



FINAL IMPLEMENTATION REPORT

(D.T2.7.5)

Hungary

31st August 2018

A. Overall Pilot Approach

a. Pilot Phase Summary

The Hungarian intermodal transport is continuously growing in the past 5 years, this increase was in 2013/2014 9 % and in 2014/2015 comparing with the total turnover it was 11 % for the whole country.

According to the data of the Hungarian Association of Logistic Service Centres, relevant turnover is made only combi-terminals located in the central part of the country. Direct international trains start and arrive here. 91 % of the total Hungarian multimodal transports have arrived to the country through three central combi-terminals (BILK combi-terminal, MAHART Container Centre, Törökbálint combi-terminal) in 2015. In comparison of 2014/2015 the turnover of these combi-terminals has increased by 16,4 %. Concerning the terminals in countryside the turnover could be increased in Sopron by 15 %, whilst the turnover in Záhony continuously decreased.

Companies producing high volumes (especially bulk products or high cubic ones) are not interested in multimodal transport and rely on their own fleet or the contracted service providers without any mind to change.

Companies used to refer to the regulations (basically to GMP) that expects the total traceability and visibility of the transport and also the well-documented circumstances (storage, temperature, intact truck-load, etc.). This is mainly because these companies have lack of relevant information about the recent developments of the intermodal transport systems and also about the possibilities in the terminals.

The Pilot Phase of ChemMultimodal project was a great opportunity for a so called “in situ” promotion of the multimodality for the chemical companies in various sectors of the industry and for service providers to establish new contacts and new service models for the near future. Hopefully this new knowledge will help a lot to implement the forthcoming Action plan and Transnational strategy in Hungary.



b. Pilot Phase Impact

Good result that companies that never ever thought about the environmental aspects of their transport activity (for these are basically outsourced, they did not care about) due to the discussions and demonstrations of the project and the Tool they were ready to change their mind. It is clear that due to lack of information in the previous time they were absolutely misinformed about the possibilities and advantages.

Additional fact that the general problem of the huge number of vacant driver position could cause problems in the supply chain performance what became a new factor to turn to other solutions.

Furthermore, the significant benefits shown in the individual company meetings based on the Tool, companies think as reality to use the Tool and the modal shift in their Corporate Social Responsibility (CSR) programs.

As it was reported in the first report (dated 23/02/2018), we can say that “something has started” thanks to the ChemMultimodal project and the broad communication used (conference, articles, newsletters, etc.). The total refusal of even thinking about the modal shift in the manufacturing companies a little bit moved to the more convenient position, and the presentation of the Toolbox was in every case very successful.

B. Participating companies

Name of company	Profile (products/services)	SME or large enterprise	Location (subject to pilot)
EGIS Ltd. Co.	pharmaceuticals, active ingredients	large	Budapest
Borealis L.A.T. Hungary	fertilizer	SME	Dunaharaszti
Richter Ltd. Co.	pharmaceuticals, active ingredients	large	Budapest
BI-KA Ltd.	LSP	SME	Szolnok
Plimsoll Ltd.	LSP	SME	Dunaújváros
BI-GE Holding Ltd. Co.	household chemicals, industrial chemicals	large	Szolnok



C. Transport routes addressed

#	GENERAL DATA			BEFORE PILOT LAUNCH			
	Chemical company addressed	Shipped materials or goods	Quantity (estimate; per month)	Logistic service provider(s)	Transport distance and mode(s)	Modal split (in %)	CO2 emitted (per month; calculated)
1	EGIS	active ingredient	1000 kg	Waberer's	1184 km road	100% road	73,408 kg
2	Borealis L.A.T. Hungary	fertilizer	60 t	Gebrüder&Weiss	1301 km road	100 % road	4,84 t
3	Richter	active ingredient	10 t	GVT, Eurogate, New Silkway	7620 km road	100 % road	4,72 t
4	BI-GE Holding Ltd.	chemicals	48 t	BI-KA Ltd.	1380 km road	100 % road	4,11 t
5	Nitrogénművek Private Co. Ltd.	fertilizer	350 t	Horváth Trans	530 km road	100 % road	11,50 t
..							

D. Planned and Realized Multimodal Shifts

#	Number of small face-to-face meetings	ANTICIPATED OR REAL SITUATION AFTER PILOT PHASE				CHANGE
		Logistic service provider(s)	Transport distance and mode(s)	Modal split (in %)	CO2 emitted (per month; calculated)	CO2 reduction (anticipated or real)
1	1	Eurogate	1137,5 km rail 46,5 km road	96 %	27,87 kg	45,54 kg
2	1	HUPAC	998 km rail 302,9 km road	76,7 %	2,44 t	2,4 t
3	1	GVT, Eurogate, New Silkway	6467 km rail 1153,2 km road	84,9 %	1,75 t	-0,39 t
4	1	BI-KA Ltd.	1341 km rail 39,1 km road	97,2 %	1,53 t	2,58 t
5	1	Plimsoll Ltd.	477 km inland waterway 53 km road	90 %	6,33 t	5,17 t



Route 1

Active ingredient transport for EGIS Ltd. Co. was the first successful shift from truck to multimodal mode. The material arrives regularly to Hamburg Port from China and the original transport was performed full on road.

The modal shift was started on a personal meeting where the Project Tool was presented to the representatives of EGIS and a sample was calculated together in order to show the benefits of the shift in timing, CO₂ savings and accuracy. Then the pilot transport was selected and the EGIS team has started the pre calculations and the planning activities for the shipment.

Using the Intermodal links portal, Eurogate International was selected as service provider for the route. However the direct contact between the EGIS staff and the service provider was primarily failed, with the direct help of the IFKA team the connection was built and the negotiations were successful.

The pre calculation of the possible CO₂ emission and savings was performed with the CO₂ calculator of the Tool, and after the fulfilment of the transport, the real post-calculation was also made.

The total length of the transport is 1184 km, and the full truck mode data are in the table B above. Based on the recommendation of the Intermodallinks portal and the advice of the service provider, the route selected was as follows:

Pre-haulage in Hamburg from the port to the terminal by truck: 5,4 km.

End haulage from Dunaharaszti BILK Kombiterminal to EGIS site by truck: 41,1 km

Electrified rail transport between the terminals: 1137,5 km.

Real CO₂ emission: 27,87 kg.

Emission saving: 45,54 kg (62 %)

The shift is successful, so it will be used as well in the future.

Result of the Pilot (by 31 August 2018)*

- proposed transport reorganisation discarded because found solutions are not competitive
- proposed transport reorganisation discarded because of lacking logistic service providers or infrastructures
- proposed transport reorganisation under evaluation by company decision-makers
- proposed transport reorganisation tested under real-life conditions (__x times)
- proposed transport reorganisation effectively approved
- other: _____



Success Factors

Most important was in the success the open minded support from the company decision makers after the individual meeting. The successful presentation of the Tool was very impressive to help the decision. For the pilot met all the requirements of the company, the further use of the multimodal mode was “natural”.

In the pharmaceutical industry the finished products’ volume (in tonnage) very low, and due to the customers’ requirements, the replenishment must be rather frequent which makes too big challenge for the multimodal transport.

Use of Tool-Box

Tool-Box Element	Who used this tool-box element? (project representatives/logistics service provider/chemical company representatives)	How was the element evaluated? (scale: not useful, somewhat useful, very useful, not used)
IT-Visualization	Project representative and chemical company representatives	very useful
Consulting services	Project representative	somewhat useful
Planning Guideline		not used
CO2-Calculator	Project representative and chemical representatives	very useful

COMMUNICATION

There is a possibility for participating in a presentation on the yearly conference of the Hungarian Association of Purchasing, Logistics and Inventory Management in November 2018 (to be fixed).



Route 2

Borealis L.A.T. Hungary serves the Hungarian agro-market with fertilizers, mainly in two campaigns (in spring and in autumn). In these campaigns huge quantity of fertilizers are moved from the main factories to the markets. Hungary is served from Moustier (Belgium), and one transport contains approximately 100 pallets (60 tons). Despite of the fact that this quantity could be transferred only on 3 big trucks comparing with the one shot shipment by rail, the resources needed for the shipments are also different and better for the rail mode.

The modal shift was performed via bilateral meeting with Borealis responsible, and all element of the Tool were presented (planning guidelines only in some words for the tables in the background are not fully filled yet). The Intermodallinks portal and the CO₂ calculator were clear enough to assess the pilot to see real results of the modal shift.

The total length of the route is 1301 km. With the original full truck mode the results and data are seen in the table B above.

Using the Intermodal links portal, HUPAC Ltd. was selected as service provider for the route. The staff was prepared for the modal shift in Belgium and in Dunaharaszti (Hungary) as well, underlining that this shipment if for the next campaign and the accurate performance and arrival are essential.

In the modal shift the new solution was as follows:

Pre haulage from Moustier to Duisburg Terminal is 296 km by truck.

End haulage from the BILK Kombiterminal in Dunaharaszti to the Borealis site is 6,9 km by truck.

Electrified rail transport from Duisburg to Dunaharaszti is 998 km by rail.

CO₂ emission in the modal shift: 2,44 t

CO₂ emission saving: 2,4 t (49,6%)

Based on the satisfied results, the next campaign will also start with this modal shift and then there will be a high level company decision about the final change.

Result of the Pilot (by 31 August 2018)*

- proposed transport reorganisation discarded because found solutions are not competitive
- proposed transport reorganisation discarded because of lacking logistic service providers or infrastructures
- proposed transport reorganisation under evaluation by company decision-makers
- proposed transport reorganisation tested under real-life conditions (_1_x times)
- proposed transport reorganisation effectively approved
- other: _____



Success Factors

Relatively high volume was available for the pilot, and the use of the Tool helped to show the comparison with the full truck road.

For the transport of the company is strictly linked to the two campaigns per year further extension of multimodality not realistic in Hungary, perhaps in destinations to other countries could be a potential based on the good experiences gained during the pilot.

Use of Tool-Box

Tool-Box Element	Who used this tool-box element? (project representatives/logistics service provider/chemical company representatives)	How was the element evaluated? (scale: not useful, somewhat useful, very useful, not used)
IT-Visualization	Project representative and chemical company representative	very useful
Consulting services	Project representative	somewhat useful
Planning Guideline		not used
CO2-Calculator	Project representative and chemical company representative	very useful

COMMUNICATION

Communication is strictly controlled by the headquarter of the company and no possibility to have further information or communication.



Route 3

The third route for the pilot phase is the shipment of active ingredients from Vuhan, China to Richter Gedeon Ltd Co. (pharmaceutical company). In this special case the planned modal shift is not the one from full truck mode to multimodal mode but a shift from truck and sea transport to truck and rail. The reason is, that based on the Intermodallinks and the CO₂ calculator of the Tool, the modal shift will result a definite saving in transport time with nearly neutral CO₂ emission difference.

The planning tool of the project was used on a bilateral meeting with Richter representatives. On the meeting the Intermodallinks as a tool for route planning and the CO₂ calculator was presented. Based on the surprising results of the calculation a special decision was made:

The pilot project was to transport 10 t active ingredients from Vuhan to Budapest. The original route is a truck pre haulage to Chengdou, then sea transport to Rotterdam and then an end haulage by truck to Budapest.

The total transport time is approximately (depending of the net shipping time and the loading time in the Chinese port) 6 weeks.

The calculated CO₂ emission is **1,75 t**.

The modal shift is:

Pre haulage by truck from Vuhan to Chengdou: 1136 km.

End haulage from Budapest BILK Kombiterminal to Richter site by truck is 17,2 km.

Electrified rail transport from Chengdou to Budapest by rail is 6467 km.

The calculated CO₂ emission is **2,14 t**.

The total transport time is 26 days.

After the pilot shipment a final decision will be made by the company taking into account the timing and especially the quality and temperature effects about the future use of the new transport route and mode.

Result of the Pilot (by 31 August 2018)*

- proposed transport reorganisation discarded because found solutions are not competitive
- proposed transport reorganisation discarded because of lacking logistic service providers or infrastructures
- proposed transport reorganisation under evaluation by company decision-makers
- proposed transport reorganisation tested under real-life conditions (_1_x times)
- proposed transport reorganisation effectively approved
- other: _____



Success Factors

Due to the importance of the delivery time the multimodal shift gave an opportunity to save two weeks in the total timeframe. However the saving of the CO₂ emission is not eligible in this case, the modal shift was successful. The pilot was made as real experiment to have a second opportunity for the company in case of emergency.

Use of Tool-Box

Tool-Box Element	Who used this tool-box element? (project representatives/logistics service provider/chemical company representatives)	How was the element evaluated? (scale: not useful, somewhat useful, very useful, not used)
IT-Visualization	Project representative	very useful
Consulting services	Project representative	somewhat useful
Planning Guideline		not used
CO ₂ -Calculator	Chemical company representatives	very useful

COMMUNICATION

Currently there's no chance for wide communication.



Route 4

BI-GE Holding Ltd. is one of the biggest Hungarian chemical company, having sites on different locations in the country and producing various household chemical, and raw materials for the industry as well. The company is frequently exports products to Ukraine (Kyiv), mainly from its central chemical factory in Szolnok.

So far all the shipment to Ukraine were performed in full truck mode especially because of their old estimates about the effectivity of the multimodal solutions. Based on a trilateral (BI-GE, IFKA and BI-KA) meeting where the planning tool was presented a pilot shipment was decided to be performed in the summer period. In the conversation with the partners the full planning tool was used and presented, using a general example from Szolnok to Ukraine. Based on the results the following pilot was selected:

Pre haulage from the manufacturing site to the BI-KA terminal in Szolnok by truck: 5,6 km.

End haulage in Kyiv from the terminal to the warehouse of the wholesaler by truck: 33,5 km.

Electrified rail transport between the terminals in Szolnok and Kyiv by rail: 1341 km.

Calculated CO₂ emission in modal shift: 1,53 t

CO₂ emission saving in comparison with the full truck mode: 2,58 t. (62,8 %)

Result of the Pilot (by 31 August 2018)*

- proposed transport reorganisation discarded because found solutions are not competitive
- proposed transport reorganisation discarded because of lacking logistic service providers or infrastructures
- proposed transport reorganisation under evaluation by company decision-makers
- proposed transport reorganisation tested under real-life conditions (__x times)
- proposed transport reorganisation effectively approved
- other: _____

Success Factors

The very effective trilateral communication (company, LSP, IFKA) with a successful presentation of the Tool led to the realization of the pilot transport. Although the company has frequent transport to this destination, there's no real commitment in the company for the final modal shift. The real volumes are different and the customers' needs can overwrite previous decisions for modal shift due to urgency. The management will strictly analyse the possibility to extend the solution to other destinations.



Use of Tool-Box

Tool-Box Element	Who used this tool-box element? (project representatives/logistics service provider/chemical company representatives)	How was the element evaluated? (scale: not useful, somewhat useful, very useful, not used)
IT-Visualization	Logistic service provider	very useful
Consulting services	Logistic service provider	very useful
Planning Guideline		not used
CO2-Calculator	Logistic service provider	very useful

COMMUNICATION

Despite of this report no further communication is possible.



Route 5

Plimsoll Ltd. is one of the biggest service provider on the bulk transport market, and their speciality is the inland waterway. Depending on the navigability of Danube they organize transport of very high volumes due to the capacity of the barges. However the well-known problem of the non-stable water quantity in the river, the transports have definite risk, and additionally, the lead time of the shipment is much longer than on the road. But one has to take into account as well the possibility to transfer the high quality in one shot with one loading and one unloading operation including the possibility to make the customer-size packaging only just before the final transport to the required location (to be outsourced for the manufacturer).

On the pilot kick-off stakeholder meeting (18/10/2017) the whole Planning Tool was presented and based on this (presentations were shared with the participants) Plimsoll Ltd. has decided to be part of the Pilot phase.

The pilot selected is a transport of 350 tons of fertilizer produced by Nitrogénművek Private Co. Ltd. to be shipped from Dunaújváros (base location of Plimsoll Ltd. for loading) to Passau (DE) on the Danube. Organizing this transport on road means the use of 15 trucks, additionally usage of fork-lifts and other loading facilities on both starting and receiving sites.

Based on the face-to-face or triangle meeting with the manufacturer who is willing to be part of the Pilot and presented even them the Tool and the expected results of the modal shift the implementation of the pilot was approved.

However, due to the water conditions in Danube (very low water level) the inland waterway transports are stopped for the moment, so the realization should have been postponed until the conditions will be good enough.

The total distance of the cargo is 530 km.

The calculated CO₂ emission in the full truck mode is: 11,5 tons.

Estimating the 10% pre haulage and end haulage with trucks and performing the shipment on the river, the calculated CO₂ emission in multimodal mode is: 6,33 tons.

The calculated saving in emission by the modal shift is: 5,17 tons (45%).

Result of the Pilot (by 31 August 2018)*

- proposed transport reorganisation discarded because found solutions are not competitive
- proposed transport reorganisation discarded because of lacking logistic service providers or infrastructures
- proposed transport reorganisation under evaluation by company decision-makers
- proposed transport reorganisation tested under real-life conditions (___x times)
- proposed transport reorganisation effectively approved
- other: _____



Success Factors

The bilateral and trilateral meetings involving the company and the LSP provides the basis of the success together with the live presentation of the Tool. In this special case the “regular” Intermodallinks does not work for this is only for train transports, the CO₂ calculator is very useful to show the importance of the modal shift. No doubt that the timing of the transport could be a blocking factor for the inland waterway means definitely longer delivery time, but in case of large volumes the additional costs saving (trucks, drivers, fork-lifts, etc.) could make it comparable.

For the water level in Danube is not fix (due to the missing barrages), the transport with inland waterway solution is rather uncertain.

Use of Tool-Box

Tool-Box Element	Who used this tool-box element? (project representatives/logistics service provider/chemical company representatives)	How was the element evaluated? (scale: not useful, somewhat useful, very useful, not used)
IT-Visualization	Project representative and logistic service provider	neutral
Consulting services	Logistic service provider	very useful
Planning Guideline		not used
CO ₂ -Calculator	Project representative and logistic service provider	very useful

COMMUNICATION

For the pilot practically is not performed yet, no possible communication is available.



E. Conclusion and further plans

a. Task of the national project team

Partner 1: EGIS Pharmaceutical Ltd. Co.

Main tasks:

EGIS was participating in the pilot as a manufacturing company. Based on the manufacturing and purchasing plan, the logistic department had to select the relevant raw material for the pilot. Using the Tool and the IT visualisation, Purchasing contacted the possible service provider for quotation and they have made the comparison analysis with the current solution they use (full truck mode). After the approval of the modal shift, they have ordered the service, specifying the product, the volume, the packaging form, the delivery requirement and the quality standards together with the starting point (Hamburg port) and the final destination (EGIS site in Budapest). The LSP informed the company about the start of the cargo and the company and the LSP made on-line track during the shipment. The arrived material was sampled and tested.

Approximate project resources spent for local pilot (including personnel): six man-days (as total)

Partner 2: BI-KA Ltd. Co.

Main tasks:

BI-KA Ltd. Co. was participating in the pilot phase as Logistic Service provider. In this role BI-KA Ltd. Co. participated on the bi-lateral and trilateral meetings and made an offer for the company with the modal shift. Also provided an analysis for the customer to see the advantages and small disadvantages of the offered solution. They worked out the detailed route plan, negotiated with the terminal operators at the destination (the starting point was their own terminal in Szolnok) and provided the end haulage also to the final warehouse. Also provided the loading and unloading service for the company to make the procedure as simple as possible. During the shipment time BI-KA provided continuous detailed live information about the tracking of the cargo for the customer.

Approximate project resources spent for local pilot (including personnel): 10 man-days



b. Sustainability and transferability

The big success of the pilot actions show that there is a definite room for improvement and modal shift of the transports. Due to the fact that Hungary is a small territory, no long distances between the companies and the customers, the modal shift is a potential only for export destinations (or imports). The economic circumstances now rather proper for such kind of discussions and decisions due to the situation on the roads in Europe and the lack of available drivers and trucks.

The Tool itself is a very good instrument for the planning and implementing the modal shift, and was very useful on the bilateral and trilateral meetings. Further use of the Tool could be extended with the actualization and refreshment of the Planning Guideline for the information in the support tables are not totally relevant. A user manual is needed for the LSPs to teach them for the replenishment of the data to the support tables and a common method for data collection.

Good experience, that with proper organization the pilots arrived on time and this is the best argument for the participating companies and LSPs to new potentials.

No doubt that investment in the infrastructure and implementation of new terminals with new connections would help a lot for the modal shift. An analysis of the special routes where terminals could be needed would be a big help for the potential investors as well.

Given the fact that high volumes are transferred on road in other industries than chemical, organization of trainings, conferences and site visits could be the tool for the extension of the modal shift solution to various destinations and products (e.g. agro foods, furniture, household machines, etc.).

c. Lessons learned

The best lesson of the implementation phase of the pilot project learned is the power of the personal communication and the importance of the clear, understandable and absolutely true information. The meetings with the stakeholders, using the proper tool for the presentation and for valid live simulations show that companies basically change their mind very slowly or resist any changes in their relevant and (according to them) fruitful solution, but could be absolutely open if the reason, the method and the expected result is clearly expressed and the most important cost effect is at least neutral or positive for the new solution. Any changes, modal shifts or other modification in the routine must result cost reduction or improvement in the total service of the company, otherwise (even clear advantage in environment protection) they are not interested.

The transnational cooperation with the project partners was very successful for on the meetings the results and the topics of the stakeholder meetings in other countries were well used in the communication with the companies and the LSPs. Furthermore the companies basically international ones, so results and decisions could be valid for the whole holding and can give the potential for further extension or investigations for extension of the modal shift.



Annexes

Document	Cloud link
Kick-off meeting minutes	https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary
Mid-term meeting (conference) agenda	https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq/download?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary&files=Conference%20agenda.docx
Mid-term meeting attendance list	https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq/download?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary&files=Jelenl%C3%A9ti%20C3%ADv%20Si%C3%B3k.docx
Mid-term meeting minutes	https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary#pdfviewer
Individual company meetings	<p>https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq/download?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary&files=EGIS%20meeting%20scanned.pdf; https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq/download?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary&files=BI-KA%20phone%20conf.%20scanned.pdf</p> <p>https://ifsl50.mb.uni-magdeburg.de/owncloud/s/vECivs6xxAHmLWq/download?path=%2F04%20WPT2%20Pilot%20Implementation%2FHungary&files=Borealis%20phone%20conf..doc</p> <p>x</p>