ACTION PLAN FOR FOSTERING COORDINATED MULTIMODAL FREIGHT TRANSPORT THROUGHT ICT SYSTEMS – BCT

DELIVERABLE D.T3.2.7 GDYNIA Node

Version 1

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1. Executive summary

This document includes the action plan fostering coordinated multimodal freight transport through ICT systems in the node of **Gdynia Port in Poland.**

Considering the results of the pilot action, it breaks down the goals of the strategy and wish list (WPT1) in specific tasks, KPIs, timeline, identification of financial resources and definition of responsible actors.

Please include an abstract of this action plan, outlining the most relevant content

BCT's pilot action was introduced to the market common communication platform for electronic data exchange coordinating rail deliveries to BCT (INCOS). The main task was to build a digital environment for the intermodal transport furnished with an integration module facilitating system-to-system integration. The platform was started in February 2021 in its trial version at the production environment. Trial period was evaluated in May 2021 with satisfactory results and since that time it is fully working. Currently, all the railways carriers and intermodal operators use the platform and all the containers discharged and loaded at BCT from and to wagons are announced and proceed via the platform as well as all trains. We managed to develop 10 integration communicates covering the whole intermodal train process starting from the creation and loading, through its trip up to the delivery and discharging. We managed to connect via an integration module with the operational systems with two of the biggest intermodal operators, covering the 70% of all the rail operations at BCT. We exchange approx. 55,000 integration messages monthly. The rest users who have not yet managed to connect or are missing in the operation system at all, are able to upload and download their data via the user interface available at web (www.incos.pl).

2. The strategy and the pilot action

In this section, please recall (=copy-paste) the goals and wish list of actions of the strategy.

Also, please outline the main findings from the pilot action.

Goal no. 1 - System integration with all major partners

Perspectives	*Goal*	*Measurement*	*BCT pilot action findings*
1. Environmental and safety perspective	*Some od papers documents (railway bill, discharging lists and loading confirmations) will be not printed any more but sent and stored electronically instead. We expect reduction of the paper used.*	*Expect reduction of paper usage/printing of approximately by 40% measuring by costs of printing paper bought per month or year.*	*the goal was reached. We do not print railway bill for 70% trains. We still keep printing for only one railway company but working to eliminate very soon. All discharging/loading list are proceed and exchange electronically. We keep printing in paper only for files recording and archiving (regulations). We reduced the cost of paper by 40%*

2. Internal processes perspectives	*We need to define all processes at terminal or re-define the ones existing in order to be covered them by Terminal Operating System. Some of processes are still not under the system and proceed with use of paper documents (warehouse, break bulk and project cargo operations). We Need also to introduce the tools assigning time of the execution of each process element to registered by TOS.*	*Increase the number of electronic communicates sent and received by TOS to/from partners on average daily session per month.*	*We manage to integrate two core operation systems at BCT: Main Sail and TOPIC with INCOS platform to transfer the data about readiness of the containers to load/discharge (Main Sail) and confirmation of operations start/completion (TOPIC). We register monthly ..... messages exchanged among these three systems.*
3. Innovation and growth perspective	*There is necessary to increase the capacity of TOS for exchange external communication and data storage by investing in IT hardware, TOS modification and/or pushing part of this to could.*	*Due to application of new technologies in data interchange with major partners we should observe by decrease of sessions in our Web User interface: ''Main Sail On Line'' which is now the basic tool in communication with partners. The measurement would be the number of sessions per month.*	*INCOS platform gives information about container readiness for loading/discharging at rail so we can observed decrease of the sessions at Main Sail on-line by. But decrease is not significant. Before INCOS platform introduction this ingo was verified by users via phone calls.* *Under COMODALCE project we bought a new server to host INCOS platform which increased our IT integration capacity significantly.*
4. Customer / Partner	*We need to look for synergies with partners, Organizing common workshops, look for the possibilities and common benefits in application system integration. Investigating present possibilities and IT capacity for integration.*	*We can measure the number of new system integration achieved during the year.*	*We manage to integrate system-to-system with two biggest intermodal operators (Loconi Intermodal & PCC Intermodal) . We are also advanced in talks with three railway carriers (PKP Cargo , CTL & DB Cargo Polska). Continue talks with Gdynia Port Authority to exchange information among INCOS and SZiPs system. Also talking to IT developer providing operational*

			systems for freight forwarders to adjust their product to possible future connection to INCOS.
5. Financial perspective	*System integration required some IT investments (works and hardware) which in long run brings much operational savings. Each of the partners will cover the initial costs of necessary II investments on his own sides counting on operational savings in future which can cover the initial cost.*	*System integration will result in reduction of employment, communication and claim costs. We can closely observe reduction of this costs categories year by year.*	*We observe the reduction of communication costs by 20% (less phone calls and reduction of time necessary for preparing e-mail and proceeding e-mails.*

Goal no. 2 - Connection to Gdynia Port Community System

Perspectives	*Goal*	*Measurement*	*BCT pilot action findings*
1. Environmental and safety perspective	*Definition of data interchange data safety standards, sign relevant agreements with PCS operator and apply them.*	*We can measures communication errors and incidents.*	*dictionaries of locations, containers and wagon codes were agreed among all the players and defined at INCOS as the common standard. We managed to contact "Polski PCS" and presented them. By the moment they do not plan to work on rail data exchange*
2. Internal processes perspectives	*We need to digitalize all order placing and operations executed at terminal.*	*We can measures TOS internal errors and communication errors with PCS per week/month.*	*Polski PCS is working since July 2021. By the moment only covering only electronic container custom release. BCT system register 3000 communication sessions with Polski PCS average per month (since July 2021).*

3. Innovation and growth perspective	*There is necessary to increase the capacity of TOS to exchange and storage of external communication by investing in IT (upgrades of software & hardware).*	*We should measure the increase of number of communicates exchanges between TOS and PCS.*	*During COMODALCE project BCT bought a new server to host INCOS platform which increased our communication capacity significantly.*
4. Customer / Partner perspective	*We should encourage our partners to connect to PCS showing the common benefits and helping with our know how and experience in this field.*	*We should register increase the communicates exchanged with PCS on weekly/monthly basis.*	*By the moment "Polski PCS" concentrates only on Custom release (on national level). The next areas will follow.*
5. Financial perspective	*PCS Operator should set up some business model of financing its operations and connection rules. By the moment it is governmental initiative financed by Port Authorities.*	*PCS operator should register and disclose the number new partners and services available by PCS on yearly basis.*	*By the moment "Polski PCS" is still under development and in that phase is maintained by Port Authorities. Future business model is not defined yet.*

Goal no. 3 - Creation Dynamic Truck Appointment System

Perspectives	*Goal*	*Measurement*	*BCT pilot action findings*
1. Environmental and safety perspective	*We need to create the system and port policy for truck movement monitoring to avoid port area congestion, long waiting time, managing trucks for even distribution within the day and week.*	*We should measure in real time terminal operations indicating to truckers the most convenient time of arrival (shortest waiting time). The shortest gate in/gate our time the better system is working.*	*The real time of truck staying at BCT vary a lot. Target is 30 min which is reachable in regular conditions. Gate in/gate out time depends heavily on the hour and day. It can reach sometimes even two hours when unfavorable conditions. Utilization of the storage yard has got a great impact on truck operations.*
2. Internal processes perspectives	*We need to gather all information about all planned operations at the terminal to be able predict in one 1-2 day in advance the peaks and lows during the day/week time in order to manage trucks' flow.*	*We should measure % of equipment utilization by shift and establish the desired level to be kept.*	*We measure this on regular basis and identify low and peaks within the day and within a week cycle.*

3. Innovation and growth perspective	*We should look for system integration with all tracking systems, motorway and read monitoring systems to identify trucks' movement.*	*We should measure the estimated waiting time indicated to the trucker when appointed the visit with the actual gate in/gate our time.*	*by the moment we are not able to do it but a new application which should be provided by Gdynia Port Authority should help. We prepared some temporal solution but need to be improved and developed. We are waiting for GPA project conclusion.*
4. Customer / Partners perspective	*We should to promote this solution among trucking companies, freight forwarders and operators and develop application available on mobile phones to be easy and user friendly to manage.*	*We should measure the satisfaction level of the users.*	*As the tool is not ready we cannot measure.*
5. Financial perspective	*DTAS will be developed by BCT means and initial costs of creation and implementation will be covered by future operational savings (elimination of congestion and idle time costs)*	*Due to better terminal work distribution operational costs should start to decrease.*	*Gdynia Port Authority is working to provide common TAS for all the terminals. Final financial decision will come in May 2022, conclusion in 2023.*

Goal no. 4: Connection to Polish National Transport System (national PCS)

Perspectives	*Goal*	*Measurement*	*BCT pilot action findings*
1. Environmental and safety perspective	*There is a need of digitalization of all the partners in the whole logistics chain including administration, customs and inspections. Establish standards of communications on national or European level, common policy and strategy for development.*	*We should measure growth of transaction number dome via National Transport System.*	*'Polski PCS" is now being developed as the national level system. This indicates a great potential of coordination of all transport in Poland. We are in contact with Polski PCS providing all necessary support. Give ideas and consultancy*
2. Internal processes perspectives	*We need to develop new capacity for exchanging and processing data. Take advantage of the fact of having access to more data and develop new procedures and IT tools lifting quality of our services on higher level.*	*The operational costs should continue to decrease year by year*	*Presently implementation of PCS saves approx. 3000 sessions of container release monthly done previously manually in BCT TOS by Custom officers. Now they go automatically from Customs*

			System to BCT TOS via PCS (CUSRES message).
3. Innovation and growth perspective	*Capacity of the terminal should to grow without any investments into infrastructure due to shorter storage and faster operations due shorter and smoother turnover of containers.*	*Amount of the containers shipped on national level should grow. All the participants of the transport chain should to register bigger sales.*	*Container volume in Poland and at BCT is growing dynamically reaching the limits of capacity. Better organization of all processes and digitalization is the only solution to maintain the growth without heavy infrastructural investments.*
4. Customer / Partner perspective	*National/European Regulator needs to promote, encourage and facilitate the connection of the new partners.*	*We should to measure the number of new partners connected and new services available for the partners.*	*We note more and more newcomers willing and exchanging now the data via system integration. Comparing April 2021 to Jan 2022 the number of INCOS sessions grew by approx.. 50% reaching 72500 sessions.*
5. Financial perspective	*National/European Regulator needs to finance IT infrastructure. The cost of connection and internal adjustment of local company system need to be covered by special financing program. Regulator need to develop preference financing tool (low interest loans or co-financing programs) for the small and medium companies.*	*Utilization the financing fund for development and functioning of national transport system.*	*Only due to EU co-funding INCOS platform could be developed. "Polski PCS" is being developed by Port Authorities (public sector) funds. This is a correct way for implementation of common tools to develop digital environment.*

3. Identification of the actions

3.1. Mapping the actions

Please fill the table below, summarising the actions to be taken (horizon: 2030).

Please find some examples as guidance.

ACTION/MEASURE	ESTIMATED COST	TIME HORIZON
Interoperability with all railway undertakings using the port of Gdynia	*150.000 euros*	*2025*
Including major inland terminals to INCOS platform	*47.000 euros*	*2027*

Integration of INCOS with Polski PCS as national level tool	*155.000 euros*	*2030*

3.2. Setting the actions

In this section, please describe the actions included in the previous table. Please find some examples as guidance. Please replicate this table for each action.

Action no. 1: *Interoperability with all railway undertakings using the port of Gdynia*	
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	**Establishing system-to-system integration with all railway carriers serving Gdynia Port. All wagon movement data will be transfer to INCOS in automatic way (no manual update).**
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	**1. Formal agreement of cooperation and using the system (in integration mode)** **2. Analysis of railway carriers' systems and it possibility of connection** **3. Development of 6 integration messages** **4. Testing and Implementation phase**
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	**Railway carriers (central and local offices): PKP Cargo, CTL Logistcis, CTL Północ, Lotos Kolej, DB Cargo Polska, Freightliner, Alza Cargo, LTG.**
Timeline *Indicate the time horizon for the implementation of the action*	**2025**
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	**Based on COMODALCE project experience (BCT Pilot WPT2 action and costs) we assume investment of:** BCT approx.. EUR 10 000 and EUR 20 000 per each railway Carriers (7); In total 150 000 EUR
Sources of financing[1] *What are the sources of financing? Private capital, public capital, CEF, etc...* *How much is the share covered by each of them?*	**Projects with EU cofounding or own funds (private capital)**
Impact of the initiative	**Automatic integration message interchange will all railway carriers serving Gdynia Port will secure reliable and punctual information resulting in better operation**

[1] This information, if already available, could be assumed in the draft version and it has to be confirmed in the final one

Describe the expected future economic, social, environmental impacts of this initiative	**efficiency: reduction of costs by better planning and increase capacity without any hard infrastructural investments due to reduction of idle/wating times.**
KPIs *Please identify the KPI to be used for measuring the action's impact*	**1. Idle/waiting train time at Gdynia port station. Total amount of wagon-hours per week, (expect reduction** **2. Idle/waiting time of wagons staying at terminal before and after loading operations. Total amount of wagon-hours per week (expect reduction).** **3. Punctuality of trains arrival at the terminal. Average delays (in minutes) per week per train against the plan. Expect reduction.**

Action no. 2: Including major inland terminals to INCOS platform	
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	**System Integration of major inland terminals into INCOS**
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	**1. Formal agreement of cooperation and using the system (in integration mode)** **2. Analysis of inland terminal operation systems and it possibility of integration and sending messages** **3. Development of 2 integration messages** **4. Testing and Implementation phase**
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	**Intermodal and terminal operators: Loconi Intermodal, PCC Intermodal, PKP Cargo Connect, Spedcont, Metrans, Fortis**
Timeline *Indicate the time horizon for the implementation of the action*	**2027**
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	**Based on COMODALCE project experience (BCT Pilot WPT2 action and costs) we assume investment of:** BCT approx.. EUR 5 000 and EUR 7 000 per each railway Carriers (7); In total 47 000 EUR
Sources of financing[2] *What are the sources of financing? Private capital, public capital, CEF, etc...*	**Projects with EU cofounding or own funds (private capital)**

[2] This information, if already available, could be assumed in the draft version and it has to be confirmed in the final one

How much is the share covered by each of them?	
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	**Integration of major inland terminals will close the process of intermodal train on INCOS platform. This will speed up the information exchange and make it more reliable and efficient. This will shorten the whole chain/intermodal train trip and increase capacity along the whole chain. This will increase competitiveness of intermodal transport**
KPIs *Please identify the KPI to be used for measuring the action's impact*	**1. Intermodal train trip time starting from loading operations up to discharge. Expect decrease** **2. Cost per container transhipped at terminal. Expect decrease.**

Action no. 3: Integration of INCOS with ''Polski PCS'' as national level tool	
Description of action/measure *Describe the action foreseen and the expected results from its implementation*	**''Polski PCS'' will integrate with INCOS platform on operational level giving the access for the all the end users. Communication will be based on integration messages giving the update of movement of wagons and cargo status data.**
Description of the main steps for its implementation *List and describe in detail the main steps for the implementation of the action (i.e. planning phase, tender procedures, etc…)*	**1. Formal agreement of cooperation and using the system (in integration mode)** **2. System analysis and Building PCS rail module logic** **3. Building integration messages** **4. Testing phase** **5. Implementation phase**
Stakeholders involved *List the stakeholders involved. What is their role in the action? Will they be the direct beneficiaries?*	**Polski PCS, Railway Carriers, Intermodal Operators, Inland terminals, Other Sea terminals, Administration (Customs)**
Timeline *Indicate the time horizon for the implementation of the action*	**2030**
Investment cost *How much will cost the construction/realization of the future initiative/action/technology?*	**BCT cost approx.. EUR 45 000** **''Polski PCS'' cost approx.. EUR 110 000 EUR**
Sources of financing[3]	**Public/state funds with possible EU co-funding**

[3] This information, if already available, could be assumed in the draft version and it has to be confirmed in the final one

What are the sources of financing? Private capital, public capital, CEF, etc... *How much is the share covered by each of them?*	
Impact of the initiative *Describe the expected future economic, social, environmental impacts of this initiative*	**Interoperability of all Polish transport sector. Digitalization of all transport/supply chains. Increase of efficiency and capacity of all transport system. Increase of competitiveness of Polish transport system, lowering or elimination of entry barriers.**
KPIs *Please identify the KPI to be used for measuring the action's impact*	**1. Monthly total number of sessions among PCS and domain systems. (should increase)** **2. Number of end users using PCS services (year to year). Increase expected.**

Conclusion

In this final section please sum up the vision and content of the action plan and illustrate the expected results and impacts from its implementation. Please list the key words or key concepts that represents the action plan's vision.

Polish transport system needs system integration tools to match the quality and standards of the other European transport markets which are much more advanced in this field. Now the domain systems are focused on the satisfaction of the internal player's needs and are not prepared and open for data exchange and cooperation with the others. This is a cause of some inefficiencies along the chain, higher costs and procedures which slow down the whole supply chains or even sometimes stop it or make it impossible to start.

There is a need to build integration tools and digital environments which can facilitate the data exchange along the whole supply chain. INCOS platform is the first attempt of building such a digital cooperation environment for the intermodal transport in Poland. The implementation of these tools gave us the chance to study the intermodal chain characteristics, establish the procedures, clear up the rules and obligations of the players, introduce the common standards to use and, finally, provided us the first experience of common cooperation. This is a valuable input for the creation & development of a digital transport environment in Poland.

The platform has a great potential which should be further explored by a constant development. As it was created with a ''multiterminal concept'' it can become a tool to spread on a larger scale. This system can be implemented in other inland and also sea terminals covering the whole chain for intermodal cargo transport. It is also a flexible tool which can be constantly adjusted to some present needs or regulation which can appear in the future. Its development should continue in the following aspects and directions:

a) Structural - switching from manual to integration mode with the ones already cooperate

b) Geographical - including new terminals and more players

c) Qualitative – offering more functionalities and benefits for the end users

INCOS should join and be a part of the integrated digital transport environment. Poland has recently started this journey by implementing the single window concept on Custom and State Control level and starting the first modules of the national Port Community System. The INCOS platform can be an important part of these initiatives offering an important contribution into the process mapping, standardization and implementation experience (''lesson learned'' and know how). It can either become a part of this system or stay in an external environment exchanging integration communicates with the core module of the PCS.

The INCOS platform is already an important part of the digital environment at the port operations world including the whole supply chain from the inland origin/destination up to the vessel's board. It already cuts the communication costs of all the players who participate and improve their performance by a better planning and execution. Being a common communication tool, it offers fast, timely and reliable information to all the players increasing their capacity and competitiveness. All these benefits could be transferred to a much larger scale if the INCOS platform would join to the emerging Polish transport system. On one hand we cannot miss this opportunity or waste the efforts already made.