

Subject: Tourism & Hospitality

Production of Courseware
e-Content for Post Graduate Courses



Paper 8: Cargo Operations and Management

Module-08: Miscellaneous topics related to Cargo



THE DEVELOPMENT TEAM

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ITEMS	DESCRIPTION OF MODULE
Subject Name	Tourism & Hospitality
Paper Name	Cargo Operations and Management
Module No.	8
Module Title	Miscellaneous topics related to Cargo
Objectives	To become familiar with the various concepts and terminologies of cargo.
Keywords	Export forwarding process, Cargo booking, Cargo scanning, automation, Cargo Law, Insurance, Claims.

TABLE OF CONTENTS
1. Learning Outcome of module
2. Introduction
3. Outgoing or export forwarding process
4. Cargo booking procedures
5. Cargo scanning
6. Document automation
7. Claims & Complaint Handling, Air Cargo Law, Insurance
8. Summary

QUADRANT I

1. Learning outcome of module

After completing this module, students will be able to understand about:

- Outgoing or export forwarding process
- Cargo booking procedures
- Cargo scanning
- Document automation
- Claims & Complaint Handling
- Air Cargo Law
- Insurance



<http://dtccargopackersmovers.com/assets/img/international-cargo-img.jpg>

2. Introduction:

There are a lot of steps and formalities before a commodity or good is transported through means of air from one destination to other. A proper protocol or procedure is followed before the goods reach their destination. This module covers the various duties and responsibilities of a forwarder, the booking procedures required for the transportation of cargo, the systems and techniques used for scanning or detecting the cargo, document automation, the claims and complaints of the customers to be handled, international laws of air cargo like the

Montreal convention, and finally the insurance provisions and policies. Air cargo is any property which is carried in an aircraft. Air cargo comprises air freight, air express and airmail. The cargo has to be transported very carefully without any damage because it is a loss for both the parties that are the transporters and the customers. Therefore this process is very fragile and is performed with utmost precautions. Usually the commodities carried in aircrafts are very fragile and more vulnerable to damage and theft. Therefore it is the most significant and difficult cargo transportation means. This is not the effort of one but involvement of many intermediaries in the large process. Thus the management of air cargo has to be carefully studied before getting involved in the process. The internet growth in the recent years has phenomenally contributed to the trustworthiness and convenience of the air cargo industry.



<http://pinascargo.com/wp-content/uploads/2016/07/Sea-Cargo.jpg>

3. Outgoing or export forwarding process:

The warehouse of the forwarder is the location, where the cargo commodities (goods) are brought. Here, the forwarder plans the air cargo supply chain. Therefore, he is known as the expeditor or architect of the air cargo. He is also IATA certified and known as an agent.



<https://www.shipit.com/wp-content/uploads/2016/10/Antonov-AN-124-Air-Craft-Unloading-Freight-Air-Cargo.jpg>

A forwarder becomes an IATA certified agent, if he fulfils following conditions such as:

1. has been systematically cross- checked for financial standing
2. has adequate air cargo potential
3. has the right amenities for management of air cargo
4. has skilled human resource for managing air cargo and dangerous goods
5. receives commission from the IATA associated airlines
6. Air Waybills of the airlines may be used

The forwarder organizes the following according to the concord:

1. export handling or outgoing and clearance of customs of the shipment of customer,
2. Air transportation from the closest airport from the origin to the airport closest to the destination
3. Additionally, he handles incoming goods &also gets customs clearance at the destination
4. Finally, he delivers goods to the consignee at the destination.

The expeditor will buy room at the customer service department, and for foreign airline it is done through the airline's General Sales Agent. The GSA's are appointed to lower the cost of operations, which may result otherwise due to setting up of own sales team.



http://www.fleetlineshipping.com/images/leading_shipping_company_dubai/air_freight_forwarding.jpg

Airline Costing: The air cargo charges a fixed rate or price, generally with a least charge to cover elementary expenses of shipment. The customers or consigners, who send their commodities on a daily routine basis have booked a regular space on their routes and surely seek bargains from the airlines. The airline may also offer them unexpected prices to make sure that their aircraft capacity is fully filled. The prices and standard rules for air cargo carriage are mentioned in IATA's TACT that is the Air Cargo Tariff. The prices of air cargo greatly vary according to volumes, capacity and demand routes.

A significant element is the dimensional weight conversion. If costing is done according to weights then the lightweight and low density packages become non-profitable for freight carriers as lot of space is consumed in the aircraft in proportion to their actual size. Hence, dimensional weight is used by the air cargo, so that the tariffs are charged as per the volume occupied in the aircraft in ratio to the actual weight of the commodities to be transported. The dimensional weight is used as a standard means by the transportation industry and a minimum charge is levied per cubic room or space a package acquires. And, the volume is converted into a weight / price class.

Apart from the dimensional weight, the surcharges are also levied by the airlines in the air cargo costing. Therefore, the fuel surcharges are levied on the air-cargo for the rising fuel

prices. Also, the security charge is too levied on the total cost to cover the huge security checks and management effort permitted by the authorities. Also, from time to time there have been large discussions and arguments, whether these surcharges should be made the fraction of the total air cargo rate, as the surcharges have a propensity to exceed the actual air cargo price at times. All the airlines optimize the costly cargo volume on the aircraft, & struggle to sell at the maximum profits. This is termed airline cargo revenue management.

4. Cargo booking procedures:

After obtaining the costing the next step is doing an airline booking for the shipment and receiving the validation of the airline to confirm the room in the aircraft.



Hence, the following aspects are looked into such as:

- Assignment of the Airline or Air Waybill number.
- Origin (source) and destination (culmination location or destination)
- Category of goods (such as valuables, perishables, electronic or dangerous goods)
- number of Flight
- date of Flight
- Weight, volume and dimensions of shipment
- contact details or Issuing agent
- Number of colli
- Final consignment to the allotment of the customer

After the reservation has been ratified or confirmed based on the capacity of the airline, goods or commodities and revenue attainment standards. Then, the booking has been done and the booking process concludes. Generally, the forwarders have blocked space agreements with airlines and hence, allotment of room/space can occur in single or multiple flights or depending on date combinations, but surely the basics are same.

Recommendations for an errorless & perfect procedure of the airline and the buyer or the customer:

- The bookings should be made at the primary phase, and communication of the date & time of the cargo to be delivered at the airline's handling agent told as per the nature of goods such as valuables, perishables, dangerous goods or live animals.
- Also, the limitations of the destination airline checked as per the attributes of your commodities.
- While making a booking, avoid making options with a number of airlines for the same shipment. And, if bookings made on multiple airlines, then cancel the allocation on time as booking spaces in aircraft is a very costly affair.
- Always ask the airline in the first instance, prior to surpassing the allotments or shipment weights. As it may cause delay of your shipment or a potential air safety danger.
- Whatever commodities or cargo, a customer is transporting, he should reveal exact nature, dimensions and weight on the shipment documents.
- All the security obligations of the cargo should be as per the recommended standards. As, the cargo from the unknown shipper's

- Assure that all the significant security preparations are on mark. Cargo from doubtful or 'unknown shippers' will be unquestionably stopped.

Preparing the shipment: The House air way Bill (HWB) is made by the forwarder to keep a check on the path of the air cargo from the origin (consignor) to the destination (consignee). The House air way Bill is the transportation contract or the shipment contract from the forwarder to the end user or buyer. The forwarder do not owns an aircraft or shipping vessel. His role is to book the shipment on behalf of carrier. Hence, it is also known as a Non-Vessel Operating Common Carrier (NVOCC) or shipment consolidator. He acts as a carrier by issuing the airway bills and takes the accountability for the shipments.



<http://afcodubai.com/wp-content/uploads/2017/03/cargo-packing-inner.jpg>

Then the goods or commodities are made ready for carriage (RFC) after:

- Properly packaging and labeling.
- Export Customs clearance.
- Possessing the accurate documents and security checks for the air transportation for import handling and clearance at destination.

The forwarder amalgamates (consolidates) shipments of various shippers drifting the same airport-to-airport, as:

- Larger volumes get good airline costing due to variability in cost & selling prices.

- The blocked room agreements between the airlines and the forwarders provide continuous large volumes to the end-user by generating capacity and reliability.
- It is simple to handle consolidations for forwarders and airlines.



<http://www.hibiscus-plc.co.uk/wp-content/uploads/2017/03/Hibiscus-labels-studio40.jpg>

The following details are essential in preparing the shippers booking note:

1. Name of Shipper – Significant detail of the eventual shipper.
2. Receiver's name.
3. Category of service essential i.e. FCL (Full Container Load) or LCL (Less than Container Load).
4. The Less than Container Load i.e. LCL measurements are - the length, width and height of the cargo in metres or centimeters and the weight in kilograms.
5. If Full Container Load (FCL) Size of container. Then measurement is done in accordance to the cubic measurements of the cargo i.e. in cubic metres and the weight estimations in kilograms.
6. For perishable commodities, it is suggested that Reefer Containers are used with temperature settings.
7. The time and dates are important in case of goods (especially perishable commodities) to reach the destination depending on its assortment and the procedures involved.
8. The goods or shipments to be transported (shipped).

9. The airport of the destination where the cargo has to finally reach is essential for paperwork
10. In order to facilitate the shipment, it is also crucial to know the collection and loading destinations en-route.
11. The order no.'s or reference no.' of the shipment are also important & required.
12. The problems can also be greatly removed, if there is a provision of a contact person for any issues.
13. Lastly the requirement of Contact Numbers for all staffs involved in the exportation/importation procedures to give assistance as well as provide flawless service as possible.

All the communications has to be done clearly and properly, so as to avoid misunderstandings or change in bookings. Hence, communication between the shipper and Cargo Company is important. The booking number should also be told while communicating and a detailed account kept with regard to it. As, failure in doing so may lead to interruptions in cargo shipments.



http://www.portstrategy.com/data/assets/image/0014/162023/ps20040101_02_24.jpg

5. Cargo scanning

In the present era of globalization, the world has just become an open place for trade and transportation of cargo. But, there are also some challenges such as illegal trade through borders. Hence, the supply chain security has become an essential subject. Here, cargo scanning plays a vital role in the non-intrusive inspection of import, export and security controls. The Non-intrusive scanners significantly improve the Customs and Security functions by screening the cargo flows at both sea and land borders. As, the customs

department needs to stop the unlawful transfer of arms, drugs, additional illegal goods, and migrants.

The following aspects of cargo scanning are significant in case of air cargo:

- Assortment (selection), function (operation) and safeguard (maintenance) of non-intrusive cargo screening and related equipment.
- Designing and construction of scanning facilities
- Selection, staffing (recruitment) and preparation (training) of staff
- Training and examining (monitoring) of image interpreters
- Provision of a selectivity and risk assessment software package
- Probable augmentations to the screening capabilities to additionally boost its competence and the requirements of international conventions.
- Amalgamation (integration) of the equipment with present Customs and Security processes.
- Training of officials in the government machinery, so that they are able to handle the operations of the project at the culmination of the Concession period.

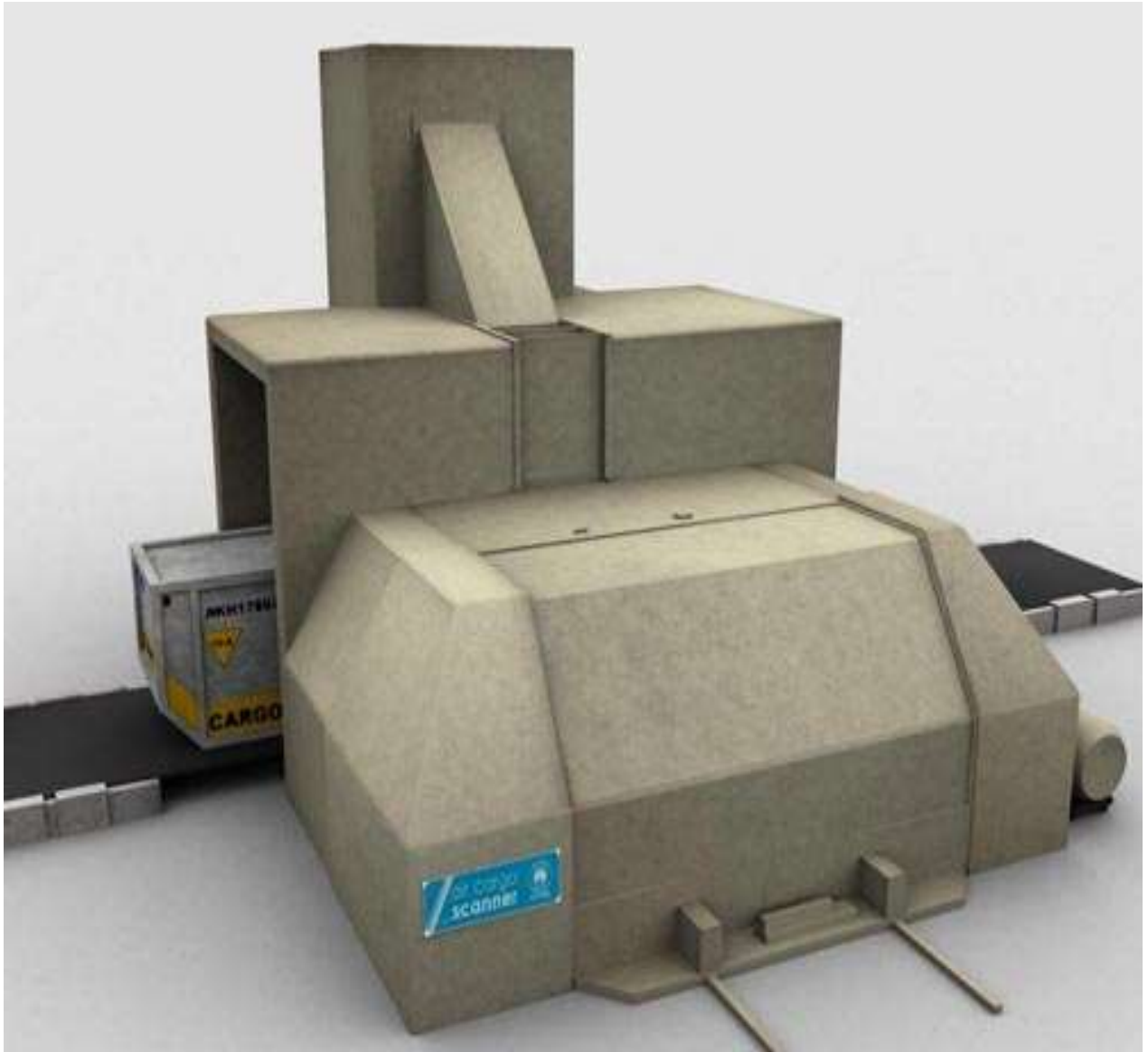
The systems which are necessary for customs controls and the necessity of global protocols are:

- Customs Management Systems (CMS)
- Radiation detection equipment
- Container Code Recognition Systems (CCR)
- Automatic Number Plate Readers

Cargo scanning or non-intrusive inspection (NII) means way of examining and categorizing the goods in transportation systems. It is for scrutinizing of shipping containers for intermodal freight services. In large number of countries, the main purpose of scanning is to categorize SNM's (i.e. Special Nuclear Materials) and other categories of distrustful cargo.

In some nations, the importance is on the authentication of type of cargo (i.e. manifest verification), tax (tariff) collection and the classification (identification) of contraband. The abundant technologies used for cargo scanning are:

1. **Radiography**
2. **Passive radiation detectors**



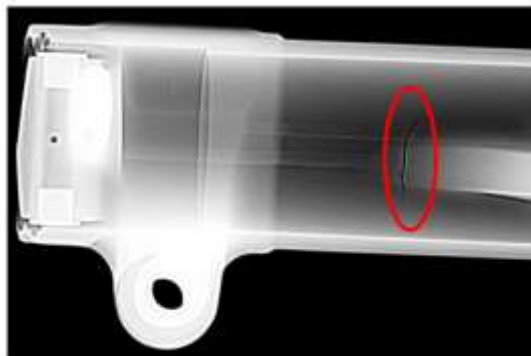
<https://csiropedia.csiro.au/wp-content/uploads/2015/01/6229713.jpg>

1. **Radiography:** which further uses various technologies such as:
 - a. Gamma-ray radiography
 - b. X-ray radiography
 - c. Dual-energy X-ray radiography
 - d. Backscatter X-ray radiography
 - e. Neutron activation systems



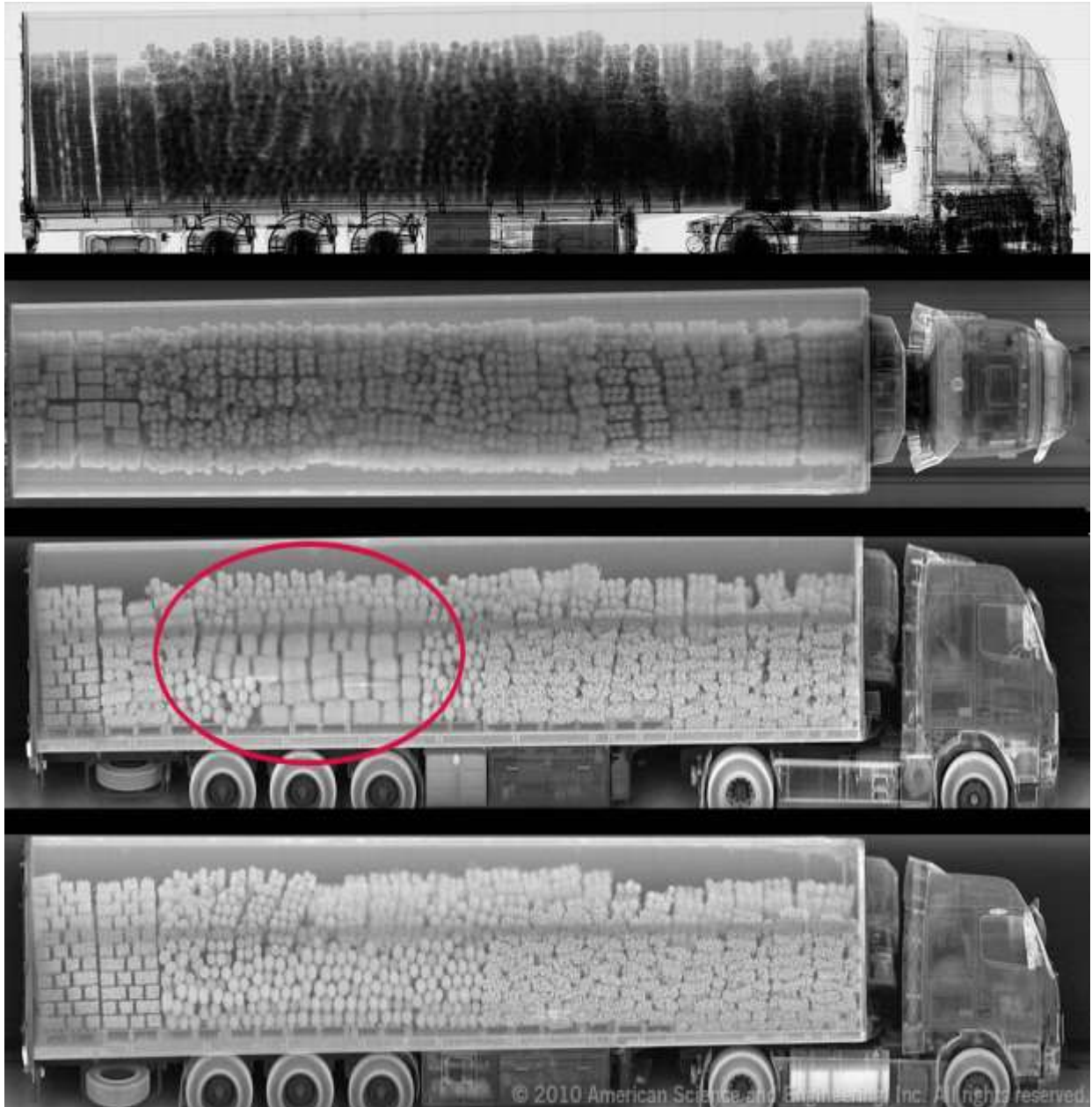
http://news.mit.edu/sites/mit.edu.newsoffice/files/styles/news_article_image_top_slideshow/public/images/2016/MIT-Passport-System-4.jpg?itok=hgy7-DNU

Gamma-ray radiography: scans the trucks using cobalt-60 or caesium-137, which is radioactive substance through a tower of gamma detectors.



https://www.farlabs.edu.au/wp-content/uploads/2013/09/fatigue-crack_aircraft_vidisco_scale.jpg

X-ray radiography: works like gamma-ray radiography. However, it uses a high-energy bremsstrahlung spectrum with energy in the 5-10 MeV range created by a linear particle accelerator (LINAC). They are suitable to identify nuclear materials.



http://www.git-security.com/sites/git-security.com/files/images/special/8245_original.jpg

Backscatter X-ray radiography: detects the radiation that reflects from the target. It is used to scan the body of air-passengers to identify hidden tools, weapons, liquids, currency, narcotics, and other contraband. It is also referred as a "body scanner", "whole body imager (WBI)", "naked scanner" or "security scanner".

Neutron activation systems: includes pulsed fast neutron analysis (PFNA), fast neutron analysis (FNA), and thermal neutron analysis (TNA). These systems are based on neutron interactions with the inspected items and examining the resultant gamma rays to determine the elements being radiated.



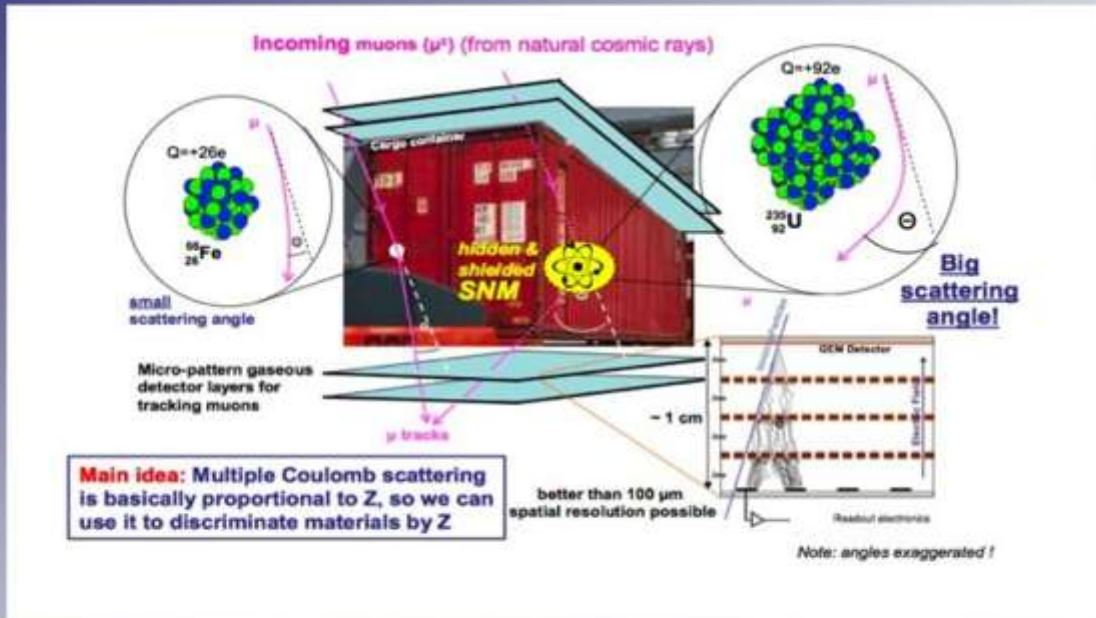
<https://mpoverello.files.wordpress.com/2013/04/decision-sciences-maintains-that-100-container-scanning-is-possible-without-bringing-trade-to-a-crawl.png?w=580&h=369>

Passive radiation detectors:

This further uses various technologies such as:

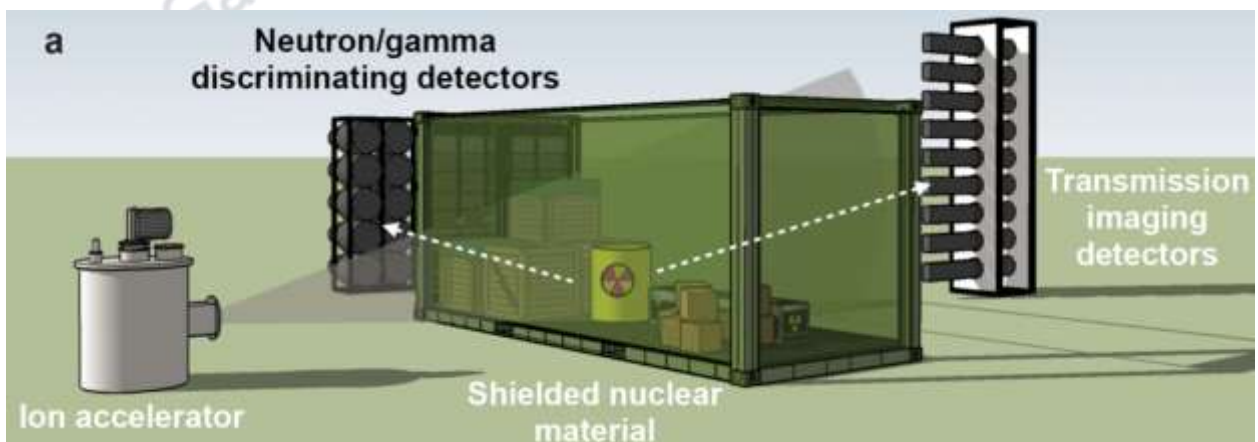
- a. Muon tomography
- b. Gamma radiation detectors
- c. Neutron radiation detectors

Muon Tomography Concept



<http://slideplayer.com/slide/7988687/25/images/5/Muon+Tomography+Concept.jpg>

Muon tomography: are used to generate three-dimensional images of volumes using the Coulomb scattering of the muons. Muon tomography can image through much thicker material than x-ray based tomography such as CT scanning. It is totally passive, manipulating naturally occurring cosmic radiation. Hence, the truck drivers and customs personnel do not have to exit from their vehicle during scanning.



<http://www.news.gatech.edu/hg/image/525861/original>

Neutron radiation detectors: use neutrons to scan the materials by the use of nuclear materials which use large amount of neutrons.

Gamma radiation detectors: some radio-active materials release gamma photons which greatly help in detection of various cargo types.



https://media.linkedin.com/mpr/mpr/AEEAAQAAAAAAAAAf_AAAAJDE0ZTQxZjFILTk4MjMtNDBhOS05ZjEzLTRiNTRiZWY3MjA3Mw
.jpg

6. Document automation:

Document automation or the document assembly is the design of systems which help in synthesizing the electronic documents. These systems are logic-based which use sections of pre-existent data or text to assemble a new document. It is used in many sectors from which, air cargo is one sector. It is used to assemble authorized or legal contracts documents, and letters. The automation systems in documents are used to automate or computerize all conditional text, variable text, and data enclosed within the documents.

The main objective of automating the documents is that the manual filling of forms is cumbersome and also the information given cannot be used to generate conclusions or reports. Hence, these template based systems greatly increase the productivity of the document and also, there is no need to fill the repetitive information. Also, their reach to each stakeholder involved in overall cargo transportation can be given instantly by the click of the button and also passed on to each party involved at every step, till the shipment reaches the destination. Also, the modern document automation systems are advance and allow customers or users to generate their personal data and set of laws not requiring programming.

The automation systems permits cargo companies to lessen data entry, decrease the time spent proof-reading, and diminish the risks associated with human error. The additional benefits include time and financial savings due to decreased paper handling, storage, distribution, postage/shipping, document loading, faxes, telephone, labour and waste.

While document automation software is used mainly in the legal, financial services, and risk management industries, it can also be used in any industry that creates transaction-based documents. A typical commercial mortgage transaction can include several documents including:

1. promissory note
2. mortgage
3. indemnity guaranty
4. trust deed
5. environmental

Some documents are too lengthy having pages up to 100 and giving lot of information and at same time asking for large number of information. Document automation has the competence to enter information without human intervention. Additionally, there can be some automation software's which have the ability to generate a document suite where all related documents are put into one file, making updates and collaboration easy and fast. Clipboard managers allow the user to save frequently-used text fragments, organize them into logical groups, and then quickly access them to paste into final documents. Simpler software applications that are easier to learn can also be used to automate the preparation of documents, without undue complexity.

A large number of documents are used in the logistic operations such as the content lists, pick tickets, invoices, arrival acknowledgement forms/reports of many types, import/export, delivery, packing lists/slips/sheets, bill of lading (BOL), etc. All these documents are characteristically the contracts between the consignee, the consignor and third parties. Document handling inside logistics, distribution centers and supply chain management is customarily accomplished by manual labour or semi-automatically by means of bar code scanners; software and table top laser printers. There are some manufacturers of high speed document automation systems that will automatically compare the laser printed document to the order and either insert or automatically apply an enclosed wallet/pouch to the shipping container.



<https://www.top50companies.co.uk/wp-content/uploads/2013/09/complaint-handling-and-claims-management-1160x665.jpg>

7. Claims & Complaint Handling, Air Cargo Law, Insurance

7.1 Claims & Complaint Handling:

The responsibility of the carrier is to deliver a shipment:

- In the alike condition (undamaged) as they were received.
- Complete in number of colli and contents.
- On the right day and time.

If the goods or cargo of the customer is not delivered on time or undelivered, then he can file a complaint.

A complaint is an authorized (official) declaration from a customer with regard to his dissatisfaction over the service or operation of the service provider. It can be given in the form of an e-mail, letter or in form of a phone call usually intended for to the customer service department of the air carrier.

On the other hand, a claim is a written grievance regarding some characteristic of the performance of an organization in relation to a service in tandem with the contract, demand or a financial compensation. Main categories of claims are:

1. *Damage*: material damage to the shipment
2. *Partial loss*: loss of an entire shipment, or some parcels from a larger shipment

3. *Theft / pilferage*: loss of items out of a parcel that is definitely caused by theft
4. *Delay*: late delivery of the shipment than the agreed delivery time

All the complaints for claims have to be done on time in conformity with the laws & regulations governing the air transport, both at national & international level. Also, it is important to mention the Air way bill number along with the flight or route in the claim. The forwarder or airline carrier always backs the shipment and other information from the IT Systems involved. The right to claim is also mentioned in the contractual conditions and applicable law.



<https://akademi.thy.com/FaalAkademi/EgitimResimleri/72.jpg>

7.2 Air Cargo Law:

The international transportation by air is regulated by international regulations such as the Montreal Convention or the Warsaw Convention. The contracting carrier in the air transportation is the main contractor & accountable towards shipper and consignee. With regard to forwarding, the contracting forwarder is the primary contractor who is accountable towards shipper and consignee for the acts and omissions in the process of the contract. In case something goes wrong in the whole contracted door-to-door transport, then the party can file a case against the forwarder.

The liability of the carrier is limited and the allowed claims are compensated with a standard amount per kilogram. Unless, the carrier has done total negligence, wilful misconduct or when the air waybill is missing.



<http://blog.amerijet.com/wp-content/uploads/2016/06/cargo-insurance-744x330.jpg>

7.3 Insurance

The customer can look for supplementary insurance policies or arrangements to safeguard its cargo as in case of losses or damages, the allowed claims will surely be lower than the actual financial losses.

International carriage by air is subject to international law as laid down in the Warsaw Convention (1929) for all countries that have indorsed this international treaty. Several amendments were made like:

- The Hague Protocol (1955)
- The Montreal Protocol (1975, and effective from 1998).

The majority of countries in the world have ratified the above laws relating to carriage of passengers and cargo. But, a small number of countries have not ratified it. Hence, the international laws related to carriage are not applicable here. But, surely, the Conditions of Contract and the General Conditions of the carrier are applied here. Hence, these conditions apply to all carriage governed by the Warsaw / Montreal Conventions as far as they do not conflict with the applicable version of the law.

Many international legislators came together in Montreal in 1999 revisiting the convention, in which several industry standards were incorporated which were issued by IATA. Hence a “neo or new Montreal convention” was recreated, according to which the domestic laws are

also applicable, till they do not conflict the international conventions such as Montreal or Warsaw. This new convention became operational on 4th November, 2003.

8. Summary:

We can see that the air cargo process involves not just one but many people in the process. Misconduct or fault of one person can affect the whole process and the air cargo industry may have to bear the loss since they will be providing the compensation to the party clients. Thus it is advisable to properly train the personnel involved in these processes. The management and safety of the goods and commodities is and should be the priority of the industry. The companies must try to fulfil the expectations of the clients so that they are not just saved from the claims and complaints but also for the continuous seek of services by the customers. The airlines are now focusing more on extremely accomplished and knowledgeable team of proficient individuals backed by training department of global status to continually improve skills of their personnel. They use LMS (i.e. Logistic Management System) for cargo activities such as cargo sales and import or export handling. IATA and ICAO are international organisations which are continuously working for the proper, secure, gainful and sustainable air cargo supply chain.

