



IATA E-FREIGHT STRATEGY JUNE 2010



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The Vision

The IATA Board recognizes the pressing need, and opportunity, to improve the efficiency and cost effectiveness of the air cargo supply chain. Today, the air cargo industry still almost exclusively relies on paper-based processes to support the movement of freight. The average consignment generates more than 30 documents that are used and/or handled by the various parties involved -shippers, freight forwarders, handling agents, export and import brokers, airlines, and last but not least, customs and other government authorities.

These paper-based processes are not cost effective, nor do they serve the pressing needs for security and speed that are the key characteristics of air cargo.

Thus, in December 2004, the IATA Board mandated IATA to lead an industry-wide project whose aim is to take paper out of the air supply chain, and create the conditions to replace the existing processes with new processes where the industry, and governments, rely on the electronic exchange of information between the parties to facilitate the movement of freight.

It is important to recognise that the removal of paper from the supply chain is aligned with the World Customs Organization's vision for 21st Century Customs.

1 The Mandate

The IATA e-freight mandate is to lead an industry wide campaign to build up the capability of the airfreight industry stakeholders to perform e-freight transactions between themselves.

The vision for IATA e-freight is to create a paper free process, i.e., a process whereby airfreight supply chain does not transport the paper, but there may be a requirement by exception to produce a copy of this paper from an electronic structured format message or a scanned document.

The documents that may be required to be produced by exception are the documents in the project scope that support the cargo or goods release/clearance by customs authorities.

The aim is to ensure that all transactions between e-freight participants in e-freight live locations will be an e-freight transaction, where the documents in scope for the purposes of cargo or goods release/clearance will not be produced or transported between the shipper, forwarder and carrier.

In order to achieve this, the project is promoting a phased approach of:

- Phase 1: e-freight capability to be implemented in all feasible locations by the end 2010
- Phase 2: encourage the industry stakeholders (airlines, forwarders and shippers) to adopt e-freight and build up e-freight capability
- Phase 3: All transactions between e-freight forwarders and airlines at e-freight locations to be e-freight transactions
- Phase 4: 100% supply chain e-freight – all transactions between e-freight participating shippers, forwarders and airlines at e-freight locations to be e-freight transactions

2 The Business Case

2.1 The Overview on industry benefits

The IATA e-freight industry business case benefits are based upon the following key criteria:

- Cost Savings: the decrease in document processing costs
- Speed: the ability to send shipment documentation before the cargo itself can reduce the industry cycle time by an average of 24 hours

- Quality and Reliability:
 - Electronic documents auto population – allowing one time electronic data entry at point of origin reduces delays to shipments due to inaccurate or inconsistent data entry
 - Electronic documents have significantly less risk of being misplaced so shipments will no longer be delayed because of missing documentation
 - Visibility: electronic documentation allows for online track and trace functionality
 - Simplicity: as all supply chain stakeholders follow the same e-freight process and messaging standards the air cargo process will be globally uniform and simpler to execute
- Regulatory advantage: the existence of an e-freight process already in use will encourage countries to build any new e-customs requirements around these standards
- Environmental: IATA e-freight will eliminate more than 7,800 tonnes of paper documents, the equivalent of 80 Boeing 747 freighters

2.2 Detailed industry benefits

As a result the average net industry operating benefit after five years based on documents in scope is US\$ 1.3 billion. The total annual net benefit of the project once 100% e-freight is achieved for the documents in scope is US\$ 4.9 billion.

The diagram below illustrates the net benefits for the industry over an eight-year period, with Year 1 being 2010. The model covers this time period as the industry evolves from its current capability to the implementation of 100% e-freight and the increase in the percentage of e-freight shipments versus the total number of shipments, referred to as penetration.

Key assumptions in the business case model:

- It does not assume the removal of all documents in the e-freight supply chain but only the documents in scope
- The technologies used for the exchange of messages and documents are integrated messaging using an XML standard, data entry onto web portals and e-mailing and scanning of documents. It is important to note that the model is based on the migration of the Cargo IMP standard messages to XML standards
- It assumes that the current messaging quality for the exchange of the master air waybill is 65%, as measured by the Message Improvement Programme (MIP), and that quality will increase to a maximum of 75% by year 3
- The penetration is calculated as a function of the estimated global capability of airports to implement e-freight. It is assumed that the top 100 airports accounting for approximately 85% of the total airfreight volume will be live by year 4. It is also assumed that the penetration of e-freight (i.e., the percentage of the total shipments at these enabled airports) lags airport capability by two years. The penetration indicator therefore has the net effect of reducing the total savings until 98% capability and penetration is reached in year 7.

E-FREIGHT

FINANCIAL ANALYSIS

(amounts in US \$ billion)

Legend	
Black	Direct Input
Green	Feed from other cell
Blue	Calculation
X	User-input parameters

Forecast % of Transaction	
Integrated messaging %	30%
Web Portal %	50%
Scan %	20%

ML software depreciation	
Annual deprec	33%

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	Total
COST SAVINGS									
Document Processing	\$ 1.18	\$ 1.27	\$ 1.37	\$ 1.44	\$ 1.51	\$ 1.58	\$ 1.66	\$ 1.73	\$ 11.74
Delivery Time	\$ 0.63	\$ 0.66	\$ 0.69	\$ 0.72	\$ 0.76	\$ 0.80	\$ 0.83	\$ 0.87	\$ 5.97
Inventory Savings	\$ 1.26	\$ 1.32	\$ 1.38	\$ 1.45	\$ 1.52	\$ 1.59	\$ 1.66	\$ 1.74	\$ 11.91
Reduced Customs Penalties	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.16
Market share increase over other modes of freight	\$ 1.16	\$ 1.23	\$ 1.31	\$ 1.39	\$ 1.48	\$ 1.57	\$ 1.67	\$ 1.78	\$ 11.59
Potential Savings Subtotal	\$ 4.24	\$ 4.50	\$ 4.77	\$ 5.02	\$ 5.28	\$ 5.56	\$ 5.85	\$ 6.16	\$ 41.38
% international air freight volume e-freight enabled	38%	69%	78%	86%	98%	98%	98%	98%	
Average % penetration in enabled airports (2 year lag on enablement)	1%	15%	32%	63%	72%	80%	98%	98%	
Potential Savings Subtotal	0.02	0.47	1.19	2.72	3.73	4.36	5.62	5.91	24.00
EXPENSES									
New technology expenses	\$ (0.5)	\$ (0.6)	\$ (1.0)	\$ (1.6)	\$ (2.0)	\$ (1.6)	\$ (1.3)	\$ (1.0)	\$ (9.6)
NET BENEFIT (COST)									
Net Benefit	\$ (0.5)	\$ (0.2)	\$ 0.2	\$ 1.2	\$ 1.7	\$ 2.7	\$ 4.3	\$ 4.9	\$ 14.4
Cumulative Net Benefit	\$ (0.5)	\$ (0.6)	\$ (0.4)	\$ 0.8	\$ 2.5	\$ 5.2	\$ 9.5	\$ 14.4	
Savings / transaction	\$ (4.41)	\$ (1.58)	\$ 2.07	\$ 9.77	\$ 13.66	\$ 20.99	\$ 31.94	\$ 35.16	

As the financial analysis diagram shows there are five key savings identified:

- Document processing - by migrating to a paper free process for the documents in scope, there are cost savings associated with less manpower to physically handle the document process and less data re-entry. This equates to savings of US\$ 1.97 billion in year 8.
- Delivery Time Shortening - by allowing electronic documents to be used for clearance prior to the arrival of the freight, 24 hours can be saved on end-to-end delivery times for freight, that currently average 6.5 days. This results in a decrease in the cost of capital to finance goods in transit to the value of US\$ 870 million by year 8.
- Inventory Savings - The shipping industry has an inventory of 12% of its total stock to allow for the transit of goods. It is envisaged that this inventory will increase due to tightening of customs requirements by 5%. Of this buffer stock, 25% is maintained to allow for the unreliability of the transportation of the goods. By introducing e-freight, it is estimated that this will reduce this buffer stock level by 23% based on improvements in reliability. This benefit has further been scaled down as not all documents in the supply chain are in the project scope. Therefore the savings equal US\$ 1.74 billion savings per annum.
- Customs Penalties Reductions - as the industry migrates to electronic document and data submission then the data errors are reduced and thus there is a 53% reduction in customs penalties due to incorrect data submission.
- Increased Market Share over other modes of freight - IATA e-freight will make the air cargo industry more competitive, resulting in a conservative 1% market share increase over other modes of transportation, i.e. sea freight.

The financial analysis diagram also shows there are costs to the industry of migrating to e-freight.

The expenses incurred are based on the industry migrating to new technologies to deliver the benefits of e-freight. This means that some stakeholders that currently have a capability to exchange messages will have

to upgrade their systems to exchange XML, whilst other industry stakeholders will have to procure the capability to exchange messages.

The technology solutions include integrated messaging, web portal and scanning and the percentage of e-freight transactions are 30%, 50% and 20% respectively.

The model has a five-year investment period plus three years to fully realise the effects of depreciating the investment in XML messaging software.

3 Delivery Approach

3.1 Proving feasibility

To prove that IATA e-freight is feasible, define the scope of documents and develop the foundation for the IATA e-freight operating procedures (IATA e-FOP), IATA brought together industry stakeholders to develop an agreed methodology.

In each of the six pilot locations the project mapped the As-Is business process and defined the To-Be (IATA e-freight) industry business process. As a result the IATA e-freight implementation in the six pilot locations was successfully achieved on November 5th, 2007. After this initial go-live, the pilot locations were used as a test bed to prove IATA e-freight feasibility as well as determining the further changes needed to the IATA e-freight product to make it scalable.

The project now has a well defined IATA e-FOP which is amended when appropriate, for example, with the addition of a new electronic document standard and process.

3.2 Building capability (Phase 1)

The current project target is to build IATA e-freight capability in all feasible locations by the end of 2010.

IATA e-freight capability is defined as the implementation of at least one e-freight transaction in a live location, at a live airport, on a live trade lane for both import and export.

A feasible location is one that has the government willingness, appropriate legal framework in place and is able to support the technical and business process requirements to conduct e-freight.

At the end of 2009, 24 locations had successfully implemented IATA e-freight: Australia, Canada, Chinese Taipei, Denmark, Dubai, Egypt, France, Germany, Hong Kong, Iceland, Japan, Luxembourg, Malaysia, Mauritius, Netherlands, New Zealand, Norway, Singapore, South Korea, Spain, Sweden, Switzerland, United Kingdom, and United States of America.

To determine the locations in scope, every location has now been assessed using a formal methodology involving IATA and industry stakeholders. The aim is to implement a total of 44 locations by the end of 2010.

In parallel to implementing IATA e-freight in all feasible locations, IATA will work with key cargo markets to communicate the benefits and requirements to implement IATA e-freight so that they may develop the necessary legal, technical and business process environment.

3.3 Industry Adoption of e-freight (Phase 2)

With e-freight capability in place, then airlines, forwarders and shippers will be encouraged to adopt e-freight, i.e., the build up of e-freight capability at stakeholder level.

During this phase the project will formally engage airlines, forwarder and shippers to gain their commitment in adopting e-freight.

3.4 Industry Penetration of e-freight (Phase 3)

This phase is to drive high levels of stakeholder penetration targeting e-freight transactions between all e-freight participating forwarders and airlines in e-freight live locations.

The approach to increasing overall penetration includes:

- Removing roadblocks that prevent increase in volumes at local, regional and global levels
- Delivering a methodology of how countries and individual stakeholders move from initial go-live to 100% e-freight penetration
- Establishing individual country and stakeholder action plans that drive towards 100% penetration

In order to build on the success of the pilots and enable the scalability of the product IATA developed the approach of:

- Increasing the number of IATA e-freight capable locations
- Then increase the number of participants implementing IATA e-freight at each location

The target date for this will be published in 2010.

3.5 100% Supply Chain e-freight (Phase 4)

All transactions between e-freight participating shippers, forwarders and airlines at e-freight locations will be e-freight transactions, based on the removal of 20 documents across the supply chain. This will require the shipping industry to adopt e-freight capability and thus penetration of e-freight transactions across the whole of the supply chain. The scope and target dates for this will be determined during Phase 2.

4 Targets

By the end of 2010:

- IATA e-freight is planned to be live in 44 locations that account for more than 80% of the international freight volumes
- IATA e-freight is planned to be live in the Top 5 domestic markets that accounts for more than 85% of domestic air freight
- Deliver 20 electronic document standards

5 Scope of Documents

The original scope for e-freight in the 2006 Strategy paper limited the type of freight to general freight only, where clearance is restricted to the involvement of customs administrations only to permit the import and export clearance.

Thus, the original scope of documents as provided in the **2006 strategy paper** was:

1. Invoice
2. Packing List
3. Certificate of Origin
4. Export Goods Declaration
5. House Manifest
6. Air Waybill
7. House Waybill
8. Export Cargo Declaration
9. Flight Manifest



10. Import Cargo Declaration
11. Import Goods Declaration
12. Security Declaration

In 2007 given the scope the supply chain, the e-freight project team considered the removal of documents across the supply chain that facilitate the movement of freight and are either supported or can be supported by an agreed international electronic messaging standard within the 2010 timescale. An agreed international electronic message is one that has been approved by industry bodies or international standards setting bodies and is relevant to e-freight.

As a result the scope of progress made in project understanding and in international standards since 2006, the documents now include 20 documents:

1. Invoice
2. Packing List
3. Certificate of Origin
4. Letter of Instruction (electronic messaging standard to be defined in 2009)
5. Shipper's Dangerous Good Declaration (electronic messaging standard to be defined in 2009)
6. Export Goods Declaration
7. Customs Release Export
8. House Manifest
9. Air Waybill
10. House Waybill
11. Export Cargo Declaration
12. Flight Manifest
13. Transfer Manifest (electronic messaging standard to be defined in 2009)
14. Import Cargo Declaration
15. Import Goods Declaration
16. Customs Release Import
17. Security Declaration
18. CITES Certificate
19. Transit Declaration
20. Freight Book List

The documents within scope are estimated to account for 64% of the total volume of documents transported across the supply chain and are either carried in the airport-to-airport sector or allow the import and export release of the goods. Note that with a direct shipment a shipper may lodge the electronic goods declaration to export/import customs and invoices & packing list should be in electronic format.

There is no distinction between general and special freight. The above documents can be applied to both freight types. Special freight is defined as where other government agencies (OGA), as well as customs administrations, are involved in the permission to import and export.

The remaining documents identified in the supply chain do not have agreed international standards that can be implemented by 2010, but the project will support when possible the expansion of e-freight to these other documents.

If in a country there is a requirement to always provide the original in paper document versus a paper copy by exception from an electronic archive then such particular document would be excluded from the scope in that specific country, for example the Certificate of Origin. Currently the project has implemented 12 of the 20 documents in scope.

An e-freight transaction is one where the information will be exchanged in an electronic structured format so that its management can be automated. Scanning will be supported as a step to electronic structured format exchanged, i.e. Electronic Data Interchange (EDI) and Electronic Document Exchange (EDE).

6 Scope of Locations

Only the locations where the government is willing to implement e-freight has the appropriate legal framework in place and is able to support the technical and business process requirements are in scope of the mandate given by the IATA Board of Governors

To determine the locations in scope for e-freight, IATA conducts a two-step assessment: the High Level Assessment (HLA) and the Detailed Level Assessment (DLA). Locations having passed successfully those two steps will be considered as in scope for IATA e-freight.

The HLA is a desktop exercise which has been undertaken by answering the following:

- Is it an IATA freight country, i.e., airfreight originates from and or terminates to that location as provided by IATA economist department?
- Are MC99 and/or MP4 in force?
- Has the location signed the World Customs Organization (WCO) Letter of Intent?
- Does the government have an e-customs modernization programme in place with the automated release of import and export cargo and goods?

The automated release of goods can be defined as a central point through which import or export declaration is filed electronically to customs. When the electronic declaration is received by customs a confirmation release message is sent back to the filer.

The DLA is the second step of the readiness assessment process driven by IATA with the local stakeholders. The questions of the DLA ascertain the location and stakeholders' readiness and willingness to implement e-freight from a technical, process and legal/regulatory standpoint. This provides clarity and eliminates confusion when assessing the readiness of the location to implement e-freight.

During the DLA, legal, technical and business process gaps could be identified. In that case, an agreed Local Action Plan (LAP) is defined for the local stakeholders to close the gaps.

Once the location passes successfully the DLA or closes all its gaps, it is deemed ready for implementation. At that stage, IATA plans and prioritises the implementation phase based on volume of potential e-freight transactions and network connectivity with existing and future e-freight locations.

The status of all the locations worldwide is updated monthly and available on the IATA website (www.iata.org/e-freight).

7 Scope of Transactions

Capability is the ability of the airfreight industry stakeholders in a given location to perform e-freight transactions between themselves, as well as with airfreight industry stakeholders in other e-freight capable locations for the documents in scope.

To implement IATA e-freight within a practical timescale the project has defined the parameters of an e-freight transaction as an airfreight consignment where:

- Goods and cargo declarations and releases are made electronically on both export and import
- None of the core trade and transport documents in scope (see list below) are needed by customs, or other governmental agencies in original paper format in support of import or export cargo or goods declarations
- It is allowed by local law or regulations to archive all of the in scope trade, transport and customs documents in the format of an original electronic document or record for future access and/or audit (i.e. not required to archive in paper format)

- Where core in scope documents are required by customs or other governmental authorities in paper format, for customs controls, audit checks, or any other legislative purposes, local regulations allow production of the paper format from the original electronic document or record
- None of the core trade, transport, or customs documents in scope (see list below) are transported in paper form:
 - between the forwarder and the carrier or the carriers contracted handling agent at origin,
 - by the carrier(s) or the carriers contracted handling agents from origin airport to destination airport
 - between the carrier, or the carriers contracted handling agent and forwarder (or customs broker) at destination
- The IATA electronic air waybill is used between the origin forwarder and origin carrier, as the contract of carriage under which the airfreight consignment is transported

Note: an accepted exception to the above. is when a paper copy (not an original) of one of the core documents in scope is used by local stakeholders to perform the role of a local document which is not in scope of e-freight (for which there is no international agreed standard). An example of this is where stakeholders at airport of destination or origin may use one of the documents in scope (in copy form) to serve as means of pickup or delivery.

12 core documents:

Core 'Trade' documents: invoice, packing list,

Core 'Transport' documents: house manifest, air waybill, house waybill, flight manifest

Core 'Customs' documents: export goods declaration, customs release export, export cargo declaration, import cargo declaration, import goods declaration, customs release import.

8 optional documents:

'Optional' documents: Certificate of Origin (COO), Shipper's Declaration for Dangerous Goods (SDDG), Shipper's Letter of Instruction (SLI), Transfer manifest, Security Declaration, CITES Certificate, Transit Declaration, Freight Booked List (FBL).

An e-freight capable location is therefore one where at least one e-freight transaction has been performed successfully for the 12 core documents.

8 Business Case impact of scoping considerations

From the implementation of the pilots and feedback from the pilots stakeholders there are a number of issues related to the mandate and scope versus the business case benefits:

8.1 Paper free

IATA e-freight is paper free, i.e., paper free process whereby airfreight supply chain does not transport the paper, but there may be a requirement by exception to produce a copy of this paper from an electronic structured format message or a scanned document.

It is possible that the solutions implemented for electronic documents may require by exception to provide original paper document, for example, the Certificate of Origin. If this is the case then the paper documents may have to be archived which may impact the business case for stakeholders, in particular the freight forwarder. The project will conduct a campaign to lobby appropriate authorities to accept a non-original copy of the Certificate of Origin.

8.2 Air Waybill

The current mandate is to deliver paper free across the supply chain, and with the recent approval of the e-AWB standard as an industry Recommended Practice, the implementation of the e-AWB means the freight forwarder does not have to present a copy of the Air Waybill and is therefore not transported within any sector of the supply chain. The Air Waybill will continue to be paper free as printed copies of the messages or of the cargo receipt may be used by stakeholders.

8.3 Scanning

Scanning is an interim stage for moving the physical transportation of documents until the equivalent electronic message standard is agreed and implemented, and is exchanged in an e-freight transaction. Scanning is a labour intensive process for some stakeholders and may limit their ability to increase penetration and locations.

9 Implementation

Once the location has been endorsed as ready to implement e-freight, IATA initiates, together with the local lead airline, a programme to implement IATA e-freight in the main airport.

The goal of that implementation is to write the location IATA e-freight To-Be business process and Operational Procedures (e-FOP) that will be used by all stakeholders conducting IATA e-freight in that location, as well as form the basis to expand IATA e-freight to other airports in that location. This is done using the generic IATA e-FOP, the IATA To-Be business process and the IATA business rules, which set the guidelines on how to operate IATA e-freight globally.

The outputs of this implementation phase are:

- The location To-Be business process and location e-FOP, which describe specifically how to implement IATA e-freight in that particular location
- The successful go-live of IATA e-freight in that airport with an initial set of stakeholders

IATA e-freight Implementation stays directly engaged for a period of six to twelve months which allows for successful implementation of e-freight capability. This period of engagement will reduce as the implementation model is refined as further implementations are completed.

Implementations follow the life cycle below:

- The location is deemed e-freight ready;
- IATA e-freight Implementation engages with location stakeholders. A location governance is created: and e-freight Management Group (eFMG) to steer the project locally and Business Working Group (BWG) to define under guidance from IATA Implementation the local To-Be business process and e-freight Operating Procedures (e-FOPs)
- IATA e-freight implementation leads the stakeholders through the implementation methodology . The detailed steps of this methodology are described in the IATA e-freight Handbook which can be accessed freely on the IATA public website.
- The stakeholders Go Live with e-freight in their location (i.e. the first e-freight transaction is performed between that location and another location that is already e-freight capable). At that stage the location is deemed 'e-freight capable'.

After the implementation is deemed successful, the local stakeholders, under the guidance of the local governance group (eFMG) which is typically chaired by the local lead airline, will be responsible for



encouraging adoption and penetration of e-freight locally. IATA will provide support via a set of tools and initiatives and its own resources, both in terms of central project resources and local country resources.

10 Penetration of e-freight:

This is measured and reported by the project team, utilising the **Message Improvement Program (MIP)** reporting structure system, capturing the relevant data for all documents in scope for e-freight shipments. It reports on the stakeholders that have adopted e-freight and the penetration, i.e., the volume of e-freight shipments.

As the capability of the e-freight network continues to be built the project will start to focus on the strategy to increase e-freight market penetration. The penetration of e-freight is likely to be managed centrally by IATA via various tools and initiatives, including campaigns and engagement activities, as was the case for the e-ticket project. However, the implementation of these initiatives will be a shared responsibility of IATA and the local stakeholders, with active involvement from the local governance bodies (eFMGs and BWGs).

The project is in the process of finalizing its strategy to drive the penetration of e-freight. This strategy will be communicated by the end of 2010.