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Freight mobility keeps Europe moving

By Theodor Schlickmann, EU TIGER Scientific Officer

Effective transportation is essential for the European Union's prosperity and well-being. The EU's sustainable transport policy goal is to ensure that our transport systems meet the citizen's economic, social and environmental needs. This was highlighted by the mid-term review of the 2001 White Paper, 'Keep Europe moving'. Under the 7 Research Framework Programme (FP7) the central objective of transport research is to develop safer, greener and smarter Pan European transport systems benefiting all citizens respecting the environment and increasing the competitive advantage of European industries in the global market.

EU-27 ports in 2009 handled a total of 4 billion gross w. tonnes of goods. This is equivalent to slightly over 20% of the total weight of goods carried by Road and more than twice the weight carried by Rail. The ability of handling cargo at ports provides a measurement of the ports' performances. The port connections play an important role in the transport of extra-EU as well as the intra-EU traffic. From 2003 to 2008, the total weight of goods handled in the EU-27 grew at an average annual rate of 3.6 %. In the 1997-2008 period, the gross weight of seaborne traffic handled in the EU-15 grew at an average annual rate of 2.3 %. The ports of four Member States accounted for over half of the total 4 billion g. w. tonnes of goods handled in the EU-27 in 2009: the UK 15%, Italy 14%, the Netherlands 12% and Spain 11%.

Efficiency appears to have increased in all transport modes. Road transport has made use of cross-trade and cabotage and benefited from a further liberalisation of the sector. Over the last two decades, the efficiency of Rail and Air transport has also improved. The efficiency of the latter may be expected to improve further through innovations in aircraft technology, major efficiency gains offered by SESAR and better airspace management. The biggest improvement to a true industrial scale has however taken place in the seaborne traffic following the introduction of the giant CTS vessels.

The TIGER Project's major objective is to align the industrial scale achieved at sea with a coherent industrial scale to be achieved on land. The TIGER Project goes hand in hand with the Commission's moves to promote a greener and more sustainable freight mobility with a smaller carbon footprint.

Source of Figures: EUROSTAT

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TIGER AT A GLANCE

The project officially started on 1 October 2009. Project duration 36 months.

Background

TIGER is the acronym of "*Transit via Innovative Gateway concepts solving European - intermodal Rail needs*". TIGER Project is a *Large Scale Collaborative Project* for the development of Rail transport in competitive and co-modal freight logistics chains. TIGER project development was conceived by taking into consideration four basic European transport constraints:

- Substantial increase of freight mobility demand versus an insufficient or constrained infrastructure and particularly the rail one.
- The Ports of entry into the Union, both North and South were congested due to difficulties of moving their traffic inland in an industrial way.
- The environmental situation and climate changes were imposing transport solutions for a more sustainable mobility. Modal shift to be encouraged.
- Costs and construction timings dictate that any infrastructure expansion will take at least a decade to produce its beneficial effects. It is therefore imperative that the best possible productivity is extracted from the available EU infrastructures.

Main Objective

TIGER studies the necessary step changes for providing a solution to EU ports and road congestion. Traffic should reach European inland destinations in an industrial way leading to a more sustainable mobility. The objectives of keeping the traffic moving through the European ports increasing rail freight's market share and improving the Rail Network productivity, are indeed the biggest challenges of our times. In order to solve these challenges in different geographical locations, four separate demonstrators were planned to support the development of intermodality in Europe. The solutions must be achieved by finding the right balance between geographical locations, existing infrastructures, local characteristics, natural barriers, hinterland penetration and environmental protection.

The 4 Demonstrators

The TIGER Project is constituted by 4 Demonstrators:

- GENOA FAST CORRIDOR
- MARIPLAT
- iPORT & HINTERLAND OPERATIONS
- INTERMODAL NETWORK 2015



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TIGER Kick Off OCTOBER 22nd and 23rd 2009 Genoa Port Authority, Palazzo San Giorgio

The launch of the TIGER project took successfully place on October 22nd and 23rd in Genoa. It marked the promising beginning of a large-scale collaboration between logistics companies, port authorities, and railway operators to build co-modal freight logistic chains linking the main ports of Europe. More than 50 project partners participated to this event, kindly hosted by the Genoa Port Authority in the Palazzo San Giorgio, Sala del Capitano at the Genoa Port. The kick-off was a perfect event to exchange views on the project and create a common vision on how to proceed in the three years project life.

At the beginning of the kick-off event, the organisers asked themselves whether the basic "Rationale" at project launch in 2007, involving port congestion, continuous traffic increase, giant CTS vessels and difficulties on inland distribution were still coherent with the economic scenario at TIGER start in October 2009. The answer to this question was uncompromisingly positive. Most of the CTS vessels on order had meantime been delivered, the overland infrastructures although less congested due to recession are still the same and the environmental consideration even more pressing. The project partners felt that the timeframe allowed by this traffic reduction is an opportunity for new investments in equipments, technologies and infrastructures as well as for services optimization and restructuring. TIGER will be conducive towards finding new co-modal solutions through the implementation of the "Dry Ports" concept and through the application of innovative production cycles for transferring the CTS to inland destinations. On the other hand the partners agreed that there is no other practical solution available.

Costs and construction timing for new Rail infrastructures are major constraints. Moreover it is estimated that for any infrastructure investments it will take at least a decade or more to produce positive effects. Therefore, the TIGER PROJECT is dedicated to increase productivity on existing infrastructures by extending in an industrial way the Seaports quayside into the hinterland wherever this is made possible by Mega Hub and Dry Ports. Technology and management systems innovations applied to local geographical conditions, ports characteristics, existing rail connections and the maximization of available capacities are all relevant ingredients of this project.

For each Demonstrator a suitable logistics solution has been found taking advantage of the territorial peculiarities and the traffic volumes to be transferred. This means that the TIGER concepts can be replicated elsewhere in Europe given the necessary adaptations required by local conditions and infrastructures. The internationalization of best practices can be applied and by so doing the TIGER concept can act as a spring

board for improving the existing infrastructures productivity.

TIGER project will bring the vessels nearer to the cargo final destinations. The ultimate objective is to make a much better use of the available Rail infrastructure and produce better services at lower costs. This is the only recipe for inducing modal shift back to the Rail mode.



Palazzo San Giorgio – Genoa
Participants at the Kick Off meeting.



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Palazzo San Giorgio – Genoa
Kick Off meeting participants in front of the Building

The 4 Demonstrators in more details

THE GFC or **GENOA FAST CORRIDOR** has the objective of transferring the CTS arriving both at Terminal San Giorgio and Genoa Voltri to Rivalta Terminal Europa immediately behind the Apennines mountains. Shuttle trains will be operated joining together the San Giorgio and the Voltri traffic, adopting random loading from ships to speed up operations in a total industrial way. The trains operations are designing a “loop” formed by using a secondary up hill Rail link and returning to the port via the main line.

New technologies and management systems innovations as well as investments in ports infrastructures and signalling are introduced in order to make the whole operations and its control, a viable operating proposition. Mixed double traction, electric and diesel, is used in order to avoid idle time and manoeuvres at the Rivalta Terminal Europa.

Rivalta Terminal Europa is linked to the major Italian and European Rail network being directly located on the Genoa-Rotterdam European corridor. From there Rail access is easily available via Switzerland to North Europe as well as to the entire Italian Rail network.

Rivalta Terminal Europa is already today recognised as Genoa Sea Port Customs. This means that both security and Customs operations can be effected there without any interference in Genoa port while in transit via Rail.



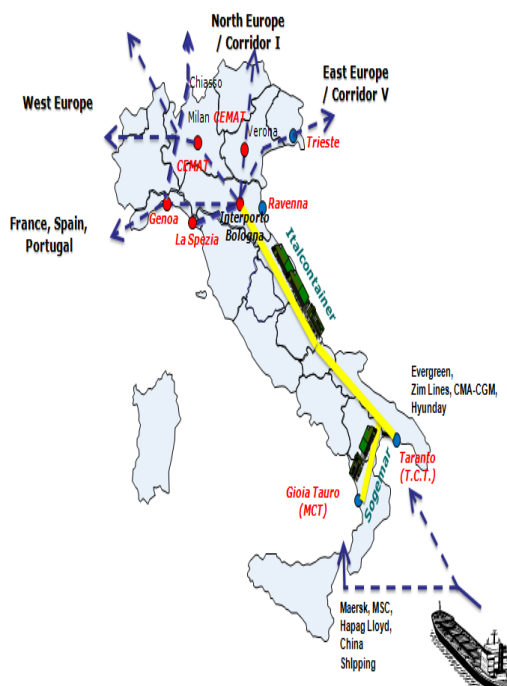
The Genoa Fast Corridor “LOOP” system



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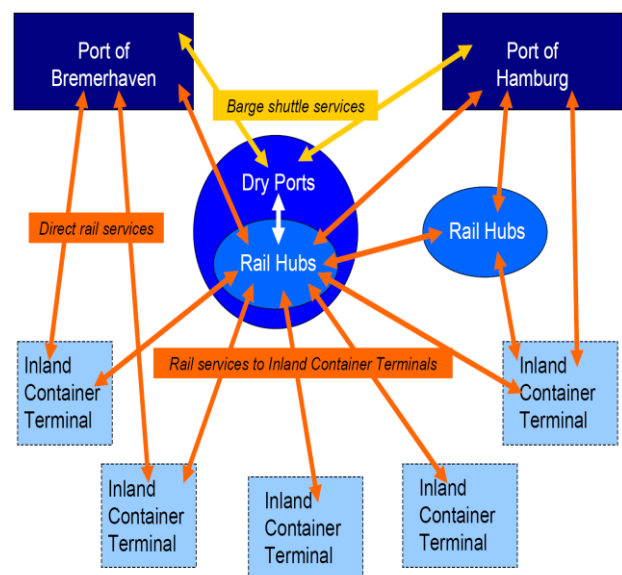
THE **MARIPLAT** “Y” concept is based on the concentration of CTS traffic destined to inland Italian and European destinations originating both from Gioia Tauro and Taranto ports.

The Gioia Tauro traffic is transferred to Bari by “Antenna trains” using the Ionian Rail line which is almost free from traffic. Likewise the traffic from Taranto is shunted by Rail to Bari using the available Rail link which is being upgraded to double track. The traffic is consolidated in one longer and heavier train operated between Bari and the Bologna Interporto freight village using the Adriatic Rail line. By so doing the very congested Tyrrhenian Line passing through the cities of Naples, Rome and Florence is avoided. Likewise a better use of the terminal space is achieved in Bologna Interporto where capacity is immediately available. Innovative technologies and management systems are applied in order to manage and monitor the whole logistic chain. From Bologna Interporto the entire Europe towards the North, East and West is totally accessible. Through the doubling of the Rail line Bologna-Verona the Brenner Axe is de-bottlenecked while the new high speed link Bologna-Milano has made available spare capacity on the old line opening the access via the two Swiss Tunnels of Loetschberg and Gothard.



The MARIPLAT “Y” concept.

THE **iPORT** or **INNOVATIVE PORT & HINTERLAND OPERATIONS** “WEB” concept has the objective of optimizing the hinterland container flows from the ports of Hamburg and Bremerhaven to the hinterland. In the Demonstrator different approaches are evaluated. “Close-to-the-port” and “Close-to-the-market” are the two most extreme characteristics in terms of distance. The applied intermodal hinterland concept wants to achieve an optimized hinterland coverage and efficiency. Massive expansion investments are being made in both ports of Hamburg and Bremerhaven in order to secure their continuous development, having achieved above average expansion rates in the years immediately before this recession. The iPORT concept will be planned to avoid future bottlenecks between the German container ports and the hinterland which are likely to occur failing corrective actions. The iPORT concept through the Dry Port strategy is set to achieve improved productivity along the maritime hinterland transport chain. The inland terminals and Dry Ports are important interfaces in this process. Their integration in the total logistic chain as well as their production efficiency are important factors for the success of the maritime intermodal hinterland traffic industrialization. The adoption of co-modal solutions allows production cycles in line with the expected volume increases in the two ports of Hamburg and Bremerhaven. The application of new management technologies will improve the coordination and reorganization of the work processes and interfaces between the different actors.



The INNOVATIVE PORT & HINTERLAND OPERATIONS “iPORT Web” concept



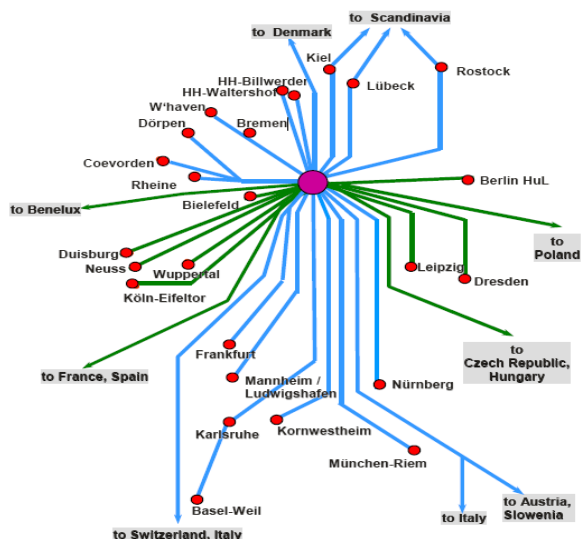
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THE MEGA-HUB or **INTERMODAL NETWORK 2015** "SPIDER" concept aims at making a further step change in the inland distribution by intermodal trains via the Kombiverkehr extensive shuttle service network. This step change is achieved through a major new investment in a Mega Hub which is being executed in Lehrte near Hanover.

The new Lehrte Mega Hub is set to increase terminal productivity and efficiency both to and from the sea ports/inland waterway ports and the national/international inland destinations. The Lehrte Mega Hub is set to combine maritime as well as overland traffic achieving larger economies of scale. New production concepts based on train to train transfer will be planned and implemented. Two production levels will be achieved. The first production level of bigger scale is implemented with major ports and terminals whereas the second production level is implemented for smaller volumes destinations. The traffic concentration in Lehrte Mega Hub combining both maritime and overland domestic and international traffic is set to expand the existing intermodal services by improving the frequencies and by connecting additional terminals into the production network.

The new technologies and management concepts will support all these innovative processes.



THE INTERMODAL NETWORK 2015 "MEGA-HUB SPIDER" concept

PROJECT ACTIVITIES

Market Assessment - NEWO Leadership

The Kick Off meeting in Genoa marked the official start up of all Demonstrators and horizontal activities. In particular WP1 – Market Assessment - was fast at work with Task 1 & 2, having its first meeting the same day of the project Kick Off.

A Road Map fixing the dates leading to the Task 1.1 Deliverable was prepared and distributed. The Deliverable's structure was also agreed between the Partners and this represented the base for developing the research. Specific topics for development were assigned to each Partner. In order to make it easier for them to contribute, the Deliverable structure was divided into two parts. Each one of them to be completed within a given timeframe. The first part was developed extensively and NewOpera Aisbl, the WP Leader, was able to prepare several Version of the draft Deliverable in preparation of the next meeting in Milano on March 18th 2010. This research carried out by the Partners accessing market and commercial sources will be supplemented by a scientific research developed by NESTEAR, a French research company specialised in mathematical modelling, accessing Eurostat and COMEXT databases.

The 2nd WP1 official meeting took place in Milano on March 18th and was very successful. In this meeting the Road Map for completion of this Deliverable was adjourned. Following this meeting an "ad hoc" Excel Program was developed by HHM in order to allow every Partner to use the same tool for making the 2010-2020 traffic projection as required by the WP1 Tasks.

Tech. Coordination - HaCon Leadership

In order to secure a proper start up of operations under the Technical Coordination leadership it was decided to have separate operating sessions with the Demonstrators Leaders rather than deal with them in a general Project Board. To this effect three separate meetings were organised in the following dates:

- **February 16th** in Bremen for the iPort
- **February 18th** in Hanover for the Mega-Hub
- **March 19th** in Milano for both GFC and MARIPLAT

During such meetings all the operational issues regarding the activities to be carried out for each Demonstrators had been dealt with in details together with the proper allocation of resources to the various Work Packages. Following the input from the Technical Project Coordinator, a proper internal organisation has been established for each Demonstrator under its Leader.

On April 19th a Project Board took place in Bologna hosted by Bologna Interporto. The meeting objective (the European Commission scientific Officer could not attend because of the Iceland ashes flights ban), was to verify the project's progresses after the first six months of operation from project start up date.



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Project Management - NEWO Leadership

On April 20th the **Steering Board** was also convened in Bologna hosted by Bologna Interporto to incorporate the outcomes of the Project Board and to exercise its planned strategic coordination function. At the same time in addition of aligning the Demonstrators activities with the TIGER project objectives, the Steering Board had the opportunity to make the full assessment of the situation by receiving reports on the horizontal, management and administration activities. The Technical Coordination lead by HaCon, the Administrative Coordination lead by Consorzio TRAIN and all Demonstrators Leaders and key Partners were important actors in this Steering Committee meeting.

Events with TIGER featuring

19-20 November <i>Brussels</i> - The F&L Annual Conference
22-24 February , <i>Berlin</i> - EUROFREIGHT 2010
25 February , <i>Brussels</i> - ERRAC WP02 – Roadmap
5 March , <i>Bologna</i> - HINTERPORT Workshop
25 March , <i>Budapest</i> - The F&L Planning Meeting
25 March , <i>Vienna</i> -DIOMIS Growing Intermodal Traffic in EU
26 March , <i>Hamburg</i> -Intermodal Port Hinterland Meeting
22 April , <i>Brussels</i> -ERRAC – Railway Cost Models Roadmap
6-7 May , <i>Vienna</i> -The F&L Annual Conference
7 May , <i>Mannheim</i> -European Corridor Conference
18 May , <i>Brussels</i> - ERRAC Plenary Session
19-20 May , <i>Warsaw</i> - Rail Port 2010
8-9 June , <i>Zaragoza</i> -European Commission TEN-T Days 2010

The TIGER Project Partners



The Partners incorporate technical, commercial, engineering, marketing resources and know-how in several fields of activities. These extend from infrastructure management, rail operations, port management - handling operations.

Vital competencies include intermodality, inland dry ports and freight villages operations, Port Authorities, Institutional Regional Governments, engineering, software & management system technologies as well as marketing & research. Sectorial association connected with Rail industry are also present in the Consortium.



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