



*Towards an integrated transport system in the Baltic Sea Region*

# ICT tools developed in the INTERREG transport projects, Functionalities and integration possibilities

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# Agenda

- ✓ Projects reviewed
- ✓ Functionalities if the ICT tools developed in the INTERREG transport projects
- ✓ Market requirements
- ✓ Gap analysis
- ✓ Integration of the ICT tools benefits & challenges
- ✓ Standardisation as the main challenge
- ✓ Conclusions

# Projects reviewed

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# ICT Tools – functionalities

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## (1) Planning of Intermodal Transport Chains

- ✓ Database of logistics services with schedules and prices
- ✓ Electronic communication available between actors
- ✓ Configuration of transport network
- ✓ Comparison of transport chains
- ✓ Optimization of transport chain by key factors
  - costs, - time, - CO<sub>2</sub> emissions - KPI

# ICT Tools – functionalities

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## (2) Information sharing systems. Real time information systems

- ✓ Information useful in planning of intermodal transport chains
  - Characteristics of logistics hubs and terminals
  - Booking of the resources in logistics hubs and at parkings
  - Infrastructure for exchanging logistics documents and information
  
- ✓ Weather information systems

# ICT Tools – functionalities

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## (3) Conclusion of a freight contract and control of transport service execution process

- ✓ Booking the loading space
- ✓ Chain visualization
- ✓ Reporting transport status
- ✓ Transport conditions monitoring

# ICT Tools – Overview of functionalities

Functionality	Project	TransBaltic	Scandria / Sonora	EWTC II	Rail Baltica		NECL II
	Application kind	Intermodal route planning	Intermodal route planning	Information broker system	Intermodal nodes information system	Multimodal international travel planner	Transport matching system
Intermodal route planning		X	X		X	X	X
Transport optimization		X	X	X	X	X	X
Loads consolidation		X					
Cost calculation		X	X			X	X
CO <sub>2</sub> emission indication							X
Contract negotiations							
Purchase of transport services		X					X
Electronic data interchange		X		X			X
Transport monitoring		X		X			X
e - payments							

# ICT Tools – Overview of technical description

Technical description	Project	TransBaltic	Scandria / Sonora	EWTC II	Rail Baltica		NECL II
	Application kind	Intermodal route planning	Intermodal route planning	Information broker system	Intermodal nodes information system	Multimodal international travel planner	Transport matching system
Web - browser application		X	X	X	X	X	X
Web - services for communication		X		X			
Standardised electronic messages		X		X			
EDI support		X		X			
Mobile communication available				X			
Multi-language versions		X			X	X	



# Market requirements

## Support for modal choice

- ✓ Availability of real market information
- ✓ Transport cost analysis
- ✓ Time wise and cost wise optimization of transport
- ✓ Consolidation of loads
- ✓ Negotiations of offers

## Support for transport process control:

- ✓ Real time status information
- ✓ Real time information of available resources

## Deployment of EDI for multi-company co-operation:

- ✓ Exchange of electronic messages
- ✓ Automation of the logistics processes

# ICT Tools – Gap Analysis

MARKET	PROJECTS	REMARKS
Cost optimized transport	☹️	If the real cost information is available
Real costs availability	☹️	It is a big problem to have the real prices in database
Costs analysis	☹️	Historical data helps to improve the transport costs approximation.
Offer negotiations	☹️	LSC and LSP negotiate before transaction is taken place
Real Time Status	☹️	
Real Time resource info	☹️	
Goods consolidation	😊	
EDI solutions	☹️	Generally exists, but there are too many different solutions, lack of standardization
Booking of transport services	😊	
Transport orders	😊	
Transport status	😊	
e-Waybill	☹️	



Function exists



Exists but it is insufficient



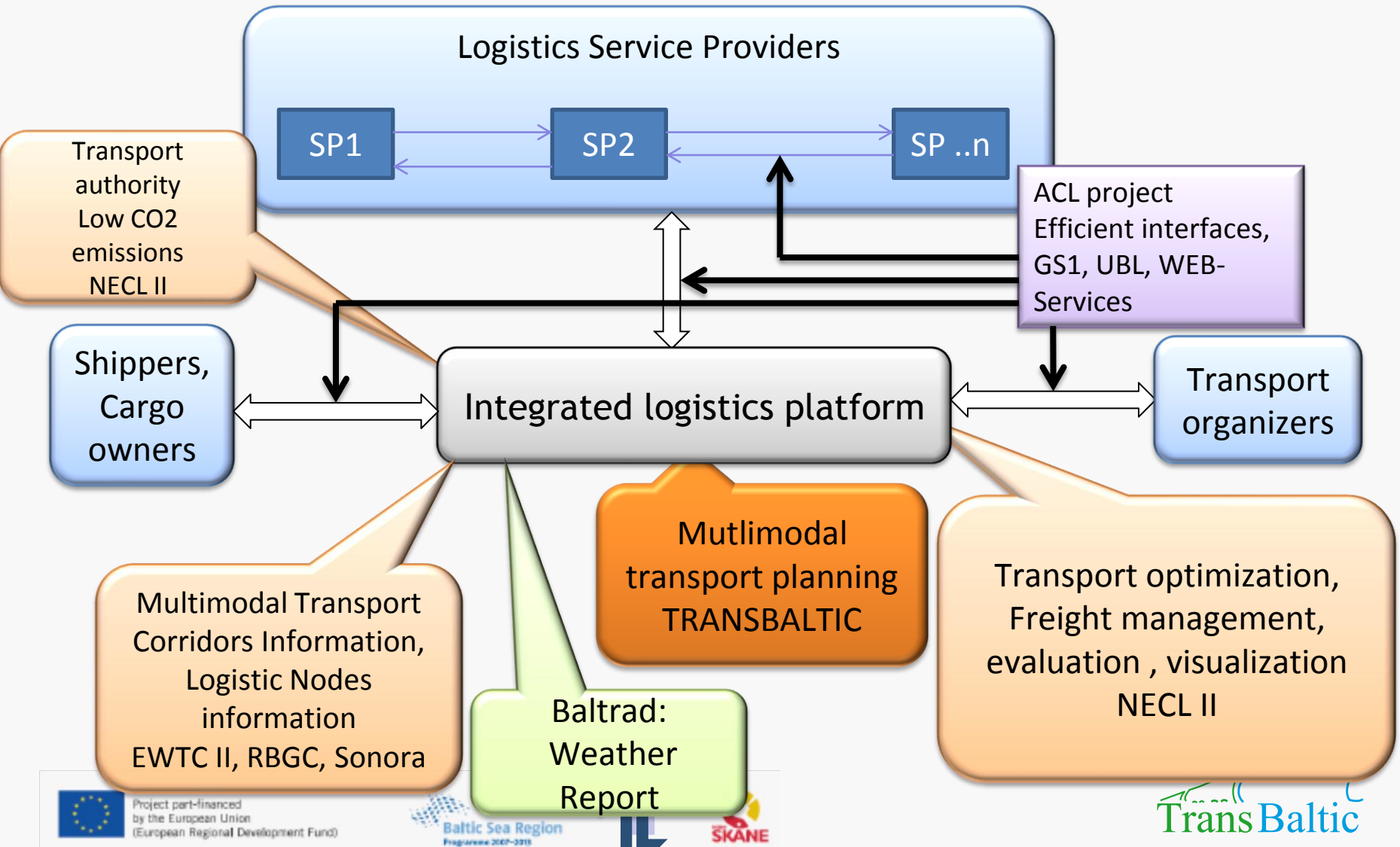
Function does not exist



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# Possible co-operation of different ICT tools in the INTERREG projects



# Common functionality of an integrated ICT Tool

## Supply of market information

- ✓ Information about logistics nodes, available services and service booking
- ✓ Parking information and booking parking places.
- ✓ Incorporation of the information about weather conditions and traffic to the onboard computers and smart phones.
- ✓ Measurements of energy consumption and CO2 emissions during transport execution process.

## Decision supporting optimization measures

- ✓ Multi-criteria Transport optimization tool
- ✓ Ranking of the services providers, transport solutions and supply chains

# Common functionality of an integrated ICT Tool

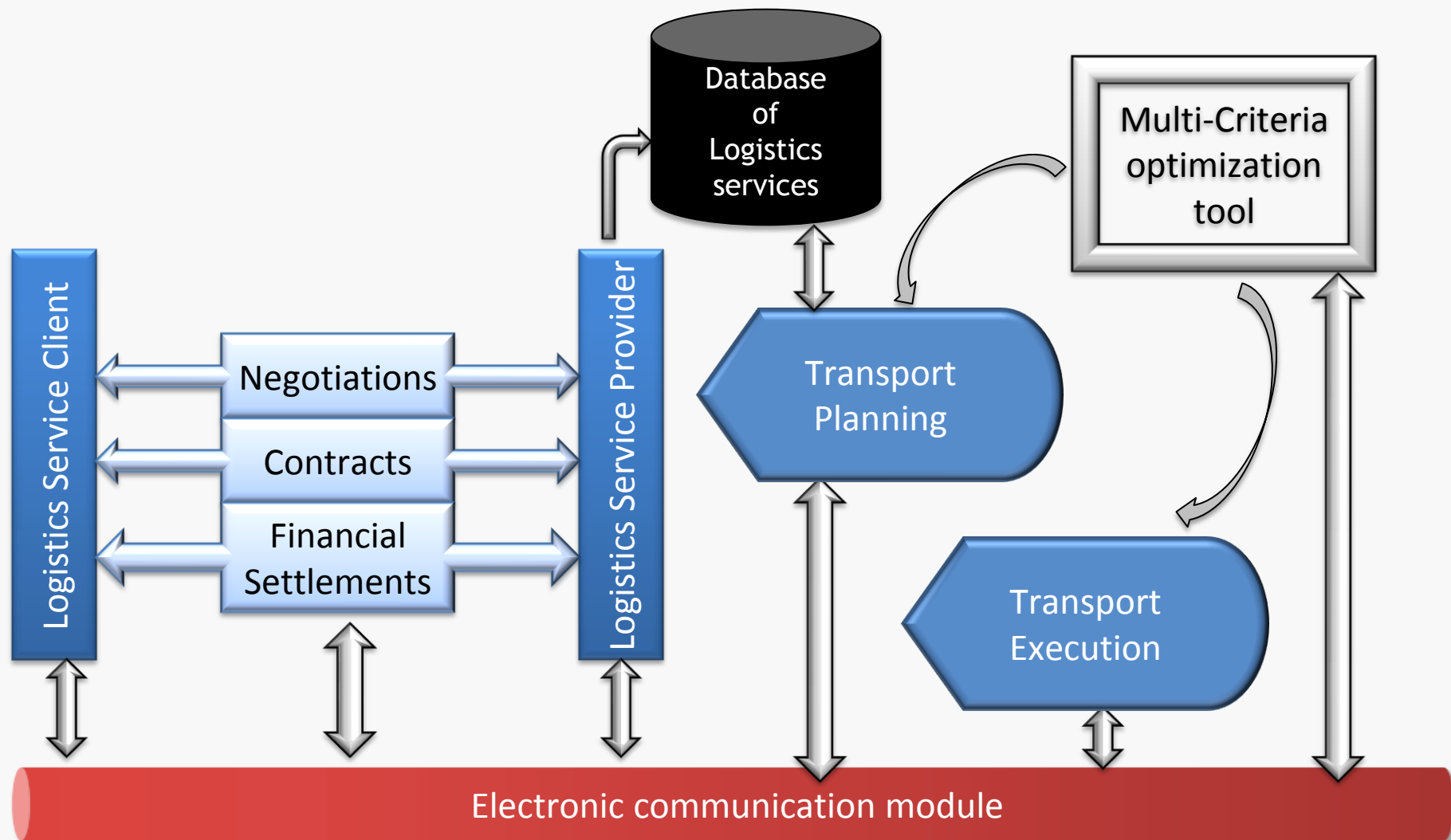
## Supply chain management

- ✓ Solutions for the whole process of serving intermodal door-to-door transport, transport chain planning.
- ✓ Transport chain visualization
- ✓ Incorporation of the status information from existing system of logistics service providers

## Network for information flows

- ✓ Electronic Data interchange solutions fully integrated for companies with efficient IT infrastructure,
- ✓ Standardization of information flow
- ✓ Integration with existing domain systems of port or hub operators , goods owners and transport service providers

# Modules of the integrated ICT tool



# The main features of the integrated ICT tool

## Features

- ✓ Open architecture
- ✓ Keep up with standards
- ✓ Be future-oriented (independent of current solutions)
- ✓ Providing a total picture (supporting transparency, management and security)
- ✓ Independent of technology
- ✓ Facilitating interaction with existing standards (to help to protect investments already made in legacy and other systems)
- ✓ Provide interoperability without constraining business process development and improvements

# Added value, benefits provided by the integrated tool

- ✓ Support Multi-modality
- ✓ Integration with existing system enabling interchange important transport planning and executing data
- ✓ Enable market leaders and SMEs to interact at a low cost
- ✓ Assistance in making the European transport and logistics system more efficient and environmentally friendly
- ✓ Increased accessibility of intermodal freight transport solutions.
- ✓ Easier access of the transport service providers to participate in the multimodal supply chain.
- ✓ Increased synchronization of logistics processes and utilization of logistic resources.
- ✓ Increased reliability of intermodal services and adaptability of logistics solutions to changing circumstances
- ✓ Reduced costs and effort required for managing complex transport chains.



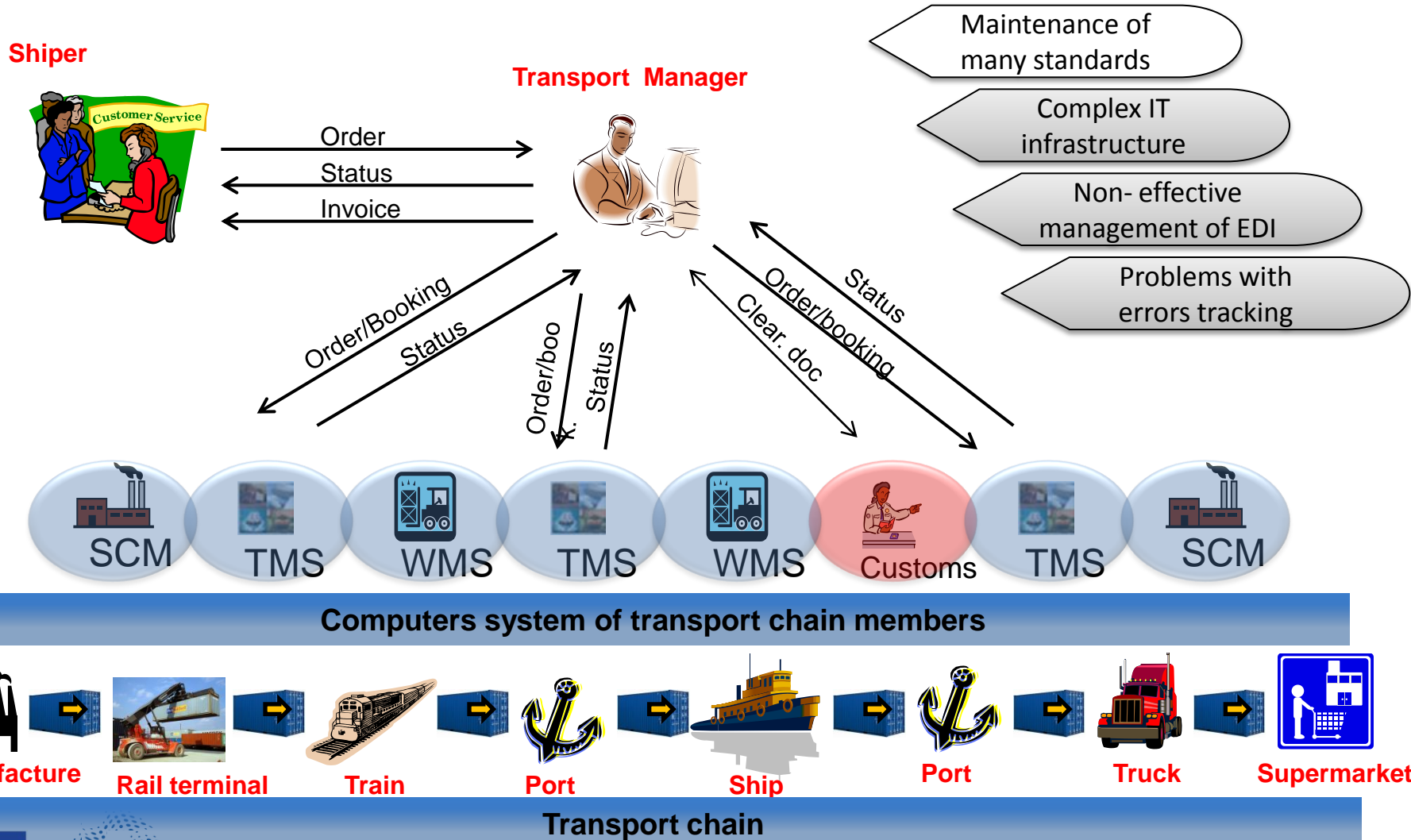
# Challenges

- ✓ Contradictory interests of the potential users.
- ✓ Ability to integrate with existing or developed future applications.
- ✓ Different communication and process standards across countries and market segments or even individual companies.
- ✓ Standardization of exchange information and documents in trans-border traffic.
- ✓ Continuation of the ICT tools development after the project end.

# ICT Tools – Standardization of information

## Standardization initiatives for Transport and Logistics

The result of using different standards is the administration costs of interoperability



# ICT Tools – Standardization of information

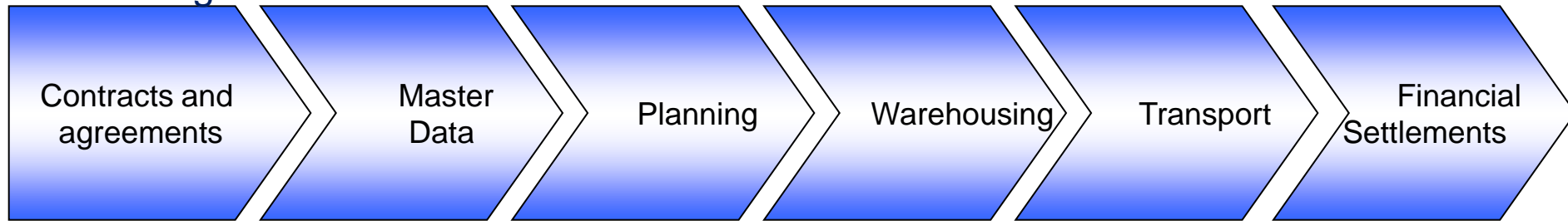
## Standardization initiatives for Transport and Logistics

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### GS1 Logistics Forum:

LIM – Logistics Interoperability Model

LL – Logistics Label



Develop Logistics Interoperability Model (LIM), a report which describes the business processes and data interchanges between trading partners and Logistics Service providers

Transport messages: *Transport Instructions, Transport Instruction Response, Status request, Status response, drop-off and pick-up requests and response* were already released and are being piloting in e-Freight project.

[http://www.gs1.org/gsmp/kc/ecom/xml/xml\\_v\\_3](http://www.gs1.org/gsmp/kc/ecom/xml/xml_v_3)

### UBL transport messages:

- are being developed and used in European projects like Freightwise and DiscWise.

# ICT Tools – Standardization of information

## Standardization initiatives for Transport and Logistics GS1 Keys

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The **Global Trade Item Number (GTIN)**, is used to uniquely identify trade items (products or services) that may be priced, or ordered, or invoiced at any point in any supply chain.

The **Global Location Number (GLN)** is the GS1 ID Key used to identify locations and legal entities. Being able to identify locations with a unique number is vital to many business processes

The **Serial Shipping Container Code (SSCC)** is the GS1 ID Key used to identify individual logistic units.

The **Global Returnable Asset Identifier (GRAI)** is used to identify returnable assets such as re-usable transport equipment like trays, crates, pallets or beer kegs that are used and then returned to be used again.

The **Global Individual Asset Identifier (GIAI)** Is used to identify fixed assets of any value within a company that need to be identified uniquely, for the transportation purposes this can include a truck, a trailer, a container, a rail car...

The **Global Shipment Identification Number (GSIN)** is a number assigned by a seller (sender) of the goods.

The GSIN fulfils the requirements of World Customs Organization (WCO) and can be used by Customs authorities to identify shipments subject to import or export processes.

The **Global Identification Number for Consignment (GINC)** identifies a logical grouping of goods that has been Consigned to a freight forwarder or carrier and is intended to be transported as a whole.

The **Global Document Type Identifier (GDTI)** - is the Identification Key for a document type combined with an optional serial number and used to access database information that is required for document control purposes.

The **Global Service Relation Number (GSRN)** - is the GS1 Identification Key used to identify the recipient of services in the context of a service relationship. It is used to enable access to a database entry for recording recurring services.

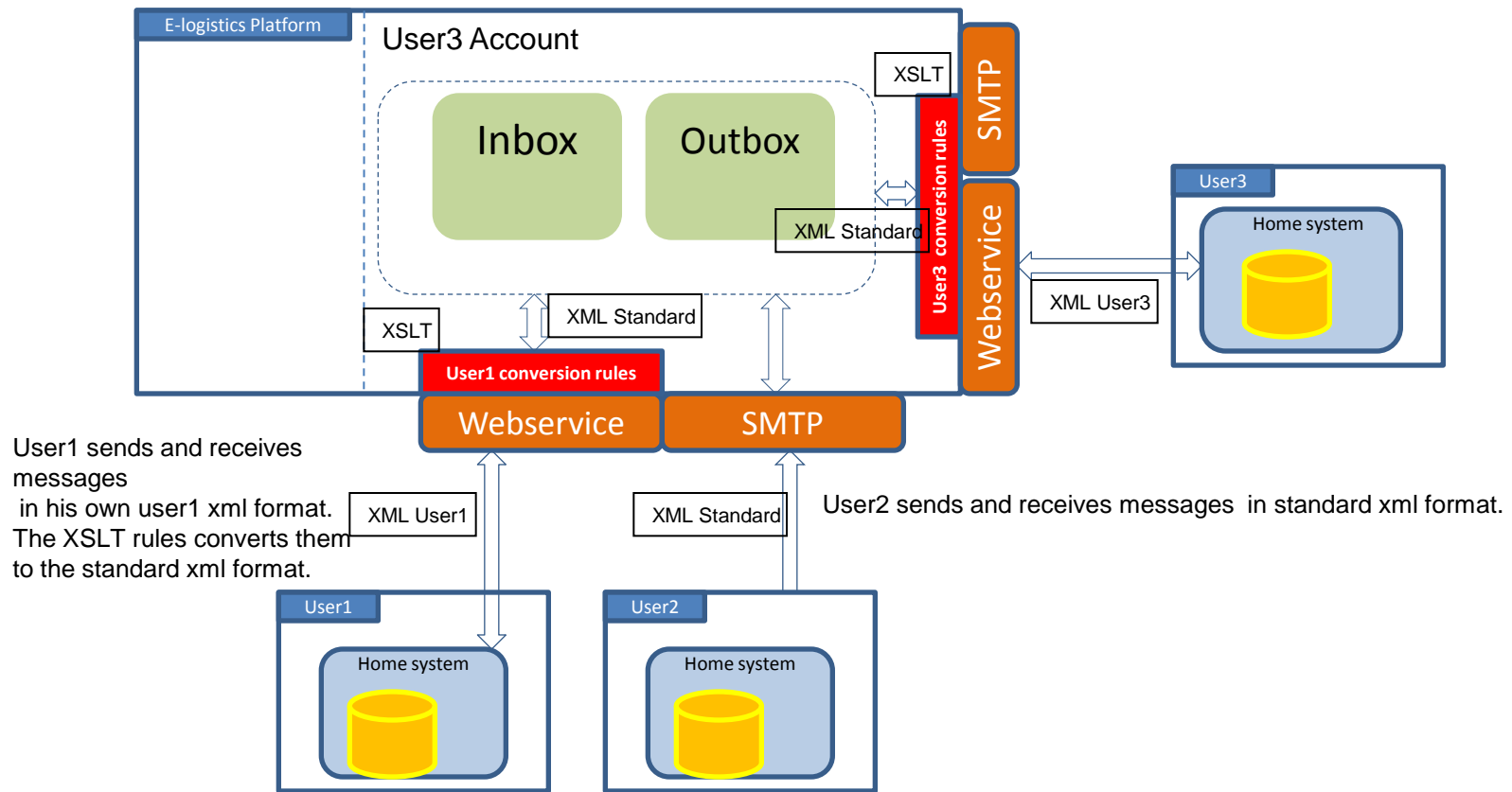




# ICT Tools – Standardization of information

## Standardization initiatives for Transport and Logistics GS1 Keys

Standards harmonization and conversions:



# Conclusions

- ✓ Effective logistics and supply chain management requires sharing knowledge and information along the supply chain.
- ✓ Information and communication systems used for managing transport and logistics operation need to interact efficiently, share information – they must be interoperable – and the actors must be enabled to share that information according to their own business rules.
- ✓ The basic idea being exploited in construction of many tools of this type is a tool of a Journey Planner kind, enabling travellers searching for the best scenarios. based on time schedules and tariffs.
- ✓ The tool managing freight transport supply chains has to be adjusted to its specificity i.e. unscheduled traffic and changeable freight rates.

# Questions

- ✓ How to encourage service providers in promotion of “green corridors”?
- ✓ Which standards support essential information exchanges that will have to be included in the Integrated logistics platform to support its daily business processes?
- ✓ Which areas are still uncovered by current standards and what requirements does this impose on the integrated logistics platform?
- ✓ Which current and emerging ICT solutions on the market are available to support, in whole or in part, integrated solutions for business processes?
- ✓ What other solutions not presented in this document would be required for integrated logistics platform?



# Thank you for your attention



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