Alignment of documents used in multimodal transportation along the GUAM transport corridor with the UN/CEFACT reference data model

Project report

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Project overview

The objective of the current project is further development of the digital transport documents that could provide seamless information flows accompanying cargo flows between countries along the GUAM transport corridor. Due to its position in the middle of the cargo transport routes between Europe and Asia, the use of UN/CEFACT standards and recommendations for cargo information sharing along this route makes much sense.

The focus of the project is on the practical application of the data models and standards to facilitate real-world transport operations that take place along this transport route. This is achieved by creating digital twins of real business documents that are mapped to the UN/CEFACT multimodal transport reference data model (MMT RDM) to ensure interoperability both in terms of changing jurisdictions and modes of transport along the route.

Background of the project.

The serious disruptions caused by the COVID19 pandemic to societies, economies, cross-border trade, and COVID's devastating impact on the livelihood of people, call for action to tackle the many social and economic dimensions of the crisis. Unprecedented measures to halt the spread of the disease through lockdowns, travel restrictions and social distancing have resulted in a significant reduction of supply and demand. The UN reported[1] that due to the COVID-19 pandemic in 2020, world output shrank by 4.3 per cent, over three times more than during the global financial crisis of 2009. The modest recovery of 4.7 per cent, which is expected in 2021, would barely offset the losses sustained in 2020. This makes even more pressing the need to intensify joint efforts to counter the negative tendencies in international trade. There is much to be gained from using United Nations standards to overcome the fragmentation of data and document flows for the digitalization of trade and transport across borders.

This underlines the importance of digitalization of information flows along supply chains and transport corridors to address the immediate threat of the COVID-19 pandemic by diminishing person-to-person contacts and the need to increase efficiency in trade and transport. Drivers and other workers in cross-border supply chains may be subject to the risk of contamination, quarantine requirements or other impediments. Risk mitigation measures should include the digitalization of transport, customs and trade documents, and their automated exchange based on international (UN) standards.

The COVID-19 crisis has, at the same time, opened a window of opportunity to harmonize standards and solutions for electronic trade and transport information exchange along multimodal digital corridors that would allow for seamless and contactless data sharing among various modes of transport and sectors. The effects of the pandemic have clearly shown that we should and can go beyond vested corporate, institutional or national interests, beyond departmentalized solutions for the digitalization of international trade and move towards the harmonization of data, documents and processes based on global standards for sharing data and documents.

In the context of implementing the recommendations of the 2019 and 2020 UNECE "Odessa" seminars to support the development of digital multimodal transport corridors, with a view to increasing the harmonization and standardization of data exchange in international transport, trade and logistics to encourage electronic data exchange and thereby to reduce person-to-person contacts during the COVID-19 crisis and in the post-pandemic recovery, using relevant UN/CEFACT standards, a pilot project along the corridor including the countries members of the

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[1] World Economic Situation and Prospects: February 2021 Briefing, No. 146, 1 February 2021, https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-february-2021-briefing-no-146/

Organization for Democracy and Economic Development GUAM [2](Georgia, Ukraine, Azerbaijan, and Moldova - the GUAM corridor), that includes:

- Defining one or several strategic products for export and import can serve best the objectives of a pilot project using the UN/CEFACT standards for multimodal transport along the GUAM corridor
- Preparing electronic messages (electronic document equivalents) based on the UN/CEFACT standards and Reference Data Models, using XML and JSON formats, collaborating with the relevant UN/CEFACT experts and using their guideline on how the UN/CEFACT standards should be used to develop electronic document-equivalents, for the following documents:
  - eCMR,
  - maritime waybill,
  - SMGS and CIM/SMGS consignment notes and additional documents,
  - invoice for Customs.
- Survey/analysis to accomplish a complete conversion of data between maritime, road and railway transport.
- Results of a test of the conversion of data between the maritime, road and railway transport sectors.
- Developing standards for the generic document equivalents under the United Nations Development Account (UNDA) coronavirus (COVID-19) response project "Transport and Trade Connectivity in the Age of Pandemics", notably in the:
  - practical aspects of preparing electronic standards for data exchange new message structure subsets contextualized to the specific transport modes, using UN/CEFACT standards that would best service digital multimodal corridors and support modern technologies, including XML and JSON,
  - development and implementation of a Data Model for the Black Sea – Baltic Sea digital corridor, combining the data for the key accompanying documents as described above and identified in the project and based on the UN/CEFACT Multimodal Transport Reference Data Model.
- Analysis of trade flows in GUAM in general, the selected products, documents, and route(s) related to Azerbaijan (provide basic information on merchandise and document flows for Azerbaijan in the GUAM corridor).
- Description of concrete transport operations for the pilot project for the selected products and route(s) prepared.
- Data mapped and electronic document equivalents (notably for documents accompanying goods transported by rail, road and sea), prepared for the GUAM corridor, notably documents used in the pilot project and in cooperation with other experts working on this project.
- Electronic message structure subsets for multimodal digital exchange, using UN/CEFACT standards and modern technologies, such as XML for use in the GUAM corridor; contribution to the recommendations on using JSON APIs (all of this prepared in cooperation with the Ukrainian and other experts working on the project).
- Analysis of the legal aspects of the transfer of data between different documents and modes of transport covered by the project.
- Results of a test of the conversion of data between the maritime, road and railway transport in the GUAM corridor.

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[2] https://guam-organization.org/en/

· Contribution to the development and implementation of a data model for the GUAM digital corridor.

The aim is to foster harmonization of electronic data sharing using global (UN/CEFACT) standards for transport, trade and logistics, and to prepare standards for e-documents based on the UN/CEFACT semantic standards and reference data models. The focus will be on the development of electronic document equivalents for the documents mentioned above, using UN/CEFACT tools in the countries developing a digital multimodal transport corridor.

Project Activities and Outputs
1. Standardized Dataset

The UNECE facilitated project is focused on standardized dataset aligned to International Standards and data models prepared for pilot use in cooperation with Ukraine and Azerbaijan, notably in the light of a corridor passing through the GUAM countries (notably, passing through Azerbaijan, Georgia and Ukraine).

In the scope of the project, an overall standardized dataset of the documents mentioned in the project overview was created and reported in a technical structure view along with an overall XML schema following the UN/CEFACT schema rules. The overall standard dataset of the documents supports contextualization by means of restriction of international standards.

Documents were reviewed against actual document examples that are in use on transport corridors, and we found some issues that should be solved to support the possibility of real-life use.

The overall dataset is a reuse of the UN/CEFACT Multimodal Transport Reference Data Model (MMT RDM) D20A for individual transport-related documents but still based on the wider Buy-Ship-Pay (BSP) Reference Data Model scope to cover general international supply chain processes (Figure 1).
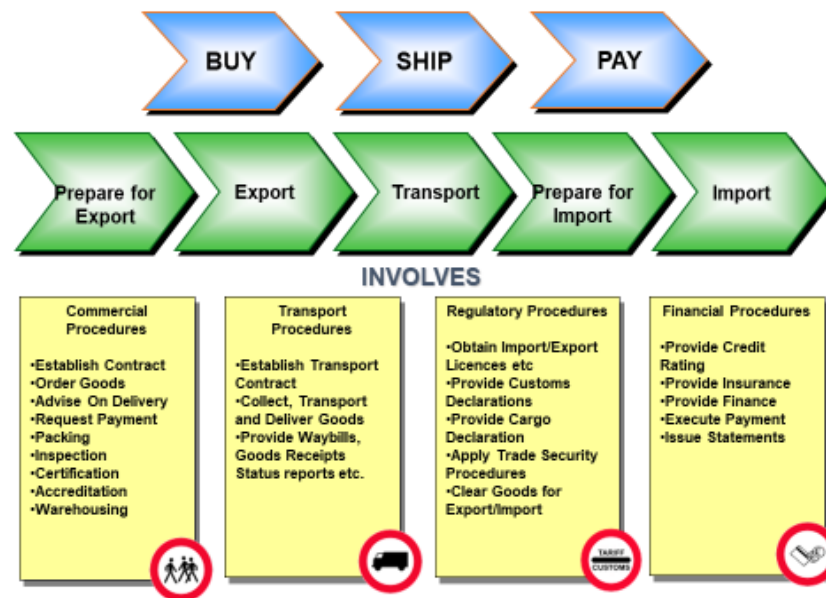
While there are 3 main flows in this Buy-Ship-Pay model – Material, Financial and Information - UNECE and UN/CEFACT activities are focused on facilitating the Information flow. Moreover, the Information flow is complex and can be divided to several layers:

- Physical layer – hardware and software to establish an infrastructure to connect parties between each other and provide a way to share the information,
- Interface layer – protocols, standards and requirements for negotiating the connection between the parties (Sender and Receiver) via the physical layer,
- Presentation layer – structure, scheme and format of the information entity (document or dataset) to be transferred from Sender to Receiver,
- Semantic layer – agreement on the way of describing the contents of the message to be equally understood by all the parties involved in the communication process.

Figure 2: Flows between participants in the BSP process

Source: The authors

The main task of this project focuses precisely on the semantic aspect of electronic document interchange, i.e., on providing the ability to understand the contents of a document or dataset to create a seamless information exchange accompanying the movement of goods and transport operations, by harmonizing such documents (datasets) with international standards.

2. Overview of the individual datasets

Table 1: Datasets list

Document	Base International Reference Standard
CMR	UN/CEFACT Multimodal Transport Reference Data Model
Maritime Bill of Lading	UN/CEFACT Multimodal Transport Reference Data Model
SMGS	UN/CEFACT Multimodal Transport Reference Data Model
Invoice (for Customs use)	UN/CEFACT Supply Chain Reference Data Model
Certificate of Origin	UN/CEFACT Buy-Ship-Pay Reference Data Model
Phytosanitary/Veterinary Certificate	UN/CEFACT Buy-Ship-Pay Reference Data Model

Source: The authors

The individual reports and outputs attached in annexes of this report reflect datasets created per provided paper document used along the GUAM transport corridor. These subsets show the usage of paper documents names and terms in alignment with international standards data exchange modeling. In addition, box numbers from paper documents are reflected in the reports where applicable.

The data model provides the possibility to hold information about document authentication inside the Exchanged Document section of each document (dataset). However, the legal aspects were out of the scope of this assessment, and we decided to hold the message-related (or document-related) electronic signature data in the message envelope and thus separate it from the message contents. The Signatory Authentication information in the Exchanged Document section can be used for the metadata about an authentication for the content (paper or electronic signatures).

3. Analysis of the merchandise and information flows

The GUAM transport corridor connects four countries: Azerbaijan, Ukraine, Georgia, and Moldova. It is part of the larger East-West and TRACECA transport corridors and is also linked to other regional and international transport corridors.

The countries situated along this transport corridor established a regional organization: the Organization for Democracy and Economic Development - GUAM in 2006. The main goals of this organization are: strengthening of democratic values; ensuring the supremacy of law and respect for human rights; ensuring sustainable development; strengthening international and regional security and stability; deepening European integration for the creation of a common security space and the enlargement of economic and humanitarian cooperation; developing of socio-economic, transport, energy, scientific, technical and humanitarian potential; stimulating of political interaction and practical cooperation in fields of mutual interest. The GUAM Organization cooperates at the level of international organizations, in particular, the UN and the OSCE.

Figure 3: Interconnection of GUAM transport corridor with regional transport corridors and routes
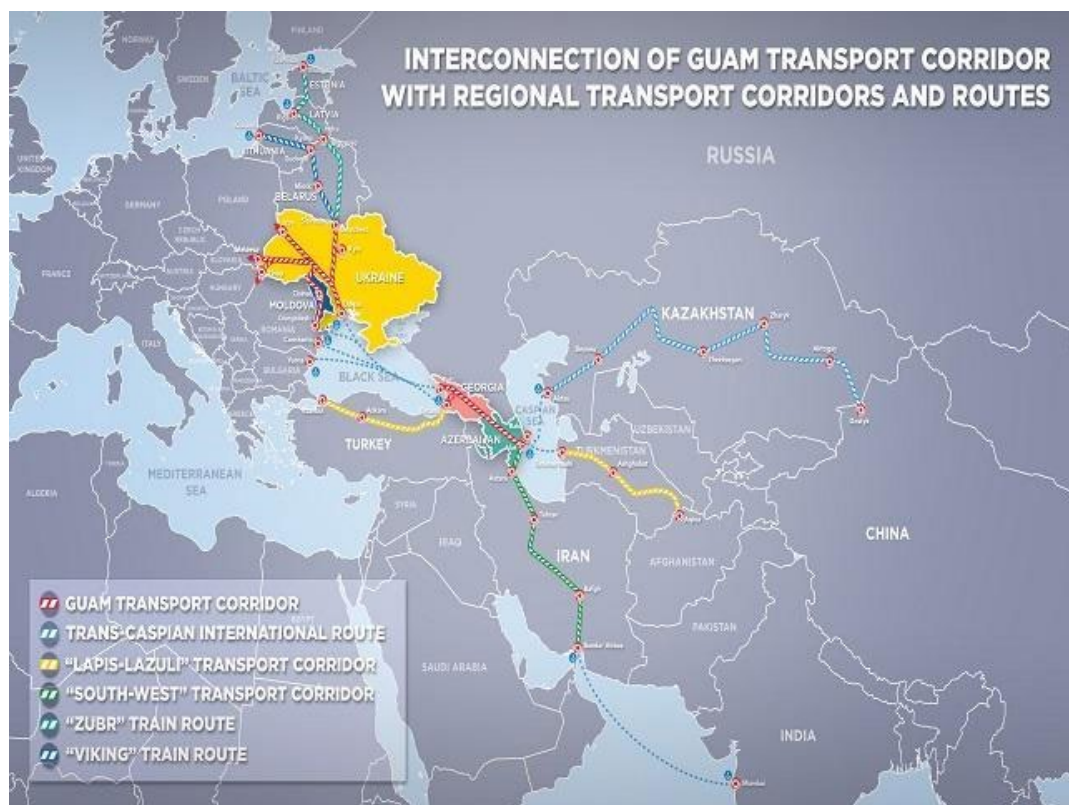
Source: guam-organization.org

3.1. Interconnection of the GUAM transport corridor with the transport system of Ukraine

Ukraine is on the crossroad of the 5 global transport corridors. Due to this geographical position, there is a huge potential for developing transit cargo flows via Ukraine.

Figure 4: International transport corridors passing through Ukraine

Source: Ministry of Infrastructure of Ukraine

Maritime transport

There are 13 seaports in Ukraine connected to all main maritime destinations in the world. The navigation on the Black Sea is also covered by a ferry service from Ukraine to Georgia, Bulgaria, Romania, and Turkey. The average portion of cargo turnover using seaports is appr.1% for Ukraine.

Figure 5 Sea ports of Ukraine
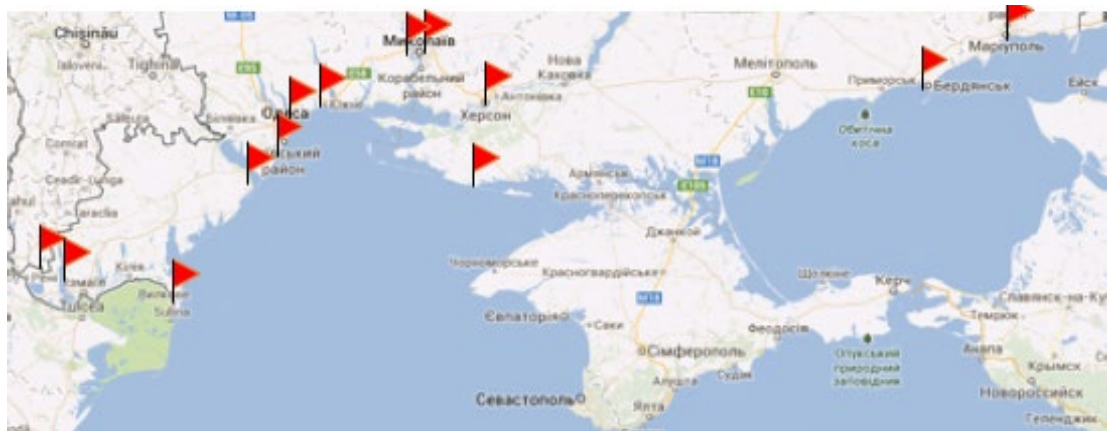
Source: The authors

Road transport

Ukraine is an eastern neighbor of the European Union and has signed an Association Agreement with the EU. The average relational cargo turnover transported by road for Ukraine is appr. 31 % - and it has the potential to grow due to Ukraine's joining the new e-CMR protocol amendment.

Figure 6: Interconnection of the road network of Ukraine and EU

Source: Updated national transport strategy of Ukraine

The road network of Ukraine is connected to its main seaports and is part of the international transport corridors, passing through Ukraine.

Railway transport

The network of railways of Ukraine is about 20,954.2 km of tracks, out of which 9,974.5 km (47.6%) is electrified. It is (by far) the largest railway network in Europe. The main items transferred by rail are iron and manganese ore, construction materials, coal, and grain. The average relational cargo turnover by rail for Ukraine is appr. 52 %

Figure 7: Railway network in Ukraine

Source: RailFreight.com

The railway network of Ukraine is connected to main seaports and is part of the international transport corridors, passing through Ukraine.

Ukraine has 1.6 thousand km navigable waterways. The water transport industry of Ukraine is based on a network of sea and river ports, as well as loading terminals, mooring and transport facilities of various forms of ownership.

The two main river arteries are the Danube river (Waterway E 80, E 80-09 according to the UNECE classification) and the Dnipro river (Waterway E 40 according to the UNECE classification). The existing port infrastructure on Dnipro river covers 16 river ports and terminals that can potentially provide for transporting and processing of up to 50 mln tons of cargo. Key IWW arteries that are operated now include Dnipro river (Kyiv and Kaniv sections for cabotage and Zaporizhzhia/Dnipro-Kherson section for river-sea transport), Yuzhnyi Bug river (Mykolaiv-Nova Odessa section) and Danube river.

Figure 8 Inland Waterways of Ukraine
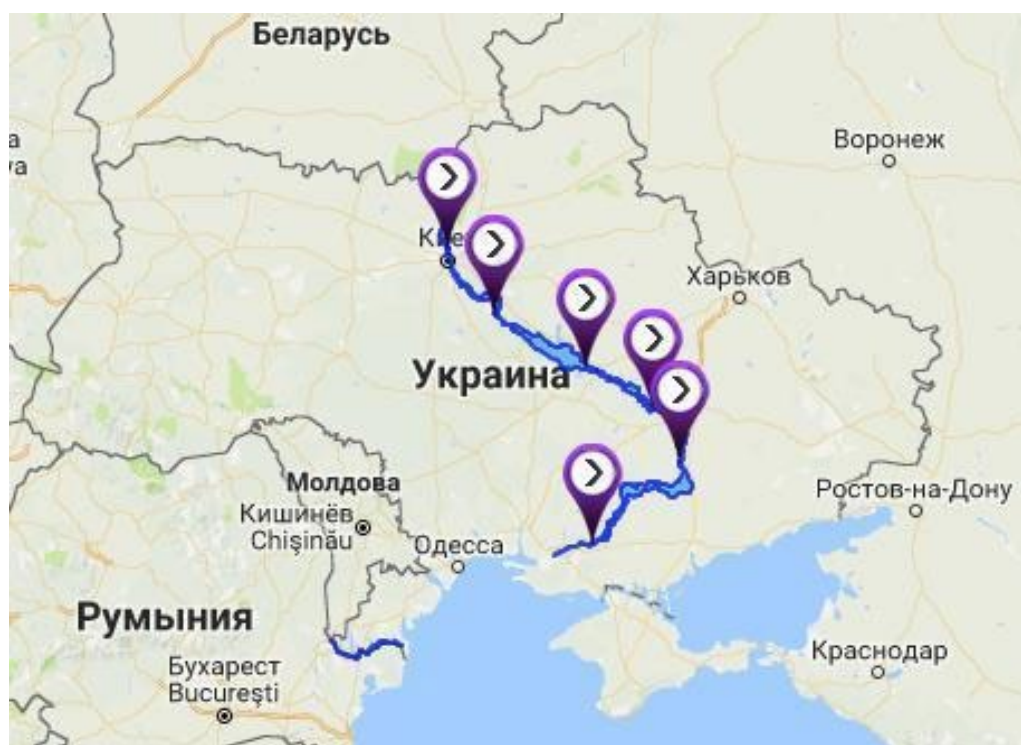
Source: Updated national transport strategy of Ukraine[3]

The inland water transport is not involved in the scope of the current assessment.

3.2. Interconnection of the GUAM transport corridor with the transport system of Azerbaijan

Azerbaijan has carried out very large transport projects in recent years. Currently, five international transport corridors pass through Azerbaijan. These are the East-West, North South, Baku Tbilisi-Kars, South-West, and Lapis-Lazuli corridors.

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[3] https://mtu.gov.ua/files/Zakypivli/Ukraine%20Transport%20Strategy%20Part%202%20-%20Sector%20Analysis%20-%20Draft.pdf

Figure 9: The East-West transport corridor

Source: https://www.traceca-org.org/

Figure 10: The North-South transport corridor

Source: *https://www.traceca-org.org/*

Figure 11: The Baku-Tbilisi-Kars transport corridor

Source: *https://www.traceca-org.org/*

Figure 12: South-West transport corridor

Source: *https://www.traceca-org.org/*

Figure 13: Lapis-Lazuli transport corridor

Source: *https://www.traceca-org.org/*
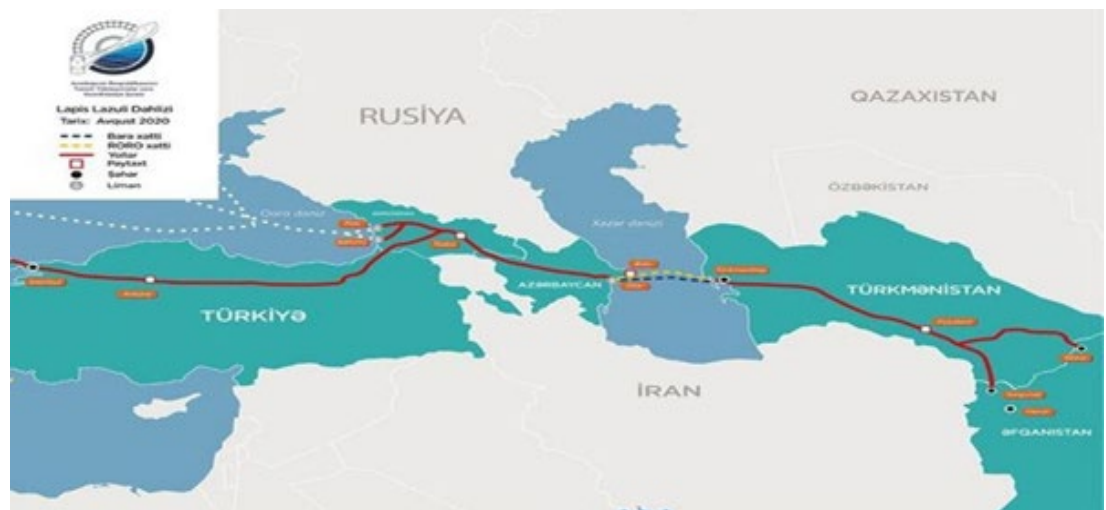
Maritime transport connection (ferry)

Azerbaijan has no exit to the world ocean. Sea transportation is carried out only in the Caspian Sea with the Caspian countries: Russian Federation, Iran, Kazakhstan, Turkmenistan.

At present, there are 4 ports operating cargo in Azerbaijan:
• Baku International Sea Trade Port,
• Zykh Dry Cargo Sea Port (Zykh Sea Port),
• Sangachal Sea Port,
• Baku Hovsan International Trade Sea Port.

Road transport connection

The countries involved in road transport in this sense are: Azerbaijan – Georgia – Russian Federation – Iran. The average relational cargo turnover for Azerbaijan is appr. 54% - and it has the potential to grow due to the possibility of Azerbaijan joining the e-CMR protocol amendment.

Currently, there are the following international highways in Azerbaijan:

- M-1 (Baku-Quba-Russian Federation Border) - 208 km
- M-2 (Baku-Alyat - Kazakhstan - Georgia Border) - 503 km
- M-3 (Alyat -Astara -Iran Border) - 243 km
- M-4 and M5 (Baku-Shamakhi -Yevlax and Yevlax-Zaqatala-Georgia Border).

Source: http://www.aayda.gov.az/

Railway transport connection

Countries involved: Azerbaijan – Russian Federation – Georgia.

Figure 15: Azerbaijan Railways

Source: https://az.wikipedia.org/

3.3. Statistics for cargo turnover

The overall statistics of cargo turnover and countries along the transport corridor GUAM is in Annex I.

Cargo turnover in Ukraine

According to the State Customs Service statistics, the overall cargo turnover between GUAM countries and Ukraine in 2020 was 1 259 279 48 USD. This includes 208 704 958 USD for import and 1 050 574 527 USD for export. The trade balance of Ukraine with these countries was positive and equal to 841 869 570 USD.

Table 2: Overall statistics on GUAM countries for Ukraine

Country	Cargo turnover, USD	USD Export	USD Import	USD Balance
AZ Azerbaijan	677 736 224	349 194 687	328 541 537	20 653 150
MD Moldova	756 125 991	682 208 985	73 917 007	608 291 978
GE Georgia	503 153 494	368 365 543	134 787 951	233 577 592
Total	**1 259 279 485**	**1 050 574 527**	**208 704 958**	**841 869 570**

Source: *https://bi.customs.gov.ua/uk/trade/*

Further details are provided by country.

Azerbaijan

The main export cargo groups to Azerbaijan are tobacco (24) - 37 837 060 USD, meat and subproducts (02) - 34 531 480 USD and paper (48) - 31 700 276 USD. The main import cargo group is fuel (27) - 277 763 522 USD. The overall balance is positive for Ukraine and equals 20 653 150 USD.

Georgia

The main export cargo groups to Georgia are tobacco (24) - 76 471 630 USD and black metals (72) - 50 353 105 USD. The main import cargo group is alcoholic and non-alcoholic beverages (22) - 87 516 065 USD. The overall balance is positive for Georgia and equals 253 577 592 USD.

Moldova

The main export cargo groups to Moldova are electric machines and equipment (85) - 69 396 822 USD, black metals (72) - 49 225 672 USD, plastics (39) - 45 640 113 USD and wood (44) - 42 834 570 USD. The main import cargo groups are black metals (72) - 24 866 981 USD and alcoholic and non-alcoholic beverages (22) - 8 852 691 USD. The overall balance is positive for Ukraine and equals 608 291 978 USD.

Cargo turnover in Azerbaijan

According to the State Customs Committee of Azerbaijan, in 2020, the total trade turnover of Azerbaijan with the GUAM countries is 1 315 476 790 USD. Of these, 818 731 500 USD account for export and 496 745 290 USD for import. The balance was positive for Azerbaijan and was equal to 321 986 210 USD.

Table 3: Overall statistics on GUAM countries for Azerbaijan

Country	Cargo turnover, USD	USD Export	USD Import	USD Balance
Ukraine	771 451 000	353 040 870	418 410 130	-65 369 260
Moldova	7 821 840	3 780 200	4 041 640	-261 440
Georgia	536 202 950	461 909 430	74 293 520	387 615 910
Total	**1 315 475 790**	**818 730 500**	**496 745 290**	**321 985 210**

Source: State Customs Committee of the Republic Azerbaijan

Further details are provided country by country.

Ukraine

The main export cargo group to Ukraine is 27 (Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes). The overall volume of exports in monetary terms is 310 607 260 USD, which corresponds to 87% of the total export to Ukraine.

The main cargo groups of imports from Ukraine are 24 (Tobacco and manufactured tobacco substitutes) - 69,900,330 USD and 2 (Meat and edible meat offal) - 48,994,180 USD, respectively.

Moldova

The main export cargo group to Moldova is 31 (Fertilizers). The volume of exports in monetary terms is 2,861,440 USD, which corresponds to 75% of the total exports to Moldova.

The main cargo groups of imports from Moldova - 30 (Pharmaceutical products) - 775 580 USD, 20 (Preparations of vegetables, fruit, nuts or other parts of plants) - 747 720 USD and 22 (Beverages, spirits and vinegar) - 667 150 USD

Georgia

The main export commodity group to Georgia is 27 (Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes). The overall volume of exports in monetary terms is 367,288,060 USD, which corresponds to 80% of the total exports to Georgia.

The main commodity groups of imports from Georgia are 1 (live animals) - 21 337 800 USD, and 72 (Iron and steels) - 10 070 000 USD.

4. An overall pilot description

The pilot assessment was built around real-world shipment of cargo between Azerbaijan and Ukraine via Georgia. The project involves different modes of transport and was performed in several scenarios. That allowed for an assessment of the practical use of different transport documents and data transformation from one to another during shipment steps.

For the tasks of the assessment, the shipment of bitumen from Azerbaijan to Ukraine by railway and shipment of meat from Ukraine to Azerbaijan by trucks we selected. In both cases there is a ferry part of the road between Chornomorsk (Ukraine) and Poti (Georgia). However, in the first case (bitumen) railway consignment notes were used as a document of maritime transportation, while in the second case maritime bills of lading were used.

These cargo flows were selected for assessment due to their significance in the overall cargo turnover between Ukraine and Azerbaijan and due to the possibility to get access to the participants and the process of transportation. This allows for the creation of a so-called Digital Twin – the existing process of shipment is still performed with the usual paper documents, but electronic equivalents of such documents are also created and they follow the cargo in parallel.

General view on shipment is shown on Figure 17:

Figure 17: General view on shipment in the scope of the assessment
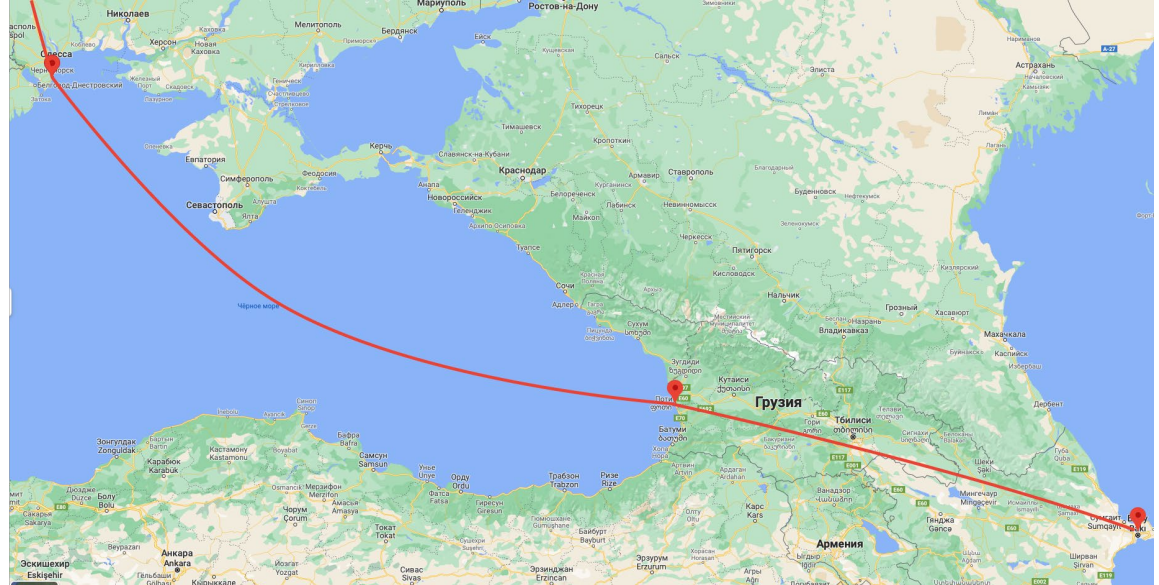
Source: The authors

According to the structure of freight flows included in the scope of the assessment, the following types of documents were involved in the transportation.

Table 4: Types of documents

Direction	Cargo	Mode of transport	Documents	Documents provided by
Ukraine – Georgia - Azerbaijan	Meat	Trucks – Ferry - Trucks	- CMR - Bill of Lading - Invoice - Certificate of origin - Sanitary certificate	Several local companies
Azerbaijan – Georgia – Ukraine	Bitumen	Rail – Rail with ferry transportation	- Railway consignment note on all sections of the route - Invoice - Certificate of origin	PLASKE JSC (Ukraine)

Source: The authors

5. Description of the dataset mapping results

5.1. Maritime Bill of Lading

a) The mapping was performed using real business cases documents:
- Combined Transport BoL,

b) The original documents used for the mappings are demonstrated in Annex II.
- Combined Transport BoL,

c) The results of the mapping are demonstrated in Annex III.

d) General considerations

The maritime bill of lading was already thoroughly analyzed in previous assessments made for the Black Sea – Baltic Sea transport corridor[4] and the Inland waterways project[5]. All considerations made in those reports are valid for the present assessment. A key feature of the examined transport operation was using a ferry as a maritime carrier. Consequently, the assumption is that not just cargo (for example, in a package or container), but also a transport unit – truck or railway wagon with cargo, is shipped. From the point of view of the MMT RDM it does not bring any difficulties due to the foreseen possibility to specify the necessary quantity of the Used Transport Equipment BIE.

As a common recommendation, we propose to harmonize the structure of classes for all parties involved in the shipment process and to use the same list of arguments and attributes, especially the structure of address, country subdivision codes and names, mobile phone numbers.

In addition, during the test, in the data model there were inaccessible entities for goods description in plain text form, inside the class Included Consignment Item. Only the code was accessible. Consequently, it is recommended to include both code and description to keep the information in the exchanged document readable both for a machine and for a human.

Even if the quantity of consignment items (pieces and weight) is available, it is possible to add also corresponding totals to the consignment entity entry, and to provide both numeric and plain text descriptions of totals to guarantee consistency of the document exchanged (instead of generating the textual representation of amount programmatically on both sides – sender and recipient).

5.2. Invoice (for Customs use)

a) The mapping was performed using real business case documents:
- Invoice issued in Ukraine for Azerbaijan;
- Invoice issued in Azerbaijan for Ukraine;

b) The original documents used for mappings are demonstrated in Annex II.

c) The results of the mapping are demonstrated in Annex III.

d) General considerations

The invoice is much better formalized in electronic form than in paper. Actually, the common practice is to issue an invoice in a free form with information, related to the details of the specific contract. Consequently, the mappings of invoices issued in Ukraine and in Azerbaijan differ. However, it is possible to specify some common issues.

There are differences in the usage of the entities with common roles in different jurisdictions, specially:

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[4] https://unttc.org/documents/report-standardized-digitalization-multimodal-transport-ua
[5] https://unttc.org/documents/dnieper-danube-corridor-pilot-dataset-alignment-international-standards-and-data-models

Seller. Trade_ Party:
- Consignor
- Seller
- Shipper.

We should also mention a difference in the bank qualification. Some information from the real-world documents were not present in the current version of RDM and their inclusion should be considered:
- Referenced documents
- Country of destination
- Producer
- Contract number
- Contract date
- Place of delivery by the terms
- Marks and notes
- Totals for sub-packages
- Totals for goods characteristics (ADMT)

5.3. Certificate of Origin

a) The mapping was performed using real business case documents:
- Certificate of origin (issued in Azerbaijan);
- Certificate of origin (issued in Ukraine);

b) The original documents, used for mappings are demonstrated in Annex II.
- Certificate of origin – Belarus;
- Certificate of origin – Ukraine;

c) The results of the mapping are demonstrated in Annex III.

d) General considerations

The Certificate of Origin (CoO) is an important document for the Customs clearance procedure and, in this regard, often accompanies freight transportation. The GUAM Organization was the initiator of the project for the exchange of the CoO based on the Blockchain technology. A pilot project was implemented between Georgia and Azerbaijan. Since this pilot project did not provide for integration with other types of trade and transport documents, it was not widely disseminated.

In the scope of the current assessment two kinds of CoO were reviewed. In the examined certificates, there were two parties signing the document, so, we recommend to make the Second_ Signatory entity for such certificates available in the RDM.

Due to the structure of the paper document with table form for consignment items, we recommend to unlock totals (weight and volume) both for consignment and consignment item levels.

Also, due to the tight connection between the certificate of origin and other cargo certificates (ex. Phytosanitary) and other transport documents, it is recommended to harmonize the attributes of the good's description (Included.SupplyChain_TradeLineItem/ Specified.Trade_Product) using a description.text for plain text goods name and using a common name and scientific name attributes for specific description, if the good requires that.

In the case of a combined transportation, it should be possible to specify in electronic documents the country of origin and the country of destination, but not only the import and the export countries.

5.4. CMR

a) The mapping was performed using real business case documents:

- Ukraine- Azerbaijan,
b) The original documents used for mappings are demonstrated in Annex II.
- Ukraine- Azerbaijan,
c) The results of the mapping are demonstrated in Annex III.
d) General considerations

CMR is the main document for international road transport. In this study, the CMR was not used as a multimodal document because the transportation was segmented. In fact, there were several separate transportations, combined into one - transportation by truck through the territory of Ukraine to the port of Chornomorsk, transportation of the container by ferry, and the next carriage by truck from Georgia (the port of Poti) to Azerbaijan.

Thus, the use of an end-to-end multimodal document throughout the entire route could be considered as a recommendation for simplifying procedures.

For the present time neither Georgia nor Azerbaijan have joined the amendment protocol to the Convention (e-CMR). Such an accession could simplify the application of electronic documents throughout the entire route of transportation, given the fact that most of the neighbors, including Ukraine, Russia, Turkey and Iran, have already acceded to this protocol.

Comparing CMR documents with the MMT RDM, we see that this document is well formalized from the point of view of a paper document (in accordance with the requirements of the CMR Convention[6]) and, accordingly, is implemented in the form of a data model profile.

As for the common practice, it is not used to fulfill the contract information in the paper CMR consignment note. Nevertheless, the entities for such information are foreseen in MMT RDM.

5.5. SMGS
a) The mapping was performed using real business case documents:
- Azerbaijan-Ukraine (ferry),
b) The original documents used for mappings are demonstrated in Annex II.
- Azerbaijan-Ukraine (ferry),
c) The results of the mapping are demonstrated in Annex III.
d) General considerations

The shipment from Azerbaijan to Ukraine was performed with the SMGS railway consignment note, that was used also as a maritime waybill during ferry transportation from port Poti (Georgia) to port Chornomorsk (Ukraine). Thus, the railway consignment note was used as a single document for multimodal shipment.

The SMGS consignment note has been mapped to the MMT RDM in the previous assessment on Black Sea – Baltic Sea transport corridor done by the experts from Belarus[7] and in other projects. All considerations mentioned in their report are valid for the current assessment. Additionally, there are some attributes that can also be reviewed from the data modeling point of view. Specifically:

o Information about cargo after reloading – weight (box #13) and pieces (box#14) – is not available in the present version of the SMGS profile of MMT RDM, but is available in MMT RDM itself – as an ABIE Transport_ Event. Value. Measure of the Supply Chain_ Consignment. Examination. Transport_ Event class,

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[6] https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-11&chapter=11&clang=_en
[7] https://unttc.org/documents/standardized-dataset-aligned-international-standards-and-uncefact-reference-data-models

- Information about the kind of package – box#16 – is also available in MMT RDM but not in the profile, ABIE Logistics_ Package. Type. Text of the Supply Chain_ Consignment. Related. Supply Chain_ Trade Transaction class,
- Information about the list of railway stations where the borders were crossed – ABIE Logistics_ Location of the Logistics_ Transport Movement. Transshipment_ Intermediate. Transport_ Event class.

5.6. Sanitary certificate

a) The mapping was performed using real business case documents:
- International Veterinary Certificate (Ukraine)

b) The original documents, used for mappings, are demonstrated in Annex II.
- International Veterinary Certificate (Ukraine)

c) The results of the mapping are demonstrated in Annex III.
d) General considerations

The phytosanitary certificate was quite well-mapped to the existing profile for sanitary and phytosanitary certificates. We recommend a few elements for the harmonization with other transport documents:

- Include information about the terms of validity (date of issue and date of end of validity).
- Harmonize the structure of classes for all parties involved in the shipment process and use the same list of arguments and attributes, especially the address structure, country subdivision codes and names, mobile phone numbers.
- As in the previous case, tackle the issue of specifying the number of containers, in which cargo was transported, in the certificate of origin. In a real word paper document such information is provided in order to specify the identification of a consignment party. We proposed to develop this question further.

Specific for the sanitary certificate is information on the declaration of the state veterinarian for the goods exanimated. Due to limited usage of such information in other transport documents, we recommend considering optimization of the allocation of these attributes in the profile for sanitary certificate in the ABIE BSP Master/Exchanged_ Document/Included. Note.

6. Examples of documents implemented

Documents used for the assessment were implemented in electronic form (XML), based on the mapping, performed on the previous step and UN/CEFACT guidelines for XML naming and design rules.

Examples of the documents in XML are provided in Annex IV.

7. Analysis and results of a test of the data transformation

In the framework of the pilot project documents from several transport modes and jurisdictions were assessed:
- CMR – Maritime BoL
- Maritime BoL - CMR
- SMGS with changing jurisdiction
- Certificate of Origin with changing jurisdiction

As the MMT RDM is used as a base for all these types of documents, it is also used for the mapping of the transformation. This exercise shows the key advantage of the MMT RDM as a unified and functionally complete data model that can serve as a single interface for interchanging the information between IT solutions in the different modes of transport and different jurisdictions.

The issue is that different business names are used in documents of different modes of transport for entities with common roles, but the identification attributes in RDM (RDM path, Unique UN assigned ID) should remain the same.

The results of the test of data transformations are provided in Annex V.

7.1. CMR - Maritime BoL - CMR
a) The conversion was performed using real business case documents:
- CMR waybill (road),
- Maritime BoL (ferry).
b) The original documents, used for conversions, are demonstrated in Annex II.
- CMR,
- Maritime BoL (ferry).
c) The results of the transformation are demonstrated in Annex V.
d) General considerations

As a result of the transformation of the data in the maritime Bill of Lading and the CMR, the information about the parties participating in the carriage and the transported cargo was well-mapped due to the coincidence of the general structure of the information model of documents for maritime and road modes of transport. The actual shipment was segmented and executed as 3 independent transport operations, combined into one – the road shipment through the territory of Ukraine to the port of Chornomorsk, maritime shipment to the port of Poti, and road shipment through the territory of Georgia and Azerbaijan to the final destination point. For this reason, information from CMR was converted to the bill of lading and then – to the new CMR in the port of Poti (Georgia).

An important issue that requires additional study is who should act as a recipient in maritime transportation and a sender in road transportation in the case when the transportation is actually segmented - that is, the road transport segment (leg) is not performed under a single multimodal document. In practice, the role of such a connecting link in the seaport is performed by the port freight forwarder, as a representative of the consignee (in this case), therefore, the maritime section of transportation can be considered properly executed. At the same time, the freight forwarder in the port of discharge (Georgia) also acts as the actual sender for the next road transportation, while he is not mentioned in the CMR and is not bound by contractual relations with the original sender (Ukraine). Indeed, in the case of railway transport, it is the forwarder who appears as the sender in similar situations.

7.2. SMGS with changing jurisdiction
a) The transformation was performed using real business case documents:

- SMGS consignment note (Azerbaijan).
b) The original documents used for conversions are demonstrated in Annex II.
- SMGS consignment note (Azerbaijan).
c) The results of the transformation are demonstrated in Annex V.
d) General considerations.

In the scope of the current assessment, the railway consignment note (SMGS) was used as a single multimodal document for the entire transportation, including the maritime segment of the shipment (executed by the ferry). The document was issued in Azerbaijan and followed the cargo for the entire transportation.

Also, the railway consignment note is used as an electronic document in internal IT solutions of the railways along the transport corridor. Nevertheless, there are bilateral agreements between the railways of some countries, it is still common practice to follow the cargo with the paper consignment note for cross border transportation. One of the reasons is the complexity of the integration task due to the difference of internal formats and program interface of each IT solution. Another issue is Customs procedure, that also requires to solve the problem of integration in order to replace the paper document.

7.3. Certificate of Origin with changing jurisdiction
a) The transformation was performed using real business case documents:
- Certificate of origin CT-1 (Azerbaijan),
- Certificate of origin CT-1 (Ukraine).
b) The original documents used for the transformation are demonstrated in Annex II.
- Certificate of origin CT-1 (Azerbaijan),
- Certificate of origin CT-1 (Ukraine).
c) The results of the transformation are demonstrated in Annex V.
d) General considerations.

In the scope of the current assessment, the original certificates of origin, issued both in Azerbaijan and in Ukraine, were accepted by the country of destination without request for reissue. In the case of meat shipment to Azerbaijan, the issuance of a national quality certificate was requested, but this procedure is not part of the shipment process and is related to the further internal use of the food product. Also, such reissue can be facilitated by using electronic documents recognized by both countries.

The recognition of certificates issued in other countries is a procedure that requires additional harmonization at the international level. An additional issue is the need to change modes of transport or other operations with cargo during transportation.

The transition from the practice of using paper documents to electronic records can solve this problem by adding additional information about the details of such operations in the form of linked records. Such use of electronic documents requires regulation at the international and national levels and seems feasible to be assessed additionally.

8. General considerations and recommendations

The task of transforming information between different documents arises both when changing jurisdiction (that is, crossing the border), and when changing the mode of transport (modality). As an example of multimodal transportation, in the scope of the current assessment, is demonstrated by the use of a railway consignment document as a maritime consignment note on the Poti (Georgia) - Chornomorsk (Ukraine) route. At the same time, certain sections of the transportation are often carried out according to their own documents. Such example in the current assessment is the road-maritime connection for road transportation, that is segmented. Thus, the ports become a point of the transformation of documents and data as a place of change of both national jurisdiction and mode of transport.

Figure 18: Port as a transformation point.
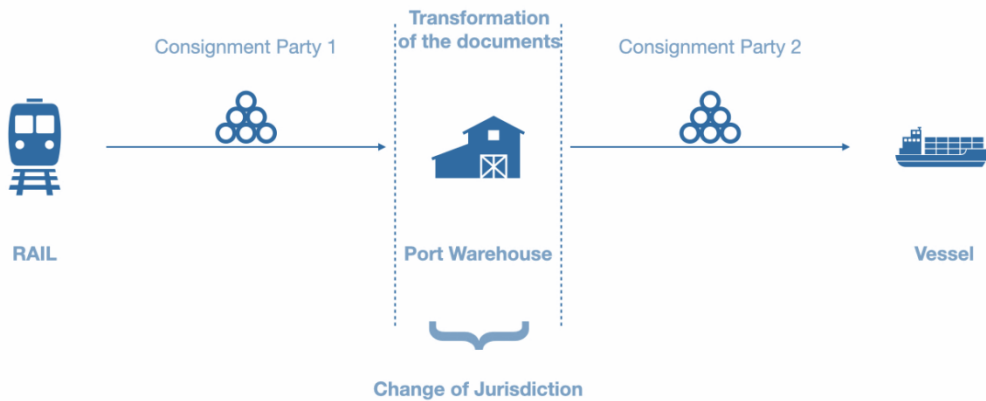
Source: The authors

As most of the participants in the transportation process already have their own information systems that fully meet the requirements imposed on them by the business community, the main point for optimization is at the border of the interaction of these systems with each other. In most cases, this problem is solved by building a system-to-system interface based on an appropriate bilateral agreement (between the railways of different countries, between railways and maritime carriers, etc.).

As a result, to solve the problem of information exchange between all participants in the supply chain, we need to implement in general terms:

$$Q_S = \frac{n!}{(2 * (n-2)!)}$$

where Q s is the total quantity of interfaces between IT systems, and
 n is the quantity of IT systems to be linked.
For each IT system, the quantity of interfaces to be implemented is:

$$Q_S^1 = n - 1$$

where Q_s^1 - is the number of interfaces for one IT system, and
 n is the number of IT systems.

Considering the number of parties interested in information interaction, such a task looks poorly implemented in practice.

The use of international standards and formats for electronic documents and messages is an attractive solution to the problem. However, the complexity is caused by the presence of many complex and expensive information systems run by different participants in the supply chain. For this purpose, we propose to use UN/CEFACT electronic document formats based on the MMT RDM data model as interface for solving the interoperability problem. In this case, the complexity of the task of building information interaction decreases:

$$Q_S = n$$

where Q_s – is the total quantity of interfaces between IT systems, and
n is the quantity of systems.

The quantity of interfaces for each IT system is minimal:

$$Q_S^1 = 1$$

where Q_s^1 is the quantity of interfaces for one IT system.

Figure 19: Facilitating the complexity of the integration task
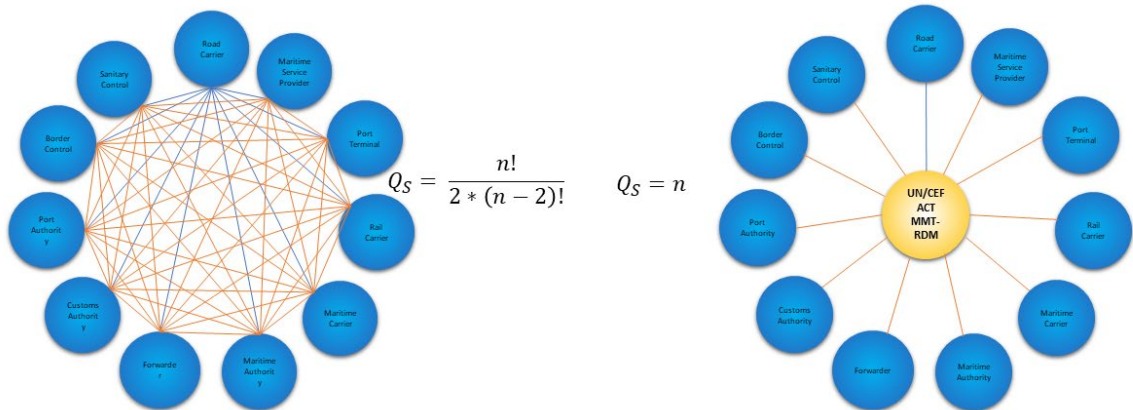
Source: The authors

The application of the UN/CEFACT multimodal transport reference data model (MMT RDM) and the formats of electronic documents (data sets) generated from it looks obvious in view of the above discussed properties of its functional completeness and semantic commonality for business information entities.

Such approach could become a good basis for the Data Pipeline initiative[8], proposed by UN/CEFACT. The concept involves providing data directly at their source and only once, and reusing it throughout the supply chain, regardless of the mode of transport, party or regulatory body that needs access to the data.

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[8] White Paper Data Pipelines – UN/CEFACT -
https://unece.org/fileadmin/DAM/cefact/GuidanceMaterials/WhitePaperDataPipeline_Eng.pdf

The key principles of the concept of data pipelines are as follows:
- **Capture** the **data** from the **right person** at the **right place** at the **time**,
- **Capture once** and **use many times** in the **supply chain**,
- **Data** is transferred to the pipeline **at the point of their origin**,
- **Data** can be retrieved from the pipeline both **on demand** ("pull" the data) and by sending it to the recipient ("push").

The main purpose of data pipelines is to improve the quality of data and ensure their seamless transfer within the information flow of the supply chain, in particular, by shifting the paradigm from the concept of the "document" to the concept of the "dataset". The key difference between these two concepts is that the document model is based on the rigid (paper) structure of the document - even in electronic form, whereas the dataset model assumes the presentation of information in the form of flexible structures - data sets (BIE and ABIE), which can be formed from the generic data models on the fly by the request of the recipient of information and in the form, which corresponds to the specific business process requirements.

In this context, to support both ideas about using the MMT RDM as a transformation core for connecting the existing IT solutions in multimodal transportations and about moving to data pipeline models, the authors propose to use the CRUD-based API approach, that was introduced in previous assessments (reports) under the UNDA Trade and Transport Connectivity under the Pandemic project[9]. The main point for such an approach is that instead of moving straight to classical API, one should take into account that most trade and transport IT solutions are still heavily linked to document-based information exchange procedures. Standards for such documents are, on the one hand, stable and approved, but, on the other hand, may not be compatible between industries. This issue can be solved by using the CRUD semantic model for building API – the unit of information exchange remains the document, while all operations with documents are described by the following four methods:
- Create – creating new document in the target system
- Read – retrieving or requesting an existing document from the target system
- Update – modifying an existing document in the target system
- Delete – removing an existing document from the target system

In each case all or just some of these methods can be used, depending on the requirements of a certain system and/or regulations. For example, some systems prohibit the deletion of documents. Instead, they can only be marked as inactive.

Figure 20: General approach of the CRUD model

Source: The authors

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[9] https://unttc.org/documents/report-standardized-digitalization-multimodal-transport-ua
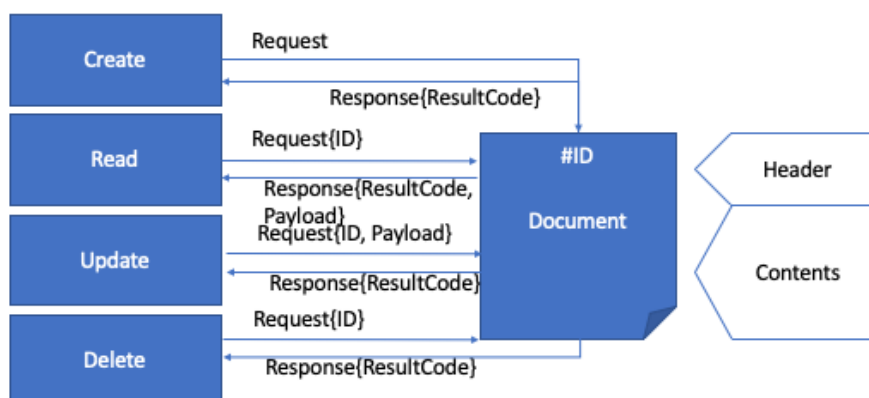
The great advantage of the API approach is a possibility of shifting the paradigm of document exchange to the exchange of data packages or data sets, that will allow to move from providing the document to a certain Receiver (a Single Window system, for example) – which is a "push" model – to requesting the portions of data directly from the point where the data is produced – a "pull" model. Another advantage is the possibility to build a bridge between traditional document-oriented systems and new data package API oriented solutions.

As a next step to expanding the API and moving to data pipelines could be the implementation of automated negotiation of such document requirements using the mechanism of the XML transformation (XSLT). Such a transformation can be implemented as a schematron by the sending side, which is requested in the same way as any document via CRUD API and executed on the receiving side. Such an approach can guarantee consistency of the content of the converted document and will not conflict with the existing legal recognition schema (or legal regime, if it exists). This requires publication of extra metadata, particularly – mapping to the RDM entities type (ABIE and BIE) and data type details.

Figure 21: Interoperability models: API model and way to data pipes
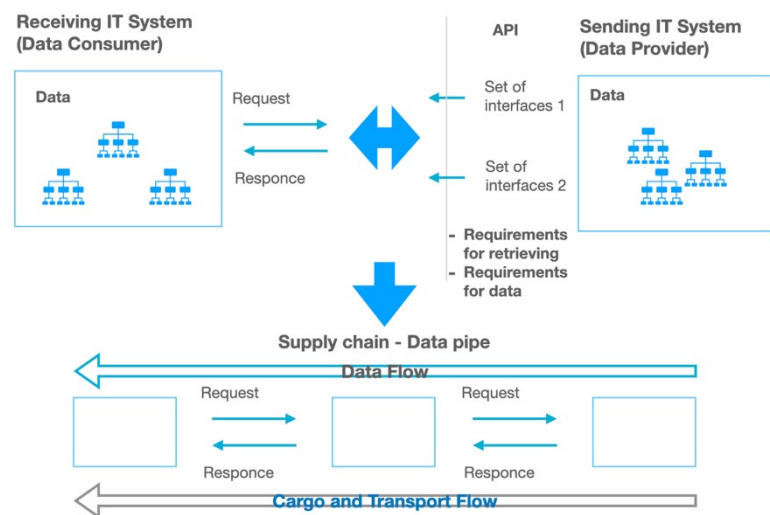
Source: The authors

For the practical application of the data pipeline, in addition to the semantic issue, it is also necessary to resolve the issues of technical interoperability and legal recognition. These issues are supposed to be considered in the framework of further research in the following areas:

- To resolve the issue of legal recognition, it is proposed to consider the experience of the European Union, in particular Regulation (EU) 2020/1056 on electronic freight transport information (eFTI[10]) and Regulation (EU) 910/2014 on electronic identification and trusted services for electronic transactions in the internal market (eIDAS Regulation[11]), as well as the concept of decentralized identity (Decentralized Identity / Self-Sovereign Identity (SSI[12])).

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[10] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R1056&rid=1
[11] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2014.257.01.0073.01.ENG
[12] https://w3c.github.io/did-core/

Annexes

Annex I. Overall statistics on cargo turnover in the countries along the GUAM transport corridor

Cargo turnover (UA).xlsx
Cargo turnover (AZ).xlsx

Annex II. Original documents used for mappings and conversions

1. Maritime Bill of Lading

BILL OF LADING FOR PORT TO PORT OR COMBINED TRANSPORT		**ZIM** Integrated Shipping Services Ltd

SHIPPER / EXPORTER (NAME & ADDRESS)

BOOKING No. ZIMURQL6131963

BILL OF LADING No. ZIMURQL6131963

EXPORT REFERENCES

CONSIGNEE (NAME & ADDRESS)

FORWARDING AGENT F.M.C. No.

POINT AND COUNTRY OF ORIGIN (FOR MERCHANT'S REFERENCE ONLY)

(B/L NOT NEGOTIABLE UNLESS CONSIGNED TO ORDER)

NOTIFY (NAME & ADDRESS)

REMARKS / EXPORT OR OTHER INSTRUCTIONS
SHIPPED ON BOARD 31/03/2021
CY/CY

INITIAL CARRIAGE

PLACE OF RECEIPT OF GOODS * (IF CONTRACTED FOR)

VESSEL * MSC PEGASUS MI112R

PORT OF LOADING * MUNDRA, INDIA

PORT OF DESTINATION * POTI, GEORGIA

FINAL DESTINATION * (IF CONTRACTED FOR)

FURTHER ROUTING (AT MERCHANT'S EXPENSE, RISK AND RESPONSIBILITY)

* FOR DEFINITION SEE CLAUSE 1 OVERLEAF

PARTICULARS AS FURNISHED BY SHIPPER

MKS & NOS. / CONT. NOS.	DESCRIPTION OF GOODS	WEIGHT KGS	MEASUREMENT M3
	AS PER ATTACHED LIST		
	10 CONT TOT. TARE : 21,740	CARGO W : 242,400.00	

DETAILS

PER | RATE AMOUNT | FREIGHT PREPAID | COLLECT

AD VALOREM FREIGHT

MERCHANT'S DECLARED VALUE OF
If Merchant enters a value, Carriers "p... ...th of liability shall not apply and ad valorem freight will be charged (See Clause 21)

TOTAL

NOTE: Received in apparent good order and condition, unless otherwise stated herein, the Goods or packages or Containers said to contain the units and amount of Goods specified herein for carriage subject to the terms and conditions hereof (including the terms and conditions of the reverse side hereof and the terms and conditions of the Carrier's Tariff Rates) from the Place of Receipt or the Port of Loading (whichever is applicable) to the Port of Discharge or the Place of Delivery (whichever is applicable). The Merchant agrees and acknowledges that the weight, measure, marks, numbers, quality, contents and value of the Goods as declared are unknown to and not admitted by the Carrier, but that the Carrier has relied upon the Merchant's representation as to the number of packages stated herein. If the acknowledged tally is of Containers, it/b indicates that this Container has been packed and sealed by the Merchant at his premises without the Carrier being represented and able to check or verify either the tally of Goods or the stowage, which are consequently unknown to him. In accepting this Bill of Lading the Merchant expressly accepts and agrees to be bound by all the terms, stipulations, exceptions, limitations, liberties and conditions stated herein, whether written, printed, stamped or otherwise incorporated on the front and/or reverse side hereof as well as the provisions of the Carrier's Tariff Rates, Regulations and Schedules, without exceptions, as fully as if they were all signed by the Merchant, and the Carrier's undertaking to carry the Goods is made on the basis of the Merchant's acceptance and agreements as aforesaid.

Without prejudice to the generality of the foregoing, the Merchant's attention is drawn to the fact that the terms of the Bill of Lading are continued on reverse side hereof and include limitations of liability in respect of loss or damage to the goods and delay.
In addition, attention is drawn, inter alia, to Clauses 7 (Notice of Loss, Time Bar), 13 (Merchant's Declarations), 19 (Lien), 14 (Dangerous and Hazardous Goods) and 22 (Law and Jurisdiction). The Package limitation mentioned in Clause 21 will not be applicable in the event that contents are carefully declared, itemized, valued by the Merchant prior to loading and Ad Valorem Freight is paid or contracted for.

IN WITNESS of the contract contained herein the number of original Bills of Lading stated below has been signed by or on behalf of Zim Integrated Shipping Services Ltd. (as Carrier). Unless otherwise stated is any applicable law or regulation, upon any of the said originals being accomplished the others to stand void.

FREIGHT PAYABLE AT MUNDRA

No. OF ORIGINAL B/L ISSUED THREE

PLACE AND DATE OF ISSUE MUNDRA on 31/03/2021

ZIM INTEGRATED SHIPPING SERVICES (INDIA) PVT. LTD.
AS AGENTS FOR
ZIM INTEGRATED SHIPPING SERVICES LTD (AS CARRIER)

2. Invoice (for Custom use)
  a. Azerbaijan

ИНВОЙС № 4

16 апреля 2021 г.

Согласно к Контракту № 14/01/21 от 14 января 2021 г. и Спецификации №4 от 16.04.2021 г.

Продавець/Грузоотправитель:
ООО Торговый Дом «▮▮▮▮», ▮▮▮, Львовская обл., г. Львов, ул. ▮▮▮▮▮▮▮, дом.▮ IBAN UA ▮▮300▮▮8 000002▮▮024▮▮0▮▮▮▮ в АТ "▮▮▮▮" г. Киев, ▮▮▮▮, ул. ▮▮▮▮▮▮▮ ▮. МФО 300▮▮ Код получателя 42▮▮▮▮

Банковские реквизиты Продавца :
Beneficiarys Bank: IBAN UA 83 ▮▮▮▮▮00000▮▮▮024▮▮0▮▮▮▮ ▮▮ Bank, ▮ Zhylyanska ▮▮., Kyiv, ▮▮▮▮ SWIFT: ▮▮▮▮▮, Correspondent Banks: Deutsche Bank Trust Company Americas, New York , USA. Account № 0▮▮▮▮▮ SWIFT: ▮▮▮US33

Покупатель/Грузополучатель:
Фирма ▮▮▮▮ ' LTD. ИНН : ▮▮▮ Адрес: ул. ▮▮▮▮ Баку , Азербайджан.

Страна производитель:
Украина /Ukraine

Условия поставки:
Контейнер№TEMU9009494

№	Наименование товара /Description of Goods	Вес нетто, кг/ Net weight, kg	Цена, USDкг/ Price, USD/ kg	Стоимость,USD/ Amount, USD
1	М'ясо яловичини заморожене без кістки, жиловане, не містить вірізку, в блоках/Мясо говядины замороженное без кости, жилованное, без вырезки, в блоках.	24000	▮▮▮	85▮▮
	TOTAL/ИТОГО	24000		8▮▮▮

Директор

b. Ukraine

I N V O I C E No: 1885/004

Date: 11-Jun-2021

Seller: S
                28

Buyer: A
                of   Ukraine

Consignee: A
                (a   01015, Ukraine)

Contract No: 2389/EX-1885 dtd 12.04.2021
Name of the goods: Bitumen BNB 50/70
Origin of the goods: Republic of Azerbaijan
Terms of delivery: FCA Baku, Azerbaijan (INCOTERMS 2010)
Destination: Ukraine
Loading terminal: Azerbaijan
Railway bills: 515691, …, 515697, 530307
Quantity: 485.700   m.t.
Fixed price: USD   per m. t.

Amount: **USD**   97.00

Payment: Payment effected in advance by transfer to acc:
                AZ30
                "Inte
                Corr   , New York
                ACC

Deputy General Manager

Chief Accountant

3. Certificate of Origin
a. Azerbaijan

(Форма СТ-1)

СЕРТИФИКАТ

О ПРОИСХОЖДЕНИИ ТОВАРА АА № 361207

1. Грузоотправитель/экспортер (наименование и адрес) Управление Маркетинга и Экономических Операций ул. С.Оруд...	4. № AZ UA 21 009822 B Сертификат о происхождении товара Форма СТ-1 Выдан в Азербайджанской Республике (наименование страны)
2. Грузополучатель/импортер (наименование и адрес) ALLIA... TD, Украин... ул. Ста... 33	Для предоставления в Украине (наименование страны)
3. Средства транспорта и маршрут следования (насколько это известно) Смешанный транспорт	5. Для служебных отметок Для представления в таможню. Контракт №2389/EX-1885 от 12.04.2021 г.

6. №	7. Количество мест и вид упаковки	8. Описание товара	9. Критерий происхождения	10. Количество товара	11. Номер и дата счета-фактуры
1	жел. дор. цистерна	Битум нефтяной марки БНБ-50/70	«П»	нетто: 485,700 тн.	№1885/004 от 11.06.2021 г.

12. Удостоверение.	13. Декларация заявителя. Нижеподписавшийся
Настоящим удостоверяется, что декларация заявителя соответствует действительности	заявляет, что вышеприведенные сведения соответствуют действительности, что все товары полностью произведены или подвергнуты достаточной переработке в
Государственн... Антимонопо... Потребит... Экономики ... AZ 1012, г. Б... Заместитель... ...дов	Азербайджанской Республике (наименование страны) и что ... ...ованиям происхождения, установ... ...нии таких товаров.
12.06.2021 Подпись Дата Печать	Гусев... Подпис... ...та 12.06.2021 Печать

b.   Ukraine

1. Грузоотправитель/экспортер (наименование и адрес)		4. №	AZ 100	211

1. Грузоотправитель/экспортер (наименование и адрес) LLC Trade House « » , Львовская обл., г. Львов, ул. , дом. Украина	4. № AZ 100 / 211
	СЕРТИФИКАТ О ПРОИСХОЖДЕНИИ ТОВАРА Форма СТ-1
2. Грузополучатель/импортер (наименование и адрес) Фирма " " LTD. ИНН: Адрес: ул. , г. Баку , Азербайджан.	Выдан в _____ УКРАИНЕ (наименование страны) Для предоставления в АЗЕРБАЙДЖАНСКОЙ РЕСПУБЛИКЕ (наименование страны)
3. Средства транспорта и маршрут следования (насколько это известно) Автомобильным и морским транспортом из Украины в Азербайджанскую Республику контейнер TEMU	5. Для служебных отметок

6. №	7. Количество мест и вид упаковки	8. Описание товара	9. Критерий происхождения	10. Количество товара	11. Номер и дата счета фактуры
1	1200 коробок	Мясо говядины замороженное без кости, жилованное, без вырезки, в блоках. --	"П"	вес брутто/нетто 25260/24000 кг	№4 від 16.04.2021

12. Удостоверение	13. Декларация заявителя
Настоящим удостоверяется, что декларация заявителя соответствует действительности Торгово-промышленная палата Украины , г.Киев-ГСП, ул. , , Украина 01. 28.04.2021 Подпись Дата Печать	Нижеподписавшийся заявляет, что вышеприведенные сведения соответствуют действительности; что все товары полностью произведены или подвергнуты достаточной переработке в УКРАИНЕ (наименование страны) и что все они отвечают требованиям происхождения, установленным в отношении таких товаров г.Киев 28.04.2021 Подпись Дата Печать

35

4. Sanitary Certificate

ДЕРЖАВНА СЛУЖБА УКРАЇНИ
З ПИТАНЬ БЕЗПЕЧНОСТІ
ХАРЧОВИХ ПРОДУКТІВ ТА
ЗАХИСТУ СПОЖИВАЧІВ

УКРАЇНА
UKRAINE

STATE SERVICE OF UKRAINE
ON FOOD SAFETY
AND CONSUMER
PROTECTION SSUFSCP

МІЖНАРОДНИЙ ВЕТЕРИНАРНИЙ СЕРТИФІКАТ
INTERNATIONAL VETERINARY CERTIFICATE

EA №

на м'ясо, м'ясні та молочні продукти, рибу і рибопродукти, які експортують з України
for meat, meat and milk products, fish and fish products exported from Ukraine

Прикордонний інспекційний пункт / Frontier Inspection Post	ПМГУ ДСУПБХПЗ ДК ПІК «Київ»/NIRMASSUFCPSB DBIC «Kyiv»
Найменування продукції / Name of the product	М'ясо яловичини заморожене без кістки, жиловане, не містить вирізку, в блоках Beef frozen, boneless, trimmed, tenderloin-free, in blocks
Кількість місць / Number of the products	1200
Упаковка / Type of package	картонні коробки/carton boxes
Маркування / Identification marks	Виробника / Producer
Вага нетто / Net weight	24000.0 kg

1. ПОХОДЖЕННЯ ПРОДУКЦІЇ / ORIGIN OF THE PRODUCT

Найменування та місцезнаходження виробника, вказати адміністративно- територіальну одиницю
Name and address of producer, indicate the name of administrative territory

Походження продукції / Origin of the product	' LLC Kiev region, ,Ukraine a-UA-1 -CP- , MP- for LLC Trade House « », Lviv region, Lviv,

2. НАПРАВЛЕННЯ ПРОДУКЦІЇ / DESTINATION OF THE PRODUCT

Країна призначення / Country of destination	Азербайджан/Azerbaijan
Країни транзиту / Countries of transit	Грузія/Georgia
Пункт перетину кордону / Point of crossing the board	Чорноморськ/CHORNOMORSK, UKRAINE
Найменування та місцезнаходження одержувача / Name and address of consignee	Фирма ' LTD. ,)ес: уп- г. Баку , Азербайджан.
Транспорт / (вказати № вагону, автомашини, рейс літака, судна)	truck BH0 /BH0 cont. TEMU
Засоби для транспорту / (specify the number of the wagon, truck, flight number, name of the ship)	
Маршрут руху транспорту / Route of transportation	Kiev- CHORNOMORSK-Batumi Sea Port- Azerbaijan
№ накладних / № of consignments	CMR № 29/04/21 date 29.04.2021 INVOICE № date

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3. Я, ЩО НИЖЧЕ ПІДПИСАВСЯ, ЛІКАР ДЕРЖАВНОЇ ВЕТЕРИНАРНОЇ МЕДИЦИНИ, ЗАСВІДЧУЮ, ЩО ПОДАНІ ДО ОГЛЯДУ М'ЯСО, М'ЯСНІ ТА МОЛОЧНІ ПРОДУКТИ, РИБА І РИБОПРОДУКТИ:

I, the undersigned veterinarian of the Government of the Ukraine certify, that subjected to examination meat, meat and milk products, fish and fish products:

—одержані від здорових тварин, котрих придатними для вживання в їжу
derived from healthy animals, recognized as fit for consumption

— вироблені на підприємствах, що перебувають під постійним контролем державної ветеринарної служби, мають експлуатаційний дозвіл на експорт і відповідають ветеринарним вимогам України
manufactured at the enterprises, which are under permanent supervision of the State Veterinary Services, have export permission and satisfy veterinary requirements of the Ukraine

— одержані з місцевості, благополучної щодо інфекційних захворювань тварин (за списком МЕБ) та ящуру протягом більш як ____2____ місяців
derived from the premisses and locality, which are safe with respect with to infectious diseases (included in the O.I.E. list) and foot and mouths desease since more than ____12____ months

— до забою тварини були піддані ветеринарному огляду, а туші та органи від них — обов'язковій ветеринарно-санітарній експертизі, свинину було досліджено на трихінельоз з негативним результатом
before slaughter the animals were subjected to the veterinary inspection; carcasses and their organs were — subjected to meat inspection, meat of swines was examined for measles, trichinellose with negative results

— м'ясо та м'ясні продукти, рибопродукти перед відправленням поставлені на радіоактивне забруднення в державній ветеринарній лабораторії, що акредитована на такі дослідження, рівень радіоактивного забруднення при дослідженні не перевищив: Бк/кг Cs-137 <5,62 Бк/кг, Sr -90 <5,20Бк/кг
the meat and milk products, fish products before shipment were tested for radioactive contamination in the State Veterinary Laboratory, licensed for such tests. The level of contamination did not exceed _____ Bk/kg

4. ДОДАТКОВА ІНФОРМАЦІЯ / ADDITIONAL INFORMATION

Ветеринарний сертифікат №_____ від ___ ____ 2021

Сертифікат №_____ виду _____ від ___ ____

Транспортні засоби перед завантаженням дезінфіковані засобами, що прийняті в Україні
Means of transportation cleaned and disinfected by methods and means, approved in the Ukraine

Складено /Made on/ "____" _____ 20__ року

Державний лікар ветеринарної медицини
State doctor of veterinary medicine

(посада, прізвище, ініціали / title, name)

Підпис / Signature

ДЕРЖВЕТСАНКОНТРОЛЬ
ДОЗВОЛЕНО ЗАБОРОНЕНО
ІМПОРТ ЕКСПОРТ ТРАНЗИТ
Держінспектор

5. CMR

1 Absender (Name, Anschrift, Land) / Отправитель (Наименование, Адрес, Страна) ОС . Льво⸗	**INTERNATIONALER FRACHTBRIEF** Международная Товарно-транспортная накладная **N° 29/04/21** Diese Beförderung unterliegt trotz einer gegenteiligen Abmachung den Bestimmungen des Übereinkommens über den Beförderungsvertrag im internat. Straßengüterverkehr (CMR) (CMR) Данная перевозка, несмотря ни на какие прочие договоры, осуществляется в соответствии с условиями Конвенции о договоре международной дорожной перевозки грузов (КДПГ)
2 Empfänger (Name, Anschrift, Land) / Получатель (Наименование, Адрес, Страна) Фирма · LTD. ИНН ⸗аку , Азербайджан.	**16** Frachtführer (Name, Anschrift, Land) / Перевозчик (Наименование, Адрес, Страна) ТОВ ⸗⸗ Україна, ▮▮ Одеська обл., місто Одеса, ▮▮▮▮
3 Auslieferungsort des Gutes / Место разгрузки груза Ort/Место ЧРП(ua500110)для подальшей отправки в Land/Страна Баку, Азербайджан	**17** Nachfolgende Frachtführer (Name, Anschrift, Land) / Последующий перевозчик (Наименование, Адрес, Страна) UA: 2021/ _____ BOOKING NO:▮29UA2▮▮▮▮▮ Экспедитор – ▮▮ Ukraine LLC
4 Ort und Tag der Übernahme des Gutes / Место и дата погрузки груза Ort/Место Киевская обл., пгт Барышевка Land/Страна Украина Datum/Дата 29.04.2021	**18** Vorbehalte und Bemerkungen der Frachtführer/Оговорки и замечания перевозчика BH0▮▮▮IT / BH0▮▮▮XH конт:ТЕМ▮▮▮▮▮▮
5 Beigefügte Dokumente / Прилагаемые документы Инвойс,паклист,вет.сведетельство,сертификат происхождения	

6 Kennzeichen und Nummern **7** Anzahl der Packstücke **8** Art der Verpackung **9** Bezeichnung des Guts Знаки и номера Количество мест Вид упаковки Наименование груза *		**10** Statistiknummer Статист. Nr.	**11** Bruttogewicht in kg Вес брутто, кг	**12** Umfang in m3 Объем, м³
24000/1200 кг/короб	М'ясо яловичини заморожене без кістки, жиловане, не містить вірізку, в блоках/Мясо говядины замороженное без кости, жилованное, без вырезки, в блоках.	0202	25260	

UN-Nr.:
UN-N°

13 Anweisungen des Absenders (Zoll- und sonstige amtliche Behandlung) Украина Пломба завода Пломба перевозчика ▮	**19** Zu zahlen vom Получатель оплата	Absender Отправитель	Währung Валюта	Empfänger Получатель
	Fracht Ставка Empfangsspesen Ухож Zwischenauslagen Развитие Zuschläge Надбавки Nebengebühren Дополнительные сборы Sonstiges Прочие Zu zahlende Gesamtsumme Итого к оплате			

14 Rückerstattung / Возврат

15 Frachtzahlungsanweisungen / Условия оплаты
Frei / фра
Unfrei / нефранко

20 Besondere Vereinbarungen / Особые согласованные условия

21 Ausgefertigt in / Составлено в Барышевка am / Дата **29.04.2021**		**24** Gut empfangen / Груз получен Datum / Дата
22 Unterschrift und Stempel des Absenders Подпись и штамп отправителя	**23** ТОВ "▮▮▮▮", Україна, ▮▮▮ Одеська обл., місто Одеса, ▮▮▮▮▮▮ будинок Unterschrift und Stempel des Frachtführers Подпись и штамп перевозчика	am .... 20 Unterschrift und Stempel des Empfängers Подпись и штамп получателя

25 Angaben zur ... / ... Tarifstufen und Gütertklassen	km	км	**28** Berechnung des Beförderungsgeldes					
vom			Fracht/Gewicht in kg	Tarifteile	Gütertarten	Währung	Frachtsatz	Beförderungsgeld

26 Vertragspartner des Frachtführers Партнер перевозчика по договору		
27 Amtl. Kennzeichen Регистрац. Номер	Nutzlast in kg Грузоподъемность	
Kfz Тягач		
Anhänger Получаем		

Benutzte Genehmigungs-Nr./Номер используемого разрешения	National	Bilateral	EG	CEMT

6. SMGS

1 Qaimənin əsli - Оригинал накладной (yükalan üçün) - (для получ~перево~)

29 Göndərmə № - Отправка №
515691

1 Yükgöndərən - Отправитель	9330122
Управлен~ ~ГНК	
Азербай~ ~28	
İmza - Подпись	
ALLIANC~ ~33, 138	3312
Staronav~	

ADY QSC
AzЖД ЗАО

2 Göndərən stansiya - Станция отправления
Баку-товарная Аз.ж.д, код 547105

3 Yükgöndərənin izahlı məlumatı - Заявления отправителя
По нап~
Фрахто~
Экспер~ ~инная-
экспор~

5 Təyinat stansiyası - Станция назначения   321207
Ст.Васильков 1   ЮЗап.ж.д.

6 Sərhəd keçid stansiyaları - Пограничные станции переходов	7 Vaqon - Вагон	8	9	10	11	12
Ст. Бекж-Кясик эксп 558701						
Гардабани эксп 563606						
Поти (паром, эксп.) 572304 ГР	50030477	О	66	4к	25,95	62
Морской порт Поти						
Паромная-экспорт (Поти) 404005 УЗ ГП						
«Морской торговый порт Черноморск						

15 Yükün adı Наименование груза	16 Qablaşdırma növü Род упаковки	17 Yerlərin sayı К-во мест	18 Kütlə (kq-la) Масса (в кг)	19 Plomblar - Пломбы
Битум нефтяной марки BNB 50/70 ЕТСНГ 222069 ГНГ 27132000	Налив	нетто	62,300	1 HEYD~ ~26
				1 Ом~ AZ~

20 Yükləniş
Погружено

21 Kütlənin müəyyən edilməsi qaydası
Способ определения массы
Вагонные весы
Отправителя

22 Yükdaşıyanlar Перевозчики	(Sahələr kəndan/hara) (Участки от/до)	(Stansiyaların kodları) (Коды станций)
57	Баку-товарная	547105
	Бекж-Кясик эксп	558701
28	Гардабани эксп	563606
	Укрферри 3389	
	Поти (паром эксп)	572304
	Морской порт Поти	
22	Паромная-экспорт (Поти)	404005
22	Васильков 1	321207

23 Daşıma haqlarının ödənilməsi
Уплата провозных платежей

Плательщи~ ~16241406
Плательщи~
код – 28700~
Оплата по У~ ~а 8206648
по договор~

24 Yükgöndərən tərəfindən əlavə edilən sənədlər
Документы, приложенные отправителем

1. Паспорт качества
2. Сертификат происхождения
3. Таможенная декларация
4. Инвойс
5. Доп.Дорож.ведомость – 4 экз.

Document üzərində tutulmayan məlumat, təchizat müqaviləsinin №-si
Инф~ данные, не предназначенные для перевозчика. № договора на поставку
Контракт 2389/EX-1885 от 12.04.2021 между SOCAR MO & Alliance Energo Trade LTD
Экспедитор на паромном комплексе (ст. Паромная-экспорт) АО "ПЛАСКЕ" код
5633748, договор с АТ «УЗ» № 5633748 от 11.03.2020
Терминальные в порту Поти "U&G-Agency" LLC код 28260916

26 Daşıma müqaviləsinin bağlaşma tarixi
Дата заключения договора перевозки

27 Gəlmə tarixi
Дата прибытия

1 2 ИЮН 2021

28 Gömrük və digər inzibati rəsmiləşmənin yerinə yetirilməsinə dair qeydlər
Отметки для выполнения таможенных и других административных формальностей

R 06   2~

Annex III. Results of the mapping

1. Maritime Bill of Lading
   Maritime BL_AZ_UA.xlsx

2. Invoice
   Invoice_AZ_UA.xlsx

3. Certificate of Origin
   CertifacteOfOrigin-AZ_UA.xlsx

4. Sanitary Certificate
   SanitarySertificate.xlsx

5. CMR
   eCMR_AZ_UA.xlsx

6. SMGS
   CIM-SMGS_AZ_UA.xlsx

Annex IV. XML documents examples

1. Maritime Bill of Lading
   MaritimeBL-AZ_UA.xml

2. Invoice
   Invoice_AZ_UA.xml

3. Certificate of Origin
   CertificateOfOrigin_AZ_UA.xml

4. Sanitary Certificate
   SanitarySertificate_AZ_UA.XML

5. CMR
   eCMR_AZ_UA.xml

Annex V. Results of the documents transformation

1. Maritime Bill of Lading - CMR

MaritimeBL-WMS20096828-CMR-37916.xlsx