



Creating an Agenda for Research On Transportation sEcureity

Impressions from Berlin's Future Security Conference

CARONTE was invited to attend and present its current approach and interim results at the 10th "FUTURE SECURITY RESEARCH CONFERENCE" in Berlin during September 15-17. The annual event draws together security researchers from across Europe to review topics such as: crisis management, cyber security, resilience, and critical infrastructure protection. For example, there were presentations on the detection, recognition and counter-measures against unwanted UAVs (unmanned aerial vehicles) and on today's generational dependence on communication as linked to their increasing vulnerability to intentional electromagnetic interference.

CARONTE representative's session on critical infrastructure coordinator Joachim Kochsiek of research institute, pointed out the CARONTE for land transport security that it has to analyse in remaining the project's 18-month lifetime. The conference auditorium was full.



Participants participated in the conference structure protection. Project Germany's Fraunhofer IML represents the practical relevance of CARONTE and the wide range of topics during a short period of time left for the feedback received from participants was positive, thus confirming the general orientation of CARONTE's recommended research topics as the right way forward.

Kochsiek also participated in other panels and one of the conference's plenary sessions where many of the gaps and needs pinpointed by CARONTE were raised. A number of these confirmations came from organisations that do not have land transportation as the core target of their research. For example, the "privacy-by-design" issue in IT systems was discussed. The difficulty most people have, whether for professional or private purposes, in handling IT security was reviewed during several follow-up sessions and informal discussions, for example.

According to Kochsiek, the two-day event stimulated new ideas and follow up work for CARONTE to carry out before the end of its term. These include the simulation of security measures in an operating environment to produce a better overall concept of security in stations or rail networks, tool boxes (also to be simulated) and other aspects.

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Does Europe need a rail PNR system?

BRUSSELS – A few weeks before the attempted attack on 21 August by a heavily armed jihadist on board a TGV train crossing from Belgium into France, we interviewed Libor Lochman, executive director of the Community of European Railway and Infrastructure Companies.

The aim was to ascertain if a passenger name record (PNR) system for the rail transport sector might eventually be needed, due to the increasing number of migrants making their way into Europe from crisis areas and the return of radicalised individuals from those regions:

Q: Does Europe need a rail equivalent to aviation's PNR system?

Libor Lochman: Whether there will be a need for a European PNR system, I seriously doubt it, and the reason for this is that more than 90 percent of rail services are purely national. Having a huge, super-complex system that would cover all origin and destination stations, which is ten thousand times more complex than the aviation one, will probably not pay off.

Q: Do you foresee an internal PNR system focused on rail travel as a possibility in the future?

LL: We have recently been approached by the Commission in the context of cross-border travel between EU and non-EU countries, and the potential need to save the data of the customer's identity. But we are still far from that.

Q: What is the state-of-play regarding the data retention of this passenger information?

LL: The data is owned exclusively by the

[issuing] company and there is no third-party access to the data. Each company must follow their own national legislature and there is nothing like a universal or harmonised European regulation that would give clear instructions on how that data must be kept.

Q: Do European rail services face many cyber attacks in one form or another?

LL: I have not been informed of any significant accidents or incidents in relation to that. There also haven't been many cases of ticketing disruptions due to hackers: those would have been recorded by the companies..

Q: Are there any procedures in the works about strengthening the security around the trains themselves?

LL: Preventing a terrorist attack is pretty difficult with the open system we have: you can access the system pretty much anywhere. But we do install more technical devices such as CCTVs [closed circuit TV cameras] in stations. We have guarded trains, guarded stations and so on, which helps prevent attacks. However, most of the problems we have on a daily basis are with smaller criminals.

Q: Do think that automated border controls will become a more common practice for protecting external borders or will security personnel remain necessary?

LL: Most of the checks performed are done on board the trains. So they have to somehow be under the control of personnel; you can't do it otherwise. Rail customers do not expect to be blocked at the station, queuing there for the passport check because it delays the whole transport time.





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CARONTE experts meet in Dortmund

The CARONTE project held its latest an expert meeting on 23 September at Fraunhofer's offices in Dortmund, Germany. The meeting's participants were roughly split between the project's researchers and various external experts. The morning sessions focused on the different topics for CARONTE's final research agenda, while the afternoon revolved around four work-group sessions as a follow-up to the earlier discussions.

Topics covered in the morning included the ethical, societal, and legal aspects to consider regarding security in general, cyber security, interfaces and logistics transport, and road and rail transport. Kicking off the meeting, CARONTE's coordinator, Joachim Kochsiek of Fraunhofer IML, went over the interim results. These confirm that about 35 percent of security in land transport derives from regulations, with 26 percent derived from security projects and 17 percent from best practices. He also noted that there is no specific EU policy for a security framework in land transport. Instead, there is an amalgamation of separate security policies which relate to land transport security in its own way.

The afternoon sessions on ethical, societal, and legal aspects (ESLA) were led by Lars Ostermeier of the Vienna Centre for Societal Security in Austria. The fundamental questions include cost-benefit considerations, he told the group, adding that technological advances create new threats as well as new ways that ELSA must be assessed and understood. Ostermeier also touched on ELSA gaps and solutions, and made several suggestions for CARONTE's research agenda.

A subsequent session was on cyber security, led by Arnd Bonitz of the Austrian Institute for Technology in Austria. He outlined some of the



Maximilian Schellert gives an overview of the current topics on the Strategic Research Agenda for rail at CARONTE's 23 September expert meeting.

most important cyber security gaps in land transport. His "gap visions" included the security-by-design and privacy-by-design concepts, for example.

As for interfaces and logistics transport, Emily Prestwood, University of Loughborough, noted the three major gaps which surround: passengers, freight and critical infrastructure management. Several ideas for dealing with these gaps are being elaborated within CARONTE.

Finally, for both road and rail security, it was noted that theft is a persistent problem in view of the ever-rising levels of cargo, metal and copper from rail lines. The response to both modes of transport is somewhat different, with a focus on secure truck parking and protection facilities for truck drivers versus a focus on specific detection and monitoring technology for rail lines. The experts' discussion also took an interesting detour into the more physical side of rail transport security, namely: whether it would be better to have undercover or uniformed police on-board trains or whether rail staff should be trained in self-defence.

The afternoon sessions split participants into two groups. One reviewed the ideas presented in



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the morning regarding ESLA, cyber, interfaces and logistics transport, while the other covered road and rail transport.

CARONTE's various R&D "visions" for combating land transport's security gaps were rated by order of importance and whether they sufficiently filled a given gap. In conclusion, the participants agreed that, while a few of the visions addressed some of the gaps, there remains a lot of work for CARONTE to do in the remaining six months of its project life.

What next for rail security?

BRUSSELS – There is virtually no EU legislation on rail or road transport security because national capitals have not wanted it, arguing that it should not be handled at EU level. Whether that argument can last in view of the 21 August failed attempt to slaughter passengers on a Brussels-to-Paris TGV voyage remains to be seen.

The European Commission's group of national land transport experts, known as LandSec, held an emergency meeting on 11 September to review possible future action. Lined up against regulatory action, however, are the rail operators themselves who say that securing all their infrastructure against attack would be prohibitively expensive. It's a strong argument but, as one Commission source said on 14 September, that position "shouldn't determine everything".

Meanwhile, the Commission has been quietly pushing the rail security agenda where it can by supporting EU-funded security research projects. These cover many aspects of rail transport security, from train and metro stations to luggage-and-passenger control with an eye to preventing terrorist attacks.

For example, eight projects worth EUR 51 million were financed under the EU's previous 2007-2013 "FP7" research budget. Another three – worth EUR 9.3 million – were launched earlier this year by Horizon 2020, FP7's successor programme for 2014-2020.

The most ambitious of these was SECUR-ED ("Secured Urban Transportation - European Demonstration"), which received EUR 25.5 million in EU funding to develop demonstrate tools for improving urban transport security major transport hubs. It completed its work in October 2014.

Another large rail R&D project, with half the budget of SECUR-ED, was PROTECTRAIL ("The Railway-Industry Partnership for Integrated Security or Rail Transport"), which devised a modular architecture of interoperable security solutions. More recent is RESOLUTE ("RESilience management guidelines and Operationalization appLied to Urban Transport Environment") whose goal finde quicker ways to achieve recovery of transportation after a disruptive event.

One important signal of how seriously the member states intend to tackle rail security to watch for is whether there is a rise in the number of research projects on the subject funded by Horizon 2020.