Digital Transport and Logistics Forum
- Background -

The Political Guidelines issued by President Juncker for 2014-2019 – "A new start for Europe: Agenda for Jobs, Growth, Fairness and Democratic change"[1] – define 'Jobs, Growth and Investment' and 'A Connected Digital Single Market' as the two first priorities for the EU with a view to foster growth, competiveness, investments, jobs and the internal market. It is estimated that the creation of a digital single market could generate up to €340 billion of additional growth and hundreds of thousands of new jobs[2]. Enhancing the use of digital technologies and online services is therefore a priority task and a cross-cutting policy covering all sectors of the economy and of the public sector.

In the transport sector, vast amount of data is available that could support new business opportunities, as well as improve the use of existing resources and the daily life of citizens. Value added services for better freight transport management could be developed and data on traffic conditions generated by vehicles / transport operators could improve traffic management. There are numerous potential advantages in better exploiting available data and the use of information and communication technologies (ICT) in transport and logistics; Box 1 below describes but a few.

Box 1. Potential advantages of wider use of ICT and available data

Optimised choice of transport services: Shippers and freight forwarders could have more elements to choose the transport service which is better suited to their needs thanks to online platforms listing available services in all modes. They would also be able to bill consignees more quickly, thanks to real-time confirmation of goods delivery.

Better transport management: Freight forwarders and transport operators could optimise transport management with the support of real-time information on delays or incidents, for instance by rerouting the goods towards another transport mode. First studies estimate that tracking and tracing goods could reduce costs by € 4.3 billion over the period from 2012 to 2027, in Europe[3].

Reduced administrative cost of compliance: Stakeholders would be able to handle all administrative tasks online instead of filling in paper documents. For example in the air sector, the World Economic Forum (WEF) estimates benefits of moving from paper to electronic documents up to $12 billion per year.[4] In addition, transport players could introduce their information only once, and the data could then be made automatically available to all stakeholders that they choose. Furthermore, controls as well as tolling of trucks thanks a remote access to trucks on-board systems while these are moving could reduce unnecessary stop times.

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[1] http://ec.europa.eu/priorities/docs/pg_en.pdf#page=6
[2] http://ec.europa.eu/priorities/digital-single-market/index_en.htm
[3] "Legal, technical and organisational support on exploring the expediency a Directive on GNSS-based multimodal logistics"
[4] http://reports.weforum.org/global-enabling-trade-2013/iata/

Reduced warehousing costs: Factories could optimise inventory management and decrease their storage needs ("just-in-time deliveries") through better predictability of the arrival times of goods.

Fewer CO2 emissions: Emissions could be reduced thanks to higher load factors and an overall efficiency of the whole logistics system (including the infrastructure). Transport operators could more easily measure and work on a reduction of their environmental impacts. One the one hand, they could either optimise each transport leg (e.g. ecodriving, slow steaming, or reduction of time spent to look for a parking place thanks to real-time information on available places). On the other hand, they could transport goods in modular loading units, which would be assembled into containers and disassembled at terminals, enabling product customisation and transfer to smaller and greener vehicles for city deliveries. Modular loading units in combination with tools matching supply and demand of transport capacities could facilitate bundling of shipments in the same vehicle, increase vehicles load factors as well as the overall efficiency of the whole logistics system, and thereby cut CO2 emissions and costs. There is indeed large potential for improvement when today, 24% of goods vehicle kms in the EU are running empty and average load factor is 57%[5].

Greater safety and enhanced damage prevention of perishables or dangerous goods: Drivers could be helped by on-board systems alerting them on dangerous areas. Besides, thanks to "intelligent cargo" informing on goods condition (moisture/temperature), safety and damage prevention of perishables/pharmaceuticals/dangerous goods could increase.

Importantly, any authorities/services involved with handling accidents/emergencies could more easily know the content of the goods involved, enabling better and quicker reaction.

Improved security: Through more and better data on the goods, on vehicles and on security controls already applied to cargo, risk assessments by authorities could further improve. This could increase the efficiency of controls and the overall security, and reduce the burden on transport service providers. Further, real-time information on vehicles could reduce thefts of trucks and their loads (estimated in 2007 at €8.2 billion per year in Europe[6]).

Better maintenance of vehicles and infrastructure: Needs for maintenance of vehicles and infrastructure could be identified more quickly thanks to information sent by vehicles or by infrastructure components. This could increase safety and decrease resources spent to identify those needs.

However, there are a number of obstacles that prevent the full exploitation of these opportunities. Existing systems that handle data are fragmented and rarely interoperable, which complicates sharing and pooling of data; a climate of trust is needed for data sharing; e-transport documents are not recognised by all stakeholders in the supply chain; and a critical mass of stakeholders sharing data and exploring new business opportunities is needed.

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[5] World Economic Forum, supply chain decarbonization, 2009
[6] NEA, "Organised Theft of commercial vehicles and their loads in the European Union", July 2007

In order to discuss remaining challenges and potential solutions, the Commission has decided to set up a Forum on Digital Transport and Logistics (DTLF). The DTLF's field of application will be focused on freight transport and logistics, taking into account interactions with traffic management systems.

The Forum will provide an opportunity for national administrators, business operators, experts and policy makers to discuss a number of issues, focusing in particular on:

a) Where to act: in which areas are there market failures that would need to be corrected by action at European level?
b) What to do: recommendations for actions at EU level capable of addressing these problems (scope and added-value)
c) How to build on and further develop the numerous existing projects and best practices, disseminating knowledge, as well as going beyond in terms of technical work if and where needed.

The Forum will be organised around plenaries and specific workshops addressing questions such as those listed in the section below of this document.

To make all that possible, challenges have to be addressed

The present section describes the challenges identified so far in exchanges with stakeholders, and possible tasks for the Forum. These should not be considered as exhaustive or final, but as a basis for discussion.

The first task of the Forum will be precisely to review these challenges and elaborate a more complete list of open issues and tasks for the Forum.

Challenge 1: Repeated data submission into different systems because of a mosaic of non-interoperable standards

The importance of smooth information flows is reflected in the development of tools to simplify access to traffic and transport data within specific modes: tools are at different stages of development and implementation for transport by sea (SafeSeaNet[7], Directive 2010/65/EU on reporting formalities, Blue Belt[8], e-Maritime), inland waterways (RIS[9]), rail (TAF-TSI[10]), road (ITS[11]), air (SESAR[12]). e-Customs[13] in addition provides for easier customs clearance. In some modes, initiatives already introduce electronic documents, like rail CIM[14] consignment notes or maritime e-bills of lading.

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[7] Created by Directive 2002/59/EC on Vessel Traffic Monitoring and Information Systems: http://emsa.europa.eu/operations/safeseanet.html
[8] http://ec.europa.eu/transport/modes/maritime/news/bluebelt_en.htm
[9] River Information Services created by Directive 2005/44/EC
[10] Technical Specifications for Interoperability for the Telematics Application for Freight: Regulations 62/2006 and 328/2012
[11] Intelligent Transport Systems – Directive 2010/40/EU
[12] Single European Sky Air Traffic Management Research : http://ec.europa.eu/transport/modes/air/sesar/index_en.htm
[13] http://ec.europa.eu/taxation_customs/customs/policy_issues/electronic_customs_initiative/
[14] Uniform Rules Concerning the Contract of International Carriage of Goods by Rail (Appendix B to COTIF)

However, although a large part of the data that is exchanged along the logistics chain and/or with authorities is common to several documents, when changing mode, the same data often has to be re-entered, as the formats used in the different modes diverge and hinder the reuse of data from a mode to another. In addition, the same data has to be re-entered into various "forms" for various purposes, for example into transport documents, into reporting documents or into the proof of delivery and invoicing processes.

Altogether, this leads to administrative burden and costs and increases the perceived complexity of multimodal transport.

Some companies developed "translators" in order to overcome the difference in the standards used and to communicate with other companies' systems. However, such developments are costly and lack flexibility.

In parallel, projects funded by FP7[15] funds issued a cross-sectorial standard adopted at OASIS / UBL[16], and proposed for adoption at ISO[17].

As regards the specific case of single transport documents, some stakeholders suggest that "single transport documents" in their electronic form can be conceived in a way that respects the diversity of modal characteristics (including diverse liability regimes). In practice, single transport documents could be seen as "repositories" which do not duplicate data common to all legs of the transport, but separate only data specific to each leg of the transport. For instance, this could allow for the same "transport document" to include data on the appropriate liability regime separately for each leg.

What could be the task of the Forum ?

Stakeholders call for more coordination of existing tools and standards, and in particular on the agreement on a common language/format for data exchange in logistics: concretely, to speak the "language of goods transport", each stakeholder needs to understand:

- the "words" being used, the vocabulary

- the way these "words" are being organised into "forms", or messages.

Such common language would enhance the interoperability of systems and enable the reuse of data contained in a message/document, and thereby a seamless flow of data across modes, sectors and countries.

This however needs to be done through building on existing initiatives and with the involvement of relevant national, European and international organisations and sectorial stakeholders. The need for replacing legacy systems and thereby costs should be avoided.

The Forum could aim at working on standards for specific data exchanges (for instance for the description of available transport services, or for ship certificates). The objective would not be to

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[15] Seventh Framework Programme for Research : http://cordis.europa.eu/fp7/home_en.html
[16] https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=ubl
[17] http://www.iso.org/iso/home.html

develop a new standard, but to help communities to agree on a common standard for the parts common to several documents: a "common denominator" across communities' standards.

More precisely, the Forum could:

− Identify needs for cross-modal harmonisation of standards to enable data reuse from a message/document to another,

− Define and agree on a "common vocabulary" to be used in all messages.

− Define and agree on standard messages and related business processes for e.g. multimodal transport documents, dangerous goods documents, messages indicating location / status of cargo, messages describing available transport services, booking/order messages, information from authorities to companies e.g. on traffic conditions, ship/barge certificates..

− Recommend actions to be taken by the Commission (e.g. publishing the standards proposed by the group and/or issuing recommendations) or by other organisations, such as standardisation organisations (e.g. by providing contributions to support the evolution of their standards, if needed).

− Discuss and propose recommendations for the governance of the common vocabulary and messages

Challenge 2: Lack of interconnected systems and insufficient confidence in the protection of sensitive data

Today, several **systems** supporting data exchange and sharing are developing, like SafeSeaNet, maritime national Single Windows, RIS, e-Customs, TAF[18]. Research projects propose "data pipelines" or "access points" relying on cloud computing tools and open platforms like the Internet of Things. However, transport players still need to forward data from one system to another, while interconnected systems could enable the reuse of traffic management information for transport management (for real-time optimisation of freight transport), the development of a national single window for reporting to customs and other authorities, or the reuse of data from public procurement processes when the public sector is contracting transport services.

Stakeholders are still hesitating to use digital transport services because there is often a lack of trust in the security of information flows, in system reliability and the protection of personal data and sensitive data like commercial / safety / security data. In addition, although progress has taken place in some modes, stakeholders transmitting data submitted by others are still most of the time held liable for its correctness, although they can not necessarily verify it.

Legislation is being implemented for e-identification[19] and protection of personal data[20]. A data protection reform package[21], updating and modernising principles of the 1995 Data Protection

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[18] See more information on these systems in challenge 1
[19] Regulation 910/2014
[20] Directive 95/46/EC, the national legislations transposing it

Directive, is under discussion. The Commission also proposed in 2013 an initiative on cybersecurity complementing existing measures[22]. Furthermore, industry is proposing data protection tools implementing existing legislation. The European Commission and relevant agencies have also launched studies on cybersecurity such as ENISA's study on cyber security challenges in the maritime sector[23].

But further to the existing legislation in the area, specific measures are needed for secure logistics data exchange given the sensitiveness of logistics as a trade enabler.

<u>What could be the task of the Forum ?</u>

To create a climate of trust, there would be the need, at least:

– to look into the question of whether there is a need to interlink / enlarge existing infrastructures (e.g. interconnection of/with traffic management systems; multimodal single window for reporting formalities ; public procurement / transport infrastructures) or to develop potentially new infrastructures in order to provide for a seamless infrastructure usable by several modes and for several purposes;

– to allow all players to be certain about the identity of their interlocutor using the tools provided by eID and eSignature;

– to allow all players to define what data they want to be accessible by whom, on a need-to-know basis: thanks to access rights defined in a new supply chain trust framework. In addition, listing vehicle IDs associated with each user could serve dangerous goods management;[24]

– to provide stakeholders with information on cybersecurity levels of the systems they use;

– to provide information on data quality levels;

– to clarify the question of liability for the quality of data submitted or transmitted;

– more generally, infrastructures for data exchange would need adequate governance by a neutral party.

More precisely, the Forum could:

– identify which of the needs listed above could be addressed by an action at EU level,

– develop concrete proposals,

– propose recommendations as regards the form of action (e.g. legislation, development of databases and infrastructures enabling authentication of users and distribution of access rights, funding for pilot projects, etc.).

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[21] COM 2012 (10)final; (2012) 11 final; http://ec.europa.eu/justice/newsroom/data-protection/news/120125_en.htm
[22] JOIN(2013)1; COM(2013)48
[23] http://www.enisa.europa.eu/activities/Resilience-and-CIIP/critical-infrastructure-and-services/dependencies-of-maritime-transport-to-icts
[24] This would address needs expressed by the UN working group on dangerous goods :
http://www.unece.org/fileadmin/DAM/trans/doc/2013/dgwp15ac1/ECE-TRANS-WP15-AC1-2013-GE-INF.3e.pdf

Challenge 3: e-transport documents non being recognised by authorities, banks, insurances

Paperless transport documents have a large potential for decreasing costs and errors of transport services.

However, they are not accepted by all stakeholders, and often need to be accompanied by their paper version for controls by authorities and for exchanges with banks or insurances:

a) Acceptance by road transport authorities: road operators cannot always use electronic consignment notes as some authorities require them to present paper documents for controls, in addition to electronic documents. Indeed, road transport documents, called "consignment notes", are regulated in all EU countries by the CMR Convention[25]. An additional protocol to the Convention[26] opens the possibility for using electronic consignment notes. But only nine countries so far have ratified the e-protocol: the Netherlands, Bulgaria, Spain, Latvia, Lithuania, the Czech Republic, Slovakia, Denmark and Switzerland. Since most of them do not border each other, this impedes the use of an electronic consignment note for cross-border transport. In practice, this means that although electronic documents are technically available, companies do not invest in such systems because whether they have electronic documents or not, they will still have to also present paper documents to authorities in most EU countries – the problem is the same as if each time an email is sent there was a need to send a letter by post in parallel.

b) Acceptance by commercial partners like banks and insurances: paper transport documents also ensure other rights. Bills of lading can be 'negotiable documents' (documents of title), and be endorsed at the bank. And they are also the basis for insurance rights. However e-transport documents do not ensure these rights because they are not accepted by all banks or insurances.

<u>What could be the task of the Forum ?</u>

The Forum's task could be to understand what factors limit the acceptance by all stakeholders mentioned above of electronic transport documents (trust, investment costs?), and to look into the tools that would be necessary to overcome these barriers.

More precisiely, the Forum could:

– define concrete actions to facilitate the recognition of electronic transport documents by public authorities,
– Define concrete actions to facilitate the recognition of electronic transport documents by commercial partners like banks and insurances,
– Address the issue of liability.

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[25] http://www.unece.org/trans/conventn/legalinst_25_OLIRT_CMR.html
[26] http://www.unece.org/trans/conventn/legalinst_27_OLIRT_e-CMR.html

Challenge 4: Lack of a critical mass of stakeholders sharing data and exploring new business opportunities

Various systems generate large quantities of information on e.g. traffic conditions, location of vehicles and cargo, history of past shipments. The increased sharing of such data would enable new opportunities, for instance data owned by transport network managers e.g. on traffic conditions could be used to enhance real-time supply chain management.

Cargo flows along the logistics chain could be optimised due to collaborative logistics, tracking and tracing tools, and real-time management (e.g. recalculating the route at each transhipment). Port and shipping operations coud be improved, including vessel route optimisation (eNavigation, proposing optimal arrival times thus saving fuel and reducing emissions of ship); port services slots (to reduce ship turn-around times) could be introduced, port clearance harmonised, and the usability and management of ship certificates improved.

However, data owners are in general very reluctant to seize these new opportunities and share their data more widely, including public data, in particular because:

— who bears the costs;

— who is kept responsible for the quality of data;

— lack of a sufficient number of successful business cases;

— SMEs still lack access to cost-effective, reliable and easy to use solutions for electronic documents;

— business models are needed as regards who should pay for collecting data and who should pay for using it.

What could be the task of the Forum ?

The Forum could:

— identify barriers to a better access to available data, and thereby to an increased use of new business opportunities (e.g. competition challenge linked with increased collaboration along the supply chain, costs and user-friendliness of tools, etc.),

— propose related recommendations/tools (e.g. establishing EU position / priorities in international organisations), and assess their impacts.

Challenge 5 ?

See the concluding remarks

Concluding remarks

As mentioned in the introductory part, the challenges listed above are not meant as exhaustive or final, but as a basis for discussion in the frame of the Forum.

The Forum will be expected to review this list and to identify what are the obstacles to the further development of digital transport that would need to be addressed by EU action as a priority. Stakeholders should feel free to question the relevance of the challenges listed above and raise any other topic they consider important in this frame.

To that extent:

– Stakeholders may already submit contributions to the mailbox MOVE-DIGITAL-TRANSPORT@ec.europa.eu
– The first plenary of the Forum will allow for further brainstorming on the challenges to be addressed as a priority.