

Moving supply chains with higher values

Securing Global Supply Chains

Free movement of people, goods, services and capital offers prosperity, along with certain risks. Business communities (shippers, forwarders, terminal operators, carriers, financial stakeholders) and custom authorities are developing solutions to increase effectiveness of security & trade compliance between continents. The challenge to confront is to increase security without increasing transaction costs for business and to increase joint security risk management ('post 9/11' supervision & control).

Industrial collaboration via research is one of the instruments achieving the latter point. The EIA is a partner in the new EU Commissions' (FP7) CORE project aimed at consolidating solutions developed in reference to projects in various supply chain sectors (port, containerization, air). A selection out of 70 partners: A.P. MOLLER-MAERSK; BMT; CLECAT; DHL; ENI; ESC; IRU; ISL; Telespazio; WCO (Word Customs Organisation), national transport ministries (Belgium, France, Italy, Netherlands) and the EC.

Past supply chain projects were mostly focused on partial solutions to increase visibility in supply chains: INTEGRITY and SMART-CM focused on tracking the container, CASSANDRA regarding gathering consignment data. The results proved an ongoing need for an integrated approach to visibility, risk assessment and communication relating to compliance while creating higher value for both business and government supervising agencies.

New weapons of mass consumption freely available e.g. social media and internet based software should be anticipated at to avoid hacking into supply chain security systems (incident 2013, port Antwerp). Cyber security in logistics is the next important research topic. The cost of terminal software is about to bypass the cost of the terminal construction itself. Smart and selective scanning, weight measurement, seal verification and physical tagging in healthy business logic are vital.

Shift in Continental Balance

Three of the largest shipping lines announced the 'P3' alliance on crucial maritime routes in a strategy to face over-capacity and declining demand for transportation. These carriers will share vessels and port facilities, while vessels will be operated independently by a joint vessel operating center. To what extent this new network will have an impact on trade is currently (2014) under investigation by regulatory authorities in Europe, China and USA. European port authorities and the cargo handling industries seem to trust in a healthy rebalancing of flows offering benefits to most ports. China plays an increasingly important role by developing freight rail land bridge partnerships towards Europe parallel to maritime routes. In Europe, the balance of competition has shifted completely from the ocean side to the land side. This will have drastic impact. The EIA strongly advocates the necessity for the maritime side to streamline infrastructure investments and procedures in line with the (hinter) land side.



Innovative intermodal concepts, new markets

The transport industry is facing new challenges due to small-scale goods and increasing quality requirements. In the EC (FP7) [SPECTRUM](#) project, new market opportunities for rail freight have been identified for time sensitive delivery of lower density and higher value goods. EIA members anticipate; Europe's market leader in combined transport (DB Schenker Rail) offers integrated transportation and logistics solutions while investing in a modern fleet, expansion of depot and terminal activities ([read EIA port-hinterland strategies & services](#)).

Inherent to successful intermodal transport in supply chains is knowing what to expect in an early stage enabling bundling opportunities for rail, road, waterborne and terminals. The EIA is pleased to observe a growing understanding concerning shared use of available capacity, vehicles and loading space via consolidation and cooperation. Innovative 'synchromodal' approaches in which shippers and LSP's agree on the delivery of products at specified costs, quality and sustainability are to be welcomed. However, a common legislative framework is needed to enable innovative forms of 'sharing mechanisms' which guide various players in the same logistic chain while sharing benefits and risk equally ([ITF/OECD interview YouTube](#)).

Role shippers (cargo owners) in supply chains

Intermodal transportation hedges the cost and sources capacity risk against oil price and exports volatility, according to one of the worldwide largest dairy cooperation (FrieslandCampina, FLC). This is very important for e.g. family products that need to have competitive price and uninterrupted presence in the market, coupled with impeccable quality ([interview FLC](#)). However, there is a lack of uniform cross country capacity regulations, complex cross border documentation, bottlenecks with end-to-end infrastructure (roads/rails) and often no 24/7 operation of check points.

Cargo owners have an interest in efficient chains (short lead times, low transport costs, no delays and losses) because of the reduction of working capital tied up in the supply chain. This effect is limited if compared to other components that determine the cash to cash cycle: payment terms for creditors and receivers. However, according to some shippers, the reliability issue is certainly also related to loss of sales and failure to service customers rather than the cost of travelling inventory only.

Supply chain owners search control over their supply chains, of which the (intermodal) transport is only a part. Supply chain owners usually do not understand that they could have more control than they currently have, because they miss information enabling them to understand how the transport part of their supply chain works. With a better understanding of intermodal transport chains, and especially the control and check points, supply chain owners seeking more control will immediately benefit. E.g. the environmental impact of transshipment (terminal) activities compared to those of the main haul is usually unknown today. First examinations of EIA's partner Fraunhofer IML's Green Logistics' showed however, that these processes may cause about 5% of intermodal transport chain GHG emissions (road/rail).



44 + 45 = Win-Win for sustainable transport

Shippers and transport operators stemming from all political 'colours' do agree that existing EU legislation should be adjusted to create legal certainty to allow EU cross border use of standardised 45ft pallet wide containers and swapbodies. Furthermore, the cross border use of 44 tons gross vehicle weight trucks should remain restricted to combined transport operations. This encourages users (shippers, forwarders, intermodal operators) to choose for more sustainable supply chain solutions involving rail and inland waterways, by nature suited to transport heavy loads.

Intermodal transport in modern supply chain realities

Intermodality is more than combining transport between a port and a terminal. Transport decision-makers from governments, private sector and civil society should understand and respond to modern supply chain realities. One of the largest FMCG (Fast Moving Consumer Goods) multinationals, Procter & Gamble, is a clear leader in embracing a modal shift. Their success is based on long term contracts with logistics suppliers. They have established operations/hubs which are not necessarily at the closest intermodal terminal (or sometimes not even in the same country).

Consequently, the EIA considers a fixed KM limit around or between port-terminal-commercial sites in EU legislation as counterproductive. P&G conducted an analysis of their >300 intermodal routes in Europe. Approx. 12% have a road leg > 300 km. Unsurprisingly, these tend to be their longest routes with substantial rail legs e.g. >1000km such that these same routes account for 38% of all their KM, having the largest potential to save most CO₂ (i.e., longest rail leg). Consequently, it can be demonstrated that an arbitrary X-KM limit in legislation introduced within the Commission's proposal for the revision of Directive 96/53/EC 'Weights & Dimensions' would be counterproductive to intermodal models. The density of intermodal terminals and accessibility/feasibility of rail access (as driven by price) varies greatly within and between countries. Differences between the "exporting" and "importing" country (for intermodal terminal density, rail access charges etc) implies that there will always be disparities in road legs between each country for the reasons indicated. This is the experience of one of the members of EIA having achieved a shift to other modes of 30% i.e., way ahead of the EU's 2030 30% target.

Role High-Tech Providers in Global Intermodal Perspective

Worldwide operating High Tech companies are large providers of intermodal and logistic technology. They share the same business values as public authorities and private operators: saving energy costs, more efficient use infrastructure, decreasing accidents, quicker ROI vehicle investments. One of the largest High Tech companies is Hewlett Packard: nine out of ten freight forwarders, carriers and logistic suppliers are using HP technology to fulfill their services. In the timeframe of 2011 to 2012, more than 4 mln laptops have been shipped between Asia and Europe. HP is also on passenger side one of the world's leading suppliers of ticketing solutions within the airline and railway industry. The EIA is much in favour of re-keying data into new information, which underlines the urgent need for interoperability between systems.

The BIG DATA Opportunity

The unstructured data (machine data and human information data) is ten times larger than structured business data and has a ten times higher growth rate. The shift in the data landscape brings an enormous opportunity – but only to enterprises and organizations who can harness insight from all their data. This should be an important theme for all stakeholders, especially to assist the broad base of smaller companies who lag behind. Reaching these companies and pulling them into a higher level of data, technology and software use is crucial for the health of the industry.

4V's of BIG DATA

- **Volume:** Every day the transport industry creates a huge amount of data. The challenge lies not only in collecting and storing massive amounts of diverse data, but also managing and governing existing legacy data.
- **Variety:** Customs, freight forwarders, sensors and different devices all constantly generate data. The challenge is to find a way to not only capture all of this diverse information in a common format, but also to interpret, synchronize, understand and use it to make better decisions.
- **Velocity:** Thanks to technology, our world has become immediate and instantaneous. Answers and services are expected much faster than ever—ideally in real-time.
- **Vulnerability:** Protecting this data—and the ability to search and analyze it to detect potential threats—is more essential than ever. As the platforms supporting this data move to hybrid IT environments, managing their security and availability becomes a Big Data challenge in and of itself, requiring continuous diagnostics and monitoring.

BIG DATA in the transport industry

The BIGDATA Challenge in the transport industry is about the ongoing integration of sensors and dynamic data with commercial information and also data from other sources. We will see a big shift from digital documentation to real time data exchange. Today it's possible to track the exact position of containers and their condition, e.g. temperature, humidity, shock (drop or external force) at any time. This generates a huge amount of data which can be analyzed. As a consequent of this, much to the gained information can be used to make decisions about route optimization, cargo security and traffic control just to name a few. Optimization of transport time, reliability, reduction of costs and emissions are benefits of BIGDATA in the transportation industry.

The next Bubble

CO2 reduction measures and internalization of external costs have always been important conditions for sustainable mobility, endorsed by a broad spectrum of authorities and transport industries. Recently, financial stakeholders (e.g. HSBC bank) entered the discussion with a different perspective including a flabbergasting observation.



New CO2 calculations show that the market for fossil fuels (all available resources: oil, gas, coal) which the industrialized world is able to burn (around 900 Gigatons CO2) until 2050 while staying in the already rather challenging 2° climate temperature increase (UN target) is much lower than the 2860 Gigatons which have been planned to be sold on the market. According to the press (Die Zeit) and NGO's (Carbon Tracker Initiative), two options remain open: all relevant stakeholders allow a much higher climate temperature (not feasible), or investors declare the excess of resources as 'unburnable' to safeguard modern market mechanisms.

External costs of modes and supply chains should be fairly reflected in the EU Emission Trading Scheme ETS. Climate change is becoming a stock exchange issue. A big bubble is growing. To be continued...



*Turning sustainability into profitability
by moving supply chains with higher values
in a global intermodal environment.*

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EIA position paper 'Moving supply chains with higher values', February 2014. Contributions received by various members among which transport operators, shippers/cargo owners and handling industry. Individual company policies prevail above general EIA policy statements. Peer-to-peer reviewed by Professor Dr. A. Veenstra (TUE Eindhoven).