INTERSYS

Using RFID for identification and control of shipments, load units a wagons in intermodal transport system
Aim and purpose

- To deliver a scenario to the stakeholders, *i.e.* financiers, industrial partners and public institutions, where benefits, drawbacks and relevant consequences of introducing RFID on intermodal freight transport are analysed and discussed.
Project organisation

- WSP Analysis and Strategy
- TFK – Transport Research Institute
- SINTEF

- Industrial partners
- SiR-C
Swedish Intermodal Transport Research Center - SiR-C

- A Swedish ”Network of Excellence” in Intermodal Transports
- Financed by the Swedish Rail and Road Administrations
- Consists of ”prominent research and development bodies” throughout Sweden
- Co-operates in larger integrated projects adapted to the explicit needs of the financiers
- Avoids overlapping research.
- Facilitates participation in European research projects
- Budget 1 MEUR per year 2006-2010 (option 2011-2015)
About WSP

- WSP is a global company offering qualified consultancy services for communities and environment.
- With over 100 offices around the world and more than 10,000 employees, WSP is one of the largest consultancy companies in Europe and among the top ten in the world.
- In Sweden, WSP is a nationwide consultancy company with approximately 2,500 employees.
- The offices are located in Stockholm and in more than 40 local offices around the country.
WSP: about our research

- WSP Analysis & Strategy offer academically educated researchers that have both breadth and cutting edge experience of public and private research assignments.

- We take responsibility for being a natural postdoc environment where Ph/T.D., licentiates and other scientists can continue to develop.

- Valuable empirical knowledge and strong network of international contacts enable our research funders to benefit from recognized research capacity.

- Our research are of a high international standard and cover a broad field within societal development.
TFK – a membership organization

- TFK, founded in 1949 by the Royal Swedish Academy of Engineering Sciences (IVA), is an independent, co-operative transport research organisation.

- TFK is based on corporate memberships by companies, organisations and administrations from the private as well as the public sector.

- The aim of TFK is, in co-operation with its members, to promote the development of systems for efficient, safe and environmentally sustainable transport of people and goods.

- Since 2005 TFK is organized in the membership organization and two executive companies TFK – TransportForsK AB and TFK – Transportforskningsgruppen i Borlänge AB.
TFK Research areas

- Logistics and Freight Transport
  - Intermodal transport, quality analysis; freight transport market analysis and forecasting
  - Environmental assessments; sustainable logistics; vehicle and fuel technology

- Infrastructure Planning
  - Planning methodology; demand modelling

- Advanced Transport Telematics (ITS)
  - Analysis of traffic performance; equipment for traffic control and information

- Public Transport
  - Development and assessment of public transport concepts; co-ordination of modes and individual pass transport

- Materials Handling & Transportation Engineering
  - Design of handling equipment; securing of cargo, safety standards
Industrial partners

- Port of Gothenburg
- Green Cargo
- CargoNet A/S
- DB Schenker
- Litium Mobile Applications
- Q-Free
- Road administrations
- Rail administration
Elements of study

- **Performance**
  - Identification and analysis of incentives to improve communication and information flow between actors (and infrastructure) in the transport chain
  - Possibility to handle unplanned and unwanted events in the transport system
  - Cost and quality effects of intermodal transport system design, distribution of cost and benefit elements through actual actors/roles

- **Services**
  - Elements of importance concerning information and planning variables (value added).
  - Administrative and information systems as system support for identification and control of resources in intermodal freight transport systems
  - Measures to encourage and support the development and implementation of RFID as system support
Elements of study (cont.)

- **Standards**
  - Develop a demand specification for the information flow and the infrastructure (contents, standards and physical design) of the interfaces between the system’s (transport chain’s) functionalities and actors.
  - Provide a detailed specification of the functional demands on the technical equipment (RFID) to be used for identification and tracing.

- **Practical tests**
  - On unimodal road and intermodal freight transport
  - General Cargo in a LTL network/Port hinterland networks
  - Administrative routines
  - Traceability of shipment and load units
  - Controllability
  - Extend service supply
Case study 1: Port of Gothenburg - Rail Shuttles

- Port-hinterland shuttles
- Growth: 3 to 26 shuttles since year 2000.
  - > 300 000 TEU per year (40 %)
  - + 200 % TEU since year 2000
- Capacity limitations in port/terminals and on rail network
- Extend hinterland terminal services
- Obsolete administrative and IT systems
Case study 2: Schenker – Cargo Net domestic transport

- Alnabru – Trondheim
- Cargo Net and Schenker
- LTL-network
- 100-150 kTEU per year
- Frequency 5 trans/wd
- Capacity limitations in terminals and on rail network
- Parallel transport chains
- Obsolete administrative and IT systems
- Urban road
Object of study

Security  Traceability  Transport/Service supply

PortGot  Inland terminal  Shipper

Land Terminal  Rail  Road

PGRC

Present  Interface port services  Future - (where interface terminal/shipper)
Work in progress 2008

- **State-of-the-art previous and ongoing research projects.**
  - Benchmark of related research projects
  - Inventory of available solutions and technologies

- **Identification of stakeholders and benefits related to the studied areas**
  - Physical flow
  - Information flow
  - Traceability/deviation management
  - Transport quality/vulnerability

- **Requirement analysis**
  - Identification of measures and indicators for evaluation of the intermodal transport system
Work in progress - to be pursued in 2009 and 2010

- Concept realisation
  - Stakeholders and organisations
  - Services
  - System boundaries

- System design and evaluation
- General systems design
- Demonstrator
  - Designing, and pilot
Contact details

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SIR-C

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- Contact person (Bo Östlund)
- Information to and from SiR-C partners

www.sir-c.se:
- Links to partners
- Scope of activities
- Current projects
- Etc.