



TOOLBOX ELEMENT: IT VISUALISATION TOOL REVISION

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FINAL VERSION

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1. Introduction

The Goal of this work package was to identify and provide a suitable IT tool to visualize multimodal transport routes. This tool would be used in the framework of the ChemMultimodal Toolbox. For this purpose all partners did a research in their regions and used a template to describe the different tools with the aim to choose a suitable already existing tool or to make a choice to develop an own IT tool.

The existing tool “Intermodal Links” got good results in this analysis. It was fulfilling initial approaches and covered core requirements like European wide availability, high topicality of the routes and connections, integration of different transport modes, etc.

Intermodal Links gave the ChemMultimodal project a very good base to test and analyse features of a possible IT tool for transport routes planning. During the pilot phase Project’s partners were working on Intermodal Links and had an opportunity to confront this solution with practical needs and challenges of multimodal transport management - mainly planning new routes. Several opinions were collected during the revision of IT tool. Some of them are listed below:

- *Very general tool*
- *Does not provide complete data for decision-making or logistics planning*
- *Very useful and self-descriptive tool with a wide range of functions*
- *Schedules have a great topicality*
- *Time schedule link did not work*
- *Easy to use and quick in visualization*
- *Mainly supported by the railway and water logistics operators*
- *Do not offer the chance to go by trucks (important issue in multimodal transport)*
- *Appears more like a database of logistics operator instead of a tool, that demonstrates comparison between different modes*
- *Not available but rather nice to have option*
- *Not complex - but should include information about terminal and LSP*
- *Extend by other functions: visualize transport route, options to use individual transport modes ...*
- *Provide information about the existing loads of individual LSPs and terminals - detect capacities*
- *If it would be designed as a database with online access for both chemical companies and LSPs, then it could be useful, but in current state it is not used by chemical companies*



- *Actual information about LSPs and terminals with visualizing possibilities of concrete transport routes were created, it would become an important tool for logistics planning*
- *Database should be extended and the link to time schedule must work. At start the table at the intermodal links platform promised one day transport time, but on the service providers' page it was three days → reliability of data shown, which one is correct?*
- *This tool is seen by respondents to be a very general tool not providing complex information for decision-making, for logistics planning respectively.*

Additionally, the IT Visualization element was not frequently used by stakeholders. The underlying reason for not using it might be a change in the sign-in process. When deciding for the Intermodal Links Planner as the most suitable online visualization platform for the toolbox's purpose, the access was possible without inserting any personal data. This means that currently the user is either asked to insert an email address in order to receive a one-time access code (= token) or to create an account. It is likely that the token is categorized as spam, thus also the spam folder should be checked for forwarding links or codes. This intermediary step was not yet introduced when establishing the toolbox, thus users might had been confused. However, by this action the platform operators aim for collecting data and deriving patterns, which in turn allow them to design customized solutions etc.

During the ChemMultimodal Transnational Working Group Meeting in Linz in September 2018, project's partners discussed possibilities to develop or replace Intermodal Links with other platform that would be an element for supporting ChemMultimodal tool with the multimodal transport flow planning, scheduling and visualisation. It was agreed to analyse available solutions and support the tool.

In general one can summarise that the IT element does not demonstrate a sophisticated, IT-based, multimodal transport planning tool. However it should be underlined that the project goal is to promote multimodal transport awareness among chemical sector and not necessarily to develop IT solution.



2. Revision of IT Visualisation - the model approach

After the revision of IT Visualisation element and to meet the needs for its development the following improvement are proposed:

- Expanding the range of information of available routes connections with respect to multimodal requirements (different transport modes)
- Expanding the information on intermodal terminals and their capacities - especially with equipment necessary to handle chemical products (i.e. hazardous goods handling)

Therefore the morphology of the IT Visualisation element should be additionally developed by intermodal terminals handling chemical products (with special attention to hazardous goods handling). The road transport should also be covered to cover whole multimodal route from point A to B. Additional information that would impact on platform value is the data covering possibilities to combine small size cargos or information on empty transport space that could be completed by additional loadings. Table 1 presents expanded IT Visualization morphology, where red part means additional features updated based on the tool revision and yellow part means the features that are the most desired in the ideal IT platform model for international multimodal transport management in EU.

Tab. 1: Morphology

| | | | | | |
|----------------------------------|-----------------------|-----------------|--|-------------|--|
| Range | regional | Europe wide | | | World wide |
| Features | planning | | | scheduling | |
| Access | for a fee | account needed | | free access | |
| Number of Operators | <50 | <100 | <150 | >150 | |
| Modes of Transport | rail | inland waterway | short sea | sea | road |
| Transport hazardous goods | information available | | information on request | | information not available |
| Intermodal terminals | General purposes | | Possibilities to reload chemical goods | | Handling of Dangerous Goods (RID/ADR); Storage capacity (which classes, number of spots); Cleaning services (which classes); Leakage |



| | | | |
|--|-------------|------------------|---------------------|
| | | | zone |
| Info on modes of transport served in the terminal | no | partly | yes |
| Info on load units capable of being transshipped* | no | yes | |
| Topicality | up to date | periodic updates | irregular Updates |
| User Interface | easy to use | | training required |
| Costs estimation | No | On request | Average estimations |
| Time estimation | no | yes | |
| Route length estimation | no | partly | yes |

* i.e. Container 20'; Container 30'; Container 40'; Container 45'; Swap body up to 7.82m; Tank container up to 7.82m; Swap body



3. IT Visualisation revised

Based on the market research one can say that currently there is no single platform covering all pointed aspects that could meet the needs with such a holistic approach as pointed in table 1. Therefore as revised IT Visualisation element we propose to support Intermodal Links platform by using additional IT solution helping stakeholders cover whole information needed for multimodal transport planning. This solution might be used until either Intermodal Links will be developed accordingly or new one with the expected features will be implemented and offered to support chemical multimodal transportation.

Table 2 presents platforms that can complete Intermodal Links solution to cover all the information needed for complex multimodal transport management.

-  Railway Tools
-  Intermodal Route Planner
-  Intermodal Links
-  Shortsea Schedule

Tab. 2: Morphology with the most appropriate tools classified

| | | | | | | | |
|----------------------------|--|--|--|---|--|---|---|
| Range | regional | | Europe wide |  | World wide |  | |
| | | |  |  | | | |
| Features | planning | | | scheduling | | | |
| |  |  |  |  |  | | |
| Access | account needed | | | free access | | | |
| |  |  | |  |  | | |
| Number of Operators | <50 | <100 | <150 | >150 |  |  |  |
| Modes of Transport |  rail   |  inland  waterway | short sea    | sea   |  road   | | |



| Transport of hazardous goods | information available | information on request   | information not available   |
|---|---|--|--|
| Intermodal terminals | General purposes   | Possibilities to reload chemical goods | Handling of Dangerous Goods (RID/ADR); Storage capacity (which classes, number of spots); Cleaning services (which classes); Leakage zone |
| Info on modes of transport served in the terminal | no  | partly  | yes  |
| Info on load units capable of being transshipped * | no    | yes | |
| Topicality | up to date    | periodic updates  | irregular Updates |
| User Interface |   easy to use |   | training required |
| Costs estimation | No    | On request | Average estimations |
| Time estimation | no | yes   |  |
| Route length estimation | no   | partly  | yes |

* i.e. Container 20'; Container 30'; Container 40'; Container 45'; Swap body up to 7.82m; Tank container up to 7.82m; Swap body



4. Supporting information sources

Additionally the following platforms were identified as a helpful support completing information on routes and railway infrastructure in UE:

- Open Railway Map (<https://www.openrailwaymap.org/>)
- Bohemiakombi (<http://bohemiakombi.cz/>)
- Kombiverkehr (<https://www.kombiverkehr.de/de/verkehr/#terminals>)
- UTK (http://www.utkgik.home.pl/mapa_obiektow_kolejowych/)
- PLK (<http://mapa.plk-sa.pl/>)
- Metrans (<https://www.metrans.eu/>)
- DB Cargo (<http://netzwerk.dbcargo.com/>)

In terms of ports, short-sea connections and terminals the following platforms can be a support:

- Baltic Transport Map (www.europeantransportmaps.com/map/intermodal)
- Shortsea schedules (<http://www.shortseaschedules.com/>)
- Port of Rotterdam (<https://navigate.portofrotterdam.com/>)
- Maersk (<https://www.sealandmaersk.com/global-coverage>)

In terms of intermodal terminals the following platforms can be used:

- www.intermodal.sk/intermodalne-terminaly-krajin-visegradskej-stvorky/461s (Czech, Slovakia, Hungary and Poland)
- (<https://www.metrans.eu/>)
- <https://www.kombiverkehr.de/en/transport/#terminals>
- <https://www.bohemiakombi.cz/terminals> (Czech, Slovakia)
- http://www.utkgik.home.pl/mapa_obiektow_kolejowych/ (Poland)

Table 3 presents additional features and information available on each of the found platform. It must be underlined that due to the fact that platforms are created and supported by different institutions (private or public) they have different partners uploading their data basis. Therefore the features and updates might differ in time. Table 3 was updated on October 28th, 2018.



Tab. 3: Examples of platforms with multimodal supporting information

| Name | Web page | Railway infrastructure | Railway operators' connections | Short sea connections | Intermodal terminals | Ports | Roads | Inland waterways | Airports | Geographical range |
|---|--|------------------------|--------------------------------|-----------------------|----------------------|-------|-------|------------------|----------|--|
| Open Railway Map | www.openrailwaymap.org/ | X | | | | | | | | Worldwide |
| European Rail Freight Corridor Map | https://cip.rne.eu/apex/?p=212;24:16014847102827 | X | | | X | | | | | Europe |
| TENtec Interactive Map Viewer | http://ec.europa.eu/transport/infrastucture/tentec/portal/map/maps.html | X | | | X | X | X | X | X | Europe |
| Baltic Transport Map | www.europantransportmaps.com/map/intermodal | | X | X | X | X | | | | Europe, Asia |
| Port of Rotterdam | https://navigate.portofrotterdam.com/ | | X | X | X | X | | | | Worldwide (* CO2 emission calculator included) |
| Intermodal Planner | https://intermodalplanner.eu/Planner | | | X | X | X | | | | Europe |
| Railway tools | https://railway.tools/#/en/connections | X | X | | X | | X | | | Europe |
| Intermodal promotion centre, Ministry of Transport and Constructions of Slovak Republic | www.intermodal.sk/intermodalne-terminaly-krajiny-visegradskej-stvorky/461s | X | | | X | | | | | Czech, Slovakia, Hungary, Poland |



| | | | | | | | | | | |
|---------------------|--|---|---|---|---|---|--|--|--|---|
| Metrans | www.metrans.eu/ | X | X | | X | | | | | Austria, Poland, Czech, Slovakia, Germany, Belgium, Hungary, Slovenia |
| Kombiverkehr | www.kombiverkehr.de/en/transport/#terminals | X | X | | X | | | | | Europe |
| Bohemiakombi | www.bohemiakombi.cz/terminals | X | | | X | | | | | Czech, Slovakia |
| DBCargo network map | http://netzwerk.dbcargo.com/ | | X | | X | | | | | Europe |
| Shortsea Schedules | www.shortseaschedules.com/ | | | X | | X | | | | Europe, North Africa |

5. General conclusion and recommendation for ChemMultimodal IT Visualisation tool element

Digital platforms are currently fast developing tools for logistics and transport management. ChemMultimodal partners and stakeholders were testing the Intermodal Links platform for the purpose of supporting multimodal transport planning and scheduling within routes in Europe. This tool element does not support all of the expected combination of information that would guarantee perfect knowledge on available opportunities for modal shifts within Europe. However based on our best knowledge currently there is no single tool (platform) that might support such an information available on the market that could be easily accessed and is dedicated to specific chemical industry multimodal transportation needs. Therefore, after the revision of the most important available tools we recommend to leave Intermodal Links as the basic accessible and tested by ChemMultimodal stakeholders' solution that might be supported by additional complimentary platforms helping transport managers to gain a comprehensive picture of available multimodal solutions within different routes in EU.



6. Outlook

Railway Tools

In April 2018 the industry associations Allianz pro Schiene (ApS) and the Federal Association of Road Haulage Logistics and Waste Management (BGL) concludes a cooperation. The patron of the new partner project is German Federal Minister of Transport Andreas Scheuer. With the help of the online platform "railway.tools", DB Netz, Allianz pro Schiene and BGL will considerably simplify the access to combined road / rail transport.

Together, the three cooperation partners also want to work on developing the link between the two modes of transport in an intelligent, transparent and neutral manner. The logistics platform is to be further developed in a user-friendly manner as the centerpiece of this initiative and geared towards the major passenger portals of passenger transport.

Via railway.tools, hauliers should be able to easily and quickly determine possible routes as an alternative to the road. With the help of the platform, they should not only be able to find routes, but also book online - to form a digital platform for all types of transport. „Basically, we are planning a digital logistics platform for all transport variants in pre-, main- and post-carriage ", said Prof. Dr. med. Dirk Engelhardt, Managing Director of the Federal Association of Road Haulage Logistics and Waste Management (BGL) e.V. "If we can make a breakthrough here together with the Allianz pro Schiene (ApS) and the DB Netz, that will be a major relief for the Combined Transport in Germany."

Currently, there is no sufficient transparency about intermodal transport offers for consignors of goods in transit or for forwarding agents and road hauliers. The online platform railway.tools, developed by DB Netz AG, will close this gap step by step. The portal offers terminals, operators, connections, trains and loading points at a glance. With the help of BGL and Allianz pro Schiene, DB Netz intends to consistently develop the transport company-neutral platform in the interests of users. Already today, more than 20,000 transfer connections and around 900 charging points can be called up online and thus combined.