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R.3.4-2 Analysis of alternatives for eCustoms pre-arrival information exchange pilot project solution

EU4Digital: supporting digital economy and society in the Eastern Partnership

Contract number: ENI/2018/396-727



Document versions

Version	Date	Editor	Summary of changes
1.0	2019-07-01	Contractor	



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1. List of Acronyms & Abbreviations

Abbreviations	Definition
AM	Armenia
AZ	Azerbaijan
BCP	Border crossing point
BY	Belarus
EaP	Eastern Partnership
eCustoms activity	Activity 3.4: Pilot mechanisms of exchange of information, including pre-arrival information and information from export declarations for goods, among the Eastern partner countries and with EU
EU MSs	European Union Member States
GE	Georgia
MD	Republic of Moldova
UA	Ukraine



Scope of Activity 3.4. Pilot mechanisms of exchange of pre-arrival information: to pilot automated and real-time information exchange – exchange of pre-arrival information and information from export declarations for goods (along with risk assessment data exchange/exchange of control results of performed customs controls process) between the selected cross-border customs offices.

2. Introduction

This document provides the analysis of the existing technological solutions/pilot implementation cases and evaluation of applicability and extent to which these models and practices could be re-used or adapted to pilot mechanisms of exchange of information between EU and Eastern partner countries as well as among Eastern partner countries.

The main aim of the document is to provide an overall assessment of the existing solutions in order to discuss the alternatives with the stakeholders (Eastern partner countries customs administrations, EU MS customs authorities¹, DG TAXUD, DG NEAR, trade representatives, etc.) and make an informed decision on piloting form of information exchange between EU and Eastern partner countries as well as among Eastern partner countries, based on available solutions.

Analysis does not cover detailed functional/IT issues, however it refers where possible to the additional information on technological/data elements for further elaboration with stakeholders and IT specialists.

It is considered that currently there is no legal basis in force for EU to engage in structured and recurrent exchange of customs-related information with third countries. The types of information and priority countries for information exchange were defined by the EC in the document 'Reflection Paper on the Enhanced Exchange of Customs-Related Information with Third Countries: Towards a Structured and Recurrent Exchange to facilitate trade and strengthen Supply Chain Security' which was approved by EU MS and Customs Policy Group (CPG) during the meeting on 4-5 July 2019 in Brussels.

This analysis and consequent activities in the framework of EU4Digital programme may facilitate the selection of the most adequate and appropriate ways and means/instruments needed to implement the EU strategic approach in practical terms.

3. Context of cross-border information exchange

In an increasingly globalised world and conditions of quick increase of traffic and cross-border activities, cooperation and information exchange among agencies, performing control on both sides of the border, plays a crucial role in facilitating and fostering legal trade. Cooperation and exchange of information can improve customs risk management and make legitimate trade faster and less costly by targeting customs controls and simplifying customs procedures. Along with mandatory pre-arrival declarations, it contributes to the security and safety of the EU and Eastern partner countries by strengthening controls to block the entry of hazardous goods, arms, explosives and dual-use goods and to prevent the entry and trafficking of drug precursors.

During the High-Level Seminar on Exchange of customs-related information with third countries held on 7-8 June 2018 in Albena (Bulgaria), representatives from EU MS identified the need for enhancing exchange of customs-related information with third countries, namely with partner countries of the European Neighbourhood Policy and other close trade partners.

There are various initiatives in place that allow customs authorities in the EU and Eastern partner countries to exchange certain customs information in specific circumstances. These are either based on international agreements and decisions adopted by bodies set up by international agreements, such as:

- stand-alone customs cooperation and mutual administrative assistance agreements;
- customs and trade facilitation chapters included in free trade agreements;
- agreements on trade facilitation and security as well as agreements on transit;
- Joint Customs Cooperation Committee decisions on mutual recognition of authorised economic operator (AEO)/trusted trader programmes;
- non-legally binding arrangements or pilot projects (e.g. Smart and Secure Trade Lanes (SSTL) with China).

¹ During EU MS Customs Policy Group (CPG) meeting in July 2019



Some countries already make use of customs information exchange solutions, which were implemented and financed by EU (e.g. PRINEX (Belarus-Ukraine border), SEED (Western Balkan countries). Existing solutions are analysed in the table below).

Exchange of information currently exists in the context of mutual administrative assistance agreements that cover exchange of information on request and in case of evidence or suspicion of irregularities, but not in an automated and advanced way.

Moreover, an important component of the EU Strategy and Action Plan for customs risk management² – is tapping into the potential of customs cooperation at international level and the exchange of customs-related information – exchange of information with customs of neighbouring third countries.

Summary of needs:

1. need to **handle rapidly increasing trade volumes** combined with **rising safety and security risks**;
2. need for **reliable information** (to be exchanged in real time) to manage those risks, target customs controls, ensure the correct application of customs legislation, protect the financial and economic interests of the EU while facilitating legitimate trade at the same time;
3. need to establish **secure automated data exchange links for structured and recurrent exchanges of customs-related information** with a third country: adequate safe and secure electronic data-processing techniques should be used for such exchanges in the form of IT-systems and interfaces. Such systems would be required for the collection of the data in the donor country, the transmission of the data to the receiving country and the processing of the data in that country, without unnecessary human intervention;
4. need for closer **real-time collaboration** between cross-border Customs administrations and between Customs and business in facilitating legitimate trade and undertaking Customs controls.

4. Standards

Automatic exchange of information for customs purposes requires standardisation of data formats so that information can be captured, exchanged and processed quickly and efficiently in a cost-effective manner.

The EU Customs Data Model (EUCDM). EUCDM is the model for Customs trans-European systems such as those used for the transit procedures, export or entry of goods, and for Member States national customs clearance systems. Currently, the backbone of the EUCDM is the data required from traders in different declarations and notifications they have to lodge with customs authorities on the basis of the Union customs legislation³.

Data elements. The Union Customs Code (UCC) stipulates that all exchanges of information between customs authorities and between economic operators and customs authorities shall be made using electronic data-processing techniques and that common data requirements for this data exchange shall be drawn up. These common data requirements and the related formats and codes have been set up in respectively a UCC delegated act⁴.

WCO Data Model⁵. The WCO Data Model is a set of carefully combined data requirements that are mutually supportive and which will be updated on a regular basis to meet the procedural and legal needs of cross-border regulatory agencies such as Customs, controlling export, import and transit transactions. It is consistent with other international standards such as the United Nations Trade Data Elements Directory (UNTDDED).

WCO Globally Networked Customs (GNC) Utility Blocks⁶ (Control Mutual Agreement). GNC is a set of guiding principles for the exchange of information between Customs administrations. The concept is based upon the systematic exchange of information of a commercial nature for a wide variety of reasons that may include enhanced data re-use, improved risk assessment and control, improving data quality, and other reasons that enhance the ability of Customs and Border Agencies to discharge their responsibilities more effectively, by improving the use of data already available in import, export or transit declarations and similar data transfers from industry to Customs including cargo declarations and other transport logistics data.

² COM/2014/0527 final

³ <https://svn.taxud.gefeg.com/svn/Documentation/EUCDM/EN/index.htm>

⁴ Commission Delegated Regulation (EU) 2015/2446) and a UCC implementing act (IA) (Commission Implementing Regulation (EU) 2015/2447

⁵ <http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/data-model.aspx>

⁶ http://www.wcoomd.org/-media/wco/public/global/pdf/topics/facilitation/activities-and-programmes/gnc/gnc-repository/gnc_ub_cma_v2-10.pdf



5. Benefits and advantages

In pursue of development of deeper cooperation in cross-border information exchange with its neighbouring and third countries, Partner in piloting cross-border customs information exchange should consider possible benefits of further automating processes for information gathering and validation as well as improving security in sending information across borders (see 4.1-4.3 sections below).

Advantages for government:

- better visibility on the overall supply chain, i.e. from the point of export to the point of entry for the same goods movement (i.e. export information can be matched with transshipment/transit and/or import information with the possibility to follow up with arrival and control results information);
- expedited goods movement processing and better resource planning as a result of access to pre-arrival information provided by the “Export/Exit” Country leading to reduced fraud and, as a result of a better risk analysis, to better enforcement of security procedures;
- development of secure, electronic means for systematic exchange of reliable information strengthens the capacity of the authorities to systematically identify and manage risks;
- allocating spare resources to focus on non-compliant trade;
- targeting customs controls – reduced border management cost through reduced physical inspection and improved risk management;
- improving levels of compliance amongst traders and increasing revenue collection;
- promoting harmonisation of standards and data models, streamlined processes.

Advantages for business/trade:

- transparency and predictability of the processes by all partner countries provided by harmonisation of data and processes;
- reduced costs of intra-regional trade as a result of facilitation of cross-border flow of goods for compliant traders;
- acceleration of customs procedures, border crossing process and facilitation of legitimate trade;
- improved competitiveness;
- trade representatives of neighbouring countries adopted to standard of activity mode.

Advantages in the context of integrated border management:

- promote/improve cross border communication and cooperation;
- promote the concept of One Stop and coordinated border management;
- encourage government agencies to work together;
- reduce security risks in the Region;
- targeted actions and resultative activity with reduced resources, efficiency of staff capability usage.

Existing solutions have been analysed in terms of countries engaged, types of information and perspectives of reusability/replicability of the solution in customs information exchange between EU and Eastern partner countries as well as among Eastern partner countries (see Table 1).



Table 1. Existing technological solutions analysis

No	Possible technological solutions	Countries engaged ⁷	Types of information/ Purposes of exchange	Legislative framework Legal acts/rules/MoU/ governing the exchange of information <i>(in relation to relevant Eastern partner country)</i>	Potential/perspectives of reusability/replicability of the solution in EaP-EU, EaP-EaP exchanges <i>(in relation to relevant Eastern partner country – its readiness/willingness to join the pilot should be assessed/negotiated separately)</i>	Advantages Reciprocity (aspects of mutual benefit EU- EaP) Arguments ⁸	Possible gaps/barriers
1.	CCN (Common Communication Network) DG TAXUD own system	28 EU MS, the EFTA countries, Turkey, the Former Yugoslav Republic of Macedonia, and Serbia – 35 partners altogether	Messages related to the transit and export of goods. Exchanges with Third countries cover notably the New Computerised Transit System (NCTS) supporting the common transit procedure, used for the movement of goods.	Has the option to connect third countries on a bilateral basis via dedicated gateway.	Country needs to: <ul style="list-style-type: none"> - meet legal and technical requirements and pass rigid technical testing before it can be connected; - meet high security standard for the communication of reliable exchange of sensitive information, e.g. trade data (commercial secrets) and tax (confidence fiscal) data. 	Highly secured, dedicated mainly for internal use within EU	None of Eastern partner countries have joined NCTS yet and do not correspond to Transit convention requirements.
2.	SPEED2 (Single Portal for Entry and Exit of Data) DG TAXUD Pilot	Third countries that do not host a CCN gateway. USA, Japan, China, and Russia	Communication gateway for all electronic exchanges of structured information	Platform allows to connect third countries on a bilateral basis.	<ul style="list-style-type: none"> - Powerful platform with increased flexibility and security (e.g. message content-level security; several levels of encryption). - Partner countries which want to engage in such systematic exchange of information need to develop or to procure the IT-application which will be used to interface with the SPEED2 platform. - Possibilities of SPEED2 interfaces with already existing information exchange systems (SEED, PRINEX) should be negotiated. 	<p>Intended to remove the barriers to trade and investment and promote reforms and competitiveness, based on the principles of non-discrimination, transparency, and good governance.</p> <p>Intended to support in the future all external message flows (Single Window, Transit, Mutual recognition, International data exchanges).</p>	<ul style="list-style-type: none"> - Strict platform security. - Exchange between one Eastern partner country and another is not possible. - Might require substantial physical infrastructure setup in local customs administrations.

⁷Region specifics

⁸Is the information so crucial, necessary for the risk assessment at the border that it is worth developing and extending existing IT systems for this objective? Moreover, this argumentation should be twofold: for EU and for Eastern partner country.



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No	Possible technological solutions	Countries engaged?	Types of information/ Purposes of exchange	Legislative framework Legal acts/rules/MoU/ governing the exchange of information <i>(in relation to relevant Eastern partner country)</i>	Potential/perspectives of reusability/replicability of the solution in EaP-EU, EaP-EaP exchanges <i>(in relation to relevant Eastern partner country – its readiness/willingness to join the pilot should be assessed/negotiated separately)</i>	Advantages Reciprocity (aspects of mutual benefit EU-EaP) Arguments ⁸	Possible gaps/barriers
3.	CENComm/SSTL (Customs Enforcement Network Communication/Smart and Secure Trade Lanes) Owned by the WCO PILOT	<ul style="list-style-type: none"> - Pilot project among eight EU MS (Belgium, France, Germany, Italy, Netherlands, Poland, Spain, United Kingdom) with China and Hong Kong; - 16 maritime ports. 	Web-based communication system permitting a closed user group of officers to exchange messages via encrypted channels, in real time, for the duration of an operation or project.	Joint administrative arrangements with WCO	<ul style="list-style-type: none"> - Opportunities for replication of this solution are low. Moreover, DG TAXUD has initiated a project to migrate SSTL data exchange from CENComm to SPEED2 on the EU side. - More complex trade lanes are gradually being introduced and the EU-CN-HK have the intention to rollout SSTL to air and rail ports in EU-CN-HK, as conditions permit. 	<ul style="list-style-type: none"> - The strategic objective of SSTL is to test security measures applied to the logistic supply chains, to facilitate 'customs-to-customs' data exchange, to determine joint risk rules and to mutually recognise customs controls and trade partnership programmes. - The SSTL project is the first international proof of concept test of the WCO SAFE Framework of Standards. 	<ul style="list-style-type: none"> - Need to key in data manually. - Does not meet the requirements on stability, reliability and capability to handle large volumes of messages. - Member States participating in the pilot project do not have interfaces between their customs declaration processing systems and CENComm.
4.	SEED (Systematic Electronic Exchange of Data) SEED + Financed by EU IPA II	<ul style="list-style-type: none"> - Customs Administrations of Albania, Bosnia and Herzegovina, Kosovo*, North Macedonia, Montenegro and Serbia; - Managed by Serbia. 	<ul style="list-style-type: none"> - System supports the exchange of the entire data set from each type of Customs document. - Offers a secure data exchange with neighbouring administrations but also accepts messages from the Customs Declaration Processing System. - Common data structure based on standards: ICTS, WCO data model. - Data protection guaranteed through an asymmetric encryption of 	Data exchange links are supported by the legal base established throughout the Region, on the basis of bilateral Protocols (MOUs) signed between neighbouring Customs Administrations which also adopted operational guidelines and instructions for the SEED system use.	<ul style="list-style-type: none"> - Technical concept and solutions replicable to other regions. It is flexible and adaptable to different customs declaration processing systems. - Possibility to harmonise with IT-systems used by other competent authorities (e.g. EU TRACES by DG health and food safety) in speeding up border procedures. - The benefits will be achieved if potential Beneficiaries correctly incorporate the information into risk analysis and post-clearance controls process. - In the course of analysis of reusability of SEED in Eastern partner countries, assessment of that country's national data protection legislation will have to be carried out. This will have to be in line with Article 45 and Chapter V of 	<p>Established interconnectivity between heterogeneous IT-systems of six Beneficiaries and the exchange involving Customs Offices, Customs Posts and Border crossing points all over the region (70 Border Crossing Points: 35 pairs) with procedures aligned at local level.</p> <p>Flexible tool:</p> <ul style="list-style-type: none"> - Fast and cheap adaptation (easier to make changes to the changing requirements) and foundation for global standards. - Scalability: easy extension. - Functions are activated on an as-needed basis (and depending on technical capabilities) and on request of the Administration (various data sets). 	<ul style="list-style-type: none"> - There's no connection between Eastern partner countries and the EU at the moment. - Permission of the solution owner (DG NEAR) is needed.



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			<p>messages (pairs of key cryptographic system: public-private), secure web service and VPN tunnels.</p> <p>IT STANDARD agreed (WCO data model, structure of messages, triggers for generation of messages, etc.).</p>		<p>Regulation (EU) 2016/679 – as is the case already now whenever such data is exchanged under the MAA protocols/agreement – and additional safeguards may need to be put in place, as is already required by Article 12 (2) and (3) of the Union Customs Code.</p>	<ul style="list-style-type: none"> - Adapts to the needs of participating Beneficiary Administrations and the willingness to share data. - In terms of including additional functionalities and new elements, including interoperability with EU cloud, Exchange of data with non-customs administrations. - Applicability of the solution for the exchange of data in the context of MRA of AEO. 	
5.	<p>PRINEX⁹ (Electronic System of Pre-arrival Information Exchange)</p> <p>Financed by EU, implemented by IOM.</p>	<p>State Customs Committee of the Republic of Belarus</p> <p>State Fiscal Service of Ukraine</p> <p>Road and railway BCPs</p>	<p>Xml messages containing information about vehicles crossing the border and registered in the customs control zone for international transport (including empty), as well as the carrier consignment (including information about goods and shipping documents).</p>	<ul style="list-style-type: none"> - Bilateral Regulations for Information Systems Interaction when Exchanging; - pre-arrival Information within the Framework of PRINEX; - projects between the SCC of the Republic of Belarus and the SFS of Ukraine are developed. 	<p>Not fully automated:</p> <ul style="list-style-type: none"> - Customs officer compares the electronic information with paper documents provided by the carrier in the BCP. If they match – no additional examination is required. - Exchange of information is carried out in the form of xml messages. 	<p>Capacity of international border crossing points on Belarusian–Ukrainian border has increased, allowing for secure and fluid movement of vehicles without formation of queues.</p>	<ul style="list-style-type: none"> -Some data elements are still not harmonised; potential risk of misuse of the confidential data. -Not clear which data model is applied.
6.	<p>EU eCloud based solution, combined with one of the already implemented solutions (e.g. SEED, PRINEX)</p>	<p>EU MS neighbouring with Eastern partner countries (EU as the owner of eCloud)</p>	<p>Share export related information and exchange control results in case when in the country of entry violations are observed.</p>	<p>Agreements between EU and countries involved.</p>	<p>Modern tool for quick obtaining of necessary information regarding the import or subsequent procedures in the country of entry (the previous information regarding export in the country of exit is very helpful for the country of entry) and powerful bilateral platform for effective management of risk profiles related to violation fixed in the country of entry (what wasn't fixed in the country of exit).</p>	<p>Data sets could be customised according to particular interests of the Countries involved.</p>	<p>For EU, as the owner of the eCloud, this solution could be too expensive to create and support it.</p>

⁹ Short video about the PRINEX system: <https://www.youtube.com/watch?v=6UfGRw2fPKA>



Necessary conditions for piloting the selected solution and the actions that have to be taken prior to piloting are presented in the table below (see Table 2):

Table 2. Necessary conditions for piloting the selected solution

No	Necessary conditions for piloting the selected solution	Next steps
1.	Data shall be exchanged at central and international level by means of customs-to customs data exchange using existing infrastructure in partner administrations in order to begin processing prior to the arrival of goods with a view to expediting the release of goods upon arrival.	<ul style="list-style-type: none">- To establish structured and recurrent exchanges partners need to agree on conditions and draft agreements/MoU defining the purpose and type of information/data elements both parties would have interest for.- Needs for customs information exchange have to be justified based on the assessment of reciprocal benefits. The type of information for exchange does not necessarily have to be the same for both sides.
2.	Partners shall be ready and willing to develop and extend their existing IT systems for piloting of the information exchange solution. Technical experts will be involved in the piloting solution process as well.	<ul style="list-style-type: none">- Need to draft the requirements for realisation of interconnectivity among EaP-EU and EaP-EaP customs IT systems for information exchange.
3.	IT system/pilot solution shall allow an automated processing of the data during exchange. Automatic exchange of information for customs purposes requires the standardisation of data formats so that information can be captured, exchanged and processed quickly and efficiently in a cost-effective manner.	<ul style="list-style-type: none">- Need to focus on semantic interoperability on data level. Use of EU or WCO data model is an advantage.- Technical requirements and album of formats for electronic messages need to be agreed and harmonised among Partners.
4.	Private sector (traders, logistic or transport companies) shall be involved.	<ul style="list-style-type: none">- Depending on data set and restrictions, to obtain the consent of the private sector to participate in the pilot project.- Secure, reliable and compatible methods of transmission and encryption of the data must be in place.
5.	Specific conditions (related to data security and data protection) such exchange would be subject to (including appropriate measures in case of breach of those conditions) shall be defined;	<ul style="list-style-type: none">- The exchange of personal data would have to comply with the rules laid down in Chapter V of the EU General Data Protection Regulations (GDPR).- Assessment of Eastern partner countries' national data protection legislation will have to be carried out. This will have to be in line with Article 45 of Regulation (EU) 2016/679 – as is the case now whenever such data is exchanged under the MAA protocols/agreement – and additional safeguards may need to be put in place, as is already required by Article 12 (2) and (3) of the Union Customs Code;- Assurances need to be in place to guarantee that the data will remain confidential. Responsibilities of the Partners for breach of the conditions should be defined in MoU/Agreements.



6. Conclusions

Bearing in mind the regional approach (creating possibility to adopt a solution in any country-to-country exchange context), different interests and IT systems/possibilities in Eastern partner countries and EU countries, the priority solution to be piloted should be flexible, adjustable to heterogenous customs IT systems, creating possibility to customise data sets and additional functionalities according to particular national interests of the partner countries. Based on the analysis above, preliminary SEED solution is considered as the most favourable option. Arguments for piloting SEED solution:

- SEED solution is flexible in terms of compatibility to other already working systems, including interoperability with EU cloud/SPEED2 platform. It has established interconnectivity between heterogenous customs IT systems.
- SEED solution is flexible in terms of including additional functionalities and easily replicable in the region by any EU-Eastern partner country exchanges following their specific information/data needs for data exchange.
- SEED is a good practice example that was developed by EU funding. SEED solution is successfully working in practice and because of that could be considered for re-usability in Eastern partner countries.
- Fast and cheap adaptation and foundation for global standards.
- Scalability: easy extension.

Further discussions need to be conducted with Eastern partner countries (e.g. Ukraine and Belarus) that are already using their own instruments (e.g. Prinex) for pre-arrival information exchange, looking for synergies and their readiness to develop/extend their existing IT systems for piloting the selected solution of the information exchange with EU MS.

Following the Strategic approach¹⁰ of EU MS, further discussions need to be conducted with DG TAXUD regarding the practical issues and possibilities of interoperability of selected solution with EU cloud/SPEED2 platform.

To evaluate SEED solution's practicality, applicability in Eastern partner countries and make a reasonable decision, a site visit has to be organised. The aim of the visit would be to see how SEED solution works in a practical sense.

It should be taken into account that EU MS, considering to be involved in automated information exchange process, will need to follow the common EU commercial policy and justify the needs for information exchange based on a clear need and on an assessment of benefits.

¹⁰ 'Reflection Paper on the Enhanced Exchange of Customs-Related Information with Third Countries: Towards a Structured and Recurrent Exchange to facilitate trade and strengthen Supply Chain Security' to be approved by EU MS and Customs Policy Group (CPG) meeting on 4-5 July 2019