peer reviewer and a member of the editorial boards of a number of international journals.

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Jonathan Cowie has been continuing his research into consumer sovereignty and the operation of transport markets, as well as carrying out associated research into rail fare regulation in the privatised British passenger railway. In collaboration with Professor Steve Ison at Loughborough University, Jonathan has also been editing and compiling the Routledge Handbook of Transport Economics, which should be published in mid 2017.

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Dr Damian Stantchev reviewed papers for the International Journal of Logistics Research and Applications and WCTR conference. Damian continued in his role as external examiner (Masters dissertations) and was recently appointed as Member of the Complaints Commission for the 'Industrial Buying Behaviour' module at the University of Agder, Norway.

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Professor Tariq Muneer is a member of the Chartered Institution of Building Services Engineers Guide A2 Committee which oversees the development of weather and solar data. He is a member of ECOSSE consultative committee which oversees the promotion of electric vehicles in Scotland. During the past year Prof Muneer's research team produced a total of 12 journal and conference articles. Professor Muneer also co-organised a most popular event related to electric vehicles which was attended by 100 people and was co-funded by Scottish Government.

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Professor Christiane Bielefeldt was invited to join the Special Interest Group 2 on National and Regional Transport Planning and Policy for the WCTR Society. She was also invited to give a keynote speech on Smarter Travel at the Funkwerk Conference in Munich and a presentation on Travel of the Future at the GIST conference in Glasgow. She also became leader of the Unit of Assessment for Civil and Construction Engineering for Edinburgh Napier University for the Research Evaluation Framework 2020.

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Professor Keith Dickinson, following his period as Interim Director of TRI in 2014, has retained his seat on the TRI Board and taken an active role as Emeritus Professor of Transportation at TRI. He retains his broad interests in traffic engineering and is currently supervising a PhD student who is studying the impact on travel behaviour of Ubiquitous Real Time Passenger Information (URTPi).

Professor Stephen Stradling is a Professor Emeritus and continues to publish on driver behaviour and modal choice, contribute to review projects and speak at road safety conferences.

Professor Mike Maher is a Professor Emeritus. He continues to be on the Editorial Advisory Board for Accident Analysis and Prevention. He is involved in two Aecom/Atkins projects for the DfT on (i) the impact of 20 mph speed limits and (ii) the effect on accidents of the recent increases in HGV speed limits, advising on statistical methodology. He is an honorary professor at University College London.

David Hunter joined TRI as an Associate Research Fellow in June 2015. David has long been involved in developing accessible and sustainable transport services and is active in a number of voluntary, professional and statutory bodies including the Mobility and Access Committee for Scotland. He authored Trends in the Use of UK dial-a-ride services in 2016 and helped organise TRI's seminar on Transport and the Equality Act in January 2016.

David Scotney (Associate Research Fellow) is a continuing board member of the Tayside and Central Scotland Regional Transport Partnership (Tactran), a reviewer for the Transport Planning Society's Professional Development Scheme and a programme committee member for the STAR conference. He is undertaking research on mainly historical aspects of transport development and their potential lessons: during 2015 he undertook some preliminary work with colleagues in TRI on the differing specifications and costs of transport provision in various countries, as well as working in collaboration with specialists from Russia on the development and utilisation of the formerly extensive narrow gauge rail networks in Russia and the USSR.

PROJECTS ACTIVE IN 2015

Projects that TRI researchers participated in during 2015 are listed below, with details of funding bodies and collaborating partners.

*projects that started in 2015

SUSTAINABLE ENERGY AND TRANSPORT

CIVITAS DYN@MO

(EC FP7, from December 2012 to November 2016)
Professor Tom Rye and Prof Christiane Bielefeldt.
www.civitas.eu/content/dynmo

CIVITAS DYN@MO is an ambitious project with strategic importance to sustainable mobility planning in four dynamic European cities. DYN@MO is short for the project motto DYNamic citizens @ctive for sustainable MOBility, which combines four European cities. This includes two leading cities, Aachen in Germany and Gdynia in Poland, as well as two learning cities, Palma de Mallorca in Spain and Koprivnica in Croatia. The mission of the CIVITAS DYN@MO cities is to strengthen sustainable mobility by promoting non-polluting lifestyles, fostering social interaction and collaboration on the basis of the new media, and implementing integrated innovative transport services for active citizens of all ages. TRI's role is as evaluation WP leader, ensuring that the critical evaluation tasks in the project are carried out in a timely manner and that high quality evaluation outputs are produced.

ECONOMICS, PLANNING AND POLICY

COLLABORATIVE MODELS IN IMPROVED PUBLIC TRANSPORT (Vinnova, Sweden, 2013 to 2016). Prof Tom Rye

Prof Rye is working with former colleagues in Sweden to explore how models of informal collaboration work in public transport organisations at present, and how this can be improved. He is leading the international comparative aspect of the project.



MOBILITY MANAGEMENT AND TRAVEL PLANNING

CIVITAS CAPITAL

(EC FP7, from September 2013 to August 2016)
Professor Tom Rye and Dr Damian Stantchev
www.civitas.eu

CIVITAS is one of the most successful EU programmes in promoting innovative solutions for sustainable development. The CIVITAS CAPITAL project aims to contribute to the goals of the European Union's Transport White Paper by capitalising on the results of CIVITAS and creating an effective "value chain" for urban mobility innovation. CAPITAL will help to mainstream CIVITAS into other policy fields by identifying the capacity of sustainable transport measures to contribute to high-level goals. CAPITAL will create a dynamic knowledge centre and will establish national and regional networks facilitating exchanges and transfer of measures based on practical experiences.

TRI's particular role is in running expert advisory groups providing specific and timely policy advice to the European Commission on how to further improve the implementation of its policy on sustainable urban transport.

PROJECTS ACTIVE IN 2015 continued

MARITIME TRANSPORT & LOGISTICS

ENRICH

(EU FP7 Marie Curie Action, from October 2013 to September 2017)

Dr Yuhong Wang and Dr Jason Monios

ENRICH (EC-ChiNa Research Network on Integrated Container Supply Chains) is a research staff exchange project to set up long-term research cooperation with four European and two Chinese universities. This project specifically aims to address long-lasting changes in operational, environmental, economic, technical and managerial practices in different segments of the rail, road, air and sea transport industries from an overall container supply chain perspective.

* Branchliner Plus

(HITRANS, from November to December 2015)

Dr Yuhong Wang

Branchliner Plus was jointly funded by STTS, HITRANS and FCS in order to investigate timber transport by rail from the Flow Country. This project brought together a high level strategic group to establish the importance of the issues at stake – the environmental peatland interest, the economic timber interest and the critical infrastructure constraints. TRI was invited to take responsibility for conducting an Environmental Benefit Assessment about modal shifting activities for timber haulage.

* SeaConAZ

(Norwegian Research Council, November 2015 to October 2019)

Dr Yuhong Wang

The SeaConAZ project represents a holistic perspective on the supply chains of consumables produced in China destined for European retailers. The focus of the project is on exploring the potential of a system changing approach, where the point of cross-docking and consolidation of less-than full container consignments (LCL) into full container loads (FCL) for a single, or cluster of, retailing points is moved from Europe to China. The academic consortium for the SeaConAZ project comprises universities and research centres in Norway, Sweden, UK, The Netherlands and China.

* Riyadh dry port location study

(High Commission for the Development of Arriyadh), from December 2015 to August 2016)

Dr Jason Monios

Several major transport and associated freight handling proposals are under consideration by the government. The High Commission for the Development of Riyadh has appointed a Committee to investigate and advise on these proposals, including representatives from the Arriyadh Development Authority, Amanah, Ministry of Transport, Saudi Rail Organisation, Saudi Arabian Railways, MODON, Dept of Customs and Saudi Ports Authority. The purpose of this project is to provide advice to this Committee on a high level basis in relation to an evaluation of all major freight logistics / dry port options for Riyadh, including existing and proposed facilities or other suitable locations. The evaluation will include the identification and assessment of operational needs in the long term and will identify issues for investigation particularly in relation to

strategic plans for the city and region, transport, economic activities and the natural environment. The report will also provide a framework for future decision making in relation to major freight and logistics facilities for Riyadh.

GreCOR – Green Corridor

(EU Interreg IVB North Sea Region Programme, from January 2012 to June 2015)

Dr Jason Monios

www.grecor.eu

The Green Corridor project promoted the development of a co-modal transport corridor in the North Sea Region. Important in this collaborative approach was the focus on secondary networks, logistics hubs and the regional hinterland around the corridor. The role of TRI was to develop a business model for an extended logistics hub which can lower transport and logistics costs for users, particularly through the collaboration between smaller shippers. GreCOR worked in close collaboration with public and private stakeholders, and its overall aim was to improve knowledge about the logistic needs and conditions and develop and implement the first green corridor in the North Sea Region in a strategic policy setting. GreCOR had 14 partners and a total budget of €3.7million.



PROJECTS ACTIVE IN 2015 continued

Scottish Parliament national freight consultation

(Scottish Parliament, from December 2014 to August 2015)
Dr Jason Monios

The goal of this national consultation was to identify and understand some of the challenges facing the freight transport industry in Scotland, including domestic and international links as well as the interconnectivity of rail, road air and sea freight services and to identify key areas for development, improvement and change. Dr Monios was appointed expert adviser to the committee.

TEN-TaNS

(EU Interreg IVB North Sea Programme, from June 2013 to June 2015)

Professor Alfred Baird, Dr Damian Stantchev
www.tentans.eu

The 'Trans-European Transport Network and the North Sea Region (TEN-TaNS)' Project was approved in June 2012 and ended in June 2015. Led by the Aberdeenshire Council, TEN-TaNS developed a toolkit to help assess maritime transport projects for EU TEN-T funding support. The TEN-TaNS project investigated core and comprehensive networks more deeply and how the development of these networks could be supported by public authorities and infrastructure providers at a regional level. Current policy developments were analysed and the requirements of being part of the TEN-T network in terms of infrastructure and services were clarified for all transport and intermodal modes and translated to the regional level via a toolbox specifically developed in the TEN-TaNS project. TEN-T and the North Sea Region project analysed opportunities and consequences for transport of the new European TEN-T Guidelines, the Connecting Europe Facility, the Clean Power for Transport Initiative and the Europe 2020 Strategy. In Scotland as part of TEN-TaNS TRI investigated two specific major maritime infrastructure projects and their potential to attract EU TEN-T funding.

PHD STUDENT RESEARCH TOPICS IN 2015

PhD Student: Emine Zehra Akgun

Research Topic:

Investigating how consolidation centres can reduce emissions and congestion caused by freight transport in urban areas.

Emine started at the Transport Research Institute in September 2015. Her main research interest includes sustainable urban freight transportation, consolidation centres and urban freight policies. Cities are the centres for various economic and social activities, such as living, working, leisure, production, travelling as well shopping. Therefore, freight transportation to and from the urban areas becomes crucial to keep the cities alive. Freight is transported by motorized vehicles which causes much air pollution, noise nuisance, congestion and traffic accident. Local authorities work for developing strategies in order to mitigate negative economic, societal and environmental impacts of urban freight transportation. Among various mitigation strategies Emine is interested in understanding how freight consolidation platforms can reduce the negative impacts caused by freight transport in urban areas and which local policies can contribute to the consolidation efforts for performing more sustainable operations in the urban freight.

PhD Student: Joseph Appiah

Research Topic:

Modelling and Simulation of traffic/driver behaviour.

This research aims to investigate driving behaviour and car following models and techniques as well as enhancing the collection of traffic flow and driver behaviour data. This area of research has attracted the attention of many leading transport researchers and continues to be a promising and motivating area of study with the current advancement of technology. The continuous urge by researchers to improve driver behaviour models and driver safety in car-following situations has led to different methods of data collection being adapted for different studies such as aerial observation of traffic flow by helicopter. For this study, a novel driver behaviour data collection systems called instrumented vehicle was introduced. A private vehicle was equipped with different elements of modern traffic measuring devices (i.e. long rangefinder radar sensors, video-audio monitoring systems (i.e. GPS based video VBOX), speed measuring systems (i.e. GPS based performance box and laptop) to collect real time sequence traffic data in Scotland, more especially the City of Edinburgh and the surrounding areas. The study focuses on using traffic data to develop a new car following model that replicates real driving behaviour and also to improve the calibration parameters of the existing car-following models that replicate real individual driving behaviour.

PHD STUDENT RESEARCH TOPICS IN 2015 continued

PhD Student: Aisling Doyle

Research Topic:

An investigation into the thermal characteristics in an electric car.

Aisling's research involves the development of a computer model to predict indoor cabin temperature of the automobile. This research focuses on the electric vehicle (EV) predominantly. Conventional internal combustion engine vehicles (ICEV) use waste heat from the engine to heat their cabin space, however, the EV does not have this luxury. The EV battery uses a significant amount of energy to heat and cool the cabin resulting in another limitation or factor that adds to 'range anxiety'. This model can help the industry, policy makers and academics to understand the thermal demand of the EV. The project also looks at implanting solar panels on the roof and bonnet of the vehicle to operate an auxiliary power unit to optimise the thermal performance of the EV. Aisling attended a conference in Celje, Slovenia in May of 2015 where she presented a paper ('An experimental review of the electric vehicle'). Also a paper was published at an SAE conference in Chennai, India August 2015 ('A review of the Thermal performance of Electric Vehicles' Technical Paper. 2015-28-0052. Aisling Doyle, Tariq Muneer, Ian Smith).

PhD Student: Faqhrul Islam

Research Topic:

Smarter Urban Mobility.

Faqhrul joined TRI as a research student in March 2015. Since then he has been working on the impact of real time passenger information. His study is focused on understanding the impact of real time passenger information on travel choice behaviour. The study will also address the factors that encourage or hinder passengers to use real time information. Faqhrul attended CILT-13 Young professional Conference 2015 in Edinburgh, STAR conference 2015 in Glasgow, RTPI conference 2015 in London, Scottish Passenger Transport Excellence 2016 in Edinburgh. He also presented his research work in UTSG annual conference, Bristol 2016.

PhD Student: Shelly-Ann Julien

Research Topic:

Container Port Technical Efficiency: An application of Data Envelopment Analysis (DEA) Malmquist Index & Stochastic Frontier Analysis (SFA) to the World's Top 100 and Small Island Developing States (SIDS) ports.

Shelly-Ann is currently pursuing the third year of her PhD. Her research investigates container seaport efficiency for Small Island Developing States (SIDS) with emphasis on Caribbean ports, which are being benchmarked against the world's top 100 container ports. This is tested using Data Envelopment Analysis (DEA)- Malmquist Index and Stochastic Frontier Analysis (SFA) approaches on time series data. She is currently a member on the organising committee for the Young professional CILT conference held in March 2016. Furthermore, as a member and past MSc student of the Maritime Economics and Logistics alumni, of Erasmus University, she was recently featured in the alumni newsletter based on her academic achievements and recent conference visit in Malaysia. In addition to Shelly-Ann's research, she currently teaches Principles of Economics and World Economy at the Craiglockhart Campus, of Napier University.

Award: Chartered Institute of Logistics and Transport (CILT) – Runner up prize

PhD Student: Clare McTigue

Research Topic:

Implementation of Transport Policies at a Local Level.

Transport policies are developed to manage the social, environmental and economic impacts caused by transportation activity. Inappropriately designed transport policies can result in a network that excludes certain members of society, harms the environment and is detrimental to the economy. Without physical access to jobs, health, education and other amenities, the quality of life suffers. Therefore it is absolutely critical to implement systems that encompass all three aspects to ensure that a successful system is created. However, previous research indicates that local authorities face several barriers to effective policy development and then to implementation. Analysis of why some policies are not being implemented successfully at a local level is based on the application of a new hybrid theory of policy implementation. This research aims to provide recommendations for effective implementation and better decision making that will aid local authority staff and policy makers.

Award: Chartered Institute of Logistics and Transport (CILT) – Winner of 1st Prize Student Scholarship

PHD STUDENT RESEARCH TOPICS IN 2015 continued

PhD Student: Suzanne Meade

Research Topic:

Vulnerable Road User (VRU) Collision Involvement and the development of safety performance indicators.

Transport is an interactive system and an in-depth understanding of this system is necessary to understand how to reduce collision severity. Road safety improvement for VRUs has been less pronounced when compared to users of motorised transport during the last decade. The prevailing policies with respect to transport, social, climate and health objectives identify increased personal mobility through walking and cycling as part of their respective action plans to achieve policy goals. This research approaches increased mobility by looking at VRU collision severity risk in order address barriers perceived or caused by safety concerns as the modal share of cycling and walking change.

PhD Student: Moira Weir

Research Topic:

The role of taxis in the supply of transport to the night time economy and identification of the barriers to the full realisation of that role.

Since the 1990s the notion of developing the night time economy (NTE) has played a prominent part in UK planning policy as it was believed that encouraging a vibrant night life would help regenerate town centres. The purpose of this study is to assess the part that licensed taxi and private hire drivers play in the provision of transport for the NTE in the UK. It also considers why some taxi drivers may choose to avoid working at night and what measures could be taken to support the provision of taxi transport for the NTE.

PhD Student: Muhammad Hussain

Muhammad joined TRI in October 2015. Following the completion of his MSc he pursued his interest further in logistics and supply chain management domain to become a full time PhD student. He is involved in extensive research on integrated container supply chains and working on the ENRICH programme.



PHD COMPLETIONS IN 2015

PhD Student: Sarah Borthwick

We are pleased to announce that in February 2015 Sarah Borthwick was awarded a PhD based on her thesis 'The Potential for 'Green' Fiscal Policy Measures to Influence Individuals' Vehicle Purchasing Decisions in Scotland'. She graduated in July and continues to be involved in teaching.

PAPERS AND PUBLICATIONS

- Appiah, J., Galevko, A., Saleh, W., and Kumar, R. (2015) **Bus following model: A case study in Edinburgh.** *International Journal of Transport.*
- Appiah, J., Saleh, W., Stewart, K. (2015, January). **Evaluation of Existing Car-Following Models and Calibration Parameters Using Real Time Series Data.** *Paper presented at 47th Annual Conference of the University Transport Study Group, London City University.*
- Carreno, M., Yaovasuwanchai, S., Borthwick, S. (2015, April). **Assessing the potential impacts of Thai taxation policies on students' future car purchasing decisions.** *Paper presented at 7th International Symposium on Travel Demand Management, Tucson, Arizona, USA.*
- Chen, P., Pai, C., Jou, R., Saleh, W. (2015). **Exploring motorcycle red-light violation in response to pedestrian.** *Accident Analysis and Prevention, 75, 128-136.*
- Cowie, J. (2015). **Does rail freight market liberalisation lead to market entry? A case study.** *Research in Transportation Business & Management, 14, 4 - 13.*
- Fonzone, A., Schmoecker, J., Liu, R. (2015). **A model of bus bunching under reliability-based passenger arrival patterns.** *Transportation Research Part C: Emerging Technologies.*
- Fonzone, A. (2015). **What do you do with your app? A study of bus rider decision-making with Real-Time Passenger Information.** *Paper presented at 94th TRB Annual conference.*
- Garnier, C., Muneer, T., McCaulay, L. (2015). **Super insulated aerogel windows: impact on daylighting and thermal performance.** *Building and Environment, 94, 231-238.*
- Ge, Y., Stewart, K., Liu, Y., Tang, C., Liu, B. (2015). **Congestion Charging in a Single Bottleneck Scenario.** *Transport (published online 13-Jul-2015).*
- Girard, A., Gago, E., Muneer, T. (2015). **Ground source heat pump COP in a residential building through the use of solar thermal collectors.** *Renewable Energy, 80, 26-39.*
- Julien, S., Monios, J. (2015). **Understanding seaport competitiveness of global transshipment hub ports in the Caribbean region: an application of a generalized diamond model.** *In: Proceedings of the International Association of Maritime Economists (IAME) Conference.*
- Kumar, R., Saleh, W. (2015). **Does motorcycle driving behaviour affect emission and fuel consumption?** *International Journal of Transport*
- Lee, E., Song, D. (2015). **Competition and Cooperation in Maritime Logistics Operations.** *In: Lee, C., Meng, Q. (Eds.) Handbook of Ocean Container Transport Logistics: Making Global Supply Chains Effective. (pp. 477-496). London: Springer.*
- Lee, E., Song, D. (2015). **Maritime Logistics Value in Knowledge Management.** *London: Routledge.*
- Lee, E., Song, D. (2015). **The Effect of Shipping Knowledge and Absorptive Capacity on Organisational Innovation and Logistics Value.** *International Journal of Logistics Management, forthcoming.*
- Llewellyn, R. (2015). **Lighting the way: the use of intelligent road studs at spiral-marked roundabouts.** *Paper presented at European Transport Conference, Frankfurt, Germany. Monios, J., Bergqvist, R. (2015). Intermodal terminal concessions: lessons from the port sector. *Research in Transportation Business & Management, 14, 90-96.**
- Mayeux, A., Lovreglio, R., Saleh, W. and Fonzone, A. (2015). **Illegal pedestrian crossing at signalised junctions in urban areas: The impact of spatial factors.** *In: TRB 94th Annual Meeting Compendium of Papers Washington D.C.: Transportation Research Board of the National Academies.*
- Meade, S., Stewart, K. (2015, May). **Vulnerable Road User (VRU) Injury Collisions on Irish Roads, 2006-2012: An Analysis of CT68 Data.** *Paper presented at 11th Annual Scottish Transport Research and Applications Conference, Glasgow.*
- Mingardo, G., van Wee, B. and Rye, T. (2015). **Urban parking policy in Europe: a conceptualization of past and possible future trends.** *Transportation Research A Vol 74 pp 264-281.*
- Monios, J. (2015). **Intermodal transport as a regional development strategy: the case of Italian freight villages.** *Growth and Change, In press.*
- Monios, J., Bergqvist, R. (2015). **Operational constraints on effective governance of intermodal transport.** *Research in Transportation Business and Management, 14, 1-3.*
- Monios, J. (2015). **Cascading feeder vessels and the rationalisation of small container ports.** *In: Proceedings of the International Association of Maritime Economists (IAME) Conference.*
- Monios, J., Notteboom, T., Wilmsmeier, G., Rodrigue, J. (2015). **Competition and complementarity between seaports and hinterland locations for attracting distribution activities: a regional comparison.** *Paper presented at European Conference on Shipping, Intermodality and Ports, Chios, Greece.*
- Monios, J., Bergqvist, R. (2015). **Developing a framework for standardising and harmonising intermodal terminal concession contracts.** *Paper presented at 4th Florence Conference on the Regulation of Infrastructures, Florence.*
- Monios, J. (2015). **Identifying governance relationships between intermodal terminals and logistics platforms.** *Transport Reviews, 35(6), 767-791.*

PAPERS AND PUBLICATIONS

continued

Monios, J. (2015). **Integrating intermodal transport with logistics: a case study of the UK retail sector.** *Transportation Planning and Technology*, 38(3), 1-28.

Monios, J., Bergqvist, R. (2015). **Using a "virtual joint venture" to facilitate the adoption of intermodal transport.** *Supply Chain Management: An International Journal*, 20(5), 534-548.

Monios, J., Bergqvist, R. (2015). **Using "virtual joint ventures" for port hinterland transport: the case of Jula and Schenker.** *Paper presented at European Conference on Shipping, Intermodality and Ports, Chios, Greece.*

Muneer, T., Milligan, R., Smith, I., Doyle, A., Pozuelo, M., Knez, M. (2015). **Energetic, environmental and economic performance of electric vehicles: Experimental evaluation.** *Transportation Research Part D*, 35, 40-61.

Muneer, T., Ivanova, S., Kotak, Y., Gul, M. (2015). **Finite-element view-factor computations for radiant energy exchanges.** *Journal of Renewable and Sustainable Energy*, 7, 033108-01 - 033108-2.

Rye, T. (2015) **Why Sweden has the highest public transport mode share in western Europe and what Scotland might be able to learn from this.** *Paper to Scottish Transport Applications and Research Conference, Glasgow, May 2015.*

Saleh, W, Al-Atawi, A and Kumar, R (2015) **Transportation sustainability index for Tabuk city in Saudi Arabia: an analytic hierarchy process.** *Transport*, 30. ISSN 1648-4142

Saleh, W., Ge, Y., Bell, Michael G. H. (2015). **Travel demand management policies and tools: Non-conventional issues.** *International Journal of Transport (Editorial).*

Song, D., Yeo, G. (2015). **A Competitive Analysis of Chinese Container Ports Using the Analytic Hierarchy Process.** *In: Haralambides, H. (Ed.) The Palgrave Reader in Port Management, forthcoming. Basingstoke: Palgrave Macmillan.*

Stewart, K., Fonzone, A. (2015, April). **Assessing the carbon impact of ICT measures.** *Paper presented at 7th International Travel Demand Management Symposium, University of Arizona, Tucson, Arizona USA.*

Stewart, K., Ge, Y. (2015). **Dynamic congestion charging: Investigating boundary effects when applying low-revenue tolls.** *International Journal of Transportation (in press).*

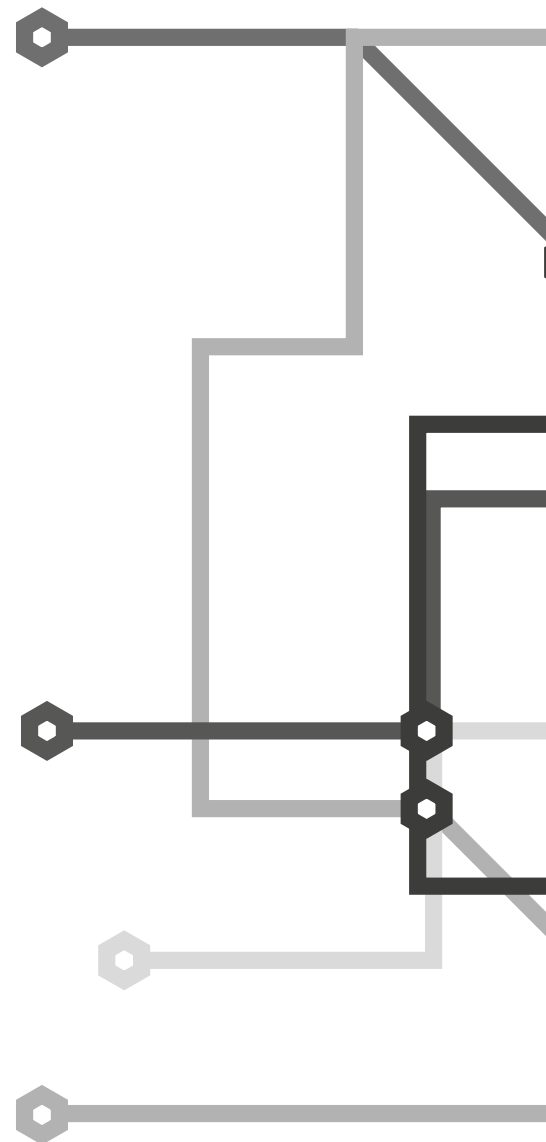
Stewart, K., O'Dolan, C., Carreno, M. (2015, April). **Evaluating the impact of innovative cycling measures in EU cycling cities.** *Paper presented at 7th International Travel Demand Management Symposium, University of Arizona, Tucson, Arizona USA.*

W, S., A, A. (2015). **Transportation sustainability index for Tabuk city in Saudi Arabia: An Analytic Hierarchy Process.** **TRANSPORT.**

Wang, Y., Cullinane, K.P.B. (2015, August 31). **Determents of Port Centrality in Maritime Container Transportation.** *Paper presented at the International Conference on Global Integration of Economies and Connectivity Development in collaboration with Asian Logistics Round Table, Taipei.*

Wilmsmeier, G., Monios, J., Rodrigue, J. (2015). **Drivers for Outside-In port hinterland integration in Latin America: the case of Veracruz, Mexico.** *Research in Transportation Business & Management*, 14, 34-43.

Wilmsmeier, G., Monios, J. (2015). **The production of capitalist "smooth" space in global port operations.** *Journal of Transport Geography*, 47, 59-69.



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