



Brief note on:

**WORKSHOP: “INTELLIGENT SYSTEMS FOR THE INTERCONNECTION OF
URBAN – INTERURBAN FREIGHT TRANSPORT”**

Thursday 13/09/2012, 09.00 am

Centre for Research and Technology Hellas

BACKGROUND

Addressing the issue of urban freight transport that ‘engages’ 20-25% of total urban road space and contributes to 10-20% of urban road traffic¹ and 21% of total CO₂ emissions in medium-sized cities², the European Commission has steered a range of directions towards optimizing urban deliveries and tackling any environmental issues with ramifications to the interconnection between long-distance transport and urban freight distribution. STRAIGHTSOL is one of the projects co-financed by European Commission, with main scope the urban-interurban interfaces and objective the efficient interconnection between long-distance and last-mile freight transport through the consolidation of shipment and the optimization of cargo assignments planning.

This is expected to be achieved through:

1. The development of a new impact assessment framework for measures applied to urban-interurban freight transport interfaces.
2. The support of a set of innovative field demonstrations showcasing improved urban-interurban freight operations in Europe.
3. The application of the impact assessment framework to the live demonstrations and develop specific recommendations for future freight policies and measures.

The last-mile distribution relies directly on the accuracy of the previous transport leg usually performed by long-distance transport modes (maritime or rail transport). In this regard, heed should also be paid on tools and policies pertaining to long-distance transport and the interfaces between long-distance and last-mile distribution.

The use of Information and Communications Technologies (ICT) could further facilitate positioning, tracking and tracing of freight vehicles and their cargo, and as it is emphasized in the “Freight

¹ TURBLOG (2010). “A worldwide overview on urban logistic interventions and data collection techniques”. www.turblog.eu

² Schoemaker J., Allen J., Huschebek M. and Monigl J. (2006). “Quantification of Urban Freight Transport Effects I”, *BESTUFS Consortium*, www.bestufs.net





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Transport Logistics Action Plan³, freight should be locatable regardless of the transport mode and use of tracking technologies such as radio frequency identification (RFID) and satellite positioning systems. Besides this, ICT could underpin interfaces' efficiency between long-distance transport and distribution to final destination.

KUEHNE NAGEL DEMONSTRATION

In the context of the above, and within the framework of STRAIGHTSOL, CERTH/HIT in collaboration with Kuehne Nagel Hellas SA investigate the use of intelligent technologies that monitor long-distance rail freight transport and its impacts on the next transport leg of truck deliveries in terms of operations' performance and environmental repercussions. This is done through the 'Rail tracking and warehouse management' demonstrator, one of the seven demonstrations being undertaken in STRAIGHTSOL. This demonstration started in July 2012 and will be evaluated after the end of November 2012. Evaluation of the demonstration will rely on the impact assessment framework developed in STRAIGHTSOL, which takes into account multiple agents, supporting multiple criteria and performance indicators.

The demonstration is expected to improve service level and efficiency of operations as a result of timely information, based on advanced communications networks. The installation is also expected to provide time and fuel consumption savings and to save energy, reduce emissions, and reduce unnecessary trips. In specific terms 'hot spots' of the demonstration are:

- ✓ Affixing of GPS devices on freight wagons that originate from Austria or Hungary and arrive at Kuehne Nagel premises in Sindos, Thessaloniki, Greece. The pre-pilot testing involves the monitoring of freight wagons travelling from Thessaloniki to Athens, Greece.
- ✓ GPS devices periodically transmitting the wagon's position with high accuracy.
- ✓ Updating of cargo location information hourly.
- ✓ Parallel use of an e-seal system to map wagon security level.
- ✓ Provision of prompt response to customers that are interested in their corresponding shipment's estimated time-of-arrival.
- ✓ Acknowledgement of time of arrival, and increased punctuality from 90% to 100%, leading to better organization of warehouse operations and storage (feedback to warehouse management system), efficient last-mile fleet scheduling and optimized national freight forwarding.
- ✓ Production of enhanced long-term environmental impact, also including higher energy savings due to reduced truck-kms (due to timely information about freight location, awareness of unexpected events on shipped cargo, and better operations planning), and reduction of noise, and CO₂ emissions.
- ✓ Lowering the costs of 'false' cargo handling, and improvement of customer satisfaction.

³ Commission of the European Communities (2007). COM (2007) 607 final "Freight Transport Logistics Action Plan". European Communities, Brussels.





THE WORKSHOP

In order to present preliminary results of this demonstration, CERTH/HIT in collaboration with Kuehne Nagel SA Hellas, organize on the 13th of September in Thessaloniki, Greece, the workshop: **“INTELLIGENT SYSTEMS FOR THE INTERCONNECTION OF URBAN – INTERURBAN FREIGHT TRANSPORT”**.

The workshop aims at:

- **Introducing Kuehne Nagel’s demonstrator** and the situational context of rail transport in Greece.
- **Presenting the demonstration preliminary results** concerning the application of GPS technologies into rail freight transport in terms of economy, time and energy savings, optimized next leg fleet scheduling and more efficient interconnection level and environmental impacts (if any), and who benefits from these results.
- **Providing solutions to the issues** raised above, regarding the application of ICT onto freight transport for optimized cargo tracking and tracing. In parallel, provision of *some interesting results from the pre-demonstration phase regarding interoperability issues between international rail operators that could hamper (or boost) demonstration progress, technical and cost issues of devices (reusable or disposable and how many on each wagon), data privacy and security handling and proper planning of the transport leg tailored for using ICT as expected.*
- **Discussing and transferring knowledge** on good practice and on “what to avoid”, among interested stakeholders from the research, industry and trade communities and on pitfalls that may occur in similar cases or in future phases of the specific demonstration.
- **Exploring opportunities for adopting future freight policies at a wider level** by policy-makers and logistics providers’ domain. Transferability of this concept should be analyzed in two directions: adopted by a different industrial player and applied to a different country context. Transferability channels may be structured through in-depth discussions and exchange of opinions.
- **Discussing the evaluation framework** for assessing the demonstrations through representing its structural indicators that are about to be quantified.





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- **Strengthening cooperation between involved stakeholders**, policy-makers, local authorities and logistics industry players (shippers, LSPs, receivers) by stating their views on importance of ICT use in urban-interurban freight transportation.

The workshop applies to representatives, sponsors, associates and personnel from the:

- Logistics industry,
- Freight forwarders and transport companies,
- Production sector,
- Technical Chambers associated to or involved in freight transportation,
- Industrial and trade associations,
- Academic and research communities and
- Mass media

The workshop will present tangible results produced by the use of technological innovations in interurban and urban freight transport. It will also demonstrate ways of how application of ICT for cargo monitoring contributes to optimizing logistics operations and, in turn, how it affects the urban environment. Many questions will be attempted to be answered, such as:

- What are the measurable or qualitative impacts of using satellite positioning system (GPS) that perform real-time monitoring of the position of rail freight wagons? (Performance/Environment/Transport/Economy sectors).
- How could we deal with the insufficient standardization of the information exchanged?
- How could the (technical) interoperability issues be faced within the context of cargo monitoring?
- Are there any other technical issues regarding use of such systems?
- Are there any problems regarding disparate capabilities of SMEs and logistics companies for adopting technologies that map the exact location of freight? How are these problems tackled?
- Are there any privacy or data security issues? If yes, how can they be treated?
- How important are collaborative schemes along transport chains?
- Could legal framework (or diversified legal frameworks of different countries) be harmonized to seamlessly 'allow' international transport in combination with the use of intelligent technologies for tracking and tracing of freight?

A preliminary agenda of the workshop is attached to the present brief note.

