

Weaknesses in the supply chain: who packed the box?

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Abstract

The international trade supply chain has grown in complexity to a point where clear visibility is masked from those who need to know what is going on. International conventions cover the transport of goods between seller and buyer but concentrate more on limiting liabilities than they do on ensuring the accurate description of the goods. The person who knows what is being sent into the supply chain is the person who packed the box or consigned the goods. If the packing list is wrong, not used or hidden from view then the transport documents such as way bills and the manifest are likely to be inaccurate. This poses safety, security, legal compliance and commercial risks. Information required by border enforcement agencies is being asked for further upstream in the supply chain, prior to the goods being loaded. But the consignor, who holds the key to the majority of that information is outside the jurisdiction of the importing country's authorities so they turn to the carrier and the importer instead. Unfortunately, information held by the carrier is not always accurate and Customs hold the importer accountable for goods they have probably never seen. In these days of information management rather than the physical control of the goods, the role of export data is increasingly important. A multilateral, international legal framework with enforceable jurisdiction is needed with more emphasis placed on the point at which the international movement of the goods begins. The consignor and the true packing list play a key role. A new key performance indicator and critical way-point must be created called the Consignment Completion Point. A web-based, seamless, electronic data 'pipeline' needs to link the seller/consignor and the buyer/consignee and the interested economic operators in between. Real-time, accurate data must be assured from the beginning, updated as the goods move, and shared in a risk based, layered approach.

1. Introduction

Imagine arriving at an airport to board a flight. You approach the check-in desk. You are asked the normal questions about your baggage. But consider the consequences of giving some not-so-normal answers. You have never seen the bag you are carrying; you did not pack it and you have only been told what is in it. It is unlikely you would be allowed on a flight. There are strong similarities between this and how we manage information about cargo moving along the international trade supply chain. Historically, Customs in the country of importation have required the importer to make declarations often about goods they have never seen.

The changes to the security surrounding people travelling by air and sea after Lockerbie in 1988 and the attacks of 2001 and since, provide important parallel lessons for the movement of cargo by sea and air. The questions now posed to air travellers seek to assess the safety and security of people and their baggage before being loaded on the aircraft. Key to this assessment is to identify who packed the bag and to determine what is in it. In this respect the cargo consignor is the primary source of data needed to meet many of the regulatory requirements of the international trade supply chain.

Supply chain management is overly complex and in need of improvement. Data deficiencies and gaps together with an outdated paper trail are resulting in financial, safety, visibility and planning risks. Costs are ambiguous thereby clouding overheads and profit margins. The consignor has limited legal accountability for properly describing and despatching goods into the supply chain. Existing transport conventions place too much emphasis on limiting carrier liability. A new multilateral, international convention may be the best way to ensure global best practice across the supply chain and to create a genuine legal obligation on the consignor to provide the data required.

2. Background

From its beginnings the international trade process was relatively straightforward. The buyer would board a ship and travel to another country, identify the goods they wanted, pay for them, return to the ship, load the goods, return to their own country aboard the ship with their goods, unload them, pay the customs duty and sell them at the market. However, when the buyer stopped travelling to buy the goods and stopped the face-to-face transaction, international commerce and transport became more complicated. Communication became more difficult. Trust and agreements were replaced by contracts, jurisdictions, different currencies and systems of payment and different languages, ships, containers and people. These continually change.

The one certainty that has remained is that goods are bought and sold and transported. But it seems to have been the international transport that has unduly complicated this relatively straightforward process. The buyers and sellers simply want to keep manufacturing, selling, buying and making a profit. However, the middle parties in the supply chain have created an industry so complex that the buyers and sellers often have no other reasonable choice but to place the transport and logistics part of their transaction in the hands of 'experts'.

3. Understanding the supply chain

The Council of Supply Chain Management Professionals defines supply chain management as:

encompassing the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers.¹

Rather than being simplistic, as described above in the early days of international commerce, present day supply chain management is a broad and complex subject. It is a blend of commercial practice, documentary and electronic message handling and risk management within international and national legislation relating to, for example, trade, Customs, health, safety, security, transport, contracts and liability.

Elements of supply chain management include planning, estimating, sourcing, manufacturing and delivering, relationship building, contract negotiation, finance, risk management, data management, commercial and regulatory compliance and systems development.

Identifying and managing the data requires a sound understanding of not only the commercial aspects of

the business but also of the logistics process between buyer and seller. For many companies a total grasp of this entire supply chain is unrealistic so they leave the international movement of goods to others such as Freight Forwarders and third party logistics providers. Of course, this has its own inherent risks.

Jay Wright Forrester,² in his consideration of supply chain dynamics, concluded that uncertainty and a lack of clarity could be avoided and delays reduced or eliminated by building in real-time data management or feedback loops. In essence, this is the basis of modern day demand for supply chain visibility.³ A white paper by Professors Alan Braithwaite and Richard Wilding estimates that data inaccuracy among the United Kingdom (UK) top five retailers and their suppliers is costing as much as £1.4 billion per year – 1 per cent of total revenue.⁴

While the information required by the many players in the chain is different, the source of the information centres on the seller (or shipper or consignor) and is added to as the goods move on their journey to the buyer or consignee.

The physical movement of goods along the supply chain is associated with a series of contracts of carriage between the carrier and the buyer and/or seller (depending on their agreed roles and liabilities under International Chamber of Commerce (ICC) Incoterms 2000⁵) or their representatives. Some documents, such as a bill of lading for sea cargo, are deeds of title meaning that the carrier takes the goods from the consignor (in an agreed condition) and will only pass on those goods to the person named by the consignor and who holds the bill of lading.

A 'clean' bill of lading accepts the condition of the goods as described by the shipper. The document or electronic messaging trail associated with the physical movement of the goods can run with, in parallel, in advance or behind the goods. Pieces of that information will be restricted to certain parties while in some cases most, if not all of it, must be revealed when required by different laws such as Customs.

The manifest is a list of all the cargo carried on an aeroplane, vessel, train or road vehicle and is made up from the bills of lading, the air way bills or other bills issued by the carrier to the shipper acknowledging receipt and condition. Manifest level information is currently significant for Customs purposes.

While there are many definitions of the international trade supply chain most give the impression that it takes a linear form. It is often described as 'only being as strong as its weakest link'. However, in *Organisations and flows in the network*, Marcel van Oosterhout (2008)⁶ makes the distinction between physical, information, and financial flows along the supply chain and describes the Logistics Layer, the Transaction Layer, and the Governance Layer (Figure 1).

Without understanding this distinction Customs have, historically, used data in the Logistics Layer, such as way bill or manifest data, for pre-arrival or pre-departure risk assessment in the Governance Layer instead of drawing on the comprehensive commercial data in the Transaction Layer which more accurately describes the goods and the people involved.

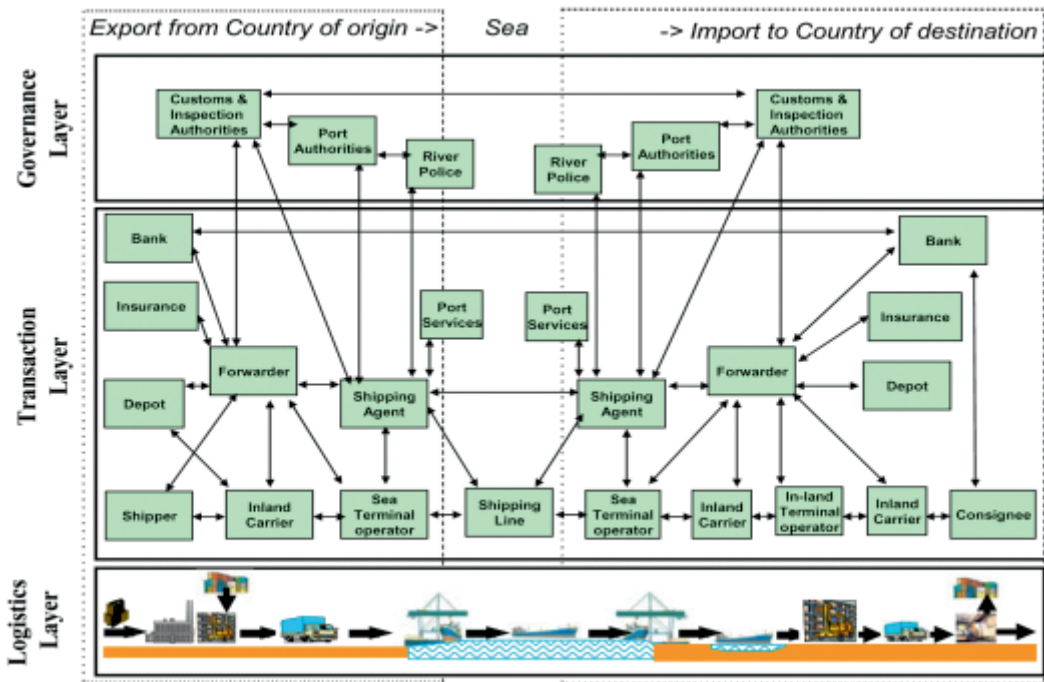
4. The role of the consignor

The consignor is the person sending a shipment to be delivered whether by land, sea or air. Some carriers, such as national postal entities, use the term 'sender' or 'shipper' but in the event of a legal dispute the proper and technical term 'consignor' will generally be used.⁷

It is difficult to divorce the many different aspects of the supply chain from each other, however, the consignor (or shipper or exporter) knows more about the goods being sent into the supply chain than any other player.

The seller puts the consignment together to meet the order placed by the buyer. When the consignment is complete the consignor has all the information available about the goods and the people, in the Transaction Layer. This applies to full container loads (FCLs). For less container loads (LCLs) or

Figure 1: Logistics, Transaction and Governance Layers



Source: Marcel van Oosterhout 2008.

groupage consignments the consolidator plays an equally important role in consignment completion. After the consignment completion point only transport data from the Logistics Layer will be added. Other players contribute to that data with information about the movement of the goods.

The consignor is responsible for making a legal export declaration to Customs before the goods leave the country. At the stage of consignment completion most of the data that Customs need to know for both export and import control is available. Delays and complications still arise, sometimes caused by a slow paper trail or unforeseen circumstances, but the potential for a full set of data to be available at the point of ‘stuffing’ or consignment completion is very real. The consignor needs to ensure the order matches the packing list that matches the invoice. The packing list should match the shipping note that matches the contract of carriage that matches the way bill that feeds the manifest. If the packing list is wrong then they are all wrong.

The Customs requirement for information about goods and people should be met mainly from the Transaction Layer with additional carrier, location, consignment status and even stowage data being updated from the Logistics Layer.

5. International law

Public international law provides an international legal framework that spans different places of business, countries and jurisdictions. International law is not statute law but a series of conventions, agreements and rules adopted by nations through consensus and overseen by bodies such as the United Nations (UN). International law is supported by a country becoming a signatory to a convention then adopting it through translation into national law.

In the main, cargo related jurisprudence and national and international law, such as UN transport conventions, relate to the relationship between the parties in terms of contracts of sale, contracts of carriage and liability in the event of loss or damage. They pay particular attention to how the initial information relating to the goods is captured and how the description of the goods influences liability.

The UN Convention on Contracts for the International Sale of Goods (CISG) provides an international legal framework for agreeing terms and conditions between the buyer and seller when they are in different countries and subject to different laws. The aim is to remove ambiguity in the transaction and help each party 'estimate' the costs of the many different elements of an international sale and movement, thereby clarifying the true price. The ICC provides a model⁸ contract through which the buyer and seller can apply CISG principles and assists further through the internationally recognised Incoterms 2000⁹ which clarifies liability and who pays for what and when.

This clarification of terms between buyer and seller is critical to the argument that the seller (or consignor or shipper) knows everything there is to know about the goods and their description at the point of fulfilling the order placed by the buyer. According to CISG the goods can be described using international terms such as the Commodity Code under the WCO Harmonized System and all costs and means of carriage can be estimated to ensure, as far as possible, the agreed delivered price. The packing list should show what has been consigned in accordance with the order. This is the process within the Transaction Layer of van Oosterhout's model.

International transport conventions such as Warsaw and Montreal for air, Hague-Visby, Hamburg and Rotterdam Rules for sea, the Carriage of Goods by Road (CMR) and the Carriage of Goods by Rail (COTIF) provide further international legal frameworks for the carriage of goods. These conventions were designed primarily to provide assurance to the shipper (seller or consignor) that the means of carriage for their goods is safe and that the carrier will hand over the goods to the person nominated by the consignor at the point of destination. In reality the conventions concentrate on who is liable in the event of damage or loss.

When the goods to be carried are delivered by the consignor to the carrier and they can both see the quantity, description, condition, marks, numbers and delivery details then the contract of carriage and liability as provided for in the conventions is more straightforward. But with the advent of the cargo container, especially by sea, the position has changed dramatically. Without regularly opening the doors of a sea container the carrier is unable to verify its contents. And with vessels carrying over 10,000 twenty foot equivalent (TEU) containers and port arrival, delivery and inventory systems being designed for speed and security, this has become virtually impossible. Only the consignor or the person who packed the container can possibly know what is inside it.

As described earlier, the bill of lading is a receipt from the sea carrier to the consignor or shipper that the goods have been received and will be transported on a seaworthy vessel. However, the Hague-Visby Rules promote far greater bargaining power by the carrier over the shipper. To reflect this, and limit the carrier's liability, Article 3 only requires the shipper to provide to the carrier leading marks necessary for the identification of the goods (marks, numbers, quantity or weight) in order for a bill of lading to be issued. Article 4(5)(a) says that unless the value and full description of the goods have been declared by the shipper and inserted in the bill of lading, then liability will be limited to 666.67 units of account (about £500) per package. Hamburg and Rotterdam rules vary.

If the shipper declares the true value of the goods to the carrier then the freight rates increase significantly because the carrier is then liable for the entire cost in the event of damage or loss. So the shipper reduces the description of the goods and omits the true value on the bill of lading then takes out separate insurance to cover the risk.

Because of this ‘dance’ around the description, value and liability, the carrier of sea containers cannot be sure of their contents. Without opening the doors the carrier can only say that the container is ‘said to contain’ or ‘said to weigh’ or the number of packages is to ‘shipper’s load and count’ and endorse the bill of lading accordingly.

The case of *United States v. Ocean Bulk Ships, Inc.*¹⁰ established that a ‘clean’ bill of lading is one that contains no description of some defect or problem with the goods. When issued by the carrier it is *prima facie* evidence that the carrier received the cargo in an undamaged condition.

However, in *Daewoo Int’l (Am.) Corp. v. Sea-Land Orient Ltd.*, the United States (US) court found that where a container is pre-sealed at the consignor’s premises a clean bill of lading issued by the carrier using the language ‘said to contain’ is not *prima facie* evidence of the contents of the container because the contents are not discoverable from an external examination.¹¹ The inference is that the carrier can open the container to establish its contents.

So, does the carrier have an obligation to identify the goods they are to carry for liability, regulatory and safety and security purposes?

The Convention for the Unification of Certain Rules for International Carriage by Air, the Montreal Convention, Articles 4 to 9 require the consignor to furnish an air way bill or cargo receipt identifying the cargo, including the proper packing and good condition, specifying the carriage to be performed, indicating the place of departure and the place of destination and indicating the proper weight.

The safe means of carriage of the goods by the carrier can be dependent on this information.

Article 16 requires the consignor to provide information and documents necessary to meet Customs, police and other public authorities’ formalities before the cargo can be delivered to the consignee.

Whereas the Hague-Visby Rules seem to concentrate on the liability of the carrier and the provision of a limited amount of information by the consignor, the Montreal Convention, supported by increased security requirements, promotes a more responsible role for the consignor in providing data, in particular to Customs.

6. International organisations

Ministers at the United Nations International Symposium on Trade Efficiency held at Columbus, Ohio in October 1994, chaired by the Secretary of Commerce of the United States of America, identified a range of problems in international trade. They set recommendations and guidelines that addressed six areas they believed were likely to generate tangible improvements for international trade within what they then called the ‘door-to-door logistics chain’. These areas were:

- Customs
- transport
- banking and insurance
- information for trade
- business practices
- telecommunications.

UNCTAD¹² was appointed as the focal point in the implementing Declaration.

This approach formed the basis for many of the UN’s capacity building and technical support activities in the area of trade efficiency and facilitation.¹³ When linked with the growing initiative in the World Customs Organization (WCO), at the time, to improve Customs administrations, the Symposium, and its subsequent Columbus Declaration¹⁴ was a significant milestone in increasing the efficiency of importing and exporting cargo around the world.

The Group of Seven (G7)¹⁵ Heads of Government, at their meeting in Lyon, France in 1996, at their Summit in Denver, Colorado, USA in 1997 then again in their Summit in Birmingham, England in 1998 agreed to build an International Trade Prototype between pilot G7 countries where export data became import data using standard data sets and electronic transmission. This led later to the WCO Common Customs Data Model but the work of standardising the international movement of goods rather than treating imports separately from exports did not fully succeed.¹⁶

The WCO SAFE Framework of Standards, published in 2007, promotes the seamless movement of goods through secure international trade supply chains and the harmonisation of advance electronic cargo information requirements on inbound, outbound and transit shipments.¹⁷

Within the Customs-to-Business pillar of the SAFE Framework, the WCO advocates partnerships between Customs and the private sector to ensure the safety and security of the international trade supply chain. The SAFE Framework advocates pushing assessments on the security of cargo and containers further back into the supply chain by involving the private sector and by requiring increased security at the point of origin, such as the point of ‘stuffing’ a container at a foreign manufacturer’s loading docks, and as the container is moved from point to point through the supply chain.¹⁸ This places the onus on the consignor and those in the Logistics Layer to provide accurate data relating to the goods.

The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Symposium on Single Window Standards and Interoperability in May 2006 in Geneva was of the view that building seamless, electronic processes between trade and government and between the relevant governmental agencies could eliminate costly redundancies and duplication in the submission of data.¹⁹ They were of the view that in the future, administrations will seek to obtain data in electronic format directly from the originator of the information that will often be a combination of the seller, consignor, Freight Forwarder and carrier.

7. Sea cargo

Total trade in the UK was valued at about £600 billion in 2008.²⁰ About 95 per cent by volume of goods consumed or produced in the UK come and go by sea and about 90 per cent by weight of world trade is carried by the international shipping industry.²¹ Hague-Visby, Hamburg and the more recent Rotterdam Rules, translated into national law through Acts such as the Carriage of Goods by Sea (COGSA), drive the way goods are described by the consignor on transport documents and the way carriers can reduce their liability. One of the key legal documents for sea cargo is the ship’s manifest which is made up from the bills of lading, described earlier.

The complexity of the contracts of carriage and the systems and procedures required to transport goods internationally almost encourage the consignor to employ a Freight Forwarder, or ‘agent’, to manage the door-to-door or container consolidation to de-consolidation process. The Freight Forwarder in one country consigning goods to another Freight Forwarder in the country of destination traverses the Logistics and the Transaction Layers to manage the documentary and transport complexities. So, in addition to the limited data contained in transport documents, the manifest will show consignor to consignee as ‘agent to agent’ rather than the true buyer and seller.

In everyday practice, despite the legal requirement to provide accurate data about the goods being carried, about 60 per cent of vessel manifest information is described as ‘agent to agent’ making the data unfit for regulatory pre-arrival risk assessment purposes. Well established commercial practices within the Logistics Layer are masking the accuracy of data thereby increasing the risks posed by a lack of visibility.

Annual losses in international trade caused by maritime fraud are estimated to be as high as USD31 billion. Documentary maritime frauds involving the letter of credit and traditional ocean bills of lading account for nearly two-thirds of these losses.²²

The grounding of the vessel *MSC Napoli* in January 2007 off the UK South Devon Coast highlighted the problem of mis-declaration and led to growing pressure for ship's manifests to contain more detailed cargo information to enable risks to be more adequately assessed. The incident offered a unique opportunity for the UK Maritime and Coastguard Agency to examine the stowage, segregation and securing of the cargo on a container vessel. The salvors and insurer's representatives examined the containers and their contents after they were recovered and as they were processed. The examination of the cargo provided a useful insight into the issues facing the container shipping sector.²³

In some instances it was clear that the Carrier had no reasonable means of ascertaining who was responsible for the containers and their contents. Dangerous goods are thought to account for between 5 per cent and 10 per cent of total containerised cargoes but it is clear that some are carried un-declared. The report by the UK Marine Accident Investigation Branch said the following:

All *MSC Napoli's* containers were weighed when they were removed from the vessel including about 660 containers stowed on deck, which had remained dry. The weights of 137 (20%) of these containers were more than 3 tonnes different from their declared weights. The largest single difference was 20 tonnes, and the total weight of the 137 containers was 312 tonnes heavier than on the cargo manifest.

Overweight container discrepancy is widespread within the container ship industry and is due to many shippers deliberately under-declaring containers' weights in order to minimise import taxes calculated on cargo weight, allow the over-loading of containers and to keep the declared weight within limits imposed by road or rail transportation. Container shipping is the only sector of the industry in which the weight of a cargo is not known.²⁴

8. Air cargo

After the destruction of Pan Am flight 103 over Lockerbie in December 1988, the International Civil Aviation Organisation (ICAO) adopted an eight-point aviation security plan that became the basis for improvements in aviation security throughout the world. This plan included the screening and reconciliation of checked passengers' baggage and the screening of cargo and mail. The *Civil Aviation and Maritime Security Act 1990* brought the ICAO Montreal Protocol 1988 into UK law. This Act created new offences relating to air security. Certain acts prejudicial to aviation security became offences such as giving false information in answer to questions relating to baggage, cargo or stores. Some Customs and Immigration services went further and now require Advance Passenger Information to be provided by the passenger online or certainly prior to departure.²⁵

Within the international trade supply chain air cargo typically travels from a seller (or shipper) through a regulated agent to an airline. The seller prepares the consignment so is also the consignor. The UK Aviation Security (Air Cargo Agents) Regulations 1993 required the security standards and operations of cargo agents to be approved.

Until 2003 the regulated agent²⁶ assessed their customers' security arrangements and could award the status of 'known' consignor. Cargo from known consignors would then be considered as secure and could be placed on an aircraft without further checks. From 2003 the UK Department for Transport introduced a new scheme that removed the validation role from the regulated agents to independent validators with experience of air cargo security.

In 2008 the UK's air cargo security regime included over 400 regulated agents at 850 sites and 1,400 known consignors, inspected annually by independent validators.²⁷ That approval includes the point at which the consignment is completed and the cargo becomes air cargo; the air cargo preparation and

packing procedures and the storage and transport of secure cargo from the seller or consignor to security approved air cargo agents or airlines.

An air way bill for cargo being carried by air is a receipt from the carrier to the consignor (or shipper) and is evidence of a contract of carriage between the shipper and carrier. An air way bill is not a document of title and cannot be endorsed 'said to contain'.

If cargo is sent on a direct basis and not grouped with other cargo, or consolidated, a master air way bill is issued. If cargo is to be grouped together with other cargo, the consolidator issues their own house way bill for each shipment and each customer receives a copy to identify their consignment.

In air cargo, as with sea cargo, the consignor (or seller, or exporter) often employs a Freight Forwarder, consolidator or third party logistics provider. The Freight Forwarder can issue a house air way bill to the consignor who is their customer and the airline will issue a master air way bill to the Freight Forwarder. Where a Forwarder is a consolidator, they become the consignor as far as the carrier is concerned. The air way bill will be completed with the consolidator's name and address in the 'shipper's name and address' section of the air way bill, the true shipper details being provided on the house air way bills.

The house way bills are attached to the master way bill accompanied by a manifest itemising all the shipments by house way bill number for identification purposes at destination. Cargo identification labels will show both air way bill numbers.

The air way bill has a tracking number which can be used to check the status of delivery and current position of the shipment. The number consists of a three digit airline prefix issued by IATA²⁸ and an eight digit number.

The added emphasis on air security post Lockerbie and 9/11 makes the accuracy and timeliness of consignment data in the air cargo environment imperative. It also raises questions about why these standards of security and data management do not apply to sea cargo.

9. Customs and border protection

Customs is responsible for protecting society and facilitating international trade through the management of external borders and by:

- ensuring overall supply chain security
- ensuring the safety and security of citizens
- protecting national and regional financial interests
- combating unfair and illegal trade while supporting legitimate business activity
- increasing the competitiveness of national and regional businesses through modern working methods supported by an easily accessible electronic Customs environment.²⁹

For many years Customs have concentrated mainly on goods arriving into a country. They collect import duty, protect society by stopping illegal goods and facilitate the fair treatment of businesses. Traditionally Customs have used the ship or aircraft manifest as the basis for control, admissibility and assessing pre-arrival risk, and used the Customs declaration as the basis for regulation and collecting revenue and statistics. More emphasis has been placed by Customs on imports than on exports. Export data can lack accuracy and assurance and can be provided too late to allow proper risk assessment.

Customs use data from the Transaction Layer to provide information about the goods, the people and the customs procedure to be adopted. This is supplemented by the manifest information from the Logistics Layer to reconcile and ensure all the goods imported and which remain on board have been properly accounted for. The goods declared need to match the manifest and discrepancies should be investigated.

For sea cargo, Customs accept the inwards (import) manifest as an import summary declaration. However, as already explained, the manifest usually contains minimum data and ‘agent to agent’ details so is often not fit for border related pre-arrival risk analysis purposes.

In addressing the 2007 Customs and Border Protection Trade Symposium, US Customs and Border Protection (CBP) Commissioner, W Ralph Basham, said:

We have long recognized that we were not receiving sufficient data on the origins of a shipment, the so-called point of stuffing. We also lack information on all the various parties that handle a shipment during its transit to the United States.³⁰

In the US under the *Security and Accountability for Every (SAFE) Port Act, 2006*, carriers are required to transmit information to CBP about the cargo they are carrying to the US before the cargo is loaded at a foreign port.³¹ Carriers are required to submit advance cargo manifest information to CBP via the Automated Manifest System as well as an additional fourteen pieces of data often known as ‘10+2’. The ‘10’ data elements, to be filed by importers 24 hours prior to loading onto the vessel are:

- Manufacturer name and address
- Seller name and address
- Container stuffing location
- Consolidator name and address
- Buyer name and address
- Ship to name and address
- Importer of record number
- Consignee number
- Country of origin of the goods
- Six digit classification (HS) code.

The ‘10’ data elements are ultimately the responsibility of the importer to provide to CBP but, as already described, this information is known to the consignor on consignment completion, but outside US jurisdiction. The importer has probably never seen the goods and certainly did not pack them.

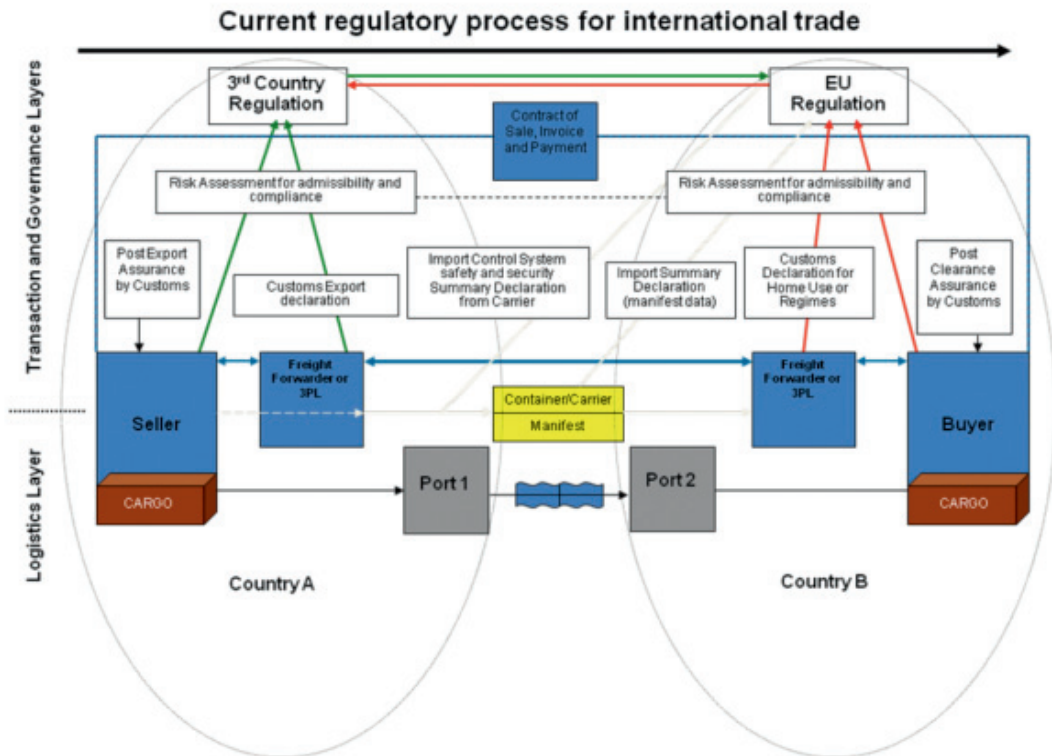
The two additional data elements to be sent to CBP by the carrier after loading are the vessel stowage plan and the container status messages. However, as seen from the MSC *Napoli* incident, ‘It is generally agreed within the container industry that up to 10% of containers loaded onto a vessel might not be in their planned positions’.³² Nevertheless, this requirement has the potential to provide the link between consignor data and import data and hold the consignor more accountable.

The European Union (EU) Import Control System (ICS) requires advance safety and security information prior to loading. For deep sea voyages, the law requires the carrier to make this declaration 24 hours prior to the goods being loaded in the foreign port of export. The security amendment, Annex 30A to regulation 2913/92, describes the data required under the pre-arrival, pre-departure systems.

The model shown at Figure 2 describes the current regulatory process for international trade.

Commercial data between buyer and seller as well as the logistics operations performed by a third party on behalf of the buyer and seller are separate from the Customs systems. Data provided by the consignor to the exporting Customs is generally divorced from the data provided to the importing Customs, so there is no assurance that the data is the same.

Figure 2: Current regulatory process for international trade



Source: David Hesketh 2010.

10. Summary

Data in the supply chain is not administered, managed or operated in a uniform way, can be inaccurate and is the subject of varying degrees of integrity. In many cases, the movement of their goods is not visible to the buyer and seller. Specific transport and other peripheral costs are often not clear to the international buyer and seller, making profit margins and the price to the final consumer ambiguous.

There is ample evidence that goods are not described or despatched properly for transport and regulatory purposes, creating risks to letters of credit, risks to the buyer, risks to carriers from overweight and hazardous goods and risks to society at the frontier from prohibited and restricted goods and the non-payment of much needed revenue. Established practices in the carriage of goods by sea such as 'said to contain', challenged by legal precedent but not helped by Hague-Visby or Rotterdam Rules, mean that the Master of a vessel will not know what the vessel is carrying thereby risking life at sea and on land. Goods can move along the supply chain as part of contracts and sub-contracts and with varying degrees of transport or carrier integrity. Criminals and untrustworthy operators exploit these deficiencies and defraud about USD20 billion annually.

There is currently no dedicated trade organisation which routinely provides guidance on best practice for the container industry. Loading, transportation and discharge of containers are largely unregulated. The safety of ships, crews and the environment is being compromised by the overriding desire to limit liability, maintain established schedules or optimise port turn round times.³³

However, these conditions are not standard across all modes of transport or across all players in the supply chain and there are marked differences between air cargo and sea cargo.

Cataclysmic events such as Lockerbie and 9/11 have led to stringent safety measures in passenger and air cargo safety and security. No such tragic milestone has been reached in sea cargo but the grounding of the MSC *Napoli* came close in signposting serious lessons that need to be learnt.

It is possible that if the undeclared hazardous cargo had exploded and the overweight containers had turned the vessel over in the entrance to the Port of Felixstowe or Rotterdam or New York, questions would have been asked as to why sea cargo is handled so differently to air cargo and the system would be changed.

Transport conventions, systems, procedures and data in the Logistics Layer dominate the management of the supply chain. But the data relating to the goods to be bought, sold and moved needs to be known to the buyer and seller in the Transaction Layer to ensure the order is properly met and paid for. If that information was clarified and verified at the point of consignment completion and captured in a data system running parallel to the Logistics Layer then many of the risks associated with poor data would be reduced.

Modern legislation in the European Community and in the US attempts to capture data about cargo upstream, prior to loading for export, but is restricted in legal jurisdiction. The consignor who holds the critical data is out of the legal reach of the importing authorities. The legal requirement therefore focuses on the bodies that do fall within enforceable jurisdiction, namely, the importer and the carrier. However, the transport systems are designed to limit carrier liability and do not always service that information requirement. And asking an importer about goods they have never seen lacks assurance, confidence and proper accountability.

At an airport check-in counter the responsibility for goods being carried rests with the person who packs the bag or completes the consignment ready for transport. An Advanced Passenger Information system requires the passenger to provide data in advance of departure allowing upstream risk assessment.

The consignor has the information relating to the goods being sent into the supply chain. It can be recorded, without fully revealing commercial sensitivities, on the packing list, shipping note and way bills and the information can be added to with carrier and location data as the goods move. The consignor can tell the carriers and the export and import regulatory authorities, including Customs, about the goods as they enter the supply chain.

This principle is endorsed by the World Customs Organization in the SAFE Framework which, in itself, was the product of extensive consultation with international traders.³⁴ Clarifying the full contractual details between buyer and seller, including the harmonised description of the goods, is advocated by the CISG convention in order to remove ambiguity and manage risk.

Ultimately, businesses and governments need a fair and effective regulatory environment for those engaged in international trade. They need streamlined, efficient regulation and procedures for exports and imports – cutting out avoidable costs and delays for business.³⁵

11. Conclusions

The way the international trade supply chain is managed needs to change. The needs of the seller/consignor and buyer/consignee have been overtaken and minimised through a complex and inefficient paper document trail and information flow and a preponderance of 'deals' aimed at minimising liability. True costs are unknown so estimates and contingencies are inflated then ultimately passed on to the consumers. Shaving cost to increase competitiveness is difficult when the costs are unknown. Managing risk is difficult when the true picture is unclear.

Export systems have been the poor relation despite the importance of 'strategic' exports, high value VAT and excise goods and the export of stolen goods such as expensive vehicles in order to finance organised crime and terrorism.

The current practices of mis-describing overweight, hazardous, prohibited, restricted and revenue goods mean that industry self regulation is unlikely to work. Commercial and criminal pressures are obviously too great even when the consequences threaten society and safety of life at sea.

The answer rests in national legislation with enforceable jurisdiction but within a multilateral, international legal framework. Real-time, accurate data must be assured from the beginning, updated as the goods move and shared in a risk based, layered approach.

Only the data needed for a particular purpose will be provided to those who need it within the Governance, Transaction and Logistics Layers. The entire description, movement and location of the goods as well as the entities involved will be visible to buyer and seller, or their preferred agents, as well as the regulatory agencies that will be held legally accountable for their integrity and data management. The consignor and carriers hold the data and modern technology unlocks the potential for this to be properly managed.

Based on commercial data, Customs will use automated targeting tools to identify shipments that are high-risk as early as possible in the supply chain, at or before the port of departure.

The primary aim is to increase the efficiency and security of international trade using parallel logistics and data pipelines that are secure, credible and well managed. The objective is to eliminate redundancies and duplication in the submission of data, provide real-time supply chain visibility and create a simplified process with a standard set of data and messages that traders will use to meet government, financial and commercial requirements for the admissibility and control of trade and conveyances.³⁶

Various estimates suggest that the cost of trade procedures may range from 2 per cent to 15 per cent of the value of traded goods. It is also estimated that 77 per cent of the administrative burden on businesses from international trade related regulation is attributed to Customs. Data inaccuracy among retailers and their suppliers can cost as much as 1 per cent of total revenue. A 1 per cent saving in the value of goods traded across UK borders would be worth almost £6 billion annually and a 50 per cent reduction in the administrative burden from HM Revenue and Customs could be worth around £370 million.³⁷

Ultimately, the emphasis has to shift from limiting carrier liability and an outdated paper trail to supply chain visibility and predictability through accurate data provision and management. While UN conventions provide the preferred international legal framework, the process of negotiation, compromise and weighty political lobbying by those with most to lose from fair, regulatory control frustrates the process.

Nevertheless, the value of international law is that it provides a uniform, global approach along with the opportunity for constructive international contribution and commitment. While trade and security initiatives such as those from the WCO offer a framework, they are often open to interpretation and optional adoption. The role of the consignor is critical within the supply chain so we need to create an international legal obligation that reflects that responsibility along with the need to provide the timely and accurate data required.

12. Key issues

- Supply chain management is complex, inconsistent and lacks uniform integrity resulting in financial and safety risks. Buyers and sellers are often disengaged other than through their Freight Forwarders. The movement of their goods is not visible to the buyer and seller.
- The complexity of the supply chain translates into information deficiencies and gaps where data is not managed effectively.
- Complete costs are not clear to the international buyer and seller making profit margins and the price to the final consumer ambiguous.
- Goods are not always described or despatched properly for transport and regulatory purposes.
- The Master of a container vessel will not know what the vessel is carrying thereby risking life at sea and on land.
- Goods can move along the supply chain as part of contracts and sub-contracts and with varying degrees of transport or carrier integrity.
- Criminals and untrustworthy operators exploit deficiencies in the supply chain.
- Commercial and regulatory data at export are generally divorced from the data required at importation. There is no assurance that the data are the same.
- Customs fail to recognise the strategic importance of accurate data at the point of consignment completion and export. An importer is not best placed to make a legal declaration about goods packed by the consignor.
- There is currently no single organisation providing guidance on best practice across the supply chain.

13. Recommendations

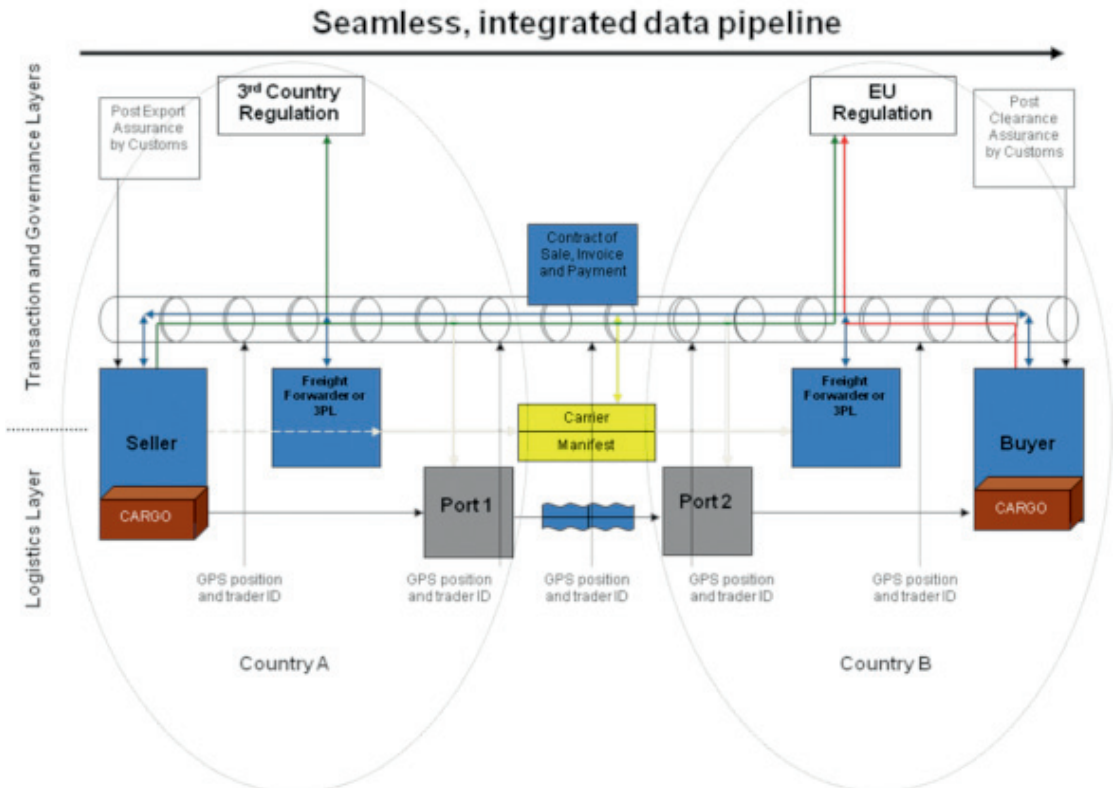
The Columbus Ministerial Declaration and the G7 International Trade Prototype recognised the need for a strategic, innovative, coordinated approach to supply chain management. The events of 9/11 brought that need into sharp focus including a global response to greater supply chain security and data integrity. International transport conventions have failed to integrate roles, modes of transport, data, technology and even international organisations despite calls by Ministers from the Columbus Symposium as early as 1994. This needs to be addressed by a new multilateral, international convention reflecting the principles of Columbus and the G7 Prototype but brought up-to-date by embracing and integrating many of the valuable initiatives that have since taken place.

Within that legal framework more emphasis must be placed on the point at which the international movement of the goods begins. The consignor and the true packing list play a key role. A new key performance indicator and critical way-point must be created called the Consignment Completion Point (CCP).

The upstream elements such as purchase order, the accurate description of the actual consignment, the contractual terms including transport, Incoterms, insurance, will all come together at the CCP and be verified between the seller/consignor and the buyer/consignee. At that point, everything relevant to the consignment entering the international trade supply chain for export, transport then import takes on a legal status. The full amount of data relating to the goods and the buyer and seller required by Customs and other regulatory agencies for an export declaration will be provided electronically, at the CCP, to the Customs in the exporting country and, at the same time, to Customs in any transiting or importing countries and the country of final destination.

This will require the construction of a web-based, seamless, electronic data ‘pipeline’ linking the seller/consignor and the buyer/consignee and the interested economic operators in between. The suggested future model, shown at Figure 3, promotes the WCO, UN Economic Commission for Europe (UNECE), EU and Trade call for seamless, electronic processes between Customs administrations and between Customs and business in facilitating legitimate trade.³⁸

Figure 3: Seamless, integrated data pipeline



Source: David Hesketh 2010.

While the technology to achieve this exists and a few software programs are capable of delivering part of it, there has yet to be taken a strategic initiative to join together the technology and the commercial opportunities. The advantages, however, are clear:

- reduced inventory
- better logistics, purchase and sales planning
- identification of costs
- choices of service provider
- better risk management and reduction of risk and fraud
- reduced losses and insurance premiums
- reduction in error, re-work and returns
- regulatory control of higher quality and possibly less costly to trade
- overall supply chain visibility
- information to protect profit and capture more market share.³⁹

Much of the existing transport and logistics procedures remain understandably complex. Maintaining a high level of Customs and logistics knowledge and experience in a trading company may not be cost effective. So the role of the Freight Forwarder who can manage the complexity on behalf of the buyer and seller will remain highly valuable. Indeed, the electronic data management between seller/consignor

from the CCP onwards throughout the Governance, Transaction and Logistics Layers, especially for small and medium sized enterprises, may well best be handled by a suitably competent Freight Forwarder.

The data 'pipeline' concept draws upon radio frequency identification (RFID) technology for localised tracking of goods at unit, pallet, consignment and container levels. It also draws upon global positioning systems (GPS) to track consignments and containers, where appropriate and cost effective, as well as the tracking of vessels carrying containers through the coastal Automated Identification System⁴⁰ and the Long Range Identification and Tracking system⁴¹.

This means that the location of the consignment from completion point (CCP) onwards can be known. The next critical way-point will be prior to export. Currently the US and later this year, the European Community will require, by law, specific information relating to the goods and entities as well as transport and stowage details. Under this recommendation the 'pipeline' concept will already have provided much of this information from the consignor, a source more reliable than the current manifest and carrier. The 'pipeline' will have been updated with carrier and location data between CCP and the point of export. Details about air and sea carrier as well as stowage and time of departure can update the 'pipeline' data through the port/airport inventory systems, through RFID and GPS, and through Port and Airport Community Service Providers. The seller/consignor will know the goods have been exported and the buyer/consignee will know the goods are on their way.

The importing Customs will have been advised of the same data that was sent to the exporting Customs. They will be able to work together. Both Customs will also have access to the 'pipeline' to proactively monitor the movements. Risk can be managed using real-time data.

Prior to arrival at the place of importation, the buyer/consignee can make the legal declaration to Customs confirming the original consignor data and advising Customs of the procedure to be adopted at importation. The possibility exists for clearance or selection to be advised to the consignee prior to arrival where risk and procedures permit. At this point all the information needed for all the players in the Governance, Transaction and Logistics Layers will be known from the 'pipeline' including official trade statistics, location, transit, transport and end-use data.

This is a vision and solution that confronts and builds on demonstrable problems. It has examined the basic and simple premise of international trade and described a plethora of industry led complexities. It has focused on the primary source of the key data needed to buy, sell and move goods – the seller/consignor. It suggests a new and innovative system to address clear commercial, regulatory and safety problems using modern technology and international law. The need to change is clear – as are the benefits and challenges.

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