ACHIEVING PAPERLESS FREIGHT TRANSPORT

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Abstract
The realisation of the European Union’s vision of paperless freight transport contributing to a cleaner environment, security of energy supply, transport safety and security is certainly challenging. Arguably idealistic, paperless freight transport across all modes of transport, all cargo types, all business roles, all geographical and political borders, all currencies and fiscal regimes in the transport and logistics domain is fraught with resistance from many stakeholders. An approach that builds an understanding of freight transport processes, data flow and compliance requirements from the ground up and develops a standardised freight transport process model and standardised message exchange framework is the primary goal of the e-Freight project. This paper outlines the genesis of paperless trade and transport strategy in the EU, the approach taken by the e-Freight project in addressing standardised and security information flow that supports the physical flow of goods and the reasons why a research approach is the key to driving change in the way the world does transport.

INTRODUCTION
In line with current EU legislation, the shipping industry is confronted with a huge reporting burden; often having to send/repeat similar information to different authorities within or more countries. Addressing the challenges of transitioning a traditional paper documentation intensive industry such as that of freight logistics to paperless is not something new and not something particular to Europe. The abolition of paper in the consignment, transportation and receipt of goods has been an ambition of government, trade and private concerns in the last 10 years. Policies have led to a number of international initiatives for the development of a paperless freight multimodal system. One such initiative called “IATA e-freight” has been agreed by International Air Transport Association for the aviation industry and in 2011 they target a significant 10% penetration of paperless information flow on live air freight lanes. A European FP7 research project, e-Freight (2010-2013) that is targeting the interoperability of paperless electronic freight transport communications across all surface modes of transport (road, rail, sea and inland waterway) is currently gaining momentum. This paper will examine the e-Freight project in terms of its research agenda, government administration impetus and business benefits and the tensions that exist between in achieving widespread gains in a complex regulatory and multimodal operational environment.

THE IMPETUS OF PAPERLESS TRANSPORT / PAPERLESS RATIONALE
Underpinning the operations of freight logistics across all modes of transport in Europe with timely electronic flow of data must preserve and improve the efficiency business and government administration operations. In terms of the three pillars of European Policy [1] paperless freight transport must:
• strengthen the internal market and competitiveness;
• enhance the better regulation agenda to create a more dynamic business environment;
• promote sustainable development.

For Europe to be able to cope with increasing freight volumes it will be necessary to improve the utilisation of existing transport resources. This point is made in the Mid-Term Review of the 2001 Transport White Paper [2] in which the expression “Co-modality” was coined to signify optimal and sustainable use of all modes of transport both singly and in combination. The Freight Logistics Action Plan [3] launched by the European Commission, amongst a number of policy initiatives, to help Europe address its current and future challenges relies on co-modality and on advanced technology to ensure a competitive and freight transport system whilst promoting environmental sustainability.

An Action Programme that was presented by the European Commission in Jan 2007 [4] which aims to cut administrative burdens on businesses in the EU by 25% in 2012. This simplification applies to more than 300,000 freight carriers across Europe, a majority of which is small and medium sized enterprises (SMEs).

The former Commission Vice-President Günter Verheugen, responsible for enterprise and industry policy said: “The reduction of administrative burdens is a key element to improve the business environment and meet the European Union’s ambitious Lisbon objectives. The Commission therefore welcomes European Parliament’s support for a quick adoption of its Fast Track Action removing unnecessary information requirements falling on some 300,000 European freight carriers, who will be saving 160 million Euro annually.” [5]

THE E-FREIGHT PROJECT

The e-Freight project is research and development project co-funded by the European Commission under the 7th Framework Programme with a budget of 12m and including 31 partners from 14 EU Member States and Norway. The partners are transport service providers such as Schenker, DSV, STENA, transport infrastructure providers such as the Port of Cork and the Port of Valancia, government administrations such as the Maritime Administration of Latvia and Via Donau, consultants, universities and ICT solution providers.

For this project e-Freight means

• Paperless, electronic flow of information,
• Simple and harmonized procedures supporting the physical flow of goods,
• Functions for tracking cargo from door-to-door irrespective of the combination of modes and for tracing its movements if needed,

This statement is buoyed up by Initiative 7 of the recent transport whitepaper that e-Freight must “Create the appropriate framework to allow tracking goods real time, ensure intermodal liability and promote clean freight transport” [6].

A number of other initiatives are currently concentrating on individual modes, which all feed into a common framework of which e-Freight is the core:

• The TAF TSI (Telematic Applications for Freight – Technical Specification for Interoperability) Regulation focused on rail [8]
• Harmonised river information services (RIS) on inland waterways [9]
• The EU e-Maritime initiative [10]

Even though all of these initiatives focus on one single mode, they also claim to deal with interfaces to the other modes. The mode-focus threatens to neglect the demands emanating from transport involving a combination of modes. The Freight Transport Logistics Action Plan introduced the notion of e-Freight as a means to support electronic exchange of information in business to business and business to administration relations.
e-Freight highlights the need to take a more holistic view on freight transport, building on the efforts already made by initiatives for all the other modes, as illustrated in Figure 1. In addition to the EU initiatives indicated above, including IATA representing air transport.

![Figure 1 e-Freight connecting standards across modes of transport](image)

Specifically the goals of e-Freight pertain to the development of:

1. A standard framework for freight information exchange covering all transport modes and all stakeholders.
2. A European Single Transport Document\(^1\) for carriage of goods with all the necessary legislative support irrespective of mode.
3. A Single Window (single access point) for administrative procedures in all modes.
4. Simple, harmonised border crossings procedures for all modes of transport for all EU member states.
5. Simple procedures and the necessary infrastructure for establishing secure and efficient transport corridors between Europe, USA, and Asia.

**THE E-FREIGHT CONCEPT**

As such addressing multimodal transport interoperability is ambitious. However, it is clear that the European Commission is dedicated to the achievement of paperless freight transportation across all modes of transport. With this in mind, the Commission has green lit the e-Freight project as it hopes will bring Europe one step closer to this goal. Aimed at the provision of IT capabilities to support EU freight transport stakeholders, e-Freight will allow stakeholders operating within or across various modes of transport to have a common, standard framework for freight transport in the EU and, as far as possible internationally, all while adhering to EU policy on co-modality. There are four components that constitute the e-Freight concept, as illustrated in Figure 2:

- e-Freight Framework
- e-Freight Platform
- e-Freight Solutions
- e-Freight Services

It is the purpose of the e-Freight framework component to provide a reference model for Freight Transport & Logistics supporting paperless information exchange among stakeholders in all transport modes. It is through business case implementation that this reference model will be transformed into e-Freight services and solutions that will allow stakeholders to avail of a paperless logistics chain. The business cases assist in the definition of the requirements for the e-Freight framework and apply the developed solutions and services across all surface modes of transport across the EU.

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\(^1\) In the e-Freight the term Single transport Document means a document to be used for reporting to authorities and not a waybill as is the case in some current EU documents.
In addition to each business case contributing to the development of the e-Freight framework, the framework itself is part of a Common Framework for transport logistics [11] shared amongst a number of projects and initiatives. Agreement has been reached regarding the language of transport i.e. the naming conventions of roles of the stakeholders, the operational domains associated with the roles and the messages that pass between them as shown in Figure 3.

Public Response to e-Freight

e-Freight’s ambitious strategy is laudable but when faced with the challenge of defining the requirements and solutions of interoperability for an entire four modes of transport that span international infrastructures in 27 European member states, each with its own national and even regional freight transport regimes within each mode of transport; it quickly becomes

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rather complex. Coupled with agreeably widespread commercial business sector mistrust, government administration disinclination towards change and reluctance of both parties towards a common interoperable IT solution – one question presents itself – *is e-Freight too complex and ambitious to assist change of practice to the benefit of all?*

A market survey carried out in January 2011 by the e-Freight consortium [12] reveals the needs of business and government administration partners. One of the largest groups of transport actors are the group that provide logistics services to clients be they port facilities managers or freight forwarders. In this segment of the transport market the level of satisfaction with sources of information and tools (in-house information systems, phone, fax and email) used to make decisions when monitoring and organising freight transport services are meeting the needs of the businesses. Businesses are especially pleased with in-house information systems that have been tailored to the business needs. Thus e-Freight solutions must enable businesses to tap into an interoperable messaging exchange mechanism without changing existing in-house systems.

The survey also revealed the desired features of web-based tools for freight and transport logistics. Top of the preferred list was 'A web-based tool that will provide guidelines for compliance with reporting requirements', clearly indicating that compliance with reporting to authorities and ease of submission is a widespread issue.

Broadly the survey revealed that freight transport stakeholders and their operations would benefit from increased automation and reduced duplication in reporting requirements for all modes of transport provided their internal back-office systems are not affected.

Recently the e-Freight concept and interoperability model was presented to an audience of maritime and road transport providers and users at an e-Freight workshop in the Port of Cork, Ireland in July 2011. A healthy amount of scepticism was contributed by workshop attendees. Concerns regarding the e-Freight approach can be segmented as follows:

1) agreeing standard information exchange messages and processes across all modes of transport at an international, EU, member state and regional level is too complex and likely to fail,

2) cost of IT will not be reduced – e-Freight will not affect IT solutions and rollout,

As with all significant change, incumbent transport decision makers including transport administrations, trade agencies such as customs, banks and insurance underwriters are necessarily wary of IT solutions touting ‘sharing information’ and ‘greater transparency’. Therefore the chasm between research and development and the practitioner needs to be broached.

**CHALLENGE FOR E-FREIGHT**

As e-Freight drives the change in practices towards achieving paperless freight transport it may well fall victim of its own multi-modal, multi-jurisdiction ambition. In addition its business case approach, though broadly practical, may fall foul of being too technically oriented and specific to deliver lasting generic industry wide solutions. Though the EU can support the development of standards, industry ‘buy-in’ takes more time that this research project has at its disposal. Should the kernels of the Common Framework approach takes root across multiple self-financed industry representative organisations then the e-Freight Framework has scope for live after the project. With improvements to the regulatory environment advancing the development of Single Windows, reporting across modal and geographical barriers can be simplified, thus improving the chances of e-Freight adoption.

In the short term business uptake of e-Freight solutions could be improved by in-depth analysis of savings that can be made from adopting e-Freight. Answers to questions such as ‘is there a break-even point for the number of industry partners taking up e-Freight and how can this managed?’, ‘what systematic changes should a made and when by business and administration so as to facilitate e-Freight solutions?’, ‘are there synergies between the business cases themselves that will foster adoption?’ can all be investigated.
CONCLUSION

Over the years many European projects in the area of logistics have over promised and under delivered. There is a danger of this happening with e-Freight. At present there is a gulf between the aspirations of e-Freight (and other similar projects) and the operational realities faced by stakeholders on a daily basis. This gulf coupled with a history of underperforming projects has led to an inherent distrust of proposed solutions in the logistics domain. In order to regain the confidence of these stakeholders there must be complete openness and transparency to the project and realistic expectations of what it can and cannot deliver. Most importantly, the requirements of the stakeholders must be used as the cornerstone for any potential solutions that can be created.

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