BESTFACT
Workshop on e-Freight
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Intelligent Transport Systems (ITS)
Opportunities and challenges for intermodal transport

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5 Regional Commissions of the UN System

UNECE

ECLAC

ECA

ESCWA

ESCAP

UNECE Transport Division
Intermodal transport and sustainability

- **Sustainable transport**
  - efficient
  - make optimum use of infrastructure
  - safe and secure
  - clean and green

- **Intermodal transport** can maximise advantages of different modes in transport chains

- **But complex operations with:**
  - many stakeholders (operations – transshipment)
  - different rolling stock, equipment + infrastructures
  - various regulations (modal and international)
Intelligent Transport Systems (ITS) for intermodal transport

ITS definition (UNECE WP.24)

*Information, communication and data interface systems applicable within and between transport modes, transport infrastructure, rolling stock and transport users*

ITS solutions

- Information interchange between stakeholders and modes
- Alignment of different data exchange environments
- Transparent and stable procedures
- Optimum use of equipment
- Quick reaction times in case of delay or malfunctioning
ITS for intermodal transport

ITS requirements

- accessible (one stop shop)
- reliable (well-functioning)
- safe and secure
- affordable
- allow transparent operations (tracking and tracing)
- compatible with uni-modal systems (interfaces)
- internationally acceptable
- Interoperable (within and between 5 layers)
Interoperability of ITS solutions

5 interdependent layers for ITS development + applications

- Technical
- Semantic
- Organisational
- Legal (contractuel)
- Political

Source: Janin - UN/CEFACT
Stakeholders for ITS solutions

- Industry
  - Transport and intermodal operators (road, rail, IWT, road-rail, ro-ro)
  - Shippers and freight forwarders
- Governments and regulatory authorities
- International organizations (UN, EC, WCO, OTIF, OSJD, etc.)
- Non-Governmental organizations (ISO, UIRR, UIC, IRU, CC, FIATA, etc.)
Governments and regulatory authorities should

- provide good governance and stable framework conditions (political, legal, financial)
- monitor compliance
- collaborate with other authorities (security, environmental risk management, sustainable mobility, social regulations, Customs)
- ensure discrimination-free access to information by all stakeholders
- promote neutral and effective data exchange standards
Key challenges

- How to overcome the gap between ITS research and large-scale application?
- Who are the key drivers of ITS solutions in international transport chains, and why?
- How to surmount the patchwork of uni-modal and proprietary ITS solutions?
- What are the incentives to make this happen?
Intelligent Transport Systems (ITS) for Sustainable Mobility

UNECE Road Map for promoting ITS (2012–2020)

• 20 global actions to promote use of ITS
  • Action 6: Promote sustainable mobility principles
  • Action 13: Advance rail interoperability
  • Action 15: Integrate modal information systems for logistics

• Mandate for UNECE Working Party on Intermodal Transport and Logistics (WP.24)

• Some examples of UNECE activities: …
Interoperability of ITS solutions

5 interdependant work areas for ITS development + applications

1. Technical
2. Organisational
3. Legal (contractuel)
4. Political
5. Semantic

Source: Janin - UN/CEFACT
UNECE

ITS solutions: Semantic interoperability

BUY

SHIP

PAY

Prepare for Export

Export

Transport road, rail, IWT, sea, air, intermodal

Prepare for Import

Import

Commercial Procedures

Transport Procedures

Regulatory Procedures

Financial Procedures

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EDIFACT standard messages for transport and logistics

Examples:
- Transport Order: IFTMIN–IFCSUM
- Status report: IFTSTA Transport Booking: IFTMBP/BF/BC
- Manifest: IFCSUM (EDIMAN)
- Transport contract (CMR, CIM, Bill of Lading, Air Way Bill): IFTMCS
- Dangerous goods notification: IFTDGN
- Stowage plan (Bayplan): BAPLIE
- Berth management: BERMAN
- Waste disposal: WASDIS
- Logistics, cargo handling: HANMOV
- Invoicing: IFTFCC–INVOIC
- Customs: Manifest, Declaration, Response: CUSCAR, CUSDEC, CUSRES
Interoperability of ITS solutions

5 interdependent work areas for ITS development + applications

- Technical
- Semantic
- Organisational
- Legal (contractuel)
- Political

Source: Janin - UN/CEFACT
### AGTC Infrastructure Parameters (Annex III)

<table>
<thead>
<tr>
<th>Infrastructure Parameters</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing lines which meet the</td>
<td>New lines</td>
</tr>
<tr>
<td></td>
<td>infrastructure requirements and lines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to be improved or reconstructed</td>
<td></td>
</tr>
<tr>
<td>at present</td>
<td>target values</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of tracks</td>
<td>(not specified)</td>
<td>2</td>
</tr>
<tr>
<td>2. Vehicle loading gauge</td>
<td>(not specified)</td>
<td></td>
</tr>
<tr>
<td>3. Minimum distance</td>
<td>UIC B&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>between track centres</td>
<td>4.0 m</td>
<td></td>
</tr>
<tr>
<td>4. Nominal minimum speed</td>
<td>100 km/h&lt;sup&gt;3&lt;/sup&gt;</td>
<td>120 km/h&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>5. Authorized mass per</td>
<td></td>
<td></td>
</tr>
<tr>
<td>axle:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wagons ≤ 100 km/h</td>
<td>20 t</td>
<td>22.5 t</td>
</tr>
<tr>
<td>Wagons ≤ 120 km/h</td>
<td>20 t</td>
<td>20 t</td>
</tr>
<tr>
<td>6. Maximum gradient</td>
<td>(not specified)</td>
<td>12.5 mm/m</td>
</tr>
<tr>
<td>7. Minimum useful siding</td>
<td>600 m</td>
<td>750 m</td>
</tr>
</tbody>
</table>

1. Not of immediate relevance for combined transport, but recommended for efficient international combined transport.
2. UIC: International Union of Railways.
3. Minimum standards for combined transport trains (see annex IV).
ITS solutions: Legal interoperability

ITS and border crossing procedures

The Project

The objective of the project is to strengthen the capabilities of developing countries and countries with economies in transition in the fields of transport. The project is focused on enhancing the planning and implementation of transport infrastructure and services, with a particular emphasis on border crossings and transport facilitation.

Background

Border crossings have always been a problem in international trade and transport. The difficulties associated with border crossings and transport facilitation have been exacerbated by the increased volume of goods crossing international borders. The project aims to address these challenges by improving the efficiency and effectiveness of transport operations.

Objectives

The main objectives of the project include:

1. Strengthening the capacities of developing countries and countries with economies in transition in the fields of transport infrastructure and services.
2. Enhancing the planning and implementation of transport projects, with a particular emphasis on border crossings and transport facilitation.
3. Promoting the use of modern technologies and methods for enhancing transport operations.

The project is expected to have the following expected results:

1. Improved efficiency and effectiveness of transport operations.
2. Reduced时间和 costs associated with border crossings and transport facilitation.
3. Increased competitiveness of the transport sector in the region.

The project is expected to have a positive impact on the economic development of the region by improving the competitiveness of the transport sector and enhancing international trade.

The project is expected to be completed by the end of 2023.
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ITS solutions: Legal interoperability

TIR Convention (Customs transit)
Towards unified railway law

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ITS solutions: Legal interoperability
Joint Declaration towards Unified Railway Law
Geneva, 26 February 2013

Signed by Transport Ministers of 37 States

Armenia
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Estonia
Finland
France
Germany
Greece
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Malta
Mongolia
Netherlands
Pakistan
Poland
Portugal
Moldova
Romania
Russian Federation
Serbia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Ukraine
Uzbekistan
Joint UNECE Declaration towards Unified Railway Law

Two-pronged approach
- parallel + complementary -

Governments
(UNECE+ESCAP)

Railway industry
(railways, shippers, freight forwarders, etc.)

Group of Experts towards unified railway law
+ UNECE Working Party on Rail Transport (SC.2)

Interested railway enterprises
assisted by international railway organizations

Legal framework for rail transport from the Atlantic to the Pacific, with equivalent rules as for road, air and maritime transport (Geneva Rules)

Optional model rules for Euro-Asian rail transport contracts based on CIM and SMGS (GTC EurAsia)
Revision of the IMO/ILO/UNECE Guidelines for packing of cargo in intermodal transport units (cargo transport units)

- 1996: Developed and adopted by IMO, ILO and UNECE (WP.24)
- 2010: WP.24 decided to contribute to review and update of guidelines in cooperation with ILO and IMO
- 2014 ?: Adoption of a Code of Practice (cargo insurance for air, maritime, road, rail and IWT)