HERMES PROJECT

High Efficient and Reliable arrangeMEnts for CroSsmodal Transport

Project Co-funded by the European Commission within the 7th Framework Programme (Grant Agreement 234083)

Project Start Date: January 2010

Project End Date: December 2011

Consortium

HERMES Consortium consists of 11 institutions from 9 European Union member states, as follows:

- Instituto Superior Técnico (IST), Portugal, Project Leader
- Transportforskningsgruppen i Borlange AB (TFK), Sweden
- Universidad Politécnica de Madrid (UPM), Spain
- Karlsruhe Institute of Technology (KIT), Germany
- Department of Transport and Regional Economics, University of Antwerp (UA), Belgium
- The Centre for Research and Technology Hellas (CERTH), Greece
- University of Aegean, School of Business Studies (AEGEAN), Greece
- Laboratoire d'Economie des Transports (LET), France
- Gesellschaft für Daten- und Informationsmanagement mbH (STRATA), Germany
- University of Genova (UNIGE), Italy
- University of Pardubice (UPa), Czech Republic

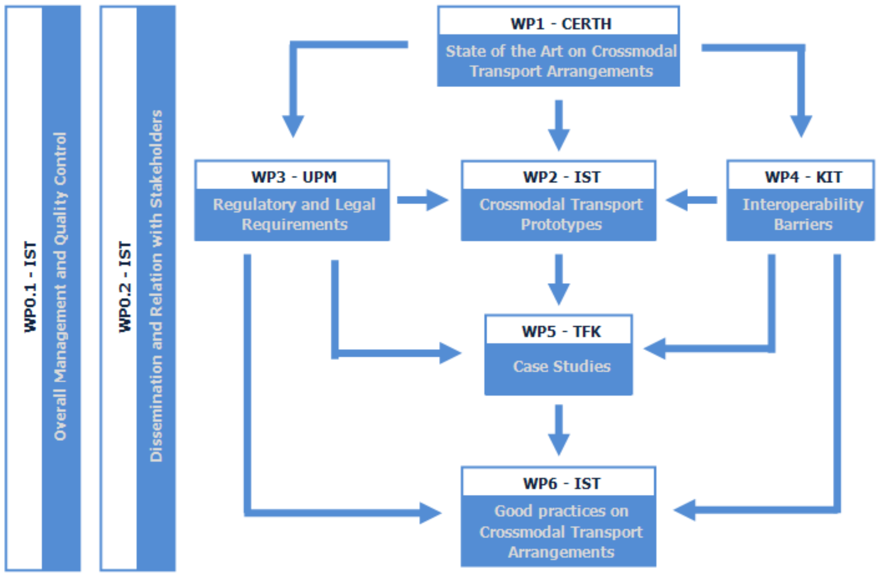
Project Structure & Deliverables

HERMES project is organised in six scientific Work Packages (WP) and one management Work Package (designated as WP0). Each WP will produce at least one Deliverable.

The Project Structure is presented in the scheme of the next page. WP1 to WP5 constitute the main theoretical body of the project. In WP5 the set of eleven case studies will be conducted aiming to depict the underlying business models of interconnectivity. It has a double role of firstly, to provide information for the theoretical developments in WP2 to WP4 and secondly to validate these theoretical developments.

The list of scientific deliverables is as follows:

- **D1:** State of The Art Survey on Cross-modal Transport Arrangements (WP1)
- **D2:** Cross-modal Transport Prototypes (WP2)
- **D3:** Regulatory and Legal Requirements (WP3)
- **D4:** Interoperability Barriers (WP4)
- **D5:** Case Studies (WP5)
- **D6:** Handbook of Recommended Practices for Cross Modal Transport Arrangements (WP6)



Context

In the past, intermodality has mainly been understood as related to the transfer of passengers between vehicles. Efforts have been undertaken in order to develop an intermodal infrastructure like railway stations at airports and transfer points with optimised transfer ways. Nevertheless fully integrated infrastructure has been an exception so far. The German AIRail (LH, DB, Fraport) system or the French Thalys–AirFrance cooperation show that integrated services are generally manageable.

On the demand side it is still unclear which level of intermodality is currently achieved. No proper measurement of intermodal behaviour and no integrated statistical demand database exist, which could identify intermodal trips on a European level. This is mainly the outcome of the usually applied "modal view": transport statistics or surveys focus mainly on single modes and do not consider the underlying journeys that are often a combination of an access mode, one or more long-distance modes and an egress mode. Thus, it must be stated that up till today the users' requirements in terms of intermodality are not fully identified.

Even the integrated concept of level of service is not fully matured and its implementation is hardly found.

Recent research activities like the project "*Towards Passenger Intermodality in the EU*" (2004) created a work plan for this field of intermodality or shed a first light on the users' requirements and their intermodal travel behaviour like the German *INVERMO* project. In the 6FP, the concept of integrated level of service was also addressed in the project "*TOOLQIT* – Tools for the assessment of level and quality of service across different transport market segments". More recently, projects like INTERCONNECT, CLOSER, *KITE,* CAESER, INTERCEPT SWITCH or *LINK* have also addressed intermodality aspects.

The importance of an informal integration (seamless information about intermodal travel) has been identified in different projects (e.g. EU-SPIRIT and VIKING). These projects aimed at the possibilities and the standardisation of travel-related information across the EU. The necessary technological means have been demonstrated as well as the user reactions in the sense of an evaluation from the demand side. But the still existing lack of standardisation hampers a Europe-wide application of such technologies.

Intermodality has been put forward in several European policy documents. The 2011 White Paper on Transport identifies integrated ticketing, baggage handling and continuity ofjourneys as priority aspects for passenger transport. A number of EU-research projectsregarding strategy, operations and design, technology) as well as standardisation activities have been carried out in the passenger domain.

Based on an inventory of intermodal transport related RTD projects at the EU level and at the Member State level a range of priority themes have been defined. These are:

- **Efficiency of the transfer point** through the optimisation and rationalisation of their design and, in particular for freight, of transfer technologies;
- **Efficiency of the intermodal networks** for both passengers and freight, from the point of view of logistics as well as infrastructure, through better alignment of single-mode operations, better integration of high and low transport flows, and improved traffic management systems;
- **Information technology** for transport management purposes to improve service quality to the user, e.g. tracking and tracing, multimodal ticketing, and information applications;
- **Marketing: development** of conditions and strategies for intermodal and inter-operable service operations;
- **Transport means**: modular and better aligned design of road vehicles, rail rolling stock, and vessels in conjunction with the harmonisation of loading units;
- **Training**: to spread the best practices by knowledge transfer, and improvement of the level of professional skills.

Objectives, Methodological Approach

Intermodal transport lies at the heart of the Europe Transport Policy. Even recently, in the 2011 White Paper on Transport, the European Commission underscored the relevance of intermodal transport through its vision of the Core Network. Despite the all the efforts and investments, integration of infrastructure has so far been largely an exception. Moreover, on the demand side it is still unclear which level of intermodality is currently achieved, as no proper measurement of intermodal behaviour or no integrated statistical demand database exist. This is mainly the outcome of the usually applied *modal view*: transport statistics or surveys focus mainly on single modes and do not consider intermodality. Consequently, we may state that the users' requirements in terms of intermodality remain unknown. Even the integrated concept of level of service is not fully matured and its implementation is hardly found.

The objective of HERMES project is the development and analysis of ***prototypes of business models*** for intermodal service between long- and short-distance transport networks.

Prototypes of business models for intermodal services are examples of new mobility schemes and related organizational patterns that describe core aspects of the intermodal transport business, including: added value to the passenger, offerings, strategies, infrastructure, organizational structures, trading practices, operational processes and policies.

The concept under focus lies on the rational that it is possible to obtain better market share in long distance passenger transport modes (e.g. rail, coach or air transport) if only the "long-distance" part of the trip was considered by travellers for their modal choice. However, if the final destination is not easy to reach any of these advantages would be easily cancelled. Time spent on board the "long-distance" mode can be used to provide passengers with information about the best path from the arrival station to their final destination, and possibly also sell them valid tickets for that local transport, and to identify groups of passengers going to destinations close-by to one-another and organise, for example, a taxi or mini-van transport for them, selling the corresponding voucher aboard the "long-distance" mode.

These are conceptually simple operations, often requiring only some real-time telecommunication (such as the case of the train-taxi in the Netherlands) but there are organizational and contractual difficulties in its service provision that are invisible to the final customer. However, these services despite representing a small portion of the mobility chain offer an upgraded fluidity in the whole door to door trip and, as such, have a considerable influence on the public perception of transport attention to their needs and of the expected costs and difficulties of the local component of long distance transport. They represent the missing link of transport networks.

In order to encompass the complex domain of interconnectivity in the passenger terminals where different transport networks involving different transport modes come across, the study of interconnectivity as a concept included the following sub-domains:

- Physical ("time and space as well as interfaces") interconnectivity;
- Logical ("Information") Interconnectivity;
- Economical ("Fares") Interconnectivity;
- Contractual Interconnectivity ("company agreements");
- Institutional ("Regulators and Organizing agencies") aspects;
- Legal and regulatory ("Market access, minimum operating and service requirements and other relevant regulation") conditions;

The analysis of these sub-domains provided background for the identification of the good practices in interconnectivity. This strengthened our conclusions and proposals of actions to improve the current level of interconnectivity in the coming future. Finally, a plan of actions for future improvements of interconnectivity in the passenger terminals was developed.

Eleven case studies supported the design of the prototypes of business models. Every case study refered to long- and short-distance transport example. Case studies illustrate the possible variants to these missing links. They concentrated on the identification of key requirements of the travellers, the corresponding services and necessary underlying company agreements to provide them, followed by a business plan for the operation. Case studies covered a wide diversity of situations of interconnectivity providing sound examples. The analyses embraced:

- interfaces and interconnections between different modes, such as long-distance rail/urban transport or air/rail; and
- interfaces and interconnections between different types of services of the same mode, such as long-distance rail services/ regional rail services or urban bus / express coach; and

- interfaces and interconnections between high capacity mode and low capacity, such as long-distance rail or coach / taxis, etc

Case Studies can be grouped in three categories accordingly with the type of the transfer terminal, being: airports, sea terminals, and road terminal. The eleven case studies are herein briefly presented:

ROAD TERMINAL CASE STUDIES

- **Case Study 1** - Gothenburg Central Station, Sweden
- **Case Study 2** - Avenida de America Interchange Madrid, Spain
- **Case Study 3** - Long distance bus services connected with high speed rail services, the case of Lerida and Zaragoza, Spain
- **Case Study 4** - Gare do Oriente Interchange, Lisbon, Portugal
- **Case Study 5** – Intermodal Network of Lyon Metropolitan Area (REAL Project), France

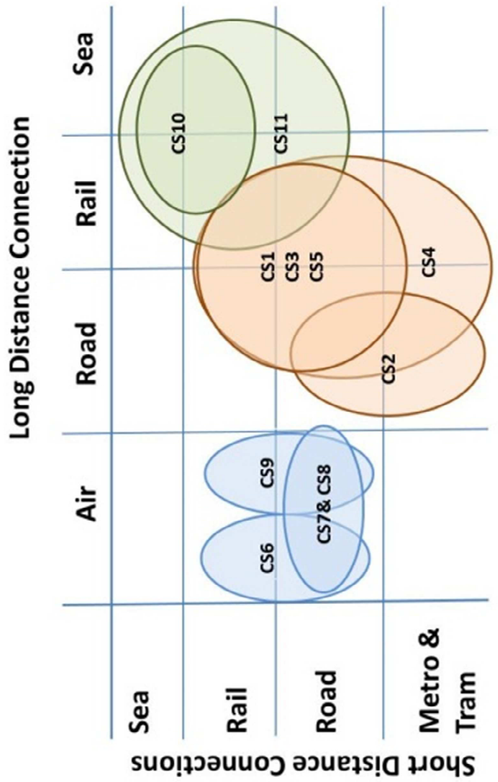
AIRPORT CASE STUDIES

- **Case Study 6** – Stockholm-Arlanda International Airport, Sweden
- **Case Study 7** - Faro International Airport, Portugal
- **Case Study 8** – Antwerp Airport, Belgium
- **Case Study 9** – Regional Airport Frankfurt-Hahn, Germany

SEA TERMINAL CASE STUDIES

- **Case Study 10** – Extension of the Adriatic-Ionian corridor from Peloponnese to Crete, Greece
- **Case Study 11** – The Port of Patras, Greece

The following scheme presents the model coverage in each case study. Most common combinations are covered by the Case Studies.

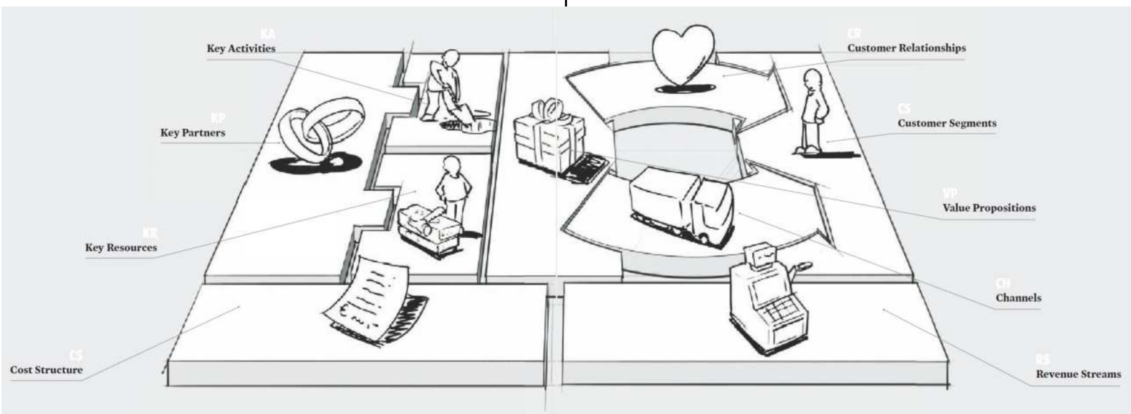


A **Business Model** describes the rationale of how an organization creates, delivers, and captures value. Multiple proposals have been brought forward over time, HERMES Project adopted the framework proposed by Alexander Osterwalder[1]. Osterwalder' framework is structured in nine building blocks. Each building block represents a specific dimension of a business activity. All together describe the rationale of how a company organise its business. The scheme in the next page presents the nine building blocks and the relationship amongst them. The nine blocks are:

- **Customer Segment** – defines the different groups of people or organizations an enterprise aims to reach and serve

[1] Ostwerder (2010) "Business Model Generation", Wiley, ISBN: 9780470876411

- **Value Propositions** – describes the bundle of products and services that create value for a specific Customer Segment;
- **Channels** – describes how a company communicates with and reaches its Customer Segments to deliver a Value Proposition;
- **Customer Relationships** – describes the types of relationships a company establishes with specific Customer Segment;
- **Revenue Streams** – represents the cash a company generates from each Customer Segment;
- **Key Resources** – describes the most important assets required to make a business model work;
- **Key Activities** – describes the most important tasks a company must do to make its business model work;
- **Key Partnerships** – describes the network of suppliers and partners that make the business model work;
- **Cost Structure** – describes all costs incurred to operate a business model.



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