



# CLARE eNewsletter

January-December  
#2018

# RESEARCH

transport  
logistics  
railways

## Welcome to #2018 issue of CLARE eNewsletter!

We have been so busy this whole 2018 year that we decided to skip our quarterly newsletters and focus on one big #2018 issue!

So, in this issue we look back at activities CLARE members were involved in between January and December 2018 and report back our achievements. In #2018 issue we write about:

- **research:** UK-TH MetroExchange project, a national metro-related project with OTP, international 'Barrers to eLearning in rail' project, SmartMetro project proposal and Researcher Links workshop;
- **education:** launch of two new Master programmes in logistics and railways at MU, short courses, software trainings we delivered in TH and a list of current students involved in research with CLARE;
- **engagement:** 3 new MOUs, a UK-TH workshop delivery and STEM activities for all, industry and international visits, conferences, events and publications.

Feel free to contact us to discuss any of the issues mentioned in this eNewsletter or new opportunities for collaboration.

Best wishes,  
**CLARE team**

## MetroExchange started



MetroExchange

A new 2-year project called MetroExchange, co-funded by Newton Fund (UK) and OHEC (TH), started in April 2018. This UK-TH Industry Academia Partnership project includes four partners: Mahidol University (TH),

Newcastle University (UK), BTSC (TH) and Tyne and Wear Metro (UK). The aim of MetroExchange is to improve rail engineering education and research in Thailand by focusing on exchange of good practice in assessment of metro operations in the UK and in TH.

In 2018 the project has already delivered:

- 3 student summer internships at industry partners (UK + TH);
- A 2-day course on 'Metro operations performance and benchmarking' (TH);
- 1 student research project on 'Driverless train design' (UK);
- A forum on 'Rail Skills Development' (TH);
- STEM activity resources (TH);
- STEM events (3 x TH);
- 'STEM careers in transport' sheets with 8 profiles of transport professionals and academics (UK + TH).

More research and education activities are being planned for 2019.



## Research project with OTP

In February 2018 CLARE team started a new project with Office of Transport and Traffic Policy and Planning. This 14-month project aims:

- 1) to propose a guideline for efficiency enhancement for Metro system operations, and
- 2) to set standard procedures for digital monitoring and control of the Metro operations.

The project is led by Assoc. Prof. Dr Phumin Kirawanich and the team members include the faculty members at different departments of the Faculty of Engineering including the followings: Cluster of Logistics and Rail Engineering, Department of Industrial Engineering, Department of Civil Engineering, Department of Electrical Engineering, Department of Computer Engineering, and Department of Mechanical Engineering.

The project is expected to be completed in March 2019.



Picture: OTP launch event, July 2018

## Barriers to eLearning in rail

In March 2018 Dr Anna Fraszczyk together with Dr Janene Piip (Australia) initiated a new project called "Barriers to eLearning in rail". The project focused on an academic perspective of the issue and data collection via questionnaires and interviews was organised. Results revealed that various barriers prevent academics and training providers from embracing eLearning in the rail environment.

The final report is expected to be out in early 2019, but a number of papers have already been submitted to various international conferences (UK, Singapore, India). A follow-up study is planned for 2019.



Picture: Poster promoting the eLearning in rail research project

## Freight Transport of the Future

The Freight Transport of the Future workshop, supported by British Council Researcher Link Fund, was held in January 2018. The project was led by Dr Waressara Weerawat and CLARE team members, including Dr Anna Fraszczyk and Dr Jirapan Liangrokapart, and co-organized in collaboration with Dr Marin Marinov of Newcastle University. The workshop provided a space for Thai early career researchers and freight industry experts to network with their UK colleagues and update their knowledge of freight transport in the UK and Europe. Over the course of the 5-day event, Thai and UK participants developed proposals for collaborative research with other specialists in their areas of interest.

After the event a LinkedIn group continues to provide a platform for information sharing and discussions. The group called 'Freight transport of the future', which includes 30+ people, is now open to anyone with interest in this topic.



Picture: Researcher Links event attendees



## SmartMetro project proposal

The CLARE team, led by Dr Jirapan Liangrokapart together with Asst. Prof. Dr Waessara Weerawat and Dr Anna Fraszczyk, has successfully submitted a proposal on SmartMetro: 'Smart Metro Operations Enhancement through Data Analysis' to the Royal Academy of Engineering under the Industry Academic Partnership programme.

The SmartMetro project aims to promote engineering education and research focusing on exchange of good operations practice and the innovation of data analysis application in metro/commuter train service performance improvement in the UK and in Thailand. The project will be conducted in close collaboration among two academia (Mahidol University-MU and University College of London-UCL), two industries (SRT-Electrified Train-SRTET and London Underground-LU), and the policy maker (Office of Transport and Traffic Policy and Planning-OTP). It is expected that the evaluation result will be out by March 2019.

## 2 CLARE's Master programmes launched

In February 2018 two new Master programmes started at CLARE. The 1<sup>st</sup> is a Master programme in Logistics and Supply Chain (part-time programme in Thai) and the second is a Master of Engineering programme in Railway Transportation System (international programme in English). Two intakes for the programmes have already been initiated in 2018, 1<sup>st</sup> in January and 2<sup>nd</sup> in August.

A recruitment for both programmes is now open for January 2019 intake. For more information visit:

- <http://www.grad.mahidol.ac.th/en/prospective-students/view.php?id=3816M01S> (logistics)
- <http://www.grad.mahidol.ac.th/en/prospective-students/view.php?id=3817M01G> (rail)

or contact CLARE team.

## Railway courses by international guests

A number of short and regular Master courses have been delivered by external international guests who visited MU in 2018. The list includes:



- 'Railway Signalling and Operations' by Prof Joern Pacht, TU Braunschweig, Germany in February 2018 (EGRS505 course);
- 'Railway System Components and Standards' and 'Principles of Service and Maintenance Design for Rail System' by Tokyo Tech staff, Japan in April-May 2018;
- 'Metro operations reliability and passenger crowd management' by Dr Taku Fujiyama, UCL, UK in November 2018;
- 'Metro operation performance and benchmarking' by Nexus, UK in November 2018.



Picture: Prof Joern Pacht's class at MU

## Railway Certificate Programme

The official launch of the Railway Certificate Programme for students of the Thailand





Advanced Institute of Science and Technology (TAIST)-Tokyo Institute of Technology (TAIST-Tokyo Tech) programme was held in April 2018. Students of the programme came to study railway courses at Mahidol University during April-May 2018. The set of courses is expected to be repeated to a new cohort of students in April 2019.



Picture: Participants of Tokyo Tech class with a visit at MRT Purple Line Depot

## Software trainings

CLARE's staff and students received three software trainings this past year. First, **OpenPownet** (Germany) staff delivered a short training in March. Next, in May Dr Daniel Huerlimann, **OpenTrack** (Switzerland) and Philip Goetz, Rail Systems Engineering (Malaysia) visited CLARE for a 1-day OpenTrack training. In October Mr Goetz visited CLARE again to deliver a **Viriato** software training to MU staff and students. The 3 software packages are being used by MU students in their research projects.



Picture (from right): Dr Daniel Huerlimann and Mr Philip Goetz of OpenTrack with CLARE members

## Student research in Railway, Logistics and Transportation

Selected students currently involved in research projects at CLARE.

Student name	Program	Advisor	Status
Miss Natthita Limboonngarm	Master's degree in Industrial Engineering	Asst. Prof. Dr Waessara Weerawat	Proposal approved
Miss Karnjanawan Vinitpittayakul	Master's degree in Industrial Engineering	Asst. Prof. Dr Ronnachai	Graduated
Mr Siripong Pongirawut	Master's degree in Civil Engineering	Asst. Prof. Dr. Wasaporn Techaperarnich	Graduated
Ms. Phatcharaphon Yodsurang	Master's degree in Industrial Engineering	Asst. Prof. Dr Waessara Weerawat	Graduated
Mr. Nuttakit Yuduang	Master's degree in Industrial Engineering	Dr Jirapan Liangrokapart	Proposal Approved
Mr Somkane Srathongkhruen	Master's degree in Rail Engineering	Dr Anna Fraszczyk	Proposal Approved
Mr Ahmad Faisal Dahlan	Master's degree in Industrial Engineering	Dr Anna Fraszczyk	Proposal Approved



Picture: openPowerNet training at MU



## 3 x Memorandums of Understanding

- **MOU with Bombardier**

On 11<sup>th</sup> January 2018, Asst. Prof. Dr Jackrit Suthakorn, Dean of the Faculty of Engineering and Mr Gregory Enjalbert, Vice President of Bombardier Transportation Company established an academic collaboration between their respective institutions with the signing of a memorandum of understanding (MOU). This MOU aims to collaborate in academic research, internship and training programs in the field of Logistics and Railway Engineering.

- **MOU with Bangkok Expressway and Metro PCL.**

On 1<sup>st</sup> September 2018, Asst. Prof. Dr Jackrit Suthakorn, Dean of the Faculty of Engineering and Dr Sombat Kitjalaksana, Managing Director of the Bangkok Expressway and Metro Public Company Limited (BEM), agreed to partner in our academic-private-partnership program and signed the MoU. The collaborations include academic support, joint research and share laboratories, internship and practical training program, and other academic activities that both parties agree to.

- **MOU with PTV Asia-Pacific Pte. Ltd.**

The Faculty of Engineering and PTV Asia-Pacific Pte. Ltd. agreed to collaborate in academic support, joint research and laboratories, and

other academic activities with an aim to establish potential future collaborative opportunities between two parties. The MoU was signed by Asst. Prof. Dr Jackrit Suthakorn, Dean of the Faculty of Engineering and Mr Omid Ejtemai, Regional Managing Director of PTV Asia-Pacific Pte. Ltd. on 11<sup>th</sup> September 2018.

## STEM engagement

In 2017 Dr Anna Fraszczyk initiated a STEM collaboration between MU and Lertlah School in Bangkok and in 2018 she returned to the school few times with various STEM activities.

In November 2018 a group of 20+ Year 3 MU Engineering students designed and delivered their rail-flavoured activities to 30+ students age 9-12. In addition, two other STEM events were organized on the MU Salaya campus in November 2018.



Picture: STEM engagement event

Also, a set of career sheets displaying variety of careers in transport was delivered as part of MetroExchange project.

Two selected **STEM activity resources** and eight '**STEM careers in transport**' sheets with case studies (featuring transport academics and professionals from the UK and Thailand) are now available online: [www.eg.mahidol.ac.th/dept/clare/research](http://www.eg.mahidol.ac.th/dept/clare/research)



Picture: 'STEM careers in transport' sheets



## Industry visits

The CLARE team members made several visits to the rail and logistics industry for getting some inputs, sharing knowledge and experiences, co-supervising students' research, and developing other collaboration activities. The industry visits included:

- The Bangkok Mass Transit System PCL. (BTS);
- The Krungthep Thanakom Co.,Ltd. (KT);
- The Bangkok Expressway and Metro PCL. (BEM);
- The Bangkok Expressway and Metro PCL. (MRT);
- The S.R.T. Electrified Train Co. Ltd. (SRTET);
- The Bangkok Metropolitan Administration (BMA);
- The Nim See Seng Transport Company Limited.

## International visits

In May 2018 Dr Anna Fraszczyk visited **the UK** to meet with MetroExchange consortium partners and discuss details of the project's deliverables and timeframe for each activity planned.

In June 2018 Assistant Professor Waressara Weerawat went on a MU visit to **China** with a mission to promote CLARE's Master programme in Rail.

In July 2018 Dr Anna Fraszczyk visited **Singapore**, where she attended one of the SITCE's sessions as a panelist. She also met with representatives of TUM Asia and Newcastle University Singapore to discuss opportunities for collaboration in transport education.

In September 2018 Assistant Professor Waressara Weerawat visited **the UK** to attend Royal Academy of Engineering annual conference.

## International guests at CLARE

In 2018 CLARE welcomed visitors from various organisations which are interested in research and/or education-based collaborations. Some of these organisations were:

- Australia Trade (Australia);
- Bombardier (international);

- TUM Asia (Singapore);
- Open Track (Switzerland);
- JR Freight (Japan);
- Incheon National University(South Korea).

## Conferences

LogHealth, CLARE team and Songklanagarind Hospital, Faculty of Medicine, Prince of Songkla University held the conference titled "**Theory to Practice: Healthcare Supply Chain and Logistics in Hospital**" on September, 26 2018. More than 15 hospitals from the southern region of Thailand and more than 150 participants of hospital staff, including executive management team nurses, pharmacists and medical laboratory technologist, attended the event. The conference aimed to convey the logistics knowledge and application as well as logistics tools for improving hospital operations.



Picture: Members of LogHealth and CLARE team at a conference in Bangkok, August 2018

In addition, CLARE team attended a number of events in 2018 where they took part in discussions and/or presented papers. The events include:

- International Seminar for Railway Education and Training (**ISRET**) in April in Birmingham, UK, eLearning in rail project;
- Singapore International Transport Congress and Exhibition (**SITCE**) in July in Singapore; eLearning in rail project;
- **Thailand Research Expo 2018** in August in Bangkok, TH, 'Study of Design and Development for Logistics Infrastructure and Integrated Information System and Guidelines of





Healthcare Big Data for Thailand Digital Economy Phase 2”;

- Thailand Rail Academic Symposium (TRAS) in December 2018 in Chonburi, TH, innovation in rail engineering education topic.

## Events

- **Open House @ MU**

The Center of Logistics Management and Healthcare Supply Chain (LogHealth) together with the Master of Engineering Program in Logistics and Supply Chain and CLARE team attended the “EG Open House 2018” event held on November 2-3 at Faculty of Engineering Building in Mahidol University, Salaya Campus. Many high school teachers, students, and their parents participated in the annual event and learnt about CLARE’s activities.

In addition, rail students prepared a STEM engagement activity related to BTS and MRT systems in Bangkok.



Picture: LogHealth’s standa at EG Open House 2018 event at MU

- **RISE 4**

The CLARE team members participated in the 4<sup>th</sup> Thai Rail Industry Symposium and Exhibition (RISE) and Rail Asia Expo 2018 during 28-29 March 2018 at Airport Rail Link Makkasan station. Research and the activities at CLARE were presented there. Participants were from different organizations with respect to rail transportation system in Thailand including government agencies, local industries, and multinational corporations as well as academic institutes.

- **Chinese High Speed Train Workshops**

The CLARE team members and the faculty members of the Faculty of Engineering had participated in the Chinese High Speed Train Workshops on different rail topics, which took place in Thailand in late 2018.

- **A TRANS conference**

Dr Jirapan Liangrokapart was invited as the keynote speaker for the 11<sup>th</sup> Annual Conference on “Transportation for a Better Life: Lessons Learned from Global Experiences to local best practices” held on 24 August 2018 at Radisson Blu Plaza Hotel, Bangkok. The conference was co-organized by Asian Transportation Research Society (ATRANS) and the International Associations of Traffic and Safety Sciences (IATSS).

- **Executive Board Meeting for the TAIST-Tokyo Tech programs**

Prof. Banchong Mahaisavariya, President of Mahidol University attended the Executive Board Meeting for the TAIST-Tokyo Tech Programs at the head office of the National Science and Technology Development Agency (NSTDA), Pathumthani Province. Asst. Prof. Dr Waressara Weerawat and Dr Jirapan Liangrokapart also participated in the meeting and reported the achievement of the Rail Certificate programs arranged for the students.

- **Strategic Plan Meeting/s**

The CLARE team members joined hand-in-hand to discuss and draft the cluster’s vision, mission, and strategies through several rounds of meetings. The final strategic planning and the relevant activities will be planned in early 2019.

## Publications

In 2018 CLARE team published the following research outcomes.

### Edited books:

- **A Fraszczyk** and **M Marinov** (Ed) (2018) Sustainable Rail Transport. Proceedings of RailNewcastle 2017. Springer.

### Book chapters:

- **A Fraszczyk**, **W Weerawat**, **M Marinov**, **P Kirawanich** (2018) Exchange of higher education teaching and learning



practices between United Kingdom and Thailand: a case study of RailExchange courses. In: Fraszczyk and Marinov (Ed.) (2018) Sustainable Rail Transport. Proceedings of RailNewcastle 2017, Springer, 241-256

- **A Fraszczyk, N Amirault, M Marinov** (2018) Rail Marketing, Jobs and Public Engagement. In: Marinov (Ed.) (2018) Sustainable Rail Transport, Springer, 207-224.
- **W Weerawat, T Thongboonpian, A Fraszczyk** (2018) Impact of a “missing link” on passenger’s travel time: a case study of Tao Poon station. In: Fraszczyk and Marinov (Ed.) (2018) Sustainable Rail Transport. Proceedings of RailNewcastle 2017, Springer, 81-91.

**Journal papers (selection):**

- T Charanwanitwong, **A Fraszczyk** (2018) Rail liberalization in Europe and lessons learnt for Thailand: policy makers vs. academic views. Transportation Research Part A 113 (2018) 421-440.
- **P Kirawanich** (2018) An emission management framework for implementing a large railway system with interface complexity. IEEE Electromagnetic Compatibility Magazine, 7(2), 54-63.
- **W Weerawat, K Chumkad** (2018) A new operations approach for Bangkok Metro Green Line using short turn operation patterns. Journal of Rail Transport Planning & Management, 8 (2018) 207-219.
- **N Wongchavalidkul** (2017) Modelling the dynamic individual activity decision behaviour through the Influence Diagram Model. International Scientific Journal of Engineering and Technology, 1(2).
- **A Vanichchinchai, S Apirakkhit** (2018) An identification of warehouse location in Thailand. Asia Pacific Journal of Marketing and Logistics, 30(3), 749-758.
- **A Vanichchinchai, W Duantrakoonsil** (2018) Quality improvement of printed circuit board: A case study of copper in hole. Science Engineering and Health Studies, 12(2), 77-84.

**Conference papers (selection):**

- **A Fraszczyk, M Marinov, W Weerawat** (2018) Examples of innovation in rail engineering education. TRAS, November 2018, Chonburi, Thailand.
- **A Fraszczyk, J Piip** (2018) eLearning courses in rail. The International Seminar for Railway Education and Training 2018. 16-18 April 2018, Birmingham, UK.
- Rail Professional Asia Pacific magazine - **Dr Anna Fraszczyk** with Prof John Roberts (TH) and Dr Janene Piip (Australia) has been writing a quarterly column about rail education and training opportunities in the ASEAN region; link: <https://www.railprofessional.com>

**Final word**

These are just some of the activities that CLARE members were involved in this past year. Year 2019 looks very busy and exciting, too! If you are interested in more regular updates about CLARE you can follow via:

- Facebook: @CLAREMahidol
- Website: [www.eg.mahidol.ac.th/dept/clare](http://www.eg.mahidol.ac.th/dept/clare)

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