



**IEEE SOSE 2012**  
**7<sup>th</sup> INTERNATIONAL CONFERENCE**  
**ON SYSTEM OF SYSTEMS**  
**ENGINEERING**

**JULY 16-19, 2012**  
**GENOA, ITALY**

***Cooperative and distributed systems  
for integrated logistics services***



*Ministero delle Infrastrutture e Trasporti*

**WWW.MIT.GOV.IT**

***Massimiliano ZAZZA***  
***ICT & ITS Department***

# 2003 – SNSTMP *National Experimental System of Surveillance for ADR Transports*



*Ministero delle Infrastrutture e Trasporti*

*Promoter, financial support, project manager role and coordination of activities*



*Risk mapping and risk analysis in galleries*



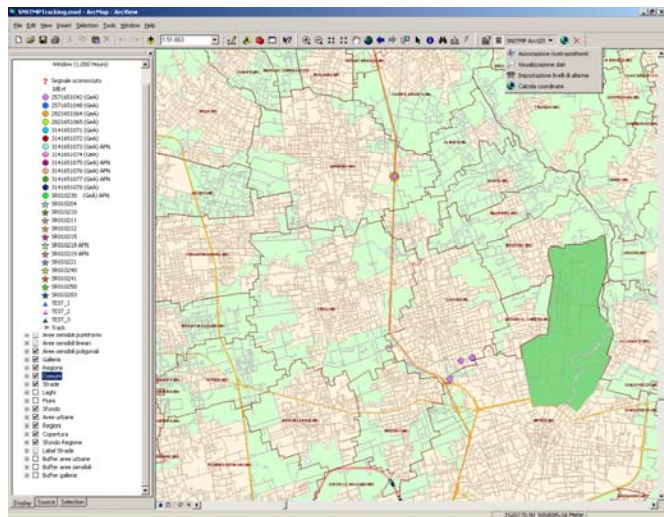
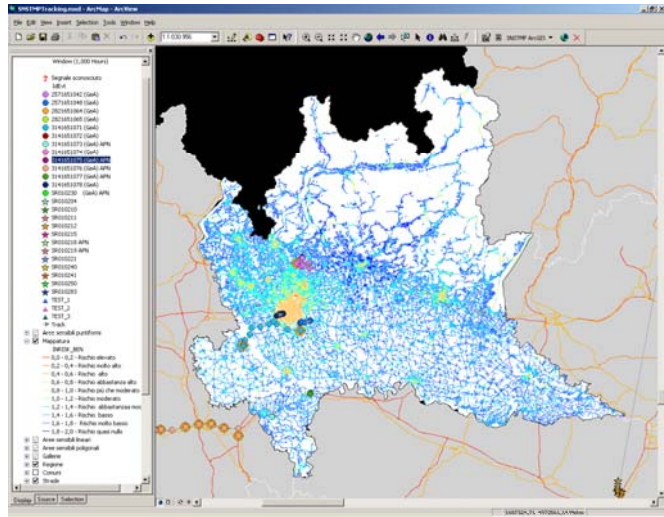
**Regione Lombardia**

*Development of SW and integration with the regional informative resources  
Monitoring activity in the Civil Protection Operative Room*



*Development of on-board transmission devices and gauges and “feeding” of the system*

# 2005 - OUTCOMES



- ▶ *Real time monitoring for about 50 trucks moving in Lombardia district*
- ▶ *GPS positions refresh every 2/5 minutes depending on road&traffic conditions*
- ▶ *Possibility to alert truck if traffic / weather conditions needs more attention*
- ▶ *If no GPS signal (galleries) OBU switch to GPRS/CANBUS informations*
- ▶ *Real time informations about load / unload oil volumes*
- ▶ *Real time control of mission parameters*
- ▶ *Risk analysis map of Lombardia district*

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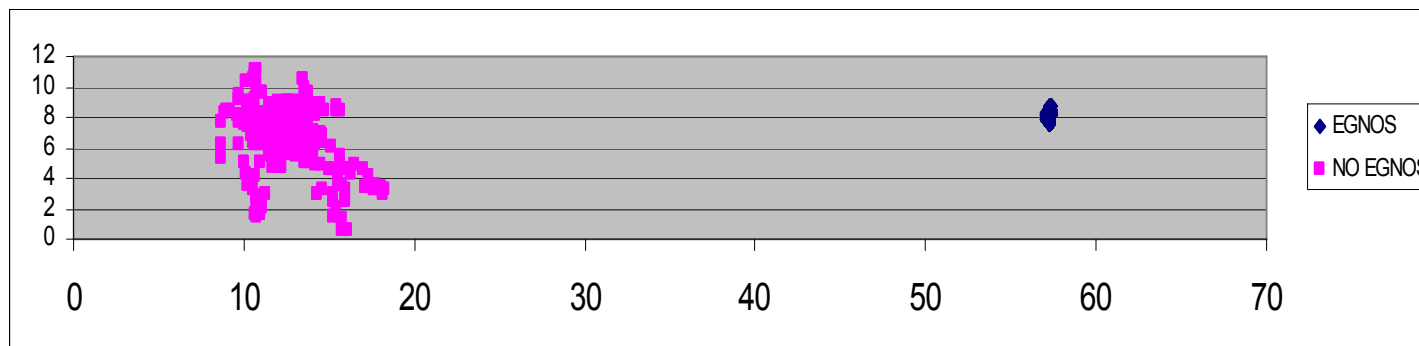
## FROM GPS TO EGNOS

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### **M-TRADE (2006)** - Multimodal TRANsportation supported by EGNOS *external participation - Dangerous Goods T&T*

- Tank wagons remote localisation & visualisation on digital maps
- Geo-fencing (position & time wrt pre-defined path / time), alarming in case of deviation/ unplanned stops
- Warning in case of anomalous conditions detection

### **MENTORE (2007)** - iMplemENTation of GNSS tracking & tracing *Technologies fOR Eu regulated domains*



Standard deviation  
(meters)

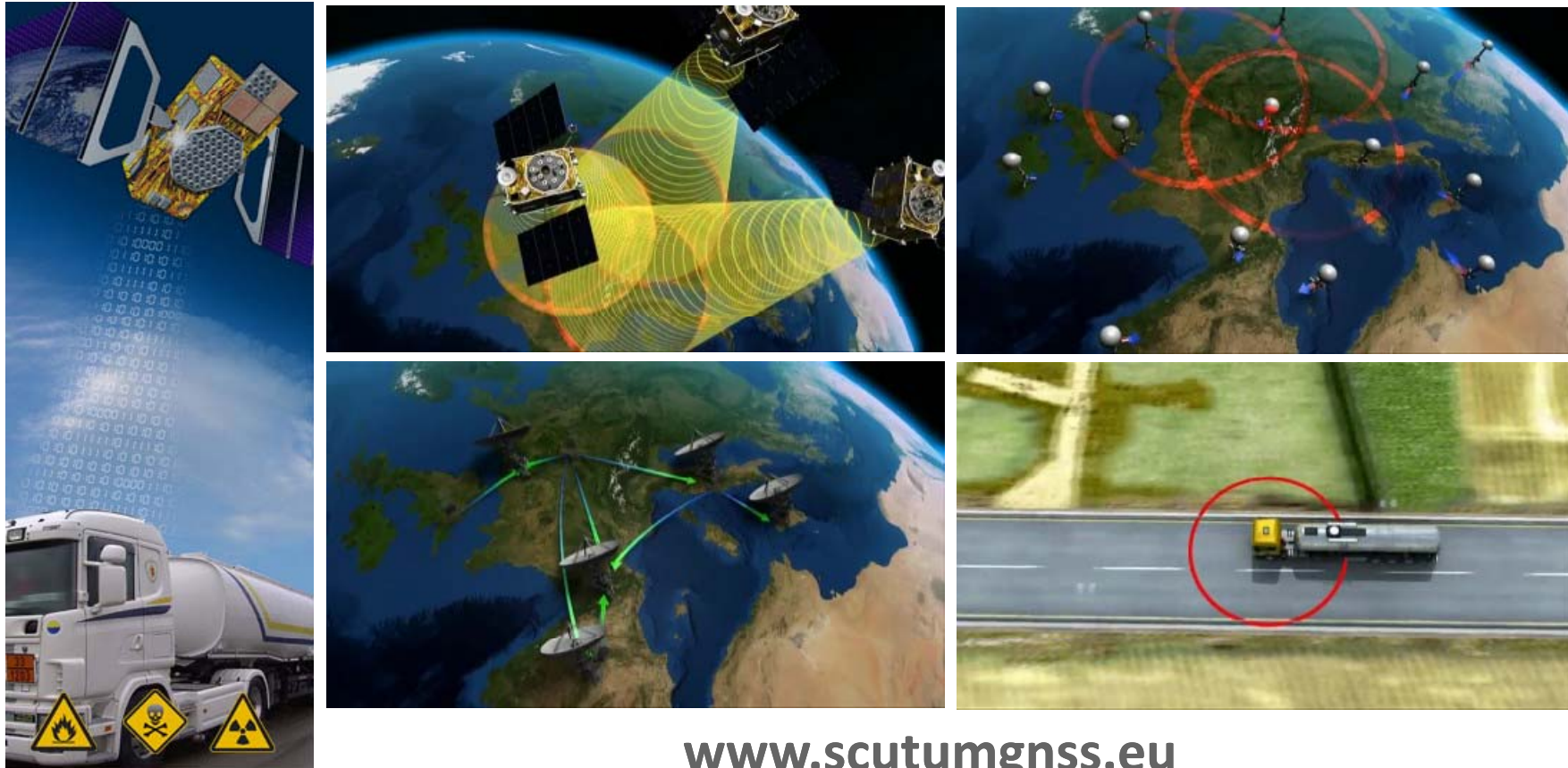
GPS ( Lat: 1.87 m,  
Long: 1.76 m)

GPS + EGNOS: (Lat:  
0.31 m, Long 0.08 m)

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## 2009 - *MENTORE* Way Forward: THE SCUTUM PROJECT

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[www.scutumgnss.eu](http://www.scutumgnss.eu)

**SCUTUM (SeCURING the EU GNSS adopTion in the dangeroUs Material transport)** is the European best practice for the operational adoption of commercial services based on EGNOS.

# 2010 - ITS DIRECTIVE – PRIORITY AREAS

## Road Traffic & Travel Data (PA 1)

*EU-wide multi-modal travel and traffic information services*

*Universal road safety traffic information free of charge to users*

*Multimodal door-to-door journey planners*

## Continuity of Services (PA 2)

*Architectures Interface (EU, National and Urban)*

*Standardised information flows for passenger and freight services (incl. eFreight)*

## Road Safety Applications (PA 3)

*E-Call*

*Parking reservations for commercial veh.*

*HMI for embedded and nomadic devices*

*ADAS*

*Vulnerable road users*

## Linking the Vehicle with Transport Infrastructure (PA 4)

*Cooperative systems : Definition of communication infrastructure; Information in Vehicles and Infrastructure; Standardised message format*

*Development of Open In-Vehicle Platform*

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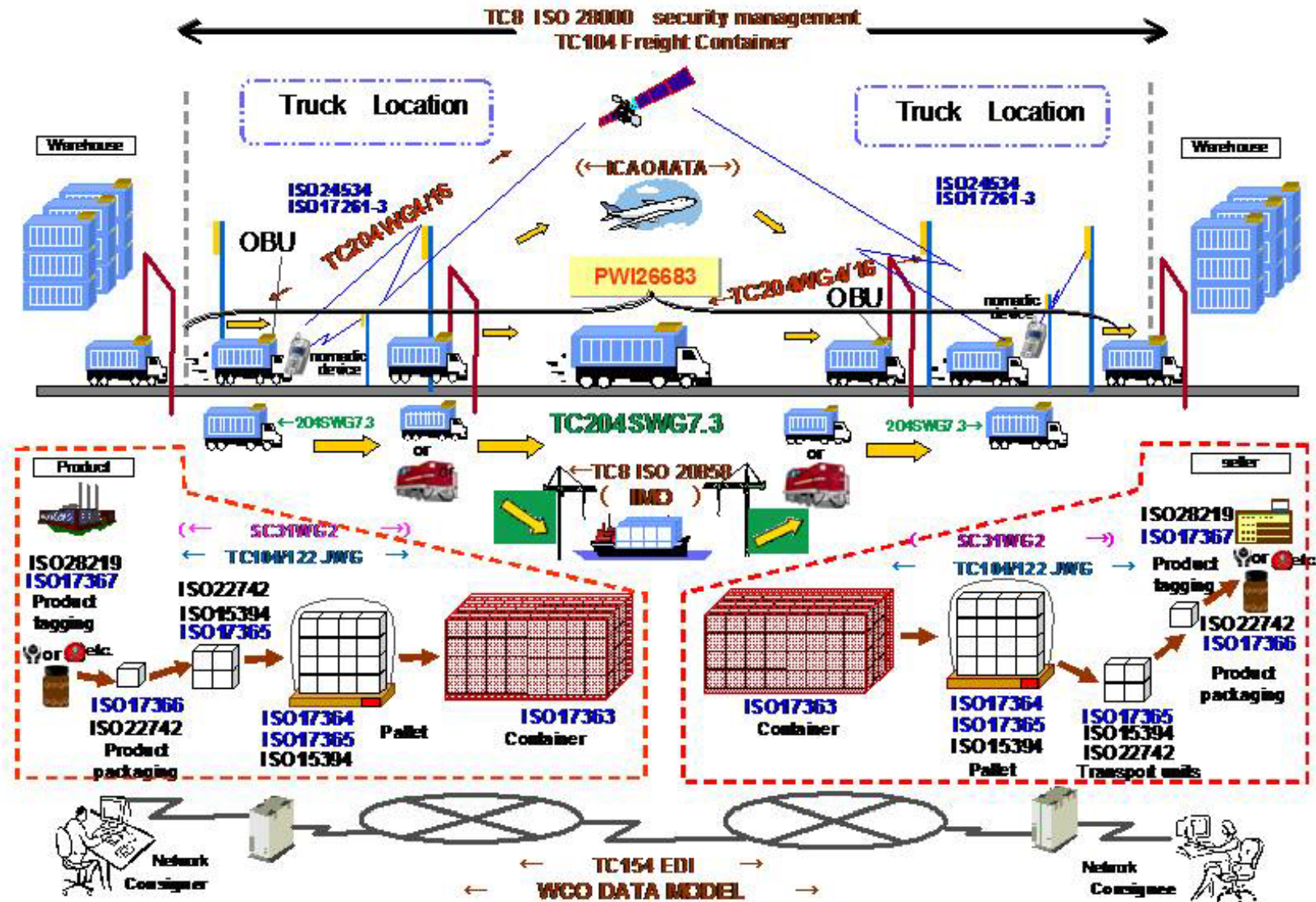
## 2010 - TRANSVERSAL PILLARS OF ITS SERVICES

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- National Architecture
- Interface between National Architecture and Urban Architectures
- Principles to Guarantee Privacy
- Criteria to Guarantee Compatibility among Systems
  - *Interoperability*
  - *Multimodality*
  - *Data Exchange*
    - ✓ *Datex*
    - ✓ *Cross-geography*
    - ✓ *Cross-stakeholders*
- Continuity of Services for the diffusion and operative use of ITS

# EX. ISO TC 204 (ITS) u.d. - FREIGHT LAND CONVEYANCE CONTENT IDENTIFICATION AND COMMUNICATION (FLC-CIC) - ISO 26683

## Current Standards and their development Bodies for Intermodal Transport



From Dominique VANKEMMEL - Chair Transport/Logistics  
 TBG3 - UN / CEFACT - dvankemmel@wanadoo.fr

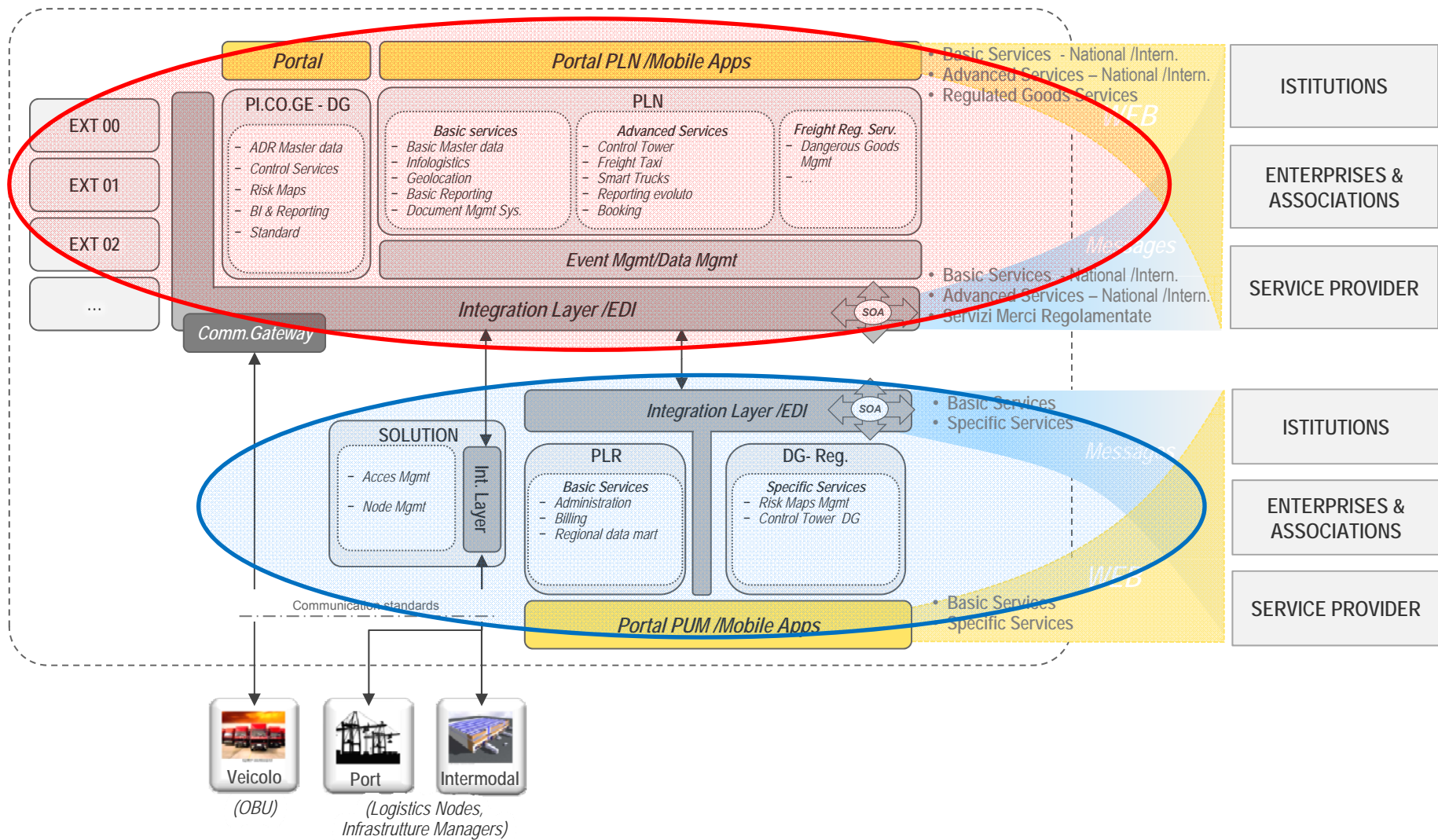


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# INTEGRATED PLATFORM FOR LOGISTICS AND TRANSPORT LOGICAL ARCHITECTURE MODEL - FUNCTIONS



# INTEGRATED PLATFORM FOR LOGISTICS AND TRANSPORT LOGICAL ARCHITECTURE MODEL - SERVICES

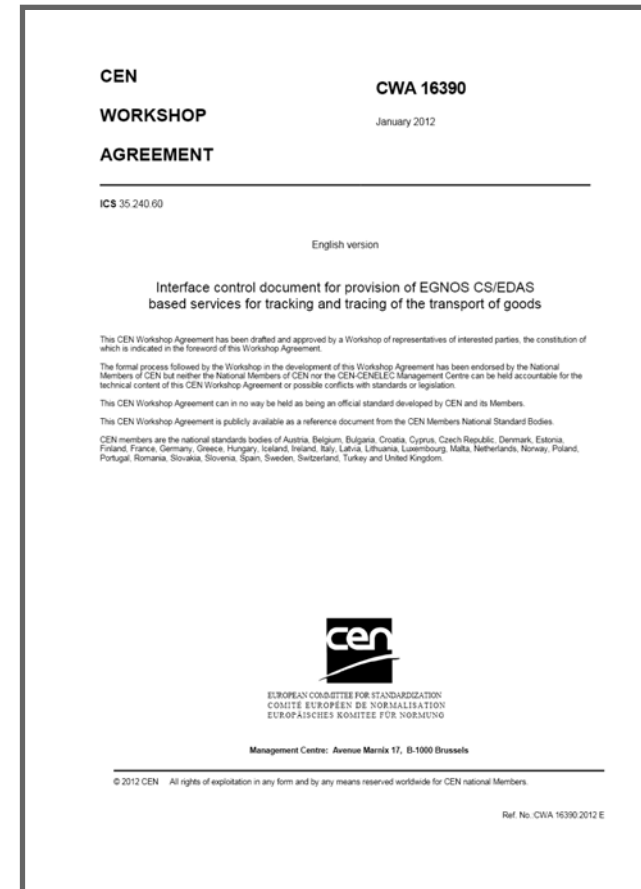
MIT	PLN	PUM	MP-R		
✓				<ul style="list-style-type: none"> <li>• Institutional Services <i>Institutional services aimed at the management or control of transport issues.</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Central Upgrade of risk maps</li> <li>• Manage maps and itineraries</li> <li>• Datawarehouse &amp; Reporting - Statistical data</li> </ul>
	✓			<ul style="list-style-type: none"> <li>• Basic Services - National/ International <i>Basic services of public utility. These services must be available to all users under the same conditions.</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Basic Master data</li> <li>• Infologistics</li> <li>• Geolocation</li> <li>• Basic Reporting</li> <li>• Document Mgmt System</li> <li>• Integration Middleware</li> <li>• Datawarehouse &amp; Basic Reporting – National</li> </ul>
	✓			<ul style="list-style-type: none"> <li>• Regulated Goods Services <i>Services dedicated on the management to the transport of goods with specific restrictions and regulations (eg Dangerous Goods).</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Dangerous Good Transport Management</li> <li>• ....</li> </ul>
		✓		<ul style="list-style-type: none"> <li>• Basic Services – Urban mobility <i>Regional services of public utility. These services must be available to all users under the same conditions</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Administration</li> <li>• Billing</li> <li>• Urban Data mart</li> </ul>
	✓			<ul style="list-style-type: none"> <li>• Advanced Services - National/Intern. <i>"End to end" services aimed at the management and control of aspects relevant for the goods transport.</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Control Tower</li> <li>• Freight Taxi</li> <li>• Smart Trucks</li> <li>• Booking</li> <li>• Info-road and alternative routes (Cciss's certificate data)</li> </ul>
			✓	<ul style="list-style-type: none"> <li>• Specific Services <i>"End to end" services aimed at the management and control of particular aspects of the goods transport (eg Dangerous Goods).</i></li> </ul>	<p style="text-align: center;">OBU</p> <ul style="list-style-type: none"> <li>• Risk Maps management</li> <li>• Dangerous Goods Control Tower - Regional</li> <li>• ...</li> </ul>

# 2011 - THE CEN WORKSHOP AGREEMENT

## CWA 16390

*Interface control document for provision of EGNOS CS/EDAS based services for tracking and tracing of the transport of goods*

*MIT is actually working with UNI to transpose CWA in national guidelines*



<ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA16390.pdf>



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***Thanks for your attention !***

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