The purpose of this publication is to promote awareness of the air cargo and mail supply chain, with an emphasis on the related security and facilitation procedures developed by the International Civil Aviation Organization (ICAO) and the World Customs Organization (WCO).

The intent is to provide a better understanding of supply chain security for those who work in the cargo field, and more broadly, anyone who might benefit from knowing more about international air cargo and mail security standards.

This document familiarizes readers with the roles and responsibilities of all entities involved in the air cargo and mail supply chain. The various operational aspects, security factors, facilitation processes and documentation of that supply chain are all covered.

The reader will gain an understanding of the applicable regulatory frameworks and efforts made by international civil aviation and Customs authorities to support information sharing and continued development of a secure air cargo industry. These provisions and activities enhance the movement of goods by promoting effective end-to-end supply chain security.
Aviation security measures are necessary to safeguard international civil aviation against acts of unlawful interference. In view of attacks on civil aviation committed or attempted by concealing improvised explosive or incendiary devices in consignments, it is essential to remain vigilant and apply measures that secure air cargo and mail.

Vulnerabilities in cargo and mail security can provide perpetrators with a medium of attack. There are two main threats: placement of an improvised explosive or incendiary device in cargo or mail to be loaded on an aircraft, and seizure of a commercial aircraft which is then used as a weapon of mass destruction.

The capacity of the cargo and mail industries to address such threats in a highly complex operating environment can be made more difficult by the multiplicity of entities involved in the air cargo supply chain. This publication identifies the roles and responsibilities of these various entities and highlights how they can work together effectively to secure air cargo and mail.

In securing cargo and mail, there was a need for ICAO and the WCO to develop and maintain regulatory frameworks that provide security, while facilitating the movement of goods.

ICAO, the WCO and industry stakeholders are focused on enhancing and maintaining these global regulatory frameworks, which serve to secure air cargo and mail while promoting world trade through the expeditious movement of goods around the world.

This publication is destined for a broader audience and for information only. It is neither a legally binding document, nor does it constitute a manual, nor standards or guidelines.

For the purposes of this publication, the term “air cargo” is understood to include mail.

The ICAO Global Air Transport Outlook (GATO) to 2030 summarizes the latest and most expansive passenger and freight traffic forecasts ever produced by ICAO. Designed to help regulators and the aviation industry respond to evolving passenger and shipper needs over the next 20 years, the publication also includes forecasts of corresponding aircraft movements and extended global forecasts of passenger and freight traffic to 2040, in support of greenhouse gas emissions analyses.

This unique document benefits from an expanded system of routes and more sophisticated econometric techniques, as well as the worldwide expertise of ICAO and the extensive data provided by its Member States.
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Message from the Secretary General

As a specialized agency of the United Nations dedicated to developing and implementing global standards for all aspects of civil aviation, including air cargo and mail security, ICAO is acutely aware of the role that collaboration plays in overcoming challenges. One of our goals is to improve air transport security while facilitating the timely movement of goods on which world trade depends. This ambitious undertaking can only be achieved through a collective effort by the key stakeholders.

The global air cargo system is a complex, multifaceted network for transporting vast amounts of freight, packages and mail on both passenger and all-cargo aircraft. The world’s airlines transport more than 50 million tonnes of freight and mail annually and more than a third of the value of world trade relies directly on air transport and related trade volumes are expected to grow over the long term. The sheer size and economic significance of all this activity underscores the scale of the challenges before us and highlights the need for greater cooperation.

This new publication is a product of such cooperation and has been developed jointly by ICAO and the WCO to promote better awareness of the air cargo and mail supply chain. Reflecting a strong focus on areas of common interest, it will benefit the entire air freight community and all intermodal businesses and stakeholders.

As ICAO pursues its air cargo security and facilitation objectives, working closely with the WCO will help produce further synergies that will allow us to improve aviation security and streamline processes that could otherwise inhibit the flow of goods.

We very much value our partnership with the WCO and look forward to intensifying our collaboration in the years ahead.

Raymond Benjamin
The detection of explosives concealed in air cargo packages in October 2010 was a reminder to the international community that the global trade supply chain is still vulnerable to disruption, whether by terrorists, organized criminal gangs or others involved in illicit activities. Fortunately, the plot was foiled through the exchange of intelligence by authorities and resulting collaboration between various public and private agencies, including Customs.

Recognizing the important role that strengthened partnerships between the international Customs, transport and trade communities can play to deter such plots in the future and protect the vitality of the global economic system, and conscious of remaining responsive to world events, the WCO and ICAO, in cooperation with IATA and other stakeholders, have been actively considering ways and means in which air cargo security can be tightened and weak links in the global trade supply chain re-enforced.

Besides meetings of technical experts at WCO Headquarters and joint WCO-ICAO conferences to enhance air cargo security and facilitation, the WCO and ICAO decided to produce this brochure for all actors in the international air supply chain.

Providing key information on security and facilitation measures implemented by the WCO and ICAO, the brochure will also support national efforts by Customs and its aviation partners to ensure the end-to-end security and facilitation of air cargo across the globe.

Kunio Mikuriya
The air cargo supply chain is a combined set of interconnected parties, locations, procedures, and information exchanges that enables cargo to move from its origin to its destination by air. All parties have a shared responsibility to ensure that air cargo moves safely and securely through this chain.

The air cargo supply chain is initiated by a seller (or ‘shipper’) and buyer (or ‘importer’ in the context of international trade) who wish to exchange goods between them via air. Many of these terms are used interchangeably in common usage; for example the term consignor is commonly used to describe the shipper.

The shipper is the entity responsible for manufacturing and/or selling goods, and can be referred to as the exporter or the trader. The shipper will often engage the services of a broker or agent to manage the movement of the goods, including meeting the requirements of regulatory border agencies (e.g. Customs).

The shipper deals in a commercial sense at the other end of the supply chain with the buyer, or the importer in the case of international trade. The person who initiates the shipment may manufacture the goods or simply buy them for resale. The shipper (or ‘exporter’ in the context of international trade) fulfils the procedures and information exchanges related to the buying and selling of goods. The shipper will often engage the services of a broker or agent to manage its regulatory business, in particular the preparation of a goods declaration for Customs, but also the many potential licences, permits and certificates that can be required by other border regulatory agencies.

Air Cargo Supply Chain Overview

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Roles and responsibilities (continued)

Freight forwarding services also include logistical services with modern information and communication technology in connection with the carriage, handling, or storage of goods and, de facto, total supply chain management.

For air cargo shipments, a freight forwarder normally books and contracts with an aircraft operator in the form of an air transport service agreement from the airport of departure to the airport of destination. The freight forwarder will then proceed with the shipment from its warehouse or another location and deliver it directly to the aircraft operator or its representative. This process normally starts well before Customs export formalities have been resolved.

A forwarder’s prime responsibility is to safeguard the interests of its customer, the consignor or shipper. Freight forwarding entails working closely with aircraft operators in order to book space on aircraft for consignments that are ready for travel, for which air transport contracts are concluded and air waybills are issued. Freight forwarders are often located landside, but some may operate, or even own, warehouses that are located airside or at a space in between.

Ground handlers

Ground handlers are subcontracted and act on behalf of freight forwarders and/or aircraft operators. This occurs when the freight forwarder or aircraft operator does not have the necessary facilities. Ground handling services can include the provision of warehouses to accept, handle, prepare, and tag cargo and mail, as well as loading/unloading, transit, and storage of cargo and mail. Ground handlers are responsible for dealing with operational aspects, based on the instructions of freight forwarders and aircraft operators. Once a consignment is ready for shipment, the freight forwarder will release the cargo and instruct the ground handler to deliver it to the aircraft operator.

Ground handlers are often located on airport premises, either airside or at the frontier between landside and airside, though they may also be located landside.

Designated Postal Operator

A Designated Postal Operator is any governmental or non-governmental entity officially designated by a Universal Postal Union (UPU) member State to operate
postal services and to fulfil the related obligations arising out of the UPU Acts, including the universal postal service obligation. Mail is defined as all postal items conveyed by designated postal operators under the conditions of the UPU Convention, its Regulations and UPU technical, messaging and security standards.

Designated postal operators conduct business with aircraft operators for the conveyance of mail, and apply security controls to mail, including screening, as required by the appropriate authority, and in accordance with the Universal Postal Union Convention.

The confidential nature of correspondence is generally protected by State legislation, which may prohibit the opening of mail receptacles or restrict the use of some screening methods. It may also require that mail be treated differently than cargo consignments.

**Aircraft operators**

Aircraft operators, also known as airlines and air carriers, provide air transportation for goods. A transport contract (air waybill) binds an aircraft operator with the relevant contracted parties for the safe and secure transport of cargo and mail from one location (e.g. the airport of departure) to another (e.g. the airport of arrival).

The air cargo may be transported on passenger aircraft or all-cargo aircraft. In some instances, particularly for short distances, aircraft operators may also transport air cargo by road. The transport contract remains an air waybill, however, and the road segment is considered as a flight, with a designated flight number. This type of operation is known as a ‘road feeder service’.

**Express carriers**

Express carriers combine the work of a broker, haulier, freight forwarder, ground handler, and aircraft operator into one single company or group, which is why they are also sometimes referred to as ‘integrators’. Express delivery has thus become a specific business model in the cargo industry. Express carriers manage end-to-end multimodal supply chains spanning 220 States and territories. They operate sophisticated track-and-trace information technology systems, which allow them to monitor the progress of an individual shipment through their chain, from pick up to delivery. Express carriers typically transport high-value-added, time-sensitive cargo, with a time-definite delivery.

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**Figure 2 - The Express Model.**

- **Consignor - Shipper**
- **PICK UP**
- **Local Station Origin**
- **Country Gateway Outbound Export Clearance**
- **DEPARTURE ARRIVAL**
- **EXTRA TASK**
- **Hub**
- **DEPARTURE**
- **Country Gateway Inbound Import Clearance**
- **IMPORT**
- **TRANSIT**
- **Local Station Destination**
- **DELIVERY**
- **Consignee**

Owned and Operated by the Express Carrier

Time Definite Delivery (overnight to 72 hours)
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Figure 2 - The Express Model.
The ICAO regulatory framework for the air cargo secure supply chain was not established at once. Rather, ICAO proceeded in a step-by-step manner to develop the security Standards that constitute the foundation of the current air cargo secure supply chain.

Aircraft operators

ICAO has created a set of Standards for determining the security controls, including screening where practicable, to be applied to all cargo and mail prior to loading on to an aircraft engaged in commercial operations.

In principle, as shown below, the aircraft operator could bear the entire responsibility of applying security controls, including screening of 100 per cent of cargo and mail before loading of cargo and mail onto an aircraft.

While screening all passengers and their baggage at the last moment before departure is feasible, the same principle does not apply to air cargo and mail because aircraft operators cannot systematically screen all pieces of cargo and mail immediately before departure.

The challenges are further detailed in the call-out box on the following page.

ICAO, Member States, and industry stakeholders have worked jointly to design the ICAO air cargo security Standards and to adapt them to operational constraints and reality. A global secure supply chain approach to air cargo and mail could be achieved by applying security controls at the point of origin. The implementation of the secure supply chain is an efficient solution, built on a risk-based approach that meets the following objectives:

- respect existing obligations of businesses operating in the air cargo supply chain;
- share costs and responsibilities among all stakeholders and allow cargo to be secured upstream in the supply chain to reduce the burden of security controls imposed on aircraft operators;
- facilitate the flow of cargo transported by air and reduce or limit possible delays generated by the application of security controls;
- apply appropriate security controls for specific categories of cargo that cannot be screened by the usual means due to their nature, packaging, size or volume; and
- preserve the primary advantages of the air transport mode: speed, safety and security.

Figure 3 - Security controls applied by aircraft operators.
To offer this secure supply chain approach, ICAO and Member States developed Standards in Annex 17 [Security] to the Chicago Convention introducing the regulated agent and known consignor regimes. These allow security controls, including screening, to be applied upstream in the air cargo supply chain, by entities approved to act as such by the appropriate national authorities, avoiding unnecessary duplication of security controls. Entities approved by the national authority ensure that cargo and mail to be carried on commercial aircraft are protected from unauthorized interference from the point where screening or other security controls are applied until departure of the aircraft.

The implementation of the secure supply chain reduces the burden on aircraft operators while facilitating the processing of secure cargo when it arrives at an airport.

**Regulated agents**

A regulated agent is a freight forwarder or any other entity, e.g. ground handler) that conducts business with an aircraft operator and provides security controls that are accepted or required for cargo or mail by the appropriate authority.

The regulated agent concept allows aircraft operators to receive cargo already secured from an entity approved by the appropriate authority, i.e. the regulated agent, that accounts for the security status of consignments.

Once approved as a regulated agent, an entity may conduct security controls on cargo, including the screening of goods. Candidates for regulated agent status must meet specific requirements determined by the appropriate authority. The regulated agent must develop and maintain a security programme that describes all the security measures implemented on the premises and during all operations to secure cargo and maintain its security until delivery to the next entity. Such measures should include, inter alia: access control to secure areas; monitoring of premises; protection

**Challenges inherent in screening cargo at the last moment before being loaded on to an aircraft:**

- Immediately before departure, cargo is already palletized, and it is not possible to screen it in its entirety without breaking up the pallets;
- Each airport or airline has a different and limited choice of screening methods and equipment available;
- Certain parcels and/or consolidated consignments are too large for conventional X-ray screening, which is one of the most common screening methods applied at airport premises;
- The packaging of parcels can render them difficult to screen at an airport;
- Tonnes of cargo are prepared for each individual flight and there are only brief windows of time before scheduled departures. Screening of all cargo by the aircraft operator at the last moment before departure could slow down the flow and impact the competitiveness of air transport; and
- Due to the diversity of the nature and content of cargo, the best available screening method must be selected. Security operators may need to employ several methods to clear some items, which can be time consuming, and not always available on airport premises.
Regulated agents (continued)

and surveillance of cargo against unauthorized access; description of the persons entitled to access the premises; screening processes; delivery and reception processes; security training for all staff who may access the premises; and monitoring of subcontractors.

While the application of security controls by a regulated agent facilitates the movement of goods, one issue remains to be resolved: how to render air cargo secure when its nature or packaging does not allow for efficient security screening with conventional methods available at regulated agent or aircraft operator premises?

The implementation of the known consignor regime is able to answer this need, offering the possibility to conduct efficient security controls at the manufacturing/assembly/packing stage that are adapted to the nature of cargo, including in such cases where the nature of the goods does not allow for screening later in the supply chain.

Known consignors

A known consignor is an entity approved as such by an appropriate authority, or an entity authorized to act on its behalf, which renders it able to confirm and account for the application of security controls on cargo shipped by air. An entity may act as a known consignor when it originates cargo or mail for its own account and when its procedures meet common security rules and standards sufficient to allow the carriage of cargo or mail on commercial aircraft. Once a known consignor has accounted for the security status of cargo, the consignment has to be delivered to another approved entity, such as the regulated agent, or directly to the aircraft operator in order to ensure and guarantee the secure status of cargo.

In order to be designated as a known consignor, an entity such as a manufacturer or assembler should demonstrate compliance with the known consignor security programme under which business will be conducted, as recognized and approved by the

Figure 4 - Security controls applied by regulated agents.
appropriate authority, or by a regulated agent, aircraft operator, or other entity authorized by the State to act on its behalf. Known consignors should apply for designation, approval or listing by the appropriate authority at regular intervals that should not exceed five years. Their placement in the supply chain is shown in Figure 5.

**Consignment Security Declaration (CSD)**

Further details are available in:
*Air Cargo Supply Chain and Associated Documents, page 16*

All along the supply chain it is crucial to share information about the security status of cargo and mail to ensure that everything that needs to be secure or re-secure, is properly identified and screened. The final objective is to have 100 per cent of cargo and mail secure before being loaded on to an aircraft.

Therefore, an entity that renders cargo secure should issue a Consignment Security Declaration that reports the security status of the cargo and mail and displays other important security information. Such information is transmitted to each party involved later in the secure supply chain in order for them to apply the appropriate security measures to the consignment and protect it from unauthorized access.

Upon acceptance of a consignment, a regulated agent or an aircraft operator will automatically refer to this CSD in order to determine the way to handle, prepare, store and, if needed, screen the cargo. The CSD should only be issued once the appropriate security controls, which may include screening, have been applied. If no security status is indicated, or no consignment security declaration is issued, it should be deemed that no security controls have been previously applied. The CSD should be completed at each step along the secure supply chain, to indicate that another authorized entity acting within the secure supply chain is taking responsibility for the security status of the cargo.

Only entities accredited by a State as regulated agents, known consignors, or aircraft operators are entitled to issue or complete such a declaration, and their unique identification number should be recorded, thereby activating their responsibility and administrative accreditation. The CSD can be transferred either as a hard copy or in an electronic format. In the express business model, the relevant cargo security information is usually available in in-house information technology systems.
The WCO SAFE Framework of Standards is the Customs instrument covering all modes of transport, to secure and facilitate goods moving through international supply chains. The framework has both national and international implications, and is composed of distinct standards that call for:

- partnerships to be established between Customs administrations, between Customs administrations and the private sector, and between Customs administrations and other government agencies at borders;
- harmonized electronic advance information requirements for conducting risk assessments to address security threats;
- the use of modern, non-intrusive inspection equipment;
- the introduction of Authorized Economic Operator (AEO) who, having satisfied pre-determined security standards, receive the benefit of enhanced facilitation; and
- mutual recognition between Customs administrations of their respective AEOs and Customs control procedures.

Traditionally, Customs has been responsible for implementing a wide range of government policies, spanning areas as diverse as revenue collection, trade compliance and facilitation, interdiction of prohibited substances, protection of cultural heritage, and enforcement of intellectual property laws.

This breadth of responsibility reflects the fact that Customs authorities have long been entrusted with administering matters for which other government ministries and agencies have policy responsibility, such as health, agriculture, environment, trade statistics and, in some cases, immigration.

Customs has the authority to inspect cargo and means of transport entering, transiting or exiting a State. It may even refuse entry, transit or exit in certain cases. While these powers are extensive, a holistic approach is required to optimize the securing of the international trade supply chain while ensuring continued improvements in trade facilitation. Customs therefore developed cooperative arrangements with other government agencies in a so-called coordinated border management environment.

Modern Customs processes are based on the International Convention on the Simplification and Harmonization of Customs Procedures (Revised Kyoto
Convention). Following the events of 9/11 the WCO Council adopted the SAFE Framework of Standards to Secure and Facilitate Global Trade, thereby adopting a holistic approach to the supply chain. 166 Members of the WCO have signed a letter of intent to implement it. It is kept up to date and relevant by the WCO SAFE Working Group.

The WCO’s SAFE Package brings together all WCO instruments and guidelines that support implementation of the SAFE Framework. The Package includes the SAFE Framework, the Integrated Supply Chain Management Guidelines, AEO Implementation Guidance, the AEO Compendium, Model AEO Appeal Procedures, AEO Benefits: a contribution from the WCO Private Sector Consultative Group, the Guidelines for the Purchase and Deployment of Scanning/Non-intrusive Inspection Equipment, the SAFE Data Element Maintenance Mechanism, the Trade Recovery Guidelines, FAQ for Small and Medium Enterprises, Guidelines for Developing Mutual Recognition Arrangements or Agreements and an AEO template.

The SAFE Framework is a dynamic instrument that balances facilitation and control while ensuring the security of the global trade supply chain.

**Integrated Customs control procedures**

Everything entering or leaving a Customs territory is subject to Customs control. In an integrated Customs control chain, the integrity of a consignment has to be ensured from the time the goods leave the place of origin until they arrive at the absolute final place of destination. This usually starts with advance electronic transmission of prescribed information by the exporter or its agent. This information should be lodged with Customs prior to goods being loaded on to the means of transport [or container] being used for their exportation.

A further initial transmission may be required from the aircraft operator at an agreed later stage. For security purposes, Customs usually limit their information requirements to those available in aircraft operators’ normal documentation and based on those set out in Annex II to the SAFE Framework of Standards.

Similarly, there is advance electronic transmission of prescribed information by the aircraft operator or its agent to the Customs administration at entry, followed by complementary transmission by the importer at an agreed later stage.

The WCO SAFE Framework of Standards includes provisions for any business involved in moving goods through the international supply chain to become validated by Customs as AEOs if they meet supply chain security requirements. AEOs are allowed to submit reduced data sets, which must nonetheless contain the minimum information necessary for Customs to conduct a security risk assessment.

These arrangements can be extended by the concept of an authorized supply chain in which all operational participants in a transaction are approved by Customs as meeting specified standards in the secure handling of goods. Consignments passing from origin to destination entirely within such a chain will be assessed ordinarily as low risk and can benefit from enhanced facilitation as they cross borders.
In the integrated Customs control chain, Customs carry out risk assessment for security on an on-going basis. This can commence on receipt of the initial export declaration, and be updated as further information becomes available at later stages, such as data from the cargo declaration. This on-going process avoids unnecessary duplication of controls.

At any point in the supply chain, where Customs has reason to suspect that a consignment presents a risk, they can ask for more information, carry out further enquiries, subject the goods to non-intrusive inspection, or open the consignment for physical examination. Goods are released (for export or import) as soon as all Customs formalities have been met. Customs will, within a specified time limit, notify the party having submitted prescribed information whether the goods can be loaded, unloaded or released. Consignments being moved by AEOs within a secure supply chain enjoy enhanced facilitation, such as priority treatment for examination and clearance.

Customs at the office of departure will usually take action to enable the office of destination to identify the consignment and to detect any unauthorized interference. In addition, the Customs administrations at departure and destination should agree to use an electronic messaging system to exchange Customs data. In particular, this should apply to control results and arrival notifications for high-risk consignments.

As part of the integrated Customs control chain, Customs administrations along the supply chain may have routine Customs-to-Customs data exchanges, in particular for high-risk consignments.

**Information management**

Electronic systems, which allow the exchange of information between interested parties (called cargo community systems), have been established at airports by stakeholders in the transport chain. Customs are usually participants in such systems in order to access data required for risk assessment. Modern Customs administrations use automated systems to manage security risks; seek to avoid the burden of different sets of requirements to secure and facilitate commerce; and, where possible, recognize other international standards and do not duplicate or contradict other intergovernmental requirements.

For the purpose of standard and harmonized Customs data requirements at import and export, the WCO has developed the WCO Data Model, which defines a maximum set of data for the accomplishment of export and import formalities and the electronic message formats. The Data Model includes the data necessary for Customs control and risk assessment purposes, as well as data elements required by other border agencies.
General Cargo Documents Flow

The following business process overview describes the physical flow of goods and the information flow between the different stakeholders involved in the air cargo supply chain. The figure depicts a process wherein a freight forwarder consolidates shipments from various shippers into a single consignment at origin and performs brokerage activities and delivery at the final destination.

There are 14 main documents that may be used along the entire supply chain, as described in the table below.

<table>
<thead>
<tr>
<th>Origin Freight Forwarder</th>
<th>Export Documents</th>
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<tbody>
<tr>
<td></td>
<td>1. Invoice</td>
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<tr>
<td></td>
<td>2. Packing List</td>
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<tr>
<td></td>
<td>3. Certification of Origin</td>
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<td></td>
<td>4. Dangerous Goods Declaration</td>
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</tbody>
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<tr>
<th>Export Handler</th>
<th>Export Documents</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>5. Air Waybill (MAWB &amp; HAWB)</td>
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<tr>
<td></td>
<td>6. House Cargo Manifest</td>
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<td></td>
<td>7. Export Goods Declaration</td>
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<td></td>
<td>8. Customs Release Export</td>
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<td></td>
<td>9. Air Cargo Security Declaration</td>
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<tr>
<th>Carrier</th>
<th>Import Documents</th>
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<tr>
<td></td>
<td>10. Air Cargo Flight Manifest</td>
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<tr>
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<td>11. Export Cargo Declaration</td>
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<td></td>
<td>12. Import Cargo Declaration</td>
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<tr>
<th>Destination Freight Forwarder</th>
<th>Import Documents</th>
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<tr>
<td></td>
<td>13. Import Goods Declaration</td>
</tr>
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<td></td>
<td>14. Customs Release Import</td>
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<tr>
<th>Consignor - Shipper</th>
<th>General Cargo Documents Flow</th>
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<tr>
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<td>4. Dangerous Goods Declaration</td>
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<tr>
<th>Consignee</th>
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Figure 6 - General cargo: most common document flow for customs.
Air cargo manifest

A document issued by an aircraft operator, and available in hard copy or electronic form. This document contains the details of consignments loaded on to a specified flight, and provides a list of all the air waybill and master air waybill numbers referring to the goods loaded on to an aircraft. The nature of the goods, weight, and number of pieces composing each consignment on a specified flight, and the unit of loading used, are also identified in this document.

Air waybill

A document prepared by or on behalf of a shipper that evidences the contract between the shipper and aircraft operator(s) for the carriage of goods over routes of the operator(s). Air waybills have several purposes, but their two main functions are as a contract of carriage (behind every original air waybill are the conditions of contract for carriage), and as evidence of the receipt of goods. An air waybill is the most important document issued by an aircraft operator either directly or through its authorized agent (freight forwarder), and covers the transport of cargo from airport to airport. Air waybills have eleven-digit numbers used to make bookings and to check the status of a delivery and the current position of the shipment. The first three digits are the aircraft operator prefix.

Master air waybill

Master air waybills are issued by or on behalf of freight forwarders offering a consolidation service. This document specifies the global contract between a freight forwarder (or consolidator) and aircraft operator(s) for the transportation of goods originated by more than one shipper but destined for the same final State, airport or other destination. Master air waybills are linked to several house air waybills, and the master number may be used to trace a shipment with an aircraft operator.

House air waybill

A freight forwarder offering a consolidation service will issue its own air waybill to the shipper, called a house air waybill, which may act as a multimodal transport document. This is the contract between the freight forwarder and each shipper whose goods have been consolidated. There are two reference numbers on a house air waybill, the number of the master air waybill to which it is linked and the house air waybill number itself, which is always different from one freight forwarder to another, without limitations or standard digits, and which may be used to trace a shipment with the freight forwarder.

Certificate of Origin

A specific form identifying the goods, in which the authority or body empowered to issue it certifies expressly that the goods to which the certificate relates originate in a specific State. This certificate may also include a declaration by the manufacturer, producer, supplier, exporter, or other competent person.

Customs release export

A document whereby a Customs authority releases goods under its control to be placed at the disposal of the party concerned for export (also called a Customs delivery note).

Customs release import

Same as above but for import

Dangerous Goods Declaration

Document(s) issued by the consignor or shipper to certify that the dangerous goods being transported have been packaged, labelled, and declared in accordance with the provisions of international standards and conventions.

Export cargo declaration (departure)

A generic term applied to the document, also referred to as a freight declaration, providing the particulars required by Customs concerning outbound cargo carried by commercial means of transport.

Import cargo declaration (arrival)

Same as above but for inbound cargo

Export goods declaration

A document whereby goods are declared for export Customs clearance.

Import goods declaration

A document whereby goods are declared for import Customs clearance.

House cargo manifest

A document containing the same information as a cargo manifest as well as additional details on freight amounts, etc.

Invoice

A document required by Customs in an importing State in which an exporter states the invoice or other price (e.g. selling price or price of identical goods), and specifies costs for freight, insurance, and packing, as well as terms of delivery and payment, for the purpose of determining the Customs value of goods in the importing State.

Packing list

Documents specifying which goods are in each package.
The origin freight forwarder, when acting as a Customs agent or broker, using the information received from the shipper (consignor), prepares and sends an export goods declaration to Customs. Customs releases the goods for export and notifies the origin freight forwarder by electronically sending a Customs release for export. The origin freight forwarder prepares the house manifest as well as the master air waybill and sends them to the origin aircraft operator. If not submitted by the aircraft operator, the freight forwarder may, on behalf of the operator or the shipper, submit advance security risk assessment information to destination Customs. Customs can then perform an advance security risk assessment and, depending on the results and on the State, Customs may provide an electronic response. The origin freight forwarder may send a pre-alert to the destination freight forwarder to allow the receiving freight forwarder to prepare a Customs clearance in advance.

The pre-alert may be comprised of the invoice, packing list, house waybill, house manifest, and master air waybill, or other required documents.

If a Customs agent or broker is involved, the destination freight forwarder will transmit the necessary pre-alert information to the Customs agent or broker at destination.

The origin freight forwarder presents the shipment to the origin aircraft operator who performs the necessary checks before receiving the freight as ‘ready for carriage’.

A ground handling agent can receive freight on behalf of an aircraft operator.

The origin aircraft operator transmits to export Customs an export cargo declaration and receives a response from export Customs to release the cargo for departure. The origin aircraft operator manifests the
General Cargo Documents Flow (continued)

flight and transmits at “wheels up” a pre-alert to the destination operator. This pre-alert is comprised of the flight manifest as well as the house manifest and master air waybill. Prior to flight arrival, some national Customs authorities may require the destination operator to transmit electronically a conveyance report indicating the flight identification and estimated time of arrival.

Some of an aircraft operator’s activities can be performed by ground handling agents on behalf of the operator.

At or before a flight’s arrival, the destination aircraft operator transmits to import Customs an import cargo declaration and receives a response to release the cargo to be delivered to the destination freight forwarder or other “deliver to” party. The destination freight forwarder collects the freight, where applicable, and transmits the import goods declaration (often prepared in advance) to import Customs to clear the goods (physical and fiscal release). Import Customs performs a risk assessment and, depending on the results, may request additional information from the destination freight forwarder (e.g. invoice, packing list, or other required regulatory documents).

If a Customs agent or broker is involved, the Customs clearance is performed by the agent or broker and not by the destination freight forwarder. The agent or broker may be instructed by the freight forwarder or by the importer (sometimes also the consignee).

Import Customs may transmit a response electronically to the destination freight forwarder (or other declaring parties) to release the goods for import. When the goods are cleared, the destination freight forwarder ensures that the goods are loaded on to the means of transport that delivers the goods to the final consignee or to another identified delivery place.

[Diagram of air cargo supply chain document sequence]

Figure 8 - Air cargo supply chain document sequence.
Express Model Documents Flow

The express delivery industry operates highly sophisticated and fully integrated information technology (IT) systems, allowing the processing of supply-chain-relevant data and managing of information flow ahead of the associated physical flow of cargo. These proprietary IT systems enable a fully paperless environment necessary to provide express delivery services. Express delivery companies prefer the electronic submission of required official documentation such as manifests and goods declarations. Supporting documentation such as a commercial invoice is digitized and is available for electronic submission or direct access where appropriate and requested. However, where paper-based documentation is still required by national law, these documents can be produced on demand and as required.

Figure 9 - Information flow in the express model.
International postal operations are governed by the Acts of the Universal Postal Union (UPU). Mail, in the context of this publication, is understood to mean anything that requires a Customs declaration, and excludes postcards and other correspondence. The first link in the postal supply chain is the acceptance of mail from senders in exporting posts. Senders are asked to confirm at the point of acceptance that an item does not contain anything that is dangerous or that is prohibited by the importing post’s legislation. A Customs declaration form is then attached to the item.

After further processing at exporting post facilities, including eventual examination by exporting Customs, mail is tendered by the exporting post to the aircraft operator. Every mail consignment is accompanied by transport documentation for aircraft operator purposes, and operational documentation for importing post purposes. Mail is security screened before being loaded on to an aircraft. Article 9 of the UPU Convention specifies the responsibility of the post regarding screening, security and safety.

In addition, some postal agents have been approved to work as regulated agents and are thus authorized to screen mail.

Mail is then transported to the airport serving the importing post, either directly or after passing through one or more posts in transit. It is then handed over by the delivering aircraft operator to the importing post. Import Customs then examines all incoming mail items to determine their admissibility and assess customs duties where applicable. After clearance by import Customs, mail items are operationally processed in the facilities of the importing post. Finally, they are delivered to the receiver.

The figure below provides a simplified depiction of the postal supply chain.

The movement of international mail requires three sets of information exchanges, occurring between: posts; posts and aircraft operators; and posts and Customs. Such information exchanges are increasingly based on
Electronic messages. Standardized messages have been developed for each of the three categories of information exchanges. The WCO and International Air Transport Association (IATA) have closely collaborated with the UPU in the development of post-Customs and post-aircraft operator messages, respectively.

The UPU is also collaborating closely with the WCO, ICAO and other organizations to develop a postal model that provides advance information electronically for security purposes to appropriate stakeholders. The UPU Congress in 2012 amended the UPU Convention to make the provision for such advance information mandatory.

The UPU and WCO have jointly developed CUSITM (Customs Item) and CUSRSP (Customs Response) messages. CUSITM pre-advice messages are intended to be sent from the post receiving an item to the local Customs authority. Such messages, as shown in the diagram below, provide Customs with pre-advice regarding an item, including the sender, addressee, contents, postage paid, and declared value. This information allows the Customs authority to decide whether or not an item should be held for security inspection, and whether taxes and duties should be assessed. CUSRSP messages, intended to be sent from a Customs authority to a post (usually in response to a CUSITM pre-advice message), advise the post on whether an item can be released for onward processing or whether it must be retained for security inspection or the assessment of taxes and duties.

The UPU has developed a Customs Declaration System to process electronic Customs declarations end-to-end between posts and Customs/border control. This software provides extensive functionalities to both postal and Customs/border control users. The Customs Declaration System will facilitate security controls and promote postal e-commerce.

UPU/ICAO collaboration has intensified due to increased aviation safety and security requirements. Both organizations participate in the work of each other’s security bodies, and training material for use by postal staff is being developed in collaboration with ICAO. The UPU has recently developed security standards that are modelled on ICAO Annex 17 requirements. Observance of these security standards will soon be mandatory for UPU Member States. A Memorandum of Understanding between both organizations was signed in 2009.
Role of Authorities - International Organizations

ICAO

The International Civil Aviation Organization was created in 1944 by the Convention on International Civil Aviation [Chicago Convention] to promote the safe and orderly development of international civil aviation throughout the world. This specialized agency of the United Nations serves as the forum for cooperation in all fields of civil aviation among its 191 Member States, and sets Standards and regulations necessary for aviation safety, security, efficiency, and regularity, as well as for aviation environmental protection. With the collaboration of Member States, ICAO plays an essential leadership role in the field of aviation security with the ultimate goal of enhancing civil aviation security worldwide. To this end, its efforts are focused primarily on developing and coordinating an effective global policy and legal framework in response to the evolving threat to civil aviation. The most important regulatory function performed by ICAO is the formulation and adoption of Standards and Recommended Practices (SARPs) for international civil aviation.

Aviation-security related SARPs are set out in Annex 17 to the Chicago Convention and all provisions related to facilitation are in Annex 9. A Standard is a specification to which Contracting States are obligated to conform unless they notify the impossibility of compliance, while a Recommended Practice is a specification the application of which is desirable.

WCO

Established in 1952 as the Customs Co-operation Council, the main mission of the World Customs Organization is to ensure the harmonization and standardization of Customs procedures and the development of Customs techniques in order to facilitate and secure international trade. The WCO is a setting in which governments can compare policy experiences, seek answers to common problems, identify best practices and standards, and coordinate Customs policies. The organization is also noted for its work in areas covering the development of global standards relating to trade facilitation, commodity classification, valuation, and rules of origin, as well as compliance issues, the security of the end-to-end supply chain, protection of the health and safety of people, the promotion of integrity, and sustainable Customs capacity-building initiatives.

As an intergovernmental organization, the WCO is the centre of excellence that provides leadership in Customs matters at the international level and advises Customs administrations worldwide on management practices, tools, and techniques to enhance their capacity to implement efficient and effective cross-border controls, along with standardized and harmonized procedures to facilitate legitimate trade and travel, and to interdict illicit transactions and activities. The WCO has gained a reputation as a positive force, enabling governments to attain their policy objectives through strengthening cooperation between Customs administrations, and implementing WCO instruments and international best practices, as global challenges transcend borders and call for worldwide responses. Securing trade and combating illegal trafficking and commercial fraud without disrupting...
legal trade requires a high degree of cooperation between States, and the application of uniform methods and standards which are recognized and applied by all. As a frontline border agency dealing primarily with the cross-border movement of goods, people and means of transport, Customs is best placed to ensure the security of international trade, thus contributing to national economic competitiveness.

The WCO, with its 179 Members that are responsible for processing over 98 per cent of world trade, aims to be the voice of Customs and the global centre of excellence for the development and delivery of effective, efficient, and modern Customs procedures and standards, underpinned by international cooperation, knowledge sharing, good governance and leading capacity-building programmes, thereby meeting the needs of governments and society for a better world by being visionary, relevant and indispensable.

Created in 1874 by the Treaty of Berne, the Universal Postal Union is an intergovernmental organization based in Berne, Switzerland. The rules applicable to the international postal service are given in its Convention and its Regulations, which are binding on all 192 Member States.

The UPU is the primary forum for cooperation between governments, posts and other stakeholders from the worldwide postal sector. It maintains a universal network that provides modern products and services, and works to stimulate mail volume growth and improve the quality of service for customers. National postal networks are interconnected through regulations, standards and technological applications that help ensure coherence and improve the quality of postal services throughout the world.

The global postal sector faces many challenges stemming from market liberalization, increased competition and evolving communication technologies. These challenges are changing the face of postal services worldwide. As physical mail volumes decline, new communication and information technologies and the growth of e-commerce are opening up a swathe of new opportunities. Posts today are diversifying into postal financial services, parcels and small-package delivery, logistics and postal e-services to meet these new market needs. UPU resources are being increasingly directed towards developing these new opportunities and meeting emerging challenges.

The UPU Secretariat, the International Bureau, has about 220 employees from all over the world, and oversees the work of the UPU in a wide range of areas, ranging from helping member States improve their quality of postal services to developing postal e-services and managing relationships with international Customs, aircraft operators, and standardization bodies to speed up the dispatch, processing and delivery of global postal services. The UPU recently launched the .post top-level sponsored domain, a secure internet space for the postal industry to interconnect and secure global postal services, creating a new territory for the exchange of mail and new advanced digital postal services. The development of .post and the concurrent development of e-commerce are expected to boost postal traffic.

The UPU also has a long tradition in the areas of safety and security, which have their first origins in Customs controls. International mail has been subject to Customs controls since the time organized mail services were first established. Traditionally, individual postal packages and parcels have always been scrutinized at the point of acceptance for Customs purposes. With the advent of organized terrorism in the 1970s and early 1980s, postal security efforts were mainly directed towards the identification and elimination of explosives in the mail. Today, postal security units the world over work in cooperation with national law enforcement agencies to protect employees and customers, protect assets and revenue, and preserve the integrity of the mail. In response to the need to strengthen postal safety and security efforts worldwide and foster the development of a robust security culture within the global UPU community, the UPU established a Postal Security Group in 1996. The UPU also collaborates with other international and intergovernmental organizations to ensure that mail remains safe for transport.
Role of Authorities - National Authorities

Aviation Security

The appropriate authority for aviation security is usually the Ministry of Transport or the Directorate General of Civil Aviation (Civil Aviation Authority). The appropriate authority has several responsibilities and tasks aimed at implementing SARPs at the national level. Further, the appropriate authority devises air cargo policies and regulations to comply with international obligations, and to effectively manage the risk to the air cargo supply chain, bearing in mind known threats and vulnerabilities, with threat assessment provided by national intelligence assessment agencies.

The appropriate authority is responsible for approving, through a designated process, the regulated agent status of candidate entities. The appropriate authority ensures that the regulated agent security programme fully conforms to applicable regulations in force at the national level and provides for a satisfactory level of security for all cargo to be loaded on to an aircraft.

If the security programme is considered satisfactory, the appropriate authority conducts an on-site verification of the implementation, effectiveness and efficiency of the security measures detailed therein. Following successful validation, the entity is considered to be a regulated agent for a limited period of time. The appropriate authority continues its oversight in order to ensure that the security programme is updated as needed and that the level of implementation of security measures is maintained throughout the period of validity of the regulated agent agreement. To that end, it may exercise its right to require information or documents and to conduct inspections. The appropriate authority may suspend or withdraw the regulated agent agreement if deficiencies are identified or reported, and the entity cannot act as a regulated agent until the identified deficiencies have been corrected.

States should also enact the appropriate legislation or regulatory framework that establishes a known consignor regime, defining the security requirements to be implemented by known consignors, as well as the approval and revocation process for entities wishing to operate as known consignors, and the roles and responsibilities to enable the effective implementation of a known consignor security programme.

Prior to approval as a known consignor, an applicant should be inspected by the appropriate authority (or an entity appointed to act on its behalf) to confirm that national security requirements for known consignors are implemented efficiently on site.

If an applicant meets the necessary requirements, the appropriate authority may designate the entity as a known consignor and add its name to the official air cargo database or list administered by the appropriate authority. Guidance on security requirements for known consignors, including a model known consignor security programme template, can be found in the ICAO Aviation Security Manual [Doc 8973 — Restricted].
Customs

Customs is the State authority responsible for collecting and safeguarding Customs duties and for controlling the flow of passengers and goods, including animals, transport conveyances, personal effects and hazardous items in and out of a State.

Customs enforces the rules and regulations related to the prohibited or restricted import or export of goods, and is well-positioned to play a role in coordinated border management, involving cooperation among all relevant authorities and agencies concerned with border security and regulatory requirements that apply to passengers, goods, and conveyances moved across borders. Within the coordinated border management framework, States have set up Single Windows as facilities that allow parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements.

Not only does this facilitate trade, it also makes risk management for government agencies more effective and efficient.
ACI - Airports Council International

ACI has 573 members operating 1,751 airports in 174 countries and territories, representing over 95 per cent of global airport traffic. It is a non-profit organization whose prime purpose is to advance the interests of airports and to promote professional excellence in airport management and operations and this mandate is carried out through the organization’s multiple training opportunities, as well as the customer service benchmarking programme, a wide range of conferences, industry statistical products and best practice publications.

Airports act as facilitators within the air cargo supply chain and provide the infrastructure and facilities that enable the smooth flow of trade by air cargo carriers. The relationship between the airport operator and the air cargo carrier will depend, to a large extent, on the type of air cargo operation and the mix of aircraft operations (all cargo, express carriers, all passenger carriers) and the specific requirements of each component.

Ensuring the security of air cargo at an airport depends upon the physical configuration of the airport, the relationship between all entities operating at the airport and the regulatory framework in place for the state.

FIATA - Fédération Internationale des Associations de Transitaires et Assimilés

FIATA, in French Fédération Internationale des Associations de Transitaires et Assimilés, in English, International Federation of Freight Forwarders Associations, in German, Internationale Föderation der Spediteurorganisationen, was founded in Vienna, Austria on May 31st 1926.

FIATA today is the leading non-governmental organization in the field of transportation and logistics, representing in excess of 40,000 companies employing up to 10 million people in more than 150 countries. Its institutional Membership consists of 112 Association Members with voting rights and over 5,600 Individual members. FIATA is therefore best placed to represent the unique position of the forwarder in the global supply chain. Its members’ expertise touches on all aspects of international transport and logistics and is fostered through an autonomous training programme that is deployed in almost 100 countries.

FIATA actively pursues its mandate to define, craft and promote the role of the forwarder in international air cargo with strong efforts to improve the professional standards of forwarders in air cargo, in regards to facilitation, safety and security. All these objectives are enshrined in the FIATA statutes that are publicly available on the FIATA website (www.fiata.com) together with a wealth of additional information on freight forwarding and logistics.

GEA - Global Express Association

The Global Express Association is a non-governmental organization that represents the four leading express delivery carriers: DHL Express, FedEx, TNT Express, and UPS. GEA was established in Switzerland in 1983 as the International Express Carriers’ Conference, and has observer status with the United Nations, UPU, and the WCO. GEA participates frequently in several ICAO bodies and committees.
IATA - International Air Transport Association

The International Air Transport Association was founded in Cuba in 1945. IATA is the prime vehicle for inter-airline cooperation in promoting safe, reliable, secure and economical air services, for the benefit of the world’s consumers. The international scheduled air transport industry is now more than 100 times larger than it was in 1945. Few industries can match the dynamism of that growth, which would have been much less spectacular without the standards, practices and procedures developed within IATA.

At its founding, IATA had 57 members from 31 nations, mostly in Europe and North America. Today it has some 240 members from 126 nations in every part of the globe, representing 84 per cent of total air traffic. The modern IATA is the successor to the international air traffic association founded in The Hague in 1919, the year of the world’s first international scheduled services. Air transport is one of the most dynamic industries in the world, and IATA is its global trade organization. Over 60 years, IATA has developed the commercial standards that built a global industry.

TIACA - The International Air Cargo Association

TIACA is a global non-profit trade association representing all the major segments of the air cargo and air logistics industry, including passenger and all-cargo aircraft operators, forwarders, airports, ground handlers, road carriers, Customs brokers, logistics companies, shippers, information technology companies, aircraft and equipment manufacturers, trade press, and educational institutions.

To accomplish its mission, TIACA engages in activities that seek to improve industry cooperation, promote innovation, share knowledge, enhance quality and efficiency, and promote education. TIACA aims to inform both the public and its membership about the role and importance of air cargo, industry developments, and technical trends. TIACA engages with relevant authorities, and publishes position papers on industry issues, and the TIACA Times newsletter. The TIACA website is a valuable industry resource which contains a fully searchable database of information on industry issues. TIACA has developed research relationships with several universities through joint projects and student scholarship programmes.
Glossary

Airside

The movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is controlled.

Consignment

One or more pieces of goods accepted by the carrier from one shipper at one time and at one address, receipted for in one lot and moving on one air waybill or shipment record to one consignee at one destination address.

Consolidation

A consignment of multi-packages which has been originated by more than one person, each of whom has made an agreement for carriage with a freight forwarder. Conditions applied to that agreement may or may not be the same as conditions applied by the scheduled air carrier for the same carriage.

Usually a consolidation implies the issuing of a master air waybill to which are linked several house air waybills and a cargo manifest.

Landside

The area of an airport and buildings to which both travelling passengers and the non-travelling public have unrestricted access [non-restricted area].

Security Restricted Area

Those areas of the airside of an airport which are identified as priority risk areas where, in addition to access control, other security controls are applied. Such areas will normally include, inter alia, all commercial aviation passenger departure areas between the screening checkpoint and the aircraft, the ramp, baggage make-up areas, including those where aircraft are being brought into service and screened baggage and cargo are present, cargo sheds, mail centres, and airside catering and aircraft cleaning premises.
Aviation security measures are necessary to safeguard international civil aviation against acts of unlawful interference. In view of attacks on civil aviation committed or attempted by concealing improvised explosive or incendiary devices in consignments, it is essential to remain vigilant and apply measures that secure air cargo and mail.

Vulnerabilities in cargo and mail security can provide perpetrators with a medium of attack. There are two main threats: placement of an improvised explosive or incendiary device in cargo or mail to be loaded on an aircraft, and seizure of a commercial aircraft which is then used as a weapon of mass destruction.

The capacity of the cargo and mail industries to address such threats in a highly complex operating environment can be made more difficult by the multiplicity of entities involved in the air cargo supply chain. This publication identifies the roles and responsibilities of these various entities and highlights how they can work together effectively to secure air cargo and mail.

In securing cargo and mail, there was a need for ICAO and the WCO to develop and maintain regulatory frameworks that provide security, while facilitating the movement of goods.

ICAO, the WCO and industry stakeholders are focused on enhancing and maintaining these global regulatory frameworks, which serve to secure air cargo and mail while promoting world trade through the expeditious movement of goods around the world.

This publication is destined for a broader audience and for information only. It is neither a legally binding document, nor does it constitute a manual, nor standards or guidelines.

For the purposes of this publication, the term “air cargo” is understood to include mail.

The ICAO Global Air Transport Outlook (GATO) to 2030 summarizes the latest and most expansive passenger and freight traffic forecasts ever produced by ICAO. Designed to help regulators and the aviation industry respond to evolving passenger and shipper needs over the next 20 years, the publication also includes forecasts of corresponding aircraft movements and extended global forecasts of passenger and freight traffic to 2040, in support of greenhouse gas emissions analyses.

This unique document benefits from an expanded system of routes and more sophisticated econometric techniques, as well as the worldwide expertise of ICAO and the extensive data provided by its Member States.
The purpose of this publication is to promote awareness of the air cargo and mail supply chain, with an emphasis on the related security and facilitation procedures developed by the International Civil Aviation Organization (ICAO) and the World Customs Organization (WCO).

The intent is to provide a better understanding of supply chain security for those who work in the cargo field, and more broadly, anyone who might benefit from knowing more about international air cargo and mail security standards.

This document familiarizes readers with the roles and responsibilities of all entities involved in the air cargo and mail supply chain. The various operational aspects, security factors, facilitation processes and documentation of that supply chain are all covered.

The reader will gain an understanding of the applicable regulatory frameworks and efforts made by international civil aviation and Customs authorities to support information sharing and continued development of a secure air cargo industry. These provisions and activities enhance the movement of goods by promoting effective end-to-end supply chain security.