

DIOMIS

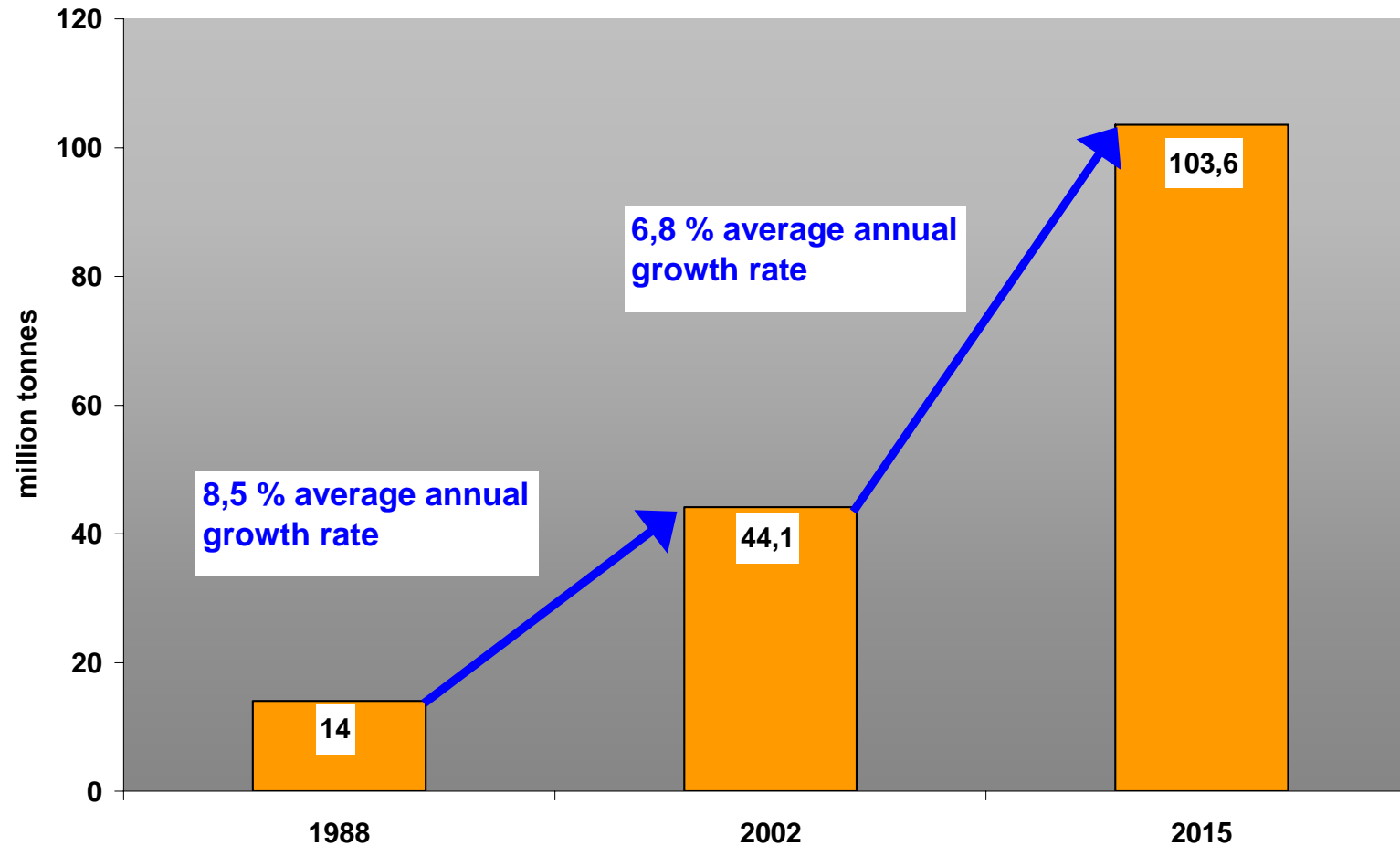
Developing Infrastructure and Operating Models for Intermodal Shift

**Follow up of the UIC Combined Transport Group Study
on Capacity Reserves 2015**

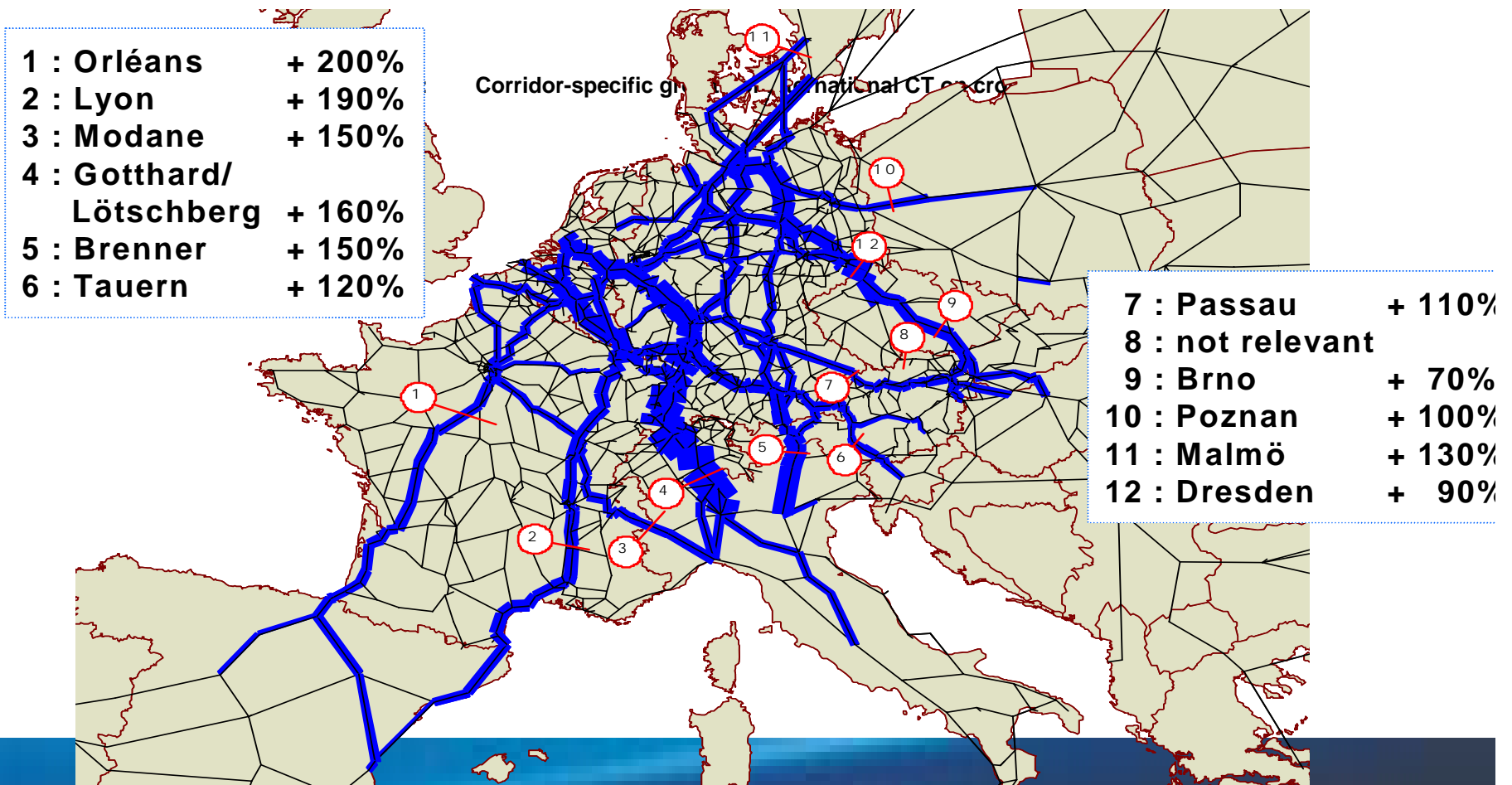
By Eric Peetermans, Chairman of the UIC Combined Transport Group

**1st DIOMIS Workshop
UIC, Paris, October 12th 2006**

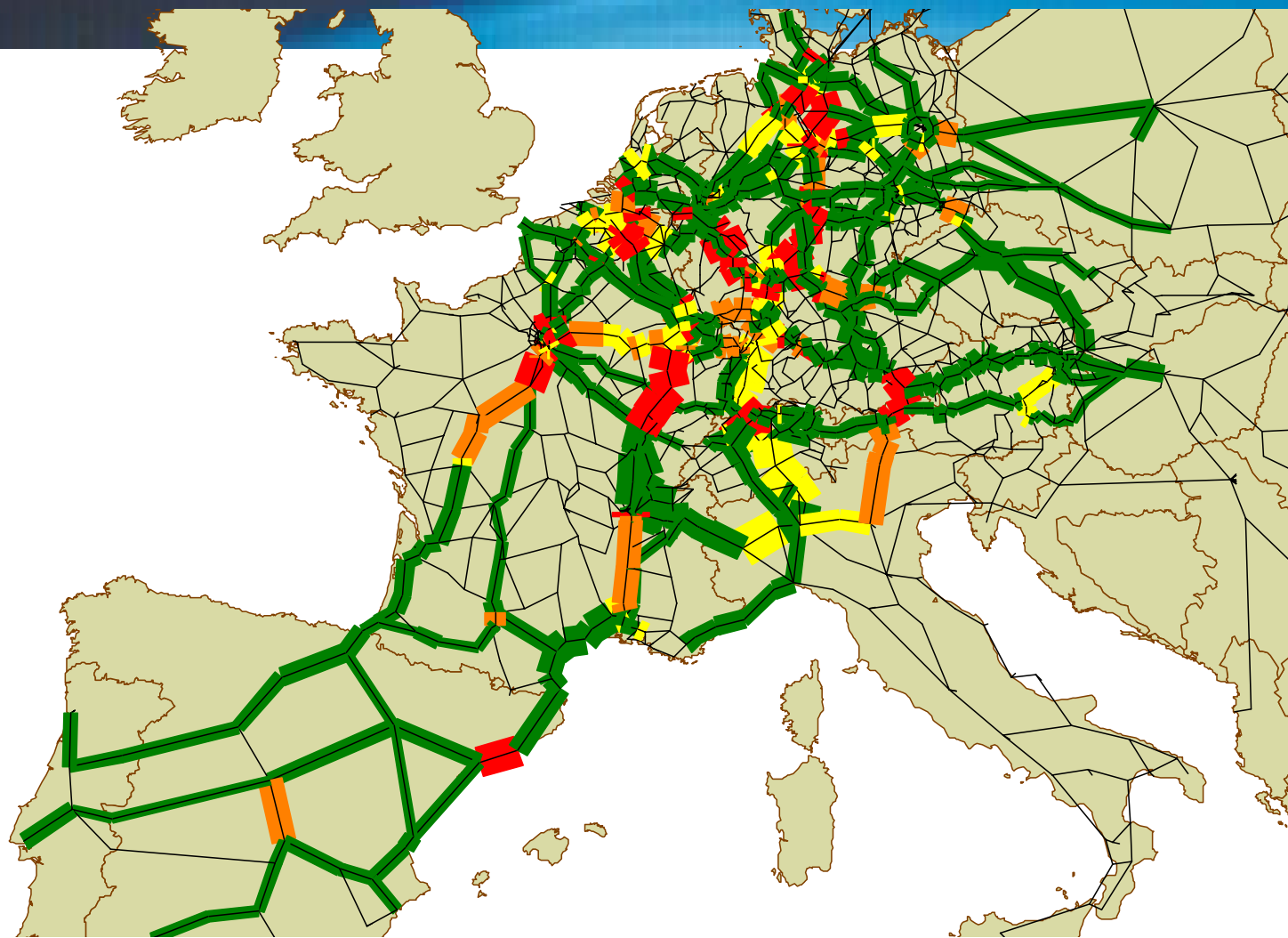
UIC Combined Transport Group (CTG) Study about Infrastructure Capacity Reserves 2015 : Growth Projections (International non accompanied Combined Transport)



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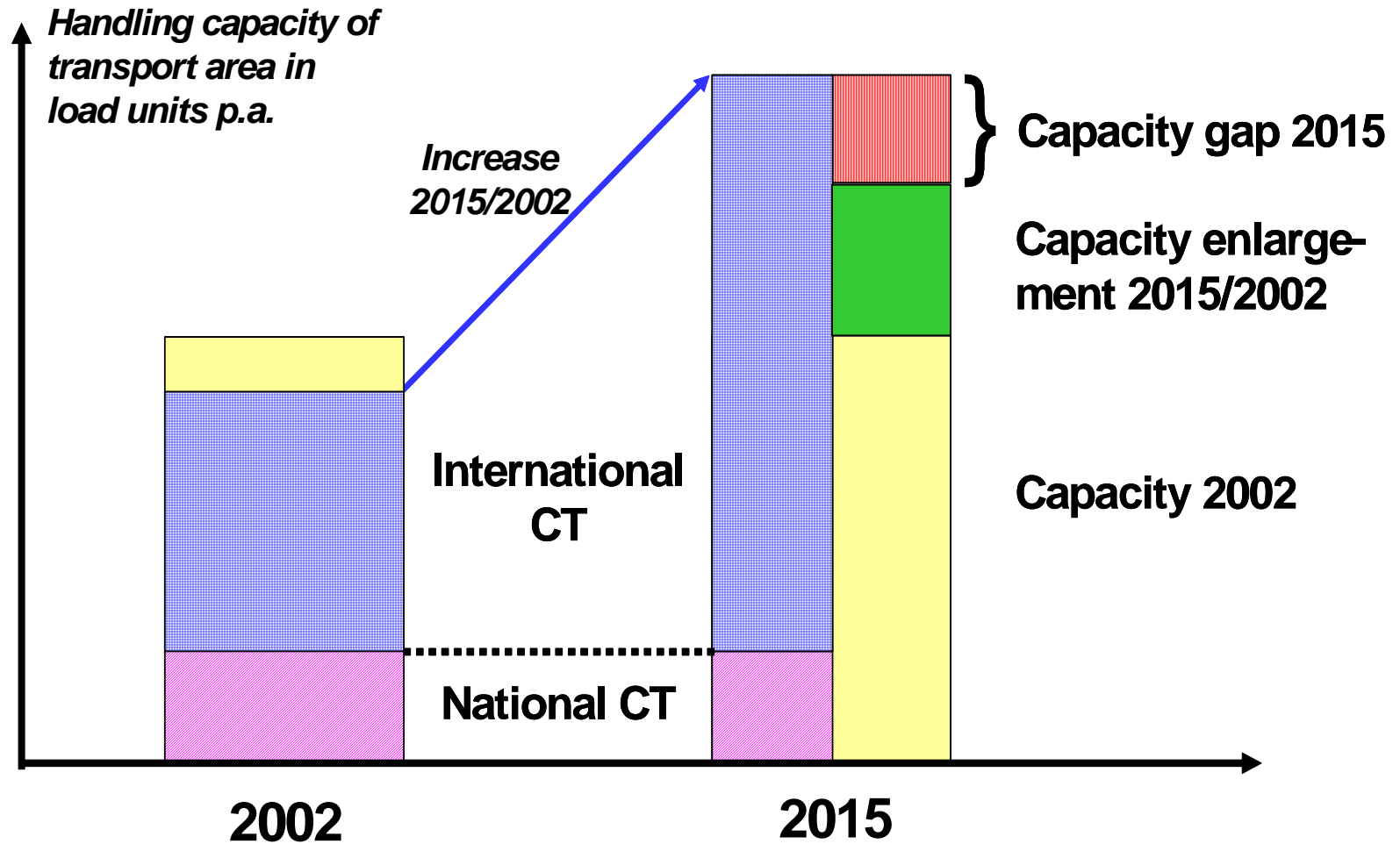
Utilisation rate of the Railway Infrastructure in 2015 after consideration of planned enlargement investments



Main Basic Assumptions of the Study

- Study available on UIC site www.asso.fr/diomis,
- Sustained growth of International Combined Transport (ICT) on **all** corridors
- Growth differentiated per corridor but average growth for Unaccompanied ICT estimated at **6,8 %** per year (**less** than historical growth of CT)
- Which means **+ 113% 2015/2002** (+ 134,92 % for Unaccompanied International Combined Transport and + 19% for Accompanied ICT)
- Increase of the number of **Conventional** Freight Trains by **25%**
- Increase of **20%** of the productivity in the use of the Infrastructure by Freight trains:
 - 750 m/ 1 500 Gross Tons on all corridors studied
 - 80% use of the available length
 - Internationally integrated railway paths
 - Return of quality of service to normal levels (85/90% punctuality)
- **All** identified Infrastructure projects have been implemented by 2015
- Severe Railway Infrastructure saturation is shown, requiring far reaching boundary crossing actions in terms of investments in rail and terminal infrastructure, technical-operational improvements, working procedures between all stakeholders of CT
- With the network effect, the problematic of the central European network impacts **all** European related flows, including South Eastern Europe and Asia Minor

The Terminals : Capacity Gap 2015 (Inland Terminals)



The Terminals: Determination of the Capacity Needs 2015 (LU)

Country	Transport area	Capacity 2015	Total volume 2015	Rate of employment	Probable capacity gap 2015
AT	Graz	130.000	137.000	105%	33.000
	Villach	110.000	121.000	110%	33.000
	Wels	132.000	181.000	137%	75.400
	Wien	300.000	282.000	94%	42.000
BE	Antwerpen	940.000	614.000	65%	
	Genk	122.000	150.000	123%	52.400
	Zeebrugge	365.000	306.000	84%	14.000
CH	Basel	390.000	238.000	61%	
CZ	Praha	200.000	288.000	144%	128.000
DE	Bremen/Bremerhaven	1.060.000	813.000	77%	
	Duisburg	318.000	166.000	52%	
	Hamburg	1.200.000	1.222.000	102%	262.000
	Koeln	300.000	517.000	172%	277.000
	Luebeck	140.000	101.000	72%	
	Muenchen	320.000	283.000	88%	27.000
	Neuss	140.000	146.000	104%	34.000
	Nürnberg	320.000	195.000	61%	
	Mannheim/Ludwigshafen	346.000	443.000	128%	166.200
DK	Taurov	120.000	130.000	108%	34.000
ES	Barcelona	348.000	307.000	88%	28.600
	Madrid	192.000	140.000	73%	
	Valencia	236.000	288.000	122%	99.200
FR	Le Havre	39.000	127.000	(a)	(a)
	Paris	658.000	270.000	41%	
HU	Budapest	300.000	263.000	88%	23.000
IT	Bologna	235.000	155.000	66%	
	Milano	1.057.925	1.130.000	107%	283.660
	Novara	805.000	478.000	59%	
	Verona	780.000	551.000	71%	
NL	Rotterdam	1.400.000	993.000	71%	
PL	Gliwice	32.000	57.000	178%	31.400
	Poznan	65.000	53.000	82%	1.000
	Warszawa	60.000	79.000	132%	31.000
SI	Ljubljana	150.000	87.000	58%	
Total terminals		13.271.925	11.184.000	84%	1.675.860

DIOMIS Key Actions and Objectives

- **In 4 domains :**
 - **Railway Network Management**
 - **Railway Operations Management**
 - **Terminal Management**
 - **Accompanying Actions**
- **And an ultimate deliverable, resulting from those actions : the *DIOMIS CT MASTER PLAN 2015***
- **With the objective of :**
 - **Achieving the productivity gains underlying the conclusions of the Study** regarding the rate of utilisation of the available Infrastructure in 2015
 - **Encouraging new types of cooperation between all stakeholders in CT** : terminal operators, CT operators, shippers, railway undertakings, infrastructure managers, national and European authorities
 - **Describing and helping to implement optimal capacity management models at terminal level** in order to use the available capacity in an optimal manner
 - **Adapting and improving more effective operating practices in terms of railway operation** in order to relieve a saturated network and respond to future market requirements
 - **Describing the benefits of an international approach towards planning and production**, and lay down the basic principles for a common approach towards improvement of intermodal services
 - **Learning to grow Rail Freight traffics** on a saturated railway infrastructure
- **Budget is 250 000 €in 2006 and 230 000 €in 2007**
- **Work started on January 23rd 2006**

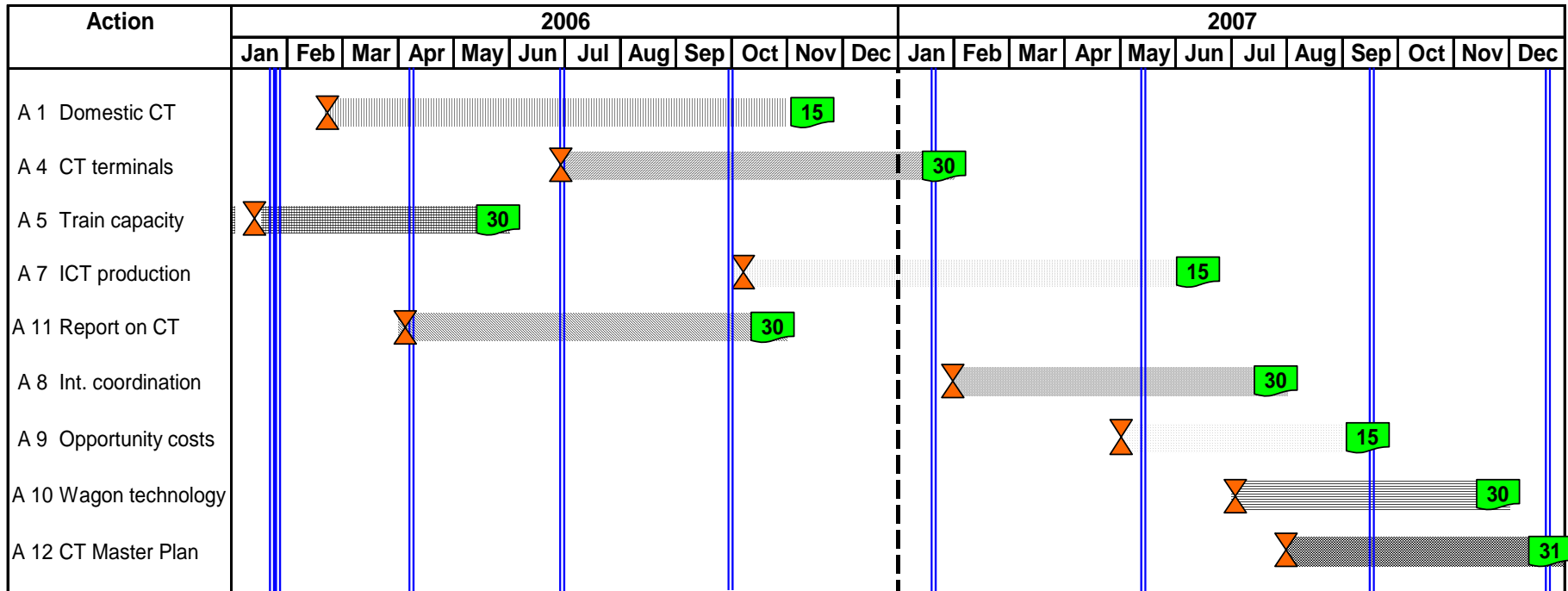
The ultimate Deliverable of DIOMIS: CT MASTER PLAN 2015


- **The DIOMIS CT Master Plan 2015**
 - strategic document centralising the findings of all the work packages,
 - consigning them in a document designed to help decision makers and stakeholders implement improved working procedures in all CT related fields,
 - and integrating the feed back, validation and cost assessments of the IMs regarding the identified bottlenecks and necessary/desirable infrastructure measures and improvements (incl. ERIM and current McKinsey crash studies on several corridors)
- **The Master Plan will synthesise for all decision makers and CT stakeholders in clear and concrete terms the information made available by the work packages and will contribute to**
 - an adapted infrastructure able to cope with the anticipated modal shift
 - CT terminals with an adapted infrastructure
 - improved operational procedures
 - improved business models between Railway Undertakings and CT Operators, matching the conditions of projected infrastructure and demand
 - an international vision and coordination in terms of infrastructure and development of CT terminals
 - a clear formulation addressed by the RUs to the IMs about their qualitative and quantitative needs in terms of Railway Infrastructure for their freight trains
- **The target date for publishing the CT Master Plan is December 2007**


DIOMIS Project : the Modules and main Partners


Action	Description	Main Partners
The Railway Network Management		
A 2	Assessment of main bottlenecks and Infra measures proposed	RUs, IMs
A 3	Assessment of Cost of relieving Bottlenecks	Idem
A 6	Harmonised procedures for planning train paths	Idem (including RNE)
The Railway Operations		
A 5	Improving the use of the available train lengths	RUs, IMs, CT Operators, Terminal Managers
A 7	ICT Production systems, including Long & Heavy Trains	RUs, IMs, CT Operators
A 9	Opportunity Costs Non Accompanied vs Accompanied CT	RUs, IMs, CT Operators
A 10	Assessing New Technologies in the wagon field	RUs, CT Operators
The Terminals		
A 4	Best Practices for the Management of CT Terminals, including Extension of the opening times of the CT terminals	RUs, Terminal Managers, CT Operators, Shippers
A 8	International coordination for the development of CT terminals	RUs, Terminal Managers, CT Operators
The Accompanying Actions		
A 1	Trends in Domestic Combined Transport	RUs, CT Operators
A 11	Periodical Report on CT in Europe	RUs, CT Operators
The End Deliverable		
A 12	CT Master Plan 2015	Inputs from all modules Outputs to the whole Railway Community

DIOMIS Project : Timeline



 = start of action

 = kick-off meeting

 = completion of action/final report

 = SC meeting

DIOMIS Project : Status

Status of the current modules

Module	Started	Planned Completion
A1 Trends in Domestic CT	February 2006	October 2006
A5 Improving the Use of the Available Train Capacity	January 2006	June 2006 (<i>done</i>)
A11 Report on CT in Europe	April 2006	September 2006
A4 Best Practices in Terminal Management	July 2006	December 2006

Other Modules starting in 2006

Module	To start in	Planned Completion
A7 ICT Production (Long & Heavy Trains,...)	October 2006	May 2007

Modules starting in 2007

Module	To start in	Planned Completion
A8 International Coordination of Terminals	February 2006	June 2007
A9 Opportunity Costs NACT vs ACT	May 2007	August 2007
A10 Wagon Technology	July 2007	October 2007
A12 CT Master Plan 2015	August 2007	December 2007

DIOMIS Project : Modules, Methodology and Deliverables

A5 Improving the use of available train length

Problem:

- The available train length could often be better used.

Objective:

- Provide examples of methods and good practices which would enable train capacity utilisation to be improved.

Methodology:

- interviews with 4-5 key intermodal operators (e.g. Kombiverkehr, CEMAT, Italcontainer, IFB) will provide information about how capacity is used at present
- an insight into the factors which impact on the use of train length – e.g. booking procedures, seasonal peaks, contractual relationship, no show of cargo
- technical parameters: max. train weight, wagon set, availability of rolling stock, mix of load units, use of appropriate rolling stock per traffic type (i.e wagon and unit management).
- the information collected above will be discussed with the operators paying particular attention to: capacity management systems, GATEWAY production systems, price differentiation.
- It is intended to use the results of Europtirails where possible.

Deliverable:

- A report and up to two workshops to provide information about methods and good practices aimed at improving train capacity utilisation.
- One workshop will target RUs and operators. Depending on the results of the first workshop, a further one could be organised with forwarders to raise awareness of this issue.

Participants: RUs, CT Operators

DIOMIS Project : Modules, Methodology and Deliverables

A 7 ICT (railway)Production system, including long and heavy trains

Problem:

- consolidate volumes to feed the most efficient type of rail production

Objective:

- to identify production systems which enable to bundle volumes and/or transport more volumes on the same train
- to assess the impact on coping with limited rail infrastructure capacities
- to assess the impact of those schemes on rail's ability to capture forecast traffic growth

Methodology:

- analysis and SWOT evaluation of various ICT production systems.
- case studies on defined corridors, allowing for a realistic assessment and quantification of the impact of production systems on the use of railway capacity. The case studies may deal with:
 - the total market on O/D pairs
 - the business model selected
 - the production system and its levels of service in terms of costs and time
 - the use of rail infrastructure capacity.
- workshop with intermodal operators and users. The most promising models will be analysed in depth.
- the technical and operational conditions for longer and heavier trains will be worked out.
- an assessment will be made of how trains of greater length such as 750 m or 1000m impact on infrastructure use.
- case studies will be used to:
 - identify operating conditions
 - identify regulatory conditions
 - assess the impact on the use of infrastructure
 - measure the resulting productivity differentials
 - analyse how turntables such as Sopron work.

Deliverable:

- A report and up to two workshops to provide information about methods and good practices aimed at improving train capacity utilisation.
- One workshop will target RUs and operators. Depending on the results of the first workshop, a further one could be organised with forwarders to raise awareness of this issue.

Participants: RUs, IMs, CT Operators

Objective:

To investigate the opportunity cost of accompanied vs. unaccompanied CT with regard to the use of Infrastructure.

Methodology:

Based on the corridors covered in the Study, analyse the impact that investments in accompanied CT could have had, if they had been assigned to unaccompanied CT with regard to infrastructure.

DIOMIS Project : Modules, Methodology and Deliverables

A 10 Assessing new technologies in the wagon field

Problem:

- The rail industry has offered CT wagons and technologies, which have not yet been properly referenced in terms of their technical potential or limitations with respect to the relief of infrastructure bottlenecks.
- An inventory of existing wagons together with an analysis of the key features of each wagon is thus required.

Objective:

- To assess the “infrastructure impact” of each reference technology , in particular the impact on the gross weight/net weight-ratio of a CT train.
- It should also be investigated, whether further technological development is required to improve the situation and if so, what kind of development.

Methodology:

- Workshop with specialists to draw up a list of existing types and prototypes.
- Evaluation of technologies with respect to objectives by the specialists concerned .
- Compiling results in a manual.

Deliverables:

- A manual on how wagon technology impacts on infrastructure use and the organisation of railway services, especially reduced tare weight.

DIOMIS Project : Modules, Methodology and Deliverables

A4 Best Practices for the Management of CT Terminals, including extension of CT Terminals Opening Times

Problem:

- A lot of European CT terminals see their capacity saturated and the layout and process organisation no longer in line with service requirements.
- typically, operators try to find practical solutions to reduce obstacles on a short-term basis..
- individual terminal operators all over Europe have developed advanced terminal control and management systems (best practices).
- this knowledge has not been disseminated which has hampered the development of equally high performing terminals for ICT services.

Objective:

- provide a survey of best practices for CT terminal management in selected European countries;
- provide recommendations on how “soft” management measures can contribute to using existing capacity in an optimal way or even increasing the capacity without major investment;
- carry out a benchmarking analysis against the management of terminals in the US
- induce cross-fertilization of capacity management knowledge between European intermodal terminal operators.

Methodology:

- selection of a sample of terminals in Europe - and in the US - , the benchmarking criteria will include size, type of intermodal services, scope of services.
- description of the terminals in terms of the characteristics determining the handling capacity and the capacity utilisation factor, especially layout, infrastructure, superstructure and process organisation.
- functional description of the information systems deployed to control and manage the internal material flows and communicate with external partners.
- evaluation of the role of the terminals in the combined transport chain by means of guided specialist interviews with the terminal management and/or intermodal operators serving the terminal.
- examination of the impact of the industrial procurement and distribution chain (“24-hour economy”) on the required opening times of the terminals and tailored railway services.
- the preliminary results of the methodology and analysis will be presented in a UIC GTC workshop. The results will be presented per terminal type.
- the results will be summarised in a brochure/leaflet to be disseminated via UIC channels to promote the optimum management methods.

Deliverables:

- a user guide, which will summarize the key findings regarding optimum management methods.
- an assessment of the impact of improved management methods on handling capacity.
- a workshop.

Participants: RUs, CT operators terminal operators

Problem:

- an intermodal service involves at least two combined transport terminals. Any capacity limitation on one end of the route could adversely affect the quality of the entire service. Conversely, international CT services would be enhanced if the capacity limitations were identified jointly and improvement measures such as increasing capacity, extending existing terminals or building new ones were internationally co-ordinated.

Objective:

- to show how international co-ordination of intermodal terminal planning and development could alleviate capacity constraints.

Methodology:

- first of all, two case studies on international CT services, e.g. München-Verona, Köln-Barcelona, Antwerp-Milano or Hamburg–Praha, will be carried out. The services and terminals will be selected on the basis of the saturated areas identified in the previous “Capacity Study”.
- demonstrate the positive impact of co-ordinated actions on the part of stakeholders in the intermodal terminal business, e.g. terminal owners and operators, governments (transport administration), infrastructure managers, railway undertakings and intermodal operators. These actions include in particular agreements on the need for improvement, extension measures, financing and time scales for implementation.
- workshops will be organised and will be designed to collect together the experience of the partners in that field and demonstrate the importance of having a co-ordinated policy across Europe for the development of combined transport terminals and how to bring it into effect.

Deliverables:

- report on the different experiences and blueprint for a co-ordinated policy, which could be transferred to other cases across Europe.

Participants: RUs, CT operators, terminal operators, transport administrations

DIOMIS Project : Modules, Methodology and Deliverables

A1 Trends in Domestic Combined Transport

Problem:

- The UIC Capacity Study dealt with international combined transport but explicitly excluded an in-depth analysis of the future development of domestic CT services in European countries and their impact on the rail infrastructure network.
- In some European countries, domestic combined transport currently does play or in future may play a significant role and achieve a volume of shipments and trains, which is relevant for the infrastructure capacity utilisation factor.

Objective:

- The study will analyse the current domestic CT trends, establish a forecast for demand with a 2015 time frame and assess the impact on infrastructure capacity in selected European countries, which are on the corridors covered by the “Capacity Study”.

Methodology:

- Austria, Belgium, France, Germany, Italy and Switzerland were selected on the basis of the major bottlenecks identified in the “Capacity Study”.
- the analysis will look at official transport statistics and likely development trends for overall freight transport in the countries involved. By means of interviews with specialists, the most probable assumptions with respect to determining factors (political framework conditions, economic growth, price competition with road transport, competitive roles and behaviour of market players) will be documented and translated into specific rates of development for the various market segments of domestic CT (maritime containers, continental traffic) up to the year 2015. The forecast will be validated in workshops with stakeholders from the selected countries.
- The co-ordinated results concerning the development of the volumes of domestic CT will then be used to calculate the impact on the utilisation of rail and terminal infrastructure. Finally, the results of this investigation and of the previous “Capacity Study” on international CT will be put together to produce an overall picture of the utilisation of rail capacity in the selected countries and on corridors

Deliverables:

- The final report will be made up of the country reports presenting the latest and the forecast (2015) volumes of domestic combined transport and an assessment of the impact on infrastructure capacity utilisation.
- The results could be used by the UIC to lobby for combined transport in general and for the market players to promote combined transport in their countries.

Participants: RUs, CT operators, IMs, Ministries of Transport

A11 Periodical reports on the combined transport situation in Europe

Problem:

• Between the AT Kearney Study and the recent UIC “Capacity Study” 15 years had passed during which there was no overview of combined transport in Europe as concerns the actual volume of overall CT shipments, the development of market structures and the assessment of future developments. The preliminary Study showed an important need for such material to steer political, infrastructure and strategic decisions, and to facilitate further growth of combined transport in Europe..

Objective:

• The objective is to provide a regular update (every other year) on combined transport in Europe starting in 2006. This would include 2005 statistics.

Methodology:

- carry out an assessment of the combined transport situation in Europe and give updated information on:
 - combined transport volumes
 - stakeholders
 - market shares and market structure
 - highlights of the period under review
 - expected developments for the next period
- desk research and stakeholder interviews.
- establish a sufficient framework, which is easy to apply, for obtaining statistical information from relevant stakeholders. The success factor of that tool will be to convince the stakeholders that they benefit from providing information because they get a comprehensive periodical review to feed their strategic decision making.

Deliverables: Report on Combined Transport in Europe

Participants: RUs, CT operators

DIOMIS Project : Modules, Methodology and Deliverables

A12 CT Master plan with a 2015 time frame

Problem:

- draw on the findings of each work package in order to establish a Combined Transport Master Plan for 2015.
- the objective of the master plan is to:
 - achieve productivity gains regarding the infrastructure utilisation factor
 - encourage new types of co-operation between all the stakeholders in combined transport
 - describe and help implement optimal capacity management models at terminal levels
 - adapt and improve railway operating practices
 - demonstrate the advantages of having an international approach towards planning and production
 - demonstrate how to achieve CT growth on a saturated and shared railway infrastructure.

Methodology:

- Workshops consolidating the findings of all previous packages and consigning them in a document designed to help stakeholders implement improved working procedures in all combined transport related fields.

Deliverables:

A strategic document which provides clear and concrete information which can be accessed by the different combined transport stakeholders and which will contribute to:

- an adapted infrastructure able to cope with the modal shift anticipated by the study
- combined transport terminals with adapted infrastructure
- improved operating procedures
- improved business models between railway operators and international combined transport operators and which match the condition of the infrastructure and demand
- an international vision and a co-ordinated model in terms of infrastructure and the development of combined transport terminals.

Participants: infrastructure managers, railway undertakings, intermodal operators, terminal operators

DIOMIS Project : Dissemination

- Dissemination is an essential element of the project
- The end deliverable is the CT Master Plan 2015, scheduled for end 2007 and to be released in January 2008
- But we will not wait for the end deliverable to communicate through :
 - workshops on finished modules or clusters of finished modules,
 - brochures, press releases,
 - participation as speaker to Conferences like this one,
 - release of intermediary reports,
 - ...
- The present event is the first workshop in the perspective of this dissemination plan :
 - the main theme is Module A5 (*Improving the Use of the Available Train Capacity*),
 - the targeted audience are mainly the RUs and the CT Operators,
 - the aim is to achieve common understanding of the findings, for their integration in the end deliverable,
 - we want to reach a common understanding of the practices to be encouraged with the view of improving the use of the available railway capacity
- This workshop will serve as a template for the further proceedings