CARGO AND LOGISTICS MANAGEMENT

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ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is

particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect. All the best for your studies from our team!

CARGO AND LOGISTICS MANAGEMENT

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Cargo and Logistics Management

BLOCK 1 : INTRODUCTION TO CARGO & LOGISTICS

INTRODUCTION TO CARGO & LOGISTICS

Block Introduction :

More than 100 years after the first propelled flight took place, the transportation of cargo by air, is still the fastest way to transfer goods from one side of the world to another. That is why it is the preferred means of transport for commercial operators at an international level.

It cannot be claimed that from where the term logistics came from but we have few claims like the term comes from the late 19th century from French word logistique (logger means to lodge). Others attribute a Greek origin to the word λόγος (lógos), meaning reason or speech; λογιστικός (logistikós), meaning accountant or responsible for counting. The Latin word 'CARRICARE' is the word which gave birth to the word "Cargo" that means "to load on a cart. Later on the meaning change to 'the goods carried by a large vehicle, Air or water ways. In modern day's terminology cargo includes goods on–board that is transported or is to be transported by vehicle however items such as personnel bags, goods in the storage, equipment or products to support the transport carried

on–board are excluded from it. This activity is mainly concerns of commercial purpose for which an air waybill, bill of lading or other receipt is issued. Due to continuous emphasis on fast and efficiency requirements air cargo business too taken into consideration as an important business for the global transport market.

These considerations enable airports to focus on cargo handling process and procedures. Air cargo operations may be on scheduled or non–scheduled. As per Indian cargo regulations, for operation outside India, the operator has to take specific permission of the Directorate General of Civil Aviation (DGCA) proving their capacity of conducting such operation.

Block Objectives :

After understanding this block learns will have knowledge and its objectives is :

- To provide the learner with a good knowledge of airfreight operations, services, management and its evolution
- To make learner understand about the regulation and ground handling operations in air cargo industry
- To comprehend the meaning of logistics and importance of its operation
- To provide general information about different components of logistics business.

Block Structure :

UNIT 01

History & Evolution of Cargo & Logistics

UNIT STRUCTURE

1.0 LEARNING OBJECTIVES :

This section describes transportation and delivery in the logistics functions and the core functions of storage and cargo handling. Storage is a typical term and easy to understand, but cargo handling can be more difficult to imagine because it involves loading and unloading at a warehouse or logistics centre, transportation, warehousing management, sorting, and assortment. We need a solid understanding of these functions because they make up a large portion of logistics costs.

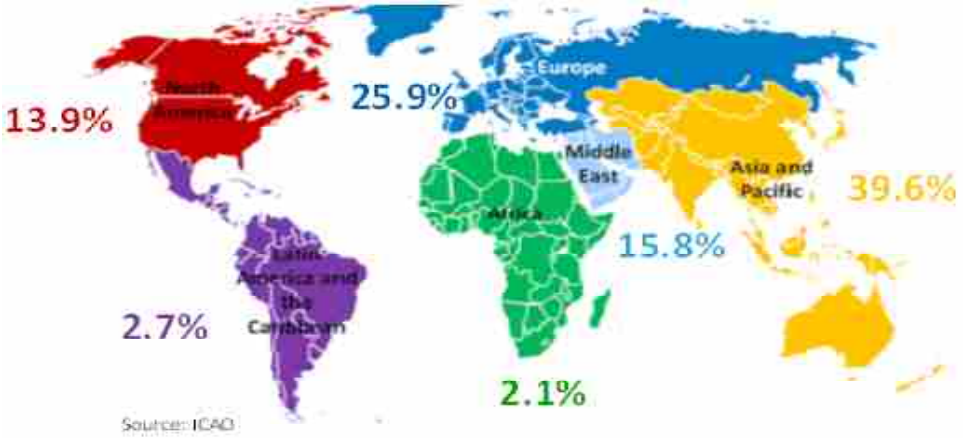
1.1 INTRODUCTION :

As we have already acquired knowledge about the basic modes of transportations viz. Air, Water, Rail and Road. The best suitable mode of transportation with their cost effectiveness is utilised for the transporting of goods. For quick transport of these goods air is best option. However shipping

cargo by air has always been a high cost shipment with fastest internationally shipped goods.

Air cargo can be defined as all cargo moved by air except for mail and passenger baggage. However, As per ICAO (International Civil Aviation Organization) Air Cargo accounts an average of 0.5 per cent of the total volume of the worldwide international trade only in 2017.

Share of International Friehgt Tonne-Kilometres by region, 2017



Air cargo plays a vital role in the network economies supporting just–in–time supply chain management that is beneficial to cut storage and inventory costs. Both freight and cargo is often used interchangeably however, the term freight is typically for goods transport by train or trucks whereas the term cargo is generally used for goods transported by ship or plane. In other words we can say, usually goods carried by larger vehicles are 'Cargo', whereas freight is typically goods carried by smaller vehicles like trucks. The differences between the two terms have become smaller in modern times and both terms are used for importing and exporting goods.

When it comes to shipping time for sensitive goods, belongings, documents and information from one place to another, Air cargo is getting priority. Growing popularity as the medium of choice Air cargo uses the fastest mode of transportation

hence it is convenience to send the goods globally. Logistics is the flow of the steps and processes viz. packaging, cargo handling, storage, transportation, distribution processing, delivery, and information. That means delivering products from company to consumers. These require high time management and also need to ensure quick and efficient delivery.

As earlier stated air cargo contributed very less share in shipment, despite the small share air cargo is growing in popularity as the medium of choice when it comes to shipping time, sensitive items, and documents globally. It enables speed delivery so it is becoming an integral as well as important part of the global logistics network chain.

1.2 HISTORIC CEVELOPMENT IN CARGO AND LOGISTICS :

As sea route was the best and convenient way for shipping goods globally, later rail and trucks were also included to carry these items to different parts. Within seven years after the invention of Wright brothers' historic first self–propelled, heavier–than–air aircraft, at Kill Devil Hills near Kitty Hawk, North Carolina. The first air cargo was just a trail which carried out in the year of 1910 in USA. This aeroplane was carrying bolts of silk which was transported from Dayton (City in Ohio) to Columbus (capital city of Ohio State of USA), a distance of 72 miles or 116 km. The interesting thing was that it was not only delivery but was also a race between an airplane and an express train, so that efficiency can be compared.

USA does not stopped here, by 1914 they started operating mail by air and by 1925 they had more extensive airmail service. Several other trail and experiments were done in British–India by carrying mails.

During World Wars Airplanes were used in transporting troops, Weapons and other supplies to long distances, so it was military activities. After the WW–I people start thinking to make planes commercially viable. Also thought of it could move volume consignments faster than other available modes like rail or roads. Earlier aircrafts were not that much sturdy or large to carry much cargo, so the air mails consisting of mail and small packages. The air freight industry continued to grow. With increasingly reliability, the aircrafts start carrying both passengers and goods in same trip. Through technological advancement, confidence in air transport improved and hence planes crossed seas.

We can say that before 50s, the condition of air cargo was not considerably good but, due to the trend of nationalization and globalization it gradually starts influencing and drawing attention to people associated with it. During this period business tendency was changing towards applying a new idea of administration of businesses.

Modern period of air freight set in motion in seventies, when DHL (Dalsey, Hillblom and Lynn) in 1969 and FedEx (Federal Express) in 1971, launch door–to–door express package services with the wide–body jet aircraft. By introduction of Boeing 747, Douglas DC–10 and Lockheed 1011 etc. larger wide–body aircraft, increase the volumes to be shipped.

Rise in petroleum price during 1973 (an increase of more than 500% within 7 months), rises the road freight cost that grew a motive of service providers to focus on transportation cost control.

During increasing globalization era (in 90s), import and export activities has become more common and trendy in order to meet demands in competitive

market at the same time. Timeliness of delivery with cost efficiency becomes central point for businesses to stand. These factors also introduced the tendency logistics alliances such as Third Party Logistics (TPL or 3PL) and globalized logistics as well in the early years of 21st century.

In country like USA, companies like FedEx started overnight shipping despite of depending on passenger aircraft where there may be limited space allocated on it. The importance of logistics has been identified and pay attention more closely by industries owners and managers as it helps production and distribution processes based on the same resources what they have, through their management techniques for promoting the efficiency and competitiveness of enterprises.The demand for air freight continues to grow gradually every yearand, if we believed on projections the volumes will more than double by 2035. Development in Businesses and competitive environmenttransportation and timely delivery become more important in order to maintain their existence.

Table – 1 : Total Air Carto Traffic and Year–Over–year Percentage Change

CARGO (METRIC TONNES)*						
2019	2018	AIRPORT	2019 total	2019 vs 2018 % change	Q1 2020	Q1 2020 vs Q1 2019 % change
1	1	HONG KONG, HK (HKG)	4 809 485	-6.1	988 000	-10.9
2	2	MEMPHIS TN, US (MEM)	4 322 740	-3.3	1 030 854	-6.8
3	3	SHANGHAI, CN (PVG)	3 634 230	-3.6	743 923	-7.6
4	7	LOUISVILLE KY, US (SDF)	2 790 109	6.4	628 942	2.2
5	4	INCHEON, KR(ICN)	2 764 369	-6.4	664 889	2.5
6	5	ANCHORAGE AK, US (ANC)**	2 745 348	-2.2	591 462	-3.5
7	6	DUBAI, AE (DXB)	2 514 918	-4.8	568 142	-14.3
8	11	DOHA, QA (DOH)	2 215 804	0.8	537 712	4.4
9	8	TAIPEI, TW (TPE)	2 182 342	-6.1	499 073	-0.3
10	9	TOKYO, JP (NRT)	2 104 063	-6.9	502 918	2.0
11	14	PARIS, FR (CDG)	2 102 268	-2.5	398 703	-15.3
12	15	MIAMI FL, US (MIA)	2 092 472	-1.8	490 760	-6.2
13	10	LOS ANGELES CA, US (LAX)	2 091 622	-5.4	459 799	-7.9
14	13	FRANKFURT, DE (FRA)	2 091174	-3.9	457 556	-11.8
15	12	SINGAPORE, SG (SIN)	2 056 700	-6.3	462 900	-7.8
16	16	BEIJING, CN (PEK)	1 957 779	-6.0	301 449	-33.3
17	17	GUANGZHOU, CN (CAN)	1 922 132	1.7	353 848	-17.7
18	18	CHICAGO IL, US (ORD)	1 758 119	-3.8	398 394	-2.4
19	19	LONDON, GB (LHR)	1 672 874	-5.6	351 222	-18.0
20	20	AMSTERDAM, NL (AMS)	1 592 221	-8.4	354 420	-8.7

***Cargo : loaded and unloaded freight and mail in metric tonnes**

**** includes transit freight**

Table – 2 : International Air Freight Traffic and Year-Over-Year Percentage Change

INTERNATIONAL FREIGHT (METRIC TONNES)*						
2019	2018	AIRPORT	2019 total	2019 vs 2018 % change	Q1 2020	Q1 2020 vs Q1 2019 % change
1	1	HONG KONG, HK (HKG)	4 703 589	-6.3	972 000	-10.4
2	2	SHANGHAI, CN (PVG)	2 825 009	-3.1	578 995	-6.5
3	3	INCHEON, KR (ICN)	2 664 005	-6.8	647 106	3.5
4	4	DUBAI, AE (DXB)	2 514 918	-4.8	568 142	-14.3
5	7	DOHA, QA (DOH)	2 173 371	0.5	529 436	4.7
6	5	TAIPEI, TW (TPE)	2 165 216	-6.1	495 048	-0.3
7	6	TOKYO, JP (NRT)	2 039 905	-7.2	484 101	1.1
8	8	SINGAPORE, SG (SIN)	2 014 100	-6.5	453 100	-8.0
9	9	FRANKFURT, DE (FRA)	1 961 460	-4.1	431 005	-11.2
10	10	ANCHORAGE AK, US (ANC)**	1 942 554	-2.5	421 429	-1.3
11	11	PARIS, FR (CDG)	1 888 497	-2.5	390 056	-15.3
12	12	MIAMI FL, US (MIA)	1 706 064	-3.7	398 498	-8.0
13	14	LONDON, GB (LHR)	1 586 865	-5.8	332 468	-18.5
14	13	AMSTERDAM, NL (AMS)	1 570 261	-8.5	349 854	-8.7
15	15	BANGKOK, TH (BKK)	1 293 589	-11.0	302 064	-6.2
16	16	LOS ANGELES CA, US (LAX)	1 272 010	-7.5	277 742	-3.8
17	17	CHICAGO IL, US (ORD)	1251111	-8.8	250 550	-8.6
18	19	LEIPZIG, DE (LEJ)	1 147 233	1.8	223 359	-0.5
19	20	GUANGZHOU, CN (CAN)	1 124 224	3.5	196 167	-11.7
20	21	NEW YORK NY, US (JFK)	956 217	-8.7	168 976	-16.2

*** International freight loaded and unloaded in metric tonnes**

**** Includes transit freight**

Source: https://aci.aero/news/2020/05/19/aci–reveals–top–20–airports–for–passenger–traffic–cargo–and–aircraft–movements/

1.2.1 Historical Development in Indian Logistic Industry

Probably Indian logistic industry has started to operate during British colonial era. First mails were transported during that time. After independence initially it was not much concerned topic for even think. During development of industries, economy and segments the feeling of transportation of goods rose. Plan for development of road transport along with the track transportation came into existence. However railway in India was developed by colonial government almost 160 years ago on 16th April 1853. The sole purpose to start this was to use in mines for carrying rock and coal. In purview of keeping industries connected at Jamalpur (Bihar) in 1862, the first Railway Workshop had been established and it gradually became one of the major industrial unit of India due to availability of minerals and ores in nearby areas. Then Delhi Junction was come into existence to connect with other part of country Howrah was among the major trading city of East India Company. Today's Lucknow Charbagh

Station, part of Northern Railway was next important station which was built in 1867 (Oudh and Rohilkhand Railway). Gradually other important trading cities too had been connected by tracks.

Today Indian railway network hold 4th position after United States (250,000 km), China (100,000 km), Russia (85,500 km) and India (65,000 km) in the world. The Indian railway network is divided into 16 zones and operates more than 9,146 freight trains carrying 3 million tonnes (MT) of freight daily from 7,349 stations.

Demand of goods across nation allowing a rapid growth in many sectors like Fast Moving Consumer Goods (FMCG), Pharmaceuticals, Automobile etc.and hence logistic sector have to develop infrastructure to meet the demand and delivery balance. Continuous demand of Indian goods such as Clothing, Gems, Precious metals, Mineral fuels, Machineries, Computers and accessories, Iron, steels, spices, tea, coffee, tobacco etc. Showing a new dimension of dominance of Indian products enabling logistic industry to reach and penetrate global market.

Just after Independence, the only interconnecting road GT road (now National Highway (NH)–1 from Delhi to Amritsar, and NH–2 from Delhi to Kolkata.) existed in the country. So the need of new infrastructure in road transportation arisen. Under the scheme Swarnim Chaturbhuj Pariyojna (Golden Quadrilateral) in which 5,846 kilometres (3,633 mi) road has been built with the objective to reduce the distance and save time to travelthe four mega cities of India.It is the largest highway project in India and the fifth longest in the world which connects Jaipur, Ahmedabad, Bengaluru, Pune, Agra, Balasore, Durgapur, Vizag, Prayagraj, Dhanbad, Vadodara etc that means East–North–West–South of India. Beside this several other road networks have been constructed and broaden time to time i.e. 4 lanes to 6–8 lane roads across the country wherever required. These roads provide ease in different dimension and fulfilling other requirements of transportation.

As we aware infrastructure is integral part of the economic development of any nation. Indian logistics industry is under development phase which is well supported by technological advancements, investment and expansion which are very important to improve efficiencies and reduction of costs. The of logistic importance have been felt by both The Government as well as the industry that is enabling collaborations among public and private sectors of the country and some MNCs seeking efficiencies in their customer satisfaction. If the things are going that way soon the country as well as its infrastructure will be developed.

At the same time, to stand with the fast–paced global practices, companies too initiated to educate, train and oriented about the industry's internal working

and communication processes to the young generation that is creating hope for creation of job opportunities. These training programmes will not only provide the youths with insight about the industry but will also help the industry with well–trained and educated workforce supply.

Indian market is showing a great potential for growth of logistic sector. That will create a great boost in the sector. The Indian logistics industry comprises of freight and transportation via all the mode viz. water, road, rail, and air, it is well equipped with other ancillary sectors like warehousing and cold storage.

Last decade witnessed a strong relationship between different nations across globe. Both domestic as well as international trade and logistics infrastructure is extensively developing that is helping to compete at competitive rates promotes trade and improves the global competitiveness of a country.

1.2.2 Improvement in Cargo and Logistic after Global Pandemic–2020 (Corona Virus Pandemic) :

The COVID–19 pandemic has brought a virtual standstill to global market that also affected aviation industry. Aviation industry is not only known for providing transportation to human being but so many other import and export activities too carried out by this means. This pandemic resulted loss in airport traffic as well revenue losses across all the corner of the world.

The pandemic has directly affected the movement, storage, and flow of goods in all across international borders therefore it impact on competitiveness, economic growth, and employment. In the modern globalized and interconnected world the transportation and logistics industry performs one of the most vital services. All borders were shut down with the objective of breaking chain of this easily spreading virus at the beginning of 2020 itself due to that the transportation and travel were extremely limited that created impediments for international trade almost in all the aspects.

After a long wait when unlock started in the non–containment areas of the country almost majority of large industry had restarted operations in a return to full production capacity is. The pandemic taught several things what human civilisation had forgotten in their busiest schedule of life. The logistic industry too has to incorporated several changes to the way people worked before and after this crisis and the air cargo industry too adapt new procedures. The best part of this is that stakeholders have adopted the changes quickly. Industry forced to reduce employee in order to balance their expenditure. At the same time it has been observe to have higher air freight rates. Loss of jobs and lack of financial activities forced the people to reduce their expenses and habit of Spend with open hand in various luxury and necessities. These factors also poured oil on the flames and well supported to create the economic recession ubiquitously. However it is hard to determine exact effect of the pandemic on global supply chains. We hopefully expected the situation to be a better growth after the situation gets controlled completely and again air cargo will play a significant role in supporting the recovery of the global supply chain and the economy.

1.3 IMPORTANCE OF CARGO TRADING AND BUSINESS :

As we are aware cargo business is depend on transporting valuables across nations. Cargo service provider companies are providing a prospect of time saving organisations which saves time for manufacturers, suppliers, as well as for consumer too. In today's fast paced and dynamic environment, industries have

been changing the way of their businesses. Technology and innovation increases production but their life cycles is shortening product and hence it reducing time to market periods so it requires quick transportation here air cargo is be best choice but for heavy loads it is not suitable alternatives such as marine transportation, rail or truck is also required.

The cargo companies operates on two different model and that's why they are called by different names both Shipping Companies as well as Freight Forwarders focus on delivering cargo as a commercial activity. Both looks same but the key difference is shipping company controls the cargo vessels from that provide delivery from the load port to the destination port whereas Freight forwarder companies provides the services with co–operation with shipping companies. Basically from Consignee and consignor point of view both are service provider for them so there is no difference for them. Will further discussed about Freight Forwarders functioning and other aspects in next blocks of this book.

The shipping liner for ocean and air cargo both ensures safe delivery of good transported. Some airlines combine both cargo and passenger operations under the same business but sometimes it may haphazard for them. Either of their service may compromise due to other. Airline may perceive it as a by–product not as an activity of revenue generation. This leads to poor service quality and they have to face weak revenues generation as well as consider as breach of trust. However as modern trends various airlines keep both the activities separate from each other so no operation could be hampered due to others.

It has been realised that by dedicating time and resources to the cargo operation gives not only more revenue but profitability too increases. In this business cargo is transported for both commercial and residential clients. Not only international but domestic shipping also provides great revenue. These companies have also tie–ups with local service providers and both the companies are getting employment for people and generating profit for themselves too. Consignor prefers to choose a company who gave them stress–free shipping by taking care of the process and required documentations at best suitable prices by keeping in mind timely delivery.

So as a freight forwarder you have to combine cargo from multiple customers to lower the costs involve on it. Careful planning and your expertise can support in this regards.

1.3.1 The Role of Logistics in International Business

The only objective of logistic is to deliver goods on time whether domestic or international. Goods are both in bulk and in small amount, sometimes raw materials are also transported that means consignee may be individual or a company.

Indian foreign trade has changed its nature over the years. Total volume of import and export has been increased in last years. Agricultural products such as Grains, Fresh Fruits and Vegetables, Processed Fruits & Juices, spices, cotton and so on. Indian products are always on demand that gives profitable option for traders in international market. Today's Vegan lifestyle has been popularised and practices worldwide that has given rise to demand of fruits like Jack–fruit as a substitute to meat. Jack–fruit is exported to many European and American countries. It is given rise and scope for Indian processing units to exports these things in global market.

International companies make sure that goods are delivered to designated location in other countries. Company identifies the best suitable transportation mode along with safety of goods to be transported. The World Bank has compiled a logistics performance index (LPI) for some countries providing logistic services across the borders. This helps in identifying areas of improvement and hence services improved it can attract more business. The WTO (world Trade Organisation) liaison the countries, interferes in trade disputes, monitors trade policies of nations, provides technical assistance and training for developing countries, and cooperates with other international organizations. It is applicable for all international business so is to logistic and cargo also.

1.4 THE IMPORTANCE OF AIR CARGO TO THE GLOBAL ECONOMY :

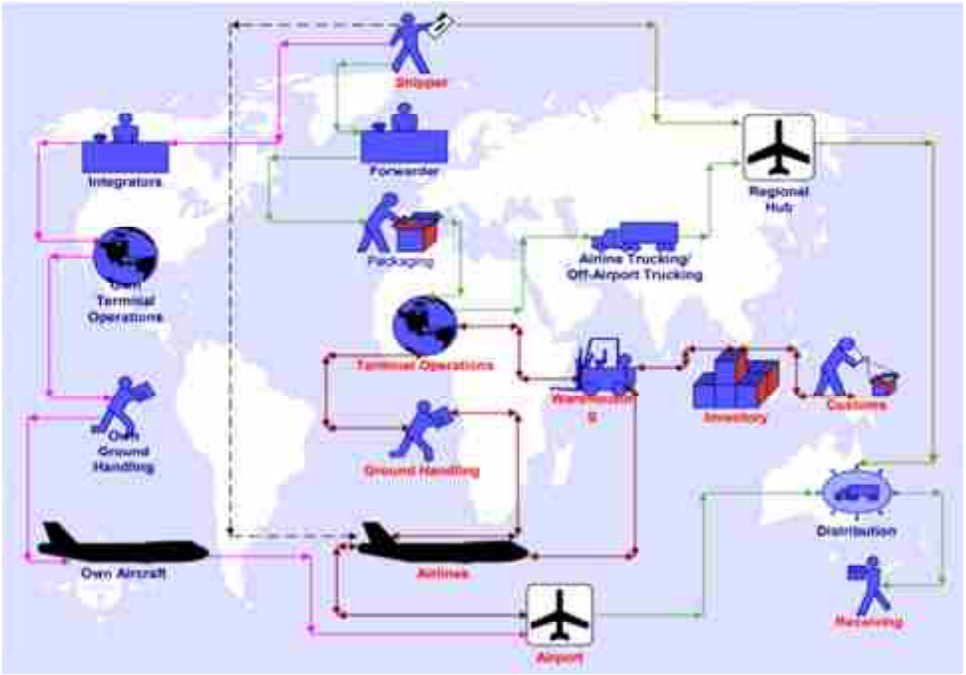
Markets liberalization, economic globalization and privatisation are very important reforms that widen area of international business and enhanced its scope. Global business is only possible due to worldwide transportation network without which it is hard or almost impossible to even think about it. The air cargo makes it possible to land lock countries too. So it plays a vital role in generating opportunities to supply goods to even these locations. By overcoming this barrier only it is possible to run companies from highly remote locations where there is availability of raw materials or unfinished good in abundant amounts. Air cargo is facilitating economic growth, particularly in developing countries.

As we know airline's revenue is not dependent only on air ticket fare but great revenue is generated from cargo. Time constraint and other cost involvement leads to send goods across the border and inside the border, gives chances to air carriage to transport consigner's good to consignee. It not only provides ease to them but also create a chance for airline transporters to generate revenue. This activity also requires human involvement so there is a chance for job creation. Business travellers are not only important as passenger revenue but it is an important resource for two or more business organisation as they are traveling for economic generation purpose. We should also take into consideration that by speedup delivery process the production is done on time and efficient production is achieved by the unit. Production is directly associated with job creation, revenue generation and more profitability. Due to timely production, customer demand is full filled and hence increased customer satisfaction. International trade regulations enable manufacturers to purchased raw materials from either country where it is economical for their process at the same time finished goods also is sent to consumer market where there is a demand.

In today's era we cannot depend on direct jobs only augmented service providers like trainers, hawkers who carries goods from remote location to airports to be carried by air cargo, packaging material manufacturers, packers and movers and so on. Other supporting jobs which have not lesser important in providing service or product have to be included in it as it also engaged people in earning their livelihood. It is not limited to developed regions but also under and developing regions.

As summary we can say that air cargo transportation contribute in economy through employment generations, ease in availability of good and low priced raw materials, supply goods to potential consumer market and so on. We further discuss it as:

- **Employment Generations :** As per International Civil Aviation Organization (ICAO) Air cargo transport is one of the major employers among many sectors. An approximate of 29 million jobs is created globally directly or indirectly due to aviation industry. With reference to estimation from its online published report 5.8 million people are indirectly engaged in related jobs which may include customer care executives, bank representatives, computer and its accessories suppliers, software developers and service providers, fuel suppliers, food and beverage, accommodation, warehousing, as well as its augmented product services.
- **Availability of Economical Raw Materials :** Air cargo options provide ease to manufacturers to avail high–quality raw materials from its place of origin at comparatively low price. At the same time the people engaged in different process can sell their materials at competitive prices. Better quality and low priced raw materials enables reduced operating/ manufacturing costs and hence they are able to sell their product at low cost with profit margin.
- **Availability of Consumer Market :** By the means of it companies' are able to deliver their goods when it is ordered on online platforms. Consumer thinks its reliability on two factors first is delivery within stipulated time and another is returning/after sales service.
- **Contribution in International Trade :** After inclusion of air cargo, it is easy for companies to operate their unit anywhere across the globe where they like to. So the companies started to operate as Multi–National Companies (MNC). Transport links was among one of the key considerations influencing international companies choose to invest. When a company operates globally it develop multiple infrastructures.
- **Customer Satisfaction :** Every service provider knows the importance of customer satisfaction in development of their business. Consumer is the end user of any product manufactured. Their satisfaction leads to generation of revenues. When a company consistently performs on time with complete and undamaged deliveries, customer's trust developed and company gain business.



1.5 CARGO BY DIFFERENT MEANS OF TRANSPORTATION :

Depending on the needs of each shipment, various modes of transportation viz. Land, Sea or Air transportation is used for transporting the cargo. It is an important consideration during selecting the shipment process. Not only cost involvement but other factors such as urgency, the value of the goods and weight and size also need to be taken into considerations.

Various types of vehicles: trailers, mega trailers, road trains, refrigerated trucks, dump trucks, platform trailers, etc. Transport modes are the means of supporting the mobility of passengers and freight. They are mobile transport assets and fall into three basic types; land (road, rail, pipelines), water (shipping), and air. So we can say there are four major types of freight transportation available for shippers to use in the world of freight shipping. The primary ones are by road, rail, ocean, and air. Although these are the main categories of freight transportation, each method has their own processes that differ from one another and have their own advantages and set–backs. Let's discuss them in brief.

1.5.1 Freight by Land :

Freight by land includes rail transport and road transport. In rail freight goods are loaded onto trains. It can be either passenger train or goods train (Malagadi) or so on whereas; trucks of different sizes are used in road transportation.

Recently, we are witnessed a global pandemic COVID–19 (commonly known by all of as corona) that impact the cargo transport adversely however, other external forces impacted the industry and have put barriers time to time. Nevertheless, Land freight transportation has kept its leading positions in the segment. High volumes of freight transportation by road are caused by several factors. Both railways and trucks can make efficient deliveries 24 hours a day regardless of airport, and port operating schedules. Now day's trucks are also equipped with flexible routing and shipment tracing options. Navigation systems GPS (Global Positioning System) and GLONASS (Globalnaya Navigazionnaya Sputnikovaya Sistema) it is Russian version of GPS which can be translated as 'global navigation satellite system' are used by transporters to give an enhanced tracking experience.

1.5.1.1 Railway Freight :

Coal, grain, cars, or containers or other commodity in large volume can be transported in one go for long distances overland only by the rail transport. Rail freight transport use railroads and trains to transport cargo as opposed to human passenger trains however passenger's train are also used to carry goods between destinations.

It is truly said that longer journeys tend to be less expensive by this mode. It is one of the most efficient overland transport types that enable to transport cargos at a long distance and using widespread railway networks. Rail freight transport remains in steady demand regardless of the global economic situation. Flatcar, Tank car, monorails, maglev etc. are used for transporting different goods.

1.5.1.2 Road Freight :

Road freight uses vehicles of all sizes, from courier bikes and vans to multi–wheel trailers to take goods from country to country or domestically on their final mile. Road cargo transportation are done as per the type of goods to be transported such as Temperature Controlled vehicles is required to carry

perishables, Tankers is ideal to carry liquids such as Milk, Water, Oil etc. Each type of truck/vehicle has its own advantages. For short–distance delivery trucks minimizes costs. Usually focus domestic cargos however it is also used to transport from various locations to ports or airports as a connecting chain.

1.5.2 Cargo by Sea :

Sea, ocean, and river can be said the first mode of transportation of goods. This mode is used since ancient times. Cargo by ship means transporting of goods across the ocean using shipping containers that are loaded onto container ships. It is one of the largest cargo operations in the world. It is estimated that every day ships carry millions of tons of cargo and crossing oceans to reach the destination in different countries and constitute around 90% of world trade volume.

It is not only cost–effective mode but ideal for large amount of goods also. However the transportation lead time is greater among all modes.

1.5.3 Cargo by Air :

Air freight uses both passenger and cargo aircraft to quickly transport shipments to all parts of the world. This is a far more time efficient method for those with tight deadlines to meet. Due to this, however, it also makes it a comparatively expensive transport method.

Intermodal and Multimodal mode is a combination mode of transportation such as rail, road, and sea. Special standardized containers are used for intermodal transport of cargo on trucks, freight trains, and ships. In intermodal transportation the freight/cargo is handled under a single bill, while in multimodal separate bills from all the carriers involved.

1.6 DIFFERENCE BETWEEN FREIGHT AND LOGISTICS MANAGEMENT :

As we mentioned earlier many people, particularly those who are not a part of the Supply Chain, will consider the terms Freight Management and Logistics Management to be synonymous

Logistics Management	Freight Management
It is overall process of managing collection, storage, and transportation of good to their final destination	It is the process of overseeing and managing a cost-efficient operation and delivery of goods.
Own all of their own assets	Depends on logistics companies
An Individual service provider	A network of multiple logistics companies
Often specialize in specific areas like cold storage, dry box, long haul etc.	Have a good understanding of logistics companies in many different specialty areas, including household goods, fragile goods, cold storage, and others
Responsible for managing goods' physical movement along the supply chain	Responsible for delivery too.
In some cases also manage documentation	Handling all of the paperwork

1.7 ADVANTAGES AND DISADVANTAGES OF AIR CARGO :

Like each coin has two faces air cargo too has both advantages and limitations.

■ **Advantages of Air Cargo :**

- **Speed :** Air cargo allow goods to reach any point in the world in lesser time than other mode of transportation.
- **Flexibility :** It provides Flexible schedules that allow any merchandise to reach its destination quickly and efficiently.
- **Loading Capacity :** Freight aircraft allow the transfer of numerous goods of small, medium and large size although its capacity is more limited than in the case of maritime or surface transport.
- **Borders :** There are lesser physical barriers or customs barriers while transporting via air.
- **Accessibility :** The plane makes it possible to reach practically hidden places such as island, where connectivity is negligible to reach so other means of transport are not be able to reach.
- **Type of Good Transported :** It is the ideal way to transport perishable, fragile goods. Medicines, organs, tissue, samples, fruits like Mango, fruit pulps, vegetables, meats, dairy, etc.
- **Security :** It is the safest for the transportation of goods.
- **Temperature :** There is a possibility to ensure a specific temperature if necessary.

■ **Disadvantages of Air Cargo :**

- **High Cost :** It is more expensive than other means of transport.
- **Weather :** Conditioned by the weather this can cause delays.
- **Law :** Legal restrictions that must be taken into account depending on the different countries of destination of the merchandise.
- **Independence :** Air transport has to be complemented by land, train or truck. So, it is not itself an independent means of transport for commercial operations.
- **Limited Load :** Although the charge is wide but it is limited.
- **Type of Good Transported :** It does not allow sending all kinds of merchandise. Potential hazardous goods are not being transported.

❑ **Check Your Progress :**

1. What is the average % of the total volume of air cargo world wide?

   a. 0.5% b. 1% c. 1.5% d. 2%

2. The first air cargo was just a trail which carried out in the year of _____ in USA.

   a. 1900 b. 1910 c. 1920 d. 1930

3. The air mail service was started by USA in _____ year.

   a. 1940 b. 1914 c. 1924 d. 1934

4. In which year DHL & FedEx started their air cargo services
   a. 1964 & 1970 respectively b. 1966 & 1973 respectively
   c. 1968 & 1974 respectively d. 1965 & 1971 respectively
5. The Indian railway was developed by colonial government in the year _____
   a. 1853 b. 1854 c. 1855 d. 1856
6. Indian railway network hold 4th position in world with 65000 Km just behind _____
   a. USA b. UK c. Russia d. China
7. Cargo by sea constitute around _____ % of world trade by volume.
   a. 70% b. 80%
   c. 90% d. None of the above options
8. Advantages of Air Cargo over other means can be:
   a. Speed b. Flexibility
   c. Security d. All of the above options

1.8 LET US SUM UP :

Cargo industry is growing day by day by the development of various options in transportation, advancement in technology and so on. Changing Patterns of the Composition of Import and export regulations, liberalisation, privatisation and globalisation played an important role in development in international trade. It is impossible to think about global trade without shipping. Various modes of transportation are available and developing day by day. Approximately 90% of world trade is carried by the international shipping industry, bulk shipment and economical too however it takes long duration. Air cargo transportation is fastest mode however it is expensive and bulk cargo cannot be shipped. Intermodal and Multimodal mode is also integral and almost compulsory part of air cargo and ship cargo.

Initially goods are transported by roads, then track transportation came into existence and it is included for goods shipment. During the Industrial Revolution, logistics advancement took place. After World War II air cargo has been focused to business purpose. Logistics operation is the backbone of economy and development.

1.9 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – a) 0.5%

(2 – b) 1910

(3 – b) 1914

(4 – d) 1965 & 1971 respectively

(5 – a) 1853

(6 – c) Russia

(7 – c) 90%

(8 – d) All of the above options

1.10 GLOSSARY :

Cargo : The goods or merchandise transported by airplane, ship or vehicle

Carrier : Any individual or firm who, through a contract of carriage, undertakes to perform or procure the performance of carriage by rail, road, sea, air, inland waterway, or by a combination of modes.

Cartage : A trucking term that refers to shipping freight within the same city or area.

Consignor : The Company shipping the product

Consignee : The recipient of the goods being shipped

Export : To transport goods away from a country for sale to another country

Importer : The individual firm or legal entity that brings goods from a foreign source into a customs territory during the course of trade

Imports : To bring in commodities from a foreign country that have been processed or assembled in other countries

In–Bond : A customs program for inland ports that provides for cargo arriving at a seaport to be shipped under a customs bond to a more conveniently located inland port where the entry documents have been filed.

RORO : Vessels equipped with a mobile access ramp allowing the loading and unloading of the goods by towing between the edge and the dock.

Shipment : The transportation of goods from one location to another, by one shipper, on one bill of lading, from one delivery location, for one consignee to one delivery.

Shipper : The company or person who tenders goods to a carrier for transportation.

1.11 ASSIGNMENT :

1. What are the important historical moments in the air cargo industry?
2. What is the role of logistics in international business?
3. How many type of cargo can be transported, explain?
4. Enlist and explain the advantage & disadvantages of air cargo.

1.12 ACTIVITIES :

1. Make a list of world top companies of Air Cargo and their business share in market.
2. Find out list of top 10 products delivered through air cargo and why?

1.13 CASE STUDY :

■ **The Brazilian Aircraft Manufacturer's Turnaround and Growth :**

Brazil–based Embraer was the fourth largest aircraft manufacturer in the world behind Airbus, Boeing, and Bombardier Aerospace. Embraer was set up as a government company in 1969, and privatized in 1994.

This case examines Embraer's turnaround and growth after its privatization. It discusses the steps taken by Mauricio Botelho (who became the CEO after the privatization) to return the company to profitability, as well his handling of various strategic and human resource issues during and after the turnaround. The case then explores Embraer's entry into the regional jet market, where it had to compete against Canadian aircraft major Bombardier.

It also talks about Embraer's use of international strategic alliances to gain expertise in aircraft manufacture, and its aggressive marketing of its new regional jets to various airlines.

A section of the case discusses the various facets of Embraer's competition with Bombardier in the regional passenger jet market. The implications of the dispute between the two companies – which went before the WTO – and its impact on the political and economic relations between their home countries are also mentioned. The rest of the case includes a commentary on Embraer's future prospects, where issues like airline scope clauses, the resurgence of turboprops in the early 2000s, Embraer's problems with its E–Jets, and the company's excessive dependence on revenues from the export of passenger jets are discussed. The case ends with a description of Embraer's restructuring efforts in early 2006, including the company's new capital structure.

Issues :

- To examine and understand the issues involved in the turnaround of a company
- To understand the differences in the business environments of developing and developed countries
- To analyze the competitive advantages and disadvantages of an aircraft manufacturer based in a developing country
- To understand the strategies adopted by a company based in a developing country to compete in a highly volatile global market
- To examine the impact of a successful company on the economic development in its home country
- To understand the role of strategic alliances and international partnerships in a highly competitive and technology–intensive industry
- To study the implications of international competition on the political and economic relations between countries
- To analyze the characteristics, structure and future prospects of the global aircraft manufacturing industry, with a special focus on regional passenger aircraft

1.14 FURTHER READING :

Book An Introduction To Airline Economics by William E. O'connor.

UNIT 02

Regulating Bodies and Ground Handling

UNIT STRUCTURE

2.0 LEARNING OBJECTIVES :

After reading this unit we will be able to understand:

- The rules and regulation of air cargo in India
- The international bodies involve in the operation of air cargo business
- The various freedom of air (set of agreements in the movement of airplane in sky)
- The operational issues and modern trends in air cargo industry

2.1 INTRODUCTION :

All over the world there are many companies handling Cargo operations. It creates high potential risk of quality deviations in handling. An efficient

transport system is therefore highly required so that trade can be boosted. So there is a greater demand of investment in development of transport network. For the sustainable development of trade air transport services development is crucial. It is acting like an economic catalyst as it is opening new opportunities by moving goods with speed and efficiency. It have been evident that several companies have developed and greatly dependent on quality of the transport network. A good transport system can motivate inflow of foreign direct investment (FDI).

In Air cargo logistic regulatory body are governmental or international organizations that are set up to exercise and regulate functions and procedures of air cargo operations. These organisations impose requirements, conditions or restrictions, setting the standard for cargo movement activities, and enforcing in these areas or obtaining compliance. However their primary goals are policies implementation and regulations for the civil aviation sector so that the safety security and integrity of the operation in every region all over the world can be ensured. In this chapter we will go through some of these bodies with their objectives. As we know it can be both national regulatory who take care of operation within a geographical boundary along with co–ordination with International regulatory that coordinates with national regulatory as well as ensure safety, security and integrity of air cargo business along with mediate customer grievances. The movement of passengers, mail and cargo involving the minimum of transit points is known as Air transport connectivity, which makes the trip as short aspossible, with optimal user satisfaction, by minimising price involvement.

2.2 THE REGULATING BODIES IN INDIA :

India, one of the most potential nations where there is increasing number of domestic as well as international passenger traffic for business travellers that means also increasing the potential of cargo transportation from various companies as there is a huge varieties of goods transported across the globe we have already learn in last unit. Our country has an ideal geographical location and has a huge population with rapidly growing economy.

2.2.1 Directorate General of Civil Aviation DGCA :

The Directorate General of Civil Aviation (DGCA) is the principal regulatory body in Indian civil aviation industry. It is operated under the supervision of the Ministry of Civil Aviation (MoCA). Aviation safety, air transport regulation and airworthiness to/from/within India, are the responsibility of the DGCA. With assuring these responsibilities it issues licences to aerodromes and air carriers; and also monitors licensing of personnel associated with air transport. Causes, effects and corrective measures for air incidents are also look after by this authority. In addition the provide support and advice to the Government regarding prospective and policy making for civil aviation. There are fourteen regional airworthiness offices and five regional air safety offices of the DGCA. These Regional Airworthiness Offices located at Delhi, Mumbai, Chennai, Kolkata, Hyderabad, Bangalore, Thiruvantpuram, Bhubaneswar, Bhopal, Kanpur, Lucknow, Patna, Guwahati and Patiala and its Regional Air Safety offices located at Delhi, Mumbai, Chennai, Kolkata and Hyderabad.

■ **Functions of DGCA :**

(a) Registration of civil aircraft.

(b) Licensing of pilots, air traffic controllers, engineers and so on and conducting examinations and checks for that purpose.

(c) Formulate and enforce rules and regulations in accordance with International Civil Aviation Organization (ICAO) Standards and recommended Practices.

(d) Clearance of scheduled and non–scheduled flights of such operators.

(e) Investigation of reasons and corrective measures for air accidents.

(f) Granting approval to aircraft maintenance, repair and manufacturing organizations and their continued oversight.

(g) Providing advice to the Government on matters relating to air transport including bilateral air services agreements, on ICAO matters and generally on all technical matters relating to civil aviation, and to act as an overall regulatory and developmental body for civil aviation in the country.

(h) Keeps records the data of scheduled and non–scheduled passenger and cargo traffic.

(i) Also acts as a catalyst for promoting indigenous design and manufacture of aircraft and aircraft components.

2.2.2 Airport Authority of India (AAI) :

On 1st April 1995 merger of International Airports Authority of India and National Airports Authority resulted in Airports Authority of India (AAI). It was established by an Act of Parliament (Airports Authority of India Act, 1994, amended in 2003). It has the responsibility of creating, upgrading, maintaining and managing civil aviation infrastructure in the country and works under the Ministry of Civil Aviation. It also provides Communication Navigation Surveillance / Air Traffic Management (CNS/ATM) services over Indian airspace and adjoining oceanic areas. As per AAI website as on April 2021, it runs 137 airports, which include International Airports, Customs Airports and Domestic airports.

■ **Functions of AAI :**

(a) Designing, developing, operating and maintaining international and domestic airports both for cargo as well as passengers.

(b) Managing the Indian airspace extending beyond the territorial limits, as accepted by ICAO.

(c) Construction, Modification and Management of new terminals.

(d) Expansion and strengthening of operation area, viz. Runways, Aprons, Taxiway etc.

2.2.3 Air Cargo Agents Association of India (ACAAI) :

In India, Air Cargo Agents Association of India (ACAAI) is a national Association representing the Air Cargo Industry. It was Founded in 1970 currently it has 600 members. It is providing professional assistance and guidance regarding industry to the members. Its head office is at Mumbai and located at New Delhi, Chennai, Kolkata, Bangalore, Thiruvananthapuram, Cochin, Ahmedabad and Hyderabad. ACAAI plays an important role in growth and smooth functioning of the air cargo industry in India. It works closely with Government Ministries and Departments, airlines, international Associations such as IATA and so on, on behalf of its members.

2.3 INTERNATIONAL REGULATORY BODIES :

Traditionally, trades were regulated through bilateral treaties. But after WW–II, the feel of eliminating trade barriers among various nations. In 1947–48, 23 countries like India, UK, USA, France, China etc. were agreed on General Agreement on Tariffs and Trade (GATT) it was signedin Geneva. In 1995 it became World Trade Organization (WTO) and became the principal regime for regulating global trade. It has 125 nations and covered about 90% of global trade.

International aviation is administered by agreements between two or more nations. During Chicago Convention the Freedoms of air, international aviation agreements were developed for air business.

2.3.1 International Air Transport Association (IATA) :

On 19th April 1945, in Havana (Cuba) International Air Transport Association (IATA) an international industry trade group of airlines was formed with headquartered in Montreal, Canada. Prior to this it was the International Air Traffic Association which was founded in 1919 The Hague (Netherlands). Today it has about 290 airlines member from more than 120 countries. In our country it has two offices at Guragram, Delhi (NCR) and Andheri (East), Mumbai.

2.3.2 International Civil Aviation Organisation (ICAO) :

In air cargo operations, air security, safety, and environmental regulations are essential to implement. The International Civil Aviation Organisation (ICAO) is established in 1944 to ensure the air safety, procedure, efficiency, environmental protection and standards for operating global air navigation with cooperation and peace. The organisation is established in the Convention on International Civil Aviation also known as 'Chicago Convention'. Initially 54 nations came together to promote cooperation and enhance global understanding and friendship. The main principle of this organisation is to permit international air transport. Its headquartered is in Montreal, Canada. India is one of the ICAO's founder member nations; currently it has 193 member States. It encourages initiatives to improving connectivity in several areas within the framework. This includes the development by ICAO of international agreements to liberalize air transport, including air cargo services.

■ **Objectives of ICAO :**

1. Ensure global safety and orderly growth of air transportation
2. Encourage the peaceful operation of flights throughout the world
3. Development of airways, airports, and air navigation facilities for international aviation
4. Ensure the dignity and provide fair opportunities for member state to operate international airlines without any discrimination

2.3.3 World Customs Organization (WCO) :

For standardization, simplification and harmonization of Customs procedures for cargo handling a specialized inter–governmental organization has formed. The World Customs Organization (WCO) is focused on Customs matters. It is also responsible for development and implementation of security and compliance custom programmes for facilitating and securing the international trade supply chain which supports economic development of associated stakeholders. Both WCO and ICAO have joined together to secure and protect the air cargo and mail supply chain from unlawful intrusions.

2.3.4 International Federation of Freight Forwarders Associations (FIATA) :

FIATA (Fédération Internationale des Associations de Transitaires et Assimilés) is a nongovernmental, membership–based organization representing freight forwarders in many countries worldwide, founded in Vienna, Austria, on 1926. It promotes trade facilitation and is acting like representative of freight forwarding and logistics industry in reference source on international policies and regulations governing the industry. The federation of freight forwarders' associations in India (FFFAI) and the air cargo agents association of India (ACAAI) are its association members in India.

2.3.5 Federation of Asia–Pacific Air–cargo Associations (FAPAA) :

With the objectives of protecting, promoting, and developing the Air Cargo Industry in Asia–Pacific Region the Federation of Asia–Pacific Air–cargo Associations (FAPAA) was formed in 1985. It has grown up in nineteen countries within the Asia Pacific Region. The countries include Australia, China, India, Korea Japan, Philippines, and Singapore etc. Air Cargo Agents Association of India (ACAAI) represents India in FAPAA.

2.4 FREEDOM OF THE AIR :

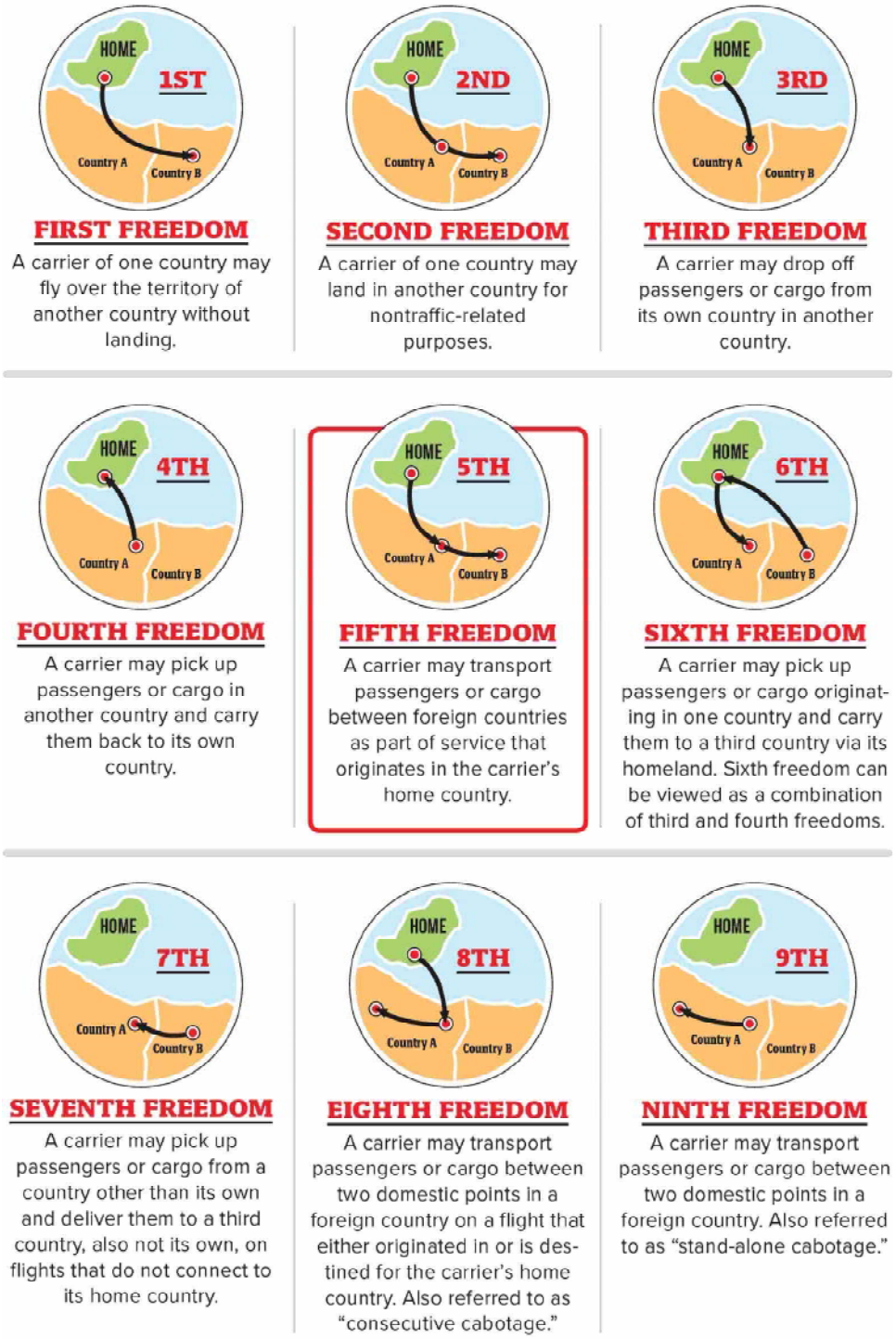
A set of international commercial aviation agreements that provides a privilege to an airline to enter and land in airspace of another country is called the freedoms of the air. There are nine fundamental freedoms of the air however officially ICAO has approved only the first five "freedoms" as per international treaty only these five are recognized so other freedoms are "so–called" freedom. As per its website the freedoms are :

1. **First Freedom :** For scheduled international air services, privilege is granted by one State to another State or States to fly across its territory without landing.
2. **Second Freedom :** One states scheduled international airlines to land in another state's airspace for non–traffic purposes
3. **Third Freedom :** In respect of scheduled international air services, granted by one State to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier.
4. **Fourth Freedom :** The right or privilege, in respect of scheduled international air services, granted by one State to another State to take on, in the territory of the first State, traffic destined for the home State of the carrier.
5. **Fifth Freedom :** The right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State
6. **Sixth Freedom :** The right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States
7. **Seventh Freedom :** The right or privilege, in respect of scheduled international air services, granted by one State to another State, of transporting traffic between the territory of the granting State and any third

State with no requirement to include on such operation any point in the territory of the recipient State, i.e the service need not connect to or be an extension of any service to/from the home State of the carrier.

8. **Eighth Freedom :** The right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or (in connection with the so–called Seventh Freedom of the Air) outside the territory of the granting State (also known as "consecutive cabotage").

9. **Ninth Freedom :** The right or privilege of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State (also known as "stand alone" cabotage).



2.5 IMPORTANCE OF REGULATIONS :

As we know, Regulatory agencies are independent bodies established by either the government or approved by related industry. It is created in order to set standards for operations and then to enforce them for better results within the industry.

Quality control and consistency is the foremost important requirement for success of any industry either it is goods oriented or service oriented industry. Hence process has to be defined. We also know the quality control can be achieved only when there is accountability, protectionism, organizational development through approaches. These approaches and operational guidelines are defined and enforced by these bodies.

Regulations for transporting goods are required in order to ensure safe and secure delivery to right receiver. The air route is subject to state affairs so the concern of that state need to be consider so that their integrity and security must not hampered (as we have study about freedom of air).Public safety and the environment protection is also necessary to reduce any misshaping in future so they also have to take care of licencing, limitation of loads and working hours, equipment standard and so on. All of these imposed standards ensure safety and other related concerns.

For customer point of view it is important to have a regulation so that they can rely and send their goods either in bulk or as they require. They have confidence on carrier that there will be no harm for their product and it will delivered effectively and efficiently. Because of regulations no carrier can overcharged or cheat or misbehave or any unfair practices with customer(s).

2.6 GROUND HANDLING :

Before take–off and after landing of an aircraft ground handling is an essential service required. It includes services air craft handling, cleaning, servicing, loading and unloading, cargo handling and security.

In terms of cargo Ground handling activities include mainly loading, unloading, handling warehousing, sorting and baggage, documentation, storage, safety and security of cargo received. All of these activities we have studied in detail in previous year course book. The regulatory body whether international bodies or our national bodies have provided guidelines for all of these activities for safety of cargo and its handlers. It is very necessary to have through knowledge of performing these activities before you are going to be a ground staff. Ground staffs also have to engage in other associated works.

In today there is business competitive environment the quality handling cargo is foremost important for airports as well as cargo handling companies. The objective behind this is to provide safe and secured cargo operation. Air cargo operation start with receiving cargo to be delivered, documentation, sorting, packaging, safe loading and unloading and so on. To carry out these activities the ground staffs has to be skilful and cautious.

Once the aircraft arrived it is required to unload the cargo which was carried by that aircraft. The shipments are unloaded onto dollies and after documentation works, cargo is transported to the warehouse. In warehouse, ULD's breakdown is done. Then it is determined to transport the cargo to the concerned person at the same time in case of damaged deliveries packaging or

so on a record on Defective Cargo (complaint) is made. Here forwarders, sorting and preparation of documents activities are carefully performed. All the movement of these goods are accompanying with proper documentation. The ground handling also has to ensure international documents regulating air traffic and aircraft cargo transport, customs regulations, security regulations, special regulations for individual cargo types. It developed cooperative arrangements with other government agencies in coordinated border management environment.

2.7 OPERATIONAL ISSUES AND MODERN TRENDS :

The cargo handling processes have several modifications due to changes in nature of market and volume of cargo. Security regulations have been changed by both national and international authorities to curve out the possibilities of threats airline industry faced in the past years.Transformation of technology enables more automated system of freight forwarding like delivery by robots and drones can make it cheaper, faster and easier. Amidst the covid19 global outbreak it is hampered its operations and huge economical loss. Fact is that it cannot be recovered any way but it is estimated a growth in near future.

The cargo operation is depending basically on communication among all the stakeholder viz. consignee, shippers, carriers, and consignors. The track of good's movement is very important for all of them. It built confidence and trust among stakeholders. The continuous Progress in information technology has increased the productivity of the industry and improved the viability of intermodal transport. Lack in standard information requirements among parties may hamper efficiency and subsequently customer satisfaction. Government and other regulatory bodies have to intervene and interfere into functions to overcome any barrier in implementations. Both international as well as domestic operations it requires fast, approachable, and dependable movement. World air cargo traffic is forecast to increasing with increased demand. As per IATA mission in the near future the cargo facility will be enhanced with focus of safe and secure, green, automated, connected and fit for purpose of its users.

❑ **Check Your Progress :**

1. Airports Authority of India (AAI) is resulted after merger of _____ and _____ on 1st April 1995.
2. _____ is operated under the supervision of the Ministry of Civil Aviation (MoCA) GOI.
3. _____ freedom is also known as "stand alone" cabotage.
4. There are_____ freedom of air approved by ICAO

   a. 6 b. 7 c. 8 d. 9
5. Headquartered of IATA is situated at _____

   a. New York, USA b. Dubai, UAE

   c. Montreal, Canada d. Manila, Philippines
6. Today General Agreement on Tariffs and Trade (GATT) is known as _____
7. Air Cargo Agents Association of India (ACAAI) is a national Association representing the Air Cargo Industry was Founded in _____

   a. 1950 b. 1960 c. 1970 d. 1980

8. The International Civil Aviation Organisation (ICAO) is established in _____

a. 1941 b. 1942 c. 1943 d. 1944

2.8 LET US SUM UP :

Despite of high costly mode of transportation of goods, air cargo has very crucial role in economic expansion in development of markets. Air cargo acts as positive catalyst in global reach of businesses. It also enables the producer and consumer get raw materials and products to distant markets in a cost–efficient and quicker way.

Along with IATA, ICAO, WCO, FIATA, FAPAA are the international regulatory bodies which provide various ease and guidelines to cargo industry for its continuous development. In our country principal regulatory body DGCA along with AAI, ACAAI etc. regulating national air transportation in our country. Their continuous effort is showering growth and development in the industry.

The transportation system has to be well–functioning for national prosperity. Advancements in freight transportation and logistics in recent decades have been a major source of productivity growth in the national economy. It is a joint effort of all the associates viz. private sector, government, and public enterprises working in this industry. Competent staff, procedures, information system, developed infrastructure and process management plays crucial role to achieve the transportation goals. Continuous development in air cargo handling process and its complex structure can improve customer satisfaction and hence profitability.

The freedom of air is a set of international commercial aviation agreements that provides a privilege to an airline to enter and land in airspace of another country. With the help of implying liberalisation and the opportunity for invest can attract investors for industrial development at the same time the integrity of state cannot be compromise.

2.9 ANSWERS FOR CHECK YOUR PROGRESS :

(1) International Airports Authority of India and National Airports Authority

(2) DGCA

(3) Five

(4 – d) 9

(5 – c) Montreal, Canada

(6) WTO

(7 – c) 1970

(8 – d) 1944

2.10 GLOSSARY :

5/20 Requirement : The 5/20 rule is a norm of the Indian Aviation Ministry under which national carriers are required to have five years of operational experience and a fleet of minimum 20 aircraft to fly overseas. This is applicable to all commercial aviation organisations flying passengers.

Breakdown : Process of removing cargo from a ULD.

Build–up : Process of placing and securing cargo into/onto a ULD

Cabotage : The right to operate sea, air, or other transport services within a particular territory.

Dolly : A Ground Support Equipment, platform on wheels used to hold and transport goods and has deferent sizes.

Liberalisation : The means of removing/reducing control of the state over economic activities and provide autonomy to the business enterprises in decision–making and reduce government interference

2.11 ASSIGNMENT :

1. What are the functions of DGCA in India ?
2. Describe the role of Airport Authority of India in the development of this sector.
3. What are the objectives of International Civil Aviation Organisation ?
4. Explain the freedom of air a set of aviation agreements in detail.

2.12 ACTIVITIES :

Visit the Sardar Vallabhbhai Patel International Airport in Ahmedabad and prepare a list of equipments with the help of ground handling staff used in cargo operation.

2.13 CASE STUDY :

Mega airports are emerging as major hubs of global air passenger and freight activity.

Author : Dr. Jean–Paul Rodrigue

The substantial growth of air travel has been associated with the demand for new airport terminal facilities, particularly in the context where an existing airport terminal is no longer able to handle current or anticipated traffic. Expectations about future passenger volumes are inciting the consideration of large airports consuming a significant amount of land that has to be found, secured, and developed. This has led to the siting and setting of mega airport complexes, including large terminals, hangars, parking facilities, runways, space for adding new runways as well as space for ancillary activities such as hotels, offices, and distribution centers. The airport has become a miniature city while, in several cases, large airport complexes have been dubbed as "aerotropolises".

The drivers of mega airport projects fall into two major categories :

First, regional economic development will incite organic traffic growth, both for passengers and freight. The risk is to overestimate the potential traffic and build too much capacity for the expected demand. This leads to lower returns on investments.

Second, major airlines can decide to use an airport as their main hub, implying growth in transit traffic. The hubbing function of a major airline is associated with substantial traffic, but the risk is that the airline may elect for another hub.

Both these drivers can be subject to contention since, on one side, economic growth expectations may not materialize to their full extent, while on the other side, airlines can change their network strategies and elect for other hubs (or use the existing hub less extensively). In a high growth context, this places acute

pressures to expand airport infrastructure to cope with significant expected future traffic levels. The most successful mega airport projects are thus those who jointly gain from regional economic development as well as the additional traffic that hubbing generates. However, like most mega infrastructure projects, mega airports are subject to over expectation biases over four key issues:

- **Technological appeal :** The expectation of creating infrastructure using the latest materials and construction techniques, even if they can be untested.
- **Political appeal :** The common expectation of leaders and politicians to be associated with large infrastructure projects, which can influence their location, size, construction time frame, and purpose.
- **Economic appeal :** Large consulting and construction firms are attracted to mega infrastructure projects because of the revenue and the recurring cost overruns. Labor unions are able to secure long term employment for the construction and operation of these facilities.
- **Architectural appeal :** The expectation that the facility will have an aesthetic value, creating a recognizable landmark for the region.

New airports are therefore increasingly costly, complex and set further away from central areas. The availability of a large and suitable real estate footprint can lead to controversy and conflicts with local residents. Mega airports are such large projects that they are usually set into development phases, but the real estate footprint needs to be secured at the onset of the project, tying up land for decades. These phases either expand the airport real estate footprint with additional runways, add terminals, or ancillary activities such as commercial and logistics real estate. In time, mega airport terminals become an architectural landmark for their city.

The major challenge remains financing since airports are usually publicly funded and require substantial capital investment locked for long periods of time and with uncertain returns. They are rarely profitable but often marketed as symbols of economic success. This is particularly the case in the Middle East where mega airports such as in Dubai, Abu Dhabi, Qatar, and Kuwait have recently been constructed in a context where the local demand is not sufficient but where large carriers such as Emirates, Etihad, and Qatar Airways have received massive subsidies in conjunction with their respective mega airports.

2.14 FURTHER READING :

1. Aviation Century: Wings of Change, A global Survey by Ratandeep Singh, Jain Book
2. An Introduction to Airline Economics, by William E. O'connor. New York:
3. Air Freight: Operations, Marketing and Economics by Peter S. Smith (Faber)
4. Fundamental of Air Transport Management By P.S.Senguttavan, Oxford Atlas–Oxford Publishing
5. Air Transport Logistics by Simon Taylor (Hampton)

UNIT 03

Meaning & Significance of Logistics

UNIT STRUCTURE

3.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able to understand :

- The meaning of logistics
- The objective of logistics management
- Logistics system and functions
- Significance of logistics

3.1 INTRODUCTION :

In unit–1 of this block we have come to know about the history and evolution of cargo and logistics. In unit–2 we came across various regulating bodies which provide guidelines for the same. Now in this unit we are going to elaborate meaning and significance of logistic. As aviation industry is growing immensely and not only contributing ease to its stakeholders but also important in economic development of the nation, we need to focus on customer satisfaction with consideration of other factors too. It attracts FDI and scope of foreign exchange also increased.

Logistic is a commercial activity of transporting goods from origin to consumption point. It is an integral part of supply chain which emphasises on various processes like planning, implementation, and controlling the efficient and effective forward and reverse flow and storage of goods, services, and related information from initial point to point of consumption. Throughout the history wars have been won and lost through logistics strengths and capabilities – or the lack of them. Logistics deals in both the public and private sectors with objective to get the right product at the right time in right condition to the right place and the right customer, without compromising standard or involving much operating costs.

3.2 MEANING & DEFINITIONS OF LOGISTICS :

Need of definition for any term is required for better understanding and elaborating. These definitions are useful because it explains the function of logistics.

The term and concept of logistics has been described by different author's eminent personalities and service provider companies. We will have look of some of them here

As per **Investopedia** an online business dictionary "Logistics refers to the overall process of managing how resources are acquired, stored, and transported to their final destination."

Actually the logistics work on a supportive role. Integration of various task viz. transportation, inventory, warehousing, materials handling, packaging and information technology can be seen in this system.

The **Council of Supply Chain Management Professionals** says logistics as a part of the supply chain process that plans, implements and controls the efficient, effective forward and reverses flow and storage of goods, services and related information, between the point of origin and the point of consumption in order to meet customer's requirements.

Society of Logistics Engineers (1974) defines logistic as "Logistics is the art and science of management, engineering and technical activities concerned with requirements, design and supplying, maintaining resources to support objectives, plans and operation."

According to **Phillip Kotler,** "Marketing logistics involves planning, implementing and controlling physical flow of materials and final (finished) goods from the point of origin to the point of use of meet customer requirements at a profit."

The **Oxford English Dictionary** defines logistics as "the branch of military science relating to procuring, maintaining and transporting material, personnel and facilities." However, the New Oxford American Dictionary defines logistics as "the detailed coordination of a complex operation involving many people, facilities, or supplies", and the Oxford Dictionary on–line defines it as "the detailed organization and implementation of a complex operation" Another dictionary definition is "the time–related positioning of resources". As such, logistics is commonly seen as a branch of engineering that creates "people systems" rather than "machine systems".

We have many more definitions given by different personalities and organisation. However, we can conclude few key words like "*process*" and "*planning*" which strongly indicates it as a set of activities.

Initially the military uses logistics to maintain army supply to unsettle their enemy. Logistics is in practice since ancient time the advancement of technology and modern equipment the world and as military have a greater significant of logistics solutions. Here it is the science of planning and movement of troops and equipment.

The earliest organised trades used to do logistic activities of their own type. We can those times they didn't have such advance vehicles for transportation but the resources available were used. The effective logistic system is essential for effective and efficient distribution of required supplies.

Modern concept of logistics involves production and distribution of goods for consumption. It has two separate but integrated parts materials management and physical distribution. It believes in circular chains. Logistics is thus become a multidimensional activity and it includes production, location, time, and control of elements within the supply chain.

Customer service, sourcing and procurement, production planning and scheduling, packaging, and assembly are essential function of logistics management. It is part of all the levels of planning and execution, including strategic, operational and/or tactical.

Logistics trades have become globalised in the scenario cargo/freight distribution is an integrated and interrelated with a concern of mobility among regions, nations, and continents.

The objective behind logistics is to make sure the customer receives the desired product at the right time and place with the right quality and price. This process can be divided into two subcategories: inbound logistics and outbound logistics.

Inbound logistics covers the activities concerned with obtaining materials and then handling, storing and transporting them. Outbound logistics covers the activities concerned with the collection, maintenance and distribution to the customer. Other activities, such as packing and fulfilling orders, warehousing, managing stock and maintaining the equilibrium between supply and demand also factor into logistics.

3.3 LOGISTICS SYSTEMS AND INFRASTRUCTURE :

A system makes an organisation structural effectiveness and support in delivering better results. Systems and processes have an important (rather call it essential) role in operation and success of business. Infrastructure is the basic physical systems and structures (including virtual) of a business. Logistics system is a set of facilities like transportation services, warehousing, information, and distribution and so on. In Transportation vehicles and equipment such as trucks, tractors, trailers, crews, pallets, containers, cars and trains can be used as per requirement.

As we have seen the rising consumer demand and the successive growth in global business, the role of infrastructure concentrated on railways, roads, ports and warehouses and it is crucial for the growth and success of the Indian economy. A good infrastructure enables better facility which leads to low cost involvement and subsequently can give better customer satisfactions and it is not only for national but for global trade also. Development of ideas like an automated purchase–order system, GPS enabled technology; warehouse management system

and so on is helping a lot in improvement in logistic sector which ultimately helps in economic development.

Freight transportation in our country is done majorly by road and rail, due to type of load need to transport is majorly from mining industry or agricultural industry. As per feasibility both loads are heavy in weight and huge volume need to transport to a long distance. Both roads and track is developing continuously. The policy makers and other stakeholders concerned on the improvement in infrastructure. Attention is required in double–track main lines, conversion of metre gauge to broad gauge tracks, and modernisation of the technical equipment. With inclusion of modern fleet of Boeing and Airbus aircrafts which has huge cargo capacities, India air cargo is spreading its wings in the industry. Domestic transportation in the country is required to done through either rail or road but for international cargo dedicated infrastructure is developed and developing significantly.

3.4 WORKING OF LOGISTICS SYSTEMS :

The primary activities involved in logistics systems are order processing, inventory management and freight transportation. It works in two directions forward and reverses, and these are essential in efficiency both in terms of money as well as time. A logistics management system is a combination of technology and human resource. Software tools help in optimising the activities like order processing, inventory and quick information regarding entire supply chain. Physical tool helps in delivery to a customer's door.

3.4.1 Order Processing and Management :

Order processing includes activities like receiving, packing, tracking, and fulfilling customer orders these are main activity within order processing and management. In other words we can say that it is the work flow from placement of order to delivery on time with accuracy. Today it is managed by electronic system which provides ease in various process of order processing: customer order; its status, tracking and shipping; and communication and so on.

3.4.2 Inventory Management :

As we know inventory is the accounting management and storage of materials or components to be transported for delivery or received to send back to company. In Logistic system it is an essential component in order to fulfil future demands and to cope up with emergency demands. It is crucial to create a balance between the point of origin and point of delivery. Inventory management plays an important part in the manipulation of logistics. By providing adequate information inventory management saves cost and maintain distribution system intact. It also collects information from distribution channel that helps in forecasting.

3.4.3 Freight/Cargo Transportation :

The point of consumption may far away from production centre, sometimes several hundred or thousands kilometre. For instance tea has been produced in Darjeeling (West Bengal) may be packaged at Ahmedabad (Gujarat) (a distance of approximately 2161 Km.) and hence distributed in all over the country. For the distribution they required it to transport than only it can reach from Darjeeling to Ahmedabad. So we can say transportation plays a key role in movements of goods from point of production to point of consumption. Transportation is the

only reason by the help of that, perishable goods can be available distant in any part of world from any part of world. Transportation planning in logistics system plays an important role and often accounts for even two–thirds of the total logistics cost.

3.5 SIGNIFICANCE OF LOGISTICS :

In today's fast running modern societies, Logistics is one of the most important activities. India too not an exclusion of it, the requirement is increasing day by day. As the e–commerce sector is raising it giving opportunities to customers to order a numerous varieties of product without concern of its availability in the location of beyond. There for role of logistics increases. At the same time the availability of so many choices the customer awareness is growing and they can compare amongst different service providers. These things break the cat's fate for the industry. Why I am using this word is, the unorganised players in the industry account around 90% on contrary only 10% of the total market is occupied by organised sectors.

Currently in Indian logistic sector states like Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Maharashtra, Delhi NCR is in developed concentration, states like Punjab, Haryana, Gujarat, Uttar Pradesh, Bihar, Orissa, West Bengal, and North–Eastern States are in growth corridors whereas Himachal Pradesh, Goa, and Rajasthan showing potential growth. In countries like India logistic development can reduce wastage of agricultural products by providing transportation, warehousing and so on. By reducing wastage could help the farmers economically as well as create better access to high qualityfood for human being.

As per Logistics Sector Skill Council website in economic term Indian logistics sector is valued at USD$ 150 billion which is contribution of 14.4 % of the country's GDP. The government initiatives and liberalisation policy it is expected to touch more than $200 billion by 2023. However pandemic 2020 has slow down the growth but the growth cannot be denied after full–fledged operation. As usual Indian goods are more competitive in the global market therefore growth would be improved by improving distribution system and customer satisfaction. The growth of export of Indian goods will create more opportunities in terms of job too. As per the National Sample Survey, Sector employs about 22 million as of 2016.

3.6 DO'S AND DON'TS IN AIR LOGISTICS :

Do's and don'ts are the precautions extracted from previous achievement and mistakes done by various people. It is just a precautionary major which helps in reducing same mistake as well as generating new idea of nourishing business. Here is a list of few which is often seen however it doesn't mean if you do these you will succeed or fail. A noble person once said "if you learn from your mistakes it takes entire life to learn, if you learn from others mistake you will find the path of success".

3.6.1 Do's :

(a) Select an appropriate means of transport : Large number of choice is available for transportation of goods. Besides individual modes combination of these modes should be prefer. Especially in air cargo, the complete transportation cannot be made through one mode inter–modal and multi–

modal carriers may be good choice in order to reduce cost and effectiveness in delivery.

(b) **Correct containerisation :** Size of appropriate container must be used and at the same time should be taken care of space utilisation.

(c) **Separation of types of good :** Goods are of different nature so it should be containerised accordingly.

(d) **Reduce holding time :** Reduction of holding time can be done by using cross docking or other strategy. It can reduce storage cost as well as enables efficiency in delivery since it can also reduce transit time.

(e) **Maintaining inventory :** As we have discussed above inventory management is require for different reasons.

(f) **Selection of logistic partner :** Collaboration with logistics partners is required for various reasons like cost reduction, time reduction and so on. The partner(s) should be chosen wisely with fundamental parameters like price and transit time.

(g) **Optimisation of loads :** Before transportation it should ensure to use optimum loads so that adequate goods can be transported. Truckload pick–up and deliveries can be linked with many locations so it should be plan in such a way that several destination can be served at the same time.

(h) **Ensure an efficient tracking method :** Whether it is inventory or transit goods, close eyes (updating) are require. Various software and devices are available in market it should be used for better result.

(i) **Freight consolidation :** By consolidating small shipments into larger ones can minimize transportation cost.The shipment schedules should be adjusted forward or backward so as to make a single large shipment rather than several small ones with flexibility.

(j) Do prioritize flexibility in transportation management system.

3.6.2 Don'ts :

(a) **Don't Micromanage operations :** Few small business owners make the mistake of micromanagement of operations by thinking that they could do everything. These people are basically obsessed with the idea of becoming a self–made business owner and due to that they gradually or suddenly fall down the rabbit hole of management of their operations i.e. for instance they try to manage supply chain, manufacturing, and even distribution by self. For that they may involve a huge amount of money or their time.

(b) **Don't go for overload or under load :** Both over loads and under loads are harmful for economy and other loss.

(c) **Don't store too much :** If it is not require don't store in warehouse the goods which is less movable in huge quantity.

(d) **Don't store perishable :** Perishable items are not ideal to store for a long time it should be arranged to move as soon as it is possible.

(e) Don't treat Supply Chain Management like cash cow because it is not a One Time Deal.

❑ **Check Your Progress :**

1. Process and Planning are the key activities of Logistics

   a. True b. False c. Can't say

2. Modern concept of logistics has two separate but integrated parts material management & physical distribution.

   a. True b. False c. Can't say

3. The contribution of Indian logistics sector is _____ of GDP

   a. 14.4% b. 15.4% c. 16.4% d. 17.4%

4. The employment opportunity in logistic sector is _____ according to National Sample Survey.

   a. 21 million as of 2016 b. 22 million as of 2016

   c. 23 million as of 2016 d. 24 million as of 2016

5. Which of these is not important Do's to be followed by logistic company ?

   a. Select appropriate mode of transport

   b. Reduce holding time

   c. Correct containerisation

   d. All of the above options

6. Boeing and Airbus are :

   a. Logistic Company b. Aircraft Manufacturing Company

   c. Air Cargo Company d. None of the above options

7. The unorganised players in logistic industry accounts _____ %

   a. 70 b. 80

   c. 90 d. None of the above options

8. Himachal Pradesh, Goa and Rajasthan are _____ states in logistics sector.

   a. Developed b. Growing

   c. Potential growth d. None of the above options

3.7 LETS SUM UP :

Gulf war of gives a different prospective to the logistics business. Due to the globalization, the competition for delivery of right thing, at the right time, at the right place and in the right condition at the lowest possible cost increased. With the evolution of concept of outsourcing of logistics functions allows a business to focus on its core competencies. By the help of that the companies start utilising there resources in best ways. These scenarios made logisticians more professional. In today's life logistics has become apart and parcel for every business. Without logistics supports no business can be succeed even with marketing, manufacturing or project execution.

Logistical infrastructure is the backbone of logistics systems. Apart from the transport infrastructure, digital infrastructures are also highly required.

3.0 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – a) True

(2 – a) True

(3 – a) 14.4%

(4 – b) 22 million as of 2016

(5 – d) All of the above options

(6 – b) Aircraft Manufacturing

(7 – c) 90%

(8 – c) Potential growth

3.10 GLOSSARY :

Cycle Time : Time required from the order received to order assembled and ready for delivery.

Distribution Centre : Facilities that perform consolidation, warehousing, packaging, decomposition, and other functions.

Physical Distribution : The activities involved in the movement of goods from points of production to consumption.

Transit Time : The time a shipment takes to move between its origins to its destination.

3.11 ASSIGNMENTS :

1. Which mode of transportation you prefer for logistics ? Why ?
2. Analyse the feasibility of shipping cargo from Air cargo.
3. What are Do's and Don'ts of logistic in Air Cargo ?
4. How significant is logistic management in present scenario ?

3.12 ACTIVITY :

Visit Adani Port or Mundra Port observes the logistic activities and make a detailed note of the observation.

3.13 CASE STUDY :

Hellena is a Dutch company that produces biscuits. The ordering of raw wheat flour is done by fax. Once an order is received and the goods prepared, the supplier provides for the dispatch of the product which must be accompanied by the delivery note. This document must therefore be issued before delivery or dispatch of the goods with specifications of the main elements of the operation (serial number, date, quantity and description of the goods transported etc.) and issued with a minimum of two copies (one must be retained and filed by the supplier and the other must be consigned to the customer together with the transported goods). In this context, two information flows are activated. The first, relative to the sending of the fax, travels in the opposite direction from the transport of the order (from the customer to the supplier) and also uses a different channel. The second, the delivery note, accompanies the consignment, using the same channel as the goods and travelling in the same direction.

3.14 FURTHER READING :

1. Essentials of Supply Chain Management by Michael Hugos
2. Lean Supply Chain and Logistics Management by Paul Myerson
3. Air Cargo Management Air Freight and the Global Supply Chain by Michael Sales
4. Introduction to Logistics Systems Planning and Control by Gianpaolo Ghiani, Gilbert Laporte and Roberto Musmanno
5. Strategic Management in the Aviation Industry By Herbert Baum, Stefan Auerbach, Werner Delfmann
6. Moving Boxes by Air The Economics of International Air Cargo By Peter S. Morrell, Thomas Klein

UNIT 04

Components of Logistic Management

UNIT STRUCTURE

4.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able understand :

- The stakeholders analysis in logistics
- The significance logistics
- Use of various types of logistics

4.1 INTRODUCTION :

Advance technology is changing the process of supply chains. Each enterprise is looking for improvement in terms of efficiency and time management

in all aspect of it. Increase in customer preference of particular process highly depend on efficiency and speed and is consider as high quality of work.

Freight and cargo management service is very important in logistic distribution that enables enterprises to deliver and receive their raw material as well as product from any destination in the world. As we know the main objective of this system is complete the supply chain on time, damage free and inaccurate quantities at the lowest possible expense, they strive to find out the possible ways. For instance shipment is incorporated by air, roadways, rail, or water or combination as intermodal transportation.

The major components of logistics management are planning, inventory control, picking & packing, information, and transportation.

4.2 STAKEHOLDERS :

In general terms stakeholders are those people or organisation who is actively contributed to the logistic in supply chain management. Each of them has its own objectives in logistic planning and distribution. However we can say that the foremost important among its stakeholders, is the customer. Without it logistic cannot be even start. In simple words all the plan and facilities are useless if the customer is having lack of interest. The level of services to customers is directly influenced by the logistic activities, the activities start with transportation of the raw material and ending with final product delivery. These activities are managed in anintegrated manner, however in case of delay in the delivery or damaged products during the process, may leads to be a negative impact in the corporative image of the firm.

Stakeholders are built into every organization to help ensure that messaging is accurate, work stays on track, or new initiatives are aligned toward shared business goals. While their intentions are good, often stakeholders can be viewed as a roadblock to progress. Anyone who is affected by the outcome of your work is referred to as a stakeholder.

4.2.1 Customers :

Customers are most important stakeholders in whole supply chain, being part of SCM in logistics so they are most important for success of logistic activity. The customers can be either an individual or a company who ordered or buys the product to be delivered, Consignee, who is going to receive the Ship.

4.2.2 Policy Makers :

The policy maker means Government or public bodies those are involve in developing and maintaining standards required for improving quality in logistic process. They encompass government department, executive agencies, and so on. Their main role or objective is to authorised and control the international business of goods and enforce national legislation. Planners and regulators are incorporating set of rules under which safe distribution can be ensured so that the trust of customers can be assured.

4.2.3 Infrastructure Service Providers :

Both Multimodal as well as IntermodalTransport is required for shipping of goods which involves the combination of different means of transport, for effective, efficient and time saving in movement of cargo. The modal infrastructure service providers arrange different means such as trucks, train, container and so

on with wide option to logistic operator so that they can choose best suitable choice. Availability of various options enables the operators to provide effective service with low cost involvement. At the same time it is convenient for both shipper as well as receiver to get their products in remote location too.

4.2.4 Terminal Infrastructure Providers :

The terminal is a point of connection where freight and passengers originates, terminates, or is handled. It is therefore required area where the shipping freights need to be arranged for transporting loading and unloading items to the terminal yards or to the airline. Cargo may have to be waited in a terminal yard or storage area until it has not been loaded this period is called freight terminals dwell time. It may require specific facilities and equipment to accommodate the traffic of cargo. Therefore the terminal infrastructure includes checkpoints, seaports, transport and logistics centres, dry ports, terminals, and stations. Infrastructure considerations are consequently important as they must accommodate current traffic and anticipate future trends along with technological and logistical changes.

4.2.5 Logistics Service Providers (LSPs) :

Logistic Service Providers are third parties who provide logistics functions on behalf of logistic companies. These companies go for third parties for those services which is not performed by the firms and these LSPs may specialised in that service. Services include transportation, warehousing, cross docking, labelling and packaging, information services, order administration, track–and–trace services andso on.

4.3 LOGISTICS COMPONENTS :

Logistics management itself is an important component of the supply chain. It is required in order to meet customer demands through the planning and implementation of effective movement of goods and services. It links procurement, manufacturing, fulfilment, and distribution. Logistics management has five major components planning, packing and unitisation, inventory control, transportation, and information.

4.3.1 Planning :

Planning is a vital component of any operation so apply to the logistics process. A well designed plan after implementation ensures all activities are coordinated along the logistics systems. It supports the correct and efficient operation throughout the process.

4.3.2 Packaging and Unitisation :

Proper packaging is crucial to achieve care and conditioning of the products. It ensures safety as it works like shield for goods packaged. Tograb attentions organizations use attractive colour schemes, designs, and kinds of packaging. So we can say that Packaging is just not a shield but helps in marketing activity too.

Bundling of cargo by wrapping the packages and loaded onto or inside a bigger unit is called unitisation. It is the method of combining a number of separate things into one big delivery unit for simpler handling. It is helps in stockpiling and transportation. It is also important as this makes storage and transportation easy.

4.3.3 Inventory Control

One important goal of Logistics management is to ensure a continuous supply of goods by the manufacturers. To fulfil the supply and demand gap manufacturers may need storage units and warehouses to store the surplus goods produced. For that the unitised goods are required proper maintenance, hence the warehouses require special storage equipment such as racks or shelving and materials handling equipment in order to move them around and load them in and out of delivery vehicles.

Inventory management is closely associated to storage and warehousing. As we know it is concerned with quantity, location of stock and other aspect of stocked goods and controlling of its flows into and out of a warehouse.

4.3.4 Transportation :

Transportation is acting as the connecting link between other logistics company activities. It is one of the most important components and includes various modes of transport or intermodal transports. So it is important for moving goods from one stage to another within a supply chain.

4.3.5 Information and Control :

For the smooth functioning of operational processes and procedures information and control is required. It is not a single component but required in all the stages of logistic operation. For instance real–time delivery tracking enable everyone in supply chain about the actual positioning of good transported. In inventory management the information needed to know order level or stock level that helps in deciding what orders need to be picked and packed in warehouses and enable the planning and organisation of transport. They are also key element in the forecasting of demand and inventory as already mentioned.

4.4 ADVANTAGES OF LOGISTICS SERVICES :

As per above discussed topics we can say logistics is the set of means and methods required to facilitate various necessary functions for an establishment. The sector focuses on delivery of goods to the consumer from producer or vice versa. Globalization, technical advancement, consumer demands, Liberalisation, open market etc. have created a huge demand of products worldwide. This has created a need of supply of these goods and here comes logistic operations which provide ease in various aspects.

The logistics has provided many advantages to both producer as well as the customers these include :

a. **Distribution Network :** Logistics provide better options for distribution of finished goods to its end users. The producers need not to indulge separately for this activity. That reduces burden of delivery if it is ordered in less quantity. Producers can different logistics operators that can create a better system. By the help of these service providers they can optimize the times, along with the distribution chain.

b. **Reduced Costs :** With the globalised distribution systems and better competitive market reduced monopolistic tendency hence transport costs get reduced.

c. **Less Delivery Time :** Today it is possible to use intermodal and multimodal transportation that saves time in unnecessary waiting of goods at port or

warehouse. Option of cross docking also reduced time involve in SCM. Development of systems which allow urgent transportation also helping in this regards. Therefore the orders reach their final destination in lesser time now.

d. **Efficient Supply Chain :** Logistic provides more efficiency within supply chain. Whether in terms of time or accuracy in delivery. That creates a great value as well as satisfaction to customer.

e. **Information Technology :** Logistic provider with the help of technology improving times and processes. They use ERP systems or cloud–based Warehouse Management Systems that help them to track inventory on a real–time basis and it can also be received from the service provider on a regular basis or when required for better supply chain management planning.

4.5 TYPES OF LOGISTIC :

The logistics can be divided into two parts: Forward logistics and Reverse logistics.

4.5.1 Forward Logistics :

In forward logistics products moves from the producer to the consumer it can be inbound or out bound logistic.

4.5.1.1 Inbound Logistics :

It refers to the movement and storage of goods or/and information from the suppliers, through the warehouse, for processing and production.

Inbound logistics include **Procurement logistic** where goods are flow in the form of raw materials or parts required for manufacturing are procured from suppliers.

Production logistics is the flow of goods that includes the movement of procured parts and materials, distribution inside a factory. It also includes product management, packaging, and shipping to warehouse.

4.5.1.2 Outbound Logistics :

Is the movement of finished products or/and information from production facilities to the end point through warehouses. Delivery of goods from delivery centres and logistics warehouses to distribution points. It can also refer to as **Sales logistics or Distribution Logistics.**

4.5.2 Reverse Logistics :

The process of transporting product from the customer to the seller is known as reverse logistics. It happens due to returns, repairs, refurbishing, resale, recycling, recovering, or disposal of products, containers, and packaging that have fulfilled their role. Therefore this logistic can be **recovery logistics** which is the return flow of returns from consumers and waste. Whereas **recycling logistics** emphasis on the flow of recyclable materials.

❑ Check Your Progress :

1. Planning, inventory control, packaging, information and transportation are the key components of Logistics

   a. True b. False c. Can't Say

2. Anyone who is affected by the outcome of your work is referred to as a _____

   a. Customer b. Stakeholder c. Both a and b options

3. Terminal Infrastructure Providers are the stakeholders in logistic sector.

   a. False b. True c. Can't Say

4. Which of the mentioned below are not logistic components?

   a. Inventory Control b. Information & Control

   c. Packaging d. Currency Exchange

5. _____ & _____ are types of logistics

6. Inbound logistics include _____

   a. Production logistics b. Procurement logistics

   c. Both a and b options

7. Which is referred as sales logistics or distribution logistics?

   a. Inbound logistics b. Outbound logistics

   c. Production logistics d. None of the above options

8. Reverse logistics repairs, recycle and refurbish products and this is the reason it is also called as _____ logistics

   a. Procurement b. Production

   c. Recovery d. None of the above options

4.6 LET'S US SUM UP :

Logistics is the process of coordinating and moving resources from one place to the storage location or to the desired destination.

For seamless movement in supply chain requires efficient flow of processes involved in it. Process may be freight forwarding, inventory management, packaging or delivery of goods, by utilising technology, informationor other resources to maximise customer satisfaction. A perfect logistics management enables companies to decrease expenses.

Inbound Logistics means movement of goods between businesses and their suppliers whereas, Outbound Logistics is the flow of goods between companies and the consumer, and Reverse Logistics is from the end–user to the manufacturer for repairs, recycling, refurbishing, etc.

Logistics management involves a network of transportation via road, air, rail, or ocean. This activity also includes suppliers, agents, freight forwarding providers, distributors, packers, and service providers. Planning, inventory control, packaging and handling, transportation, and information are all major components of logistics management.

4.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – a) True

(2 – b) Stakeholders

(3 – b) True

(4 – d) Currency Exchange

(5) Forward & Reverse

(6 – b) Procurement logistics

(7 – b) Outbound logistics

(8) Recovery logistics

4.8 GLOSSARY :

Cross–Docking : The practice of unloading goods from inbound delivery vehicles and loading them directly onto outbound vehicles. It eliminates storage costs, space requirements and inventory handling, as well as time.

Dwell Time : Time allowed to an intermodal vehiclefor loading or unloading passengers or freight/cargo at a terminal

4.9 ASSIGNMENT :

1. What is the meaning of Stakeholders ? Enlist the stakeholders in logistic sector.
2. How many logistic components are there, explain them ?
3. What are the different types of logistics ?
4. Enlist and explain the advantages of logistic services.

4.10 ACTIVITIES :

Prepare a list of stakeholders in logistic sector in your area and collect their views regarding the sector and do the analysis of the views.

4.11 CASE STUDY :

■ **Commercial Airline Cargo Business by Noël Bankston**

The Problem : In the belly of all commercial airline flights are a combination of passenger luggage and air freight, or cargo. The airline carrier would like to utilize all space in the belly of the airplane (Figure 1) but the challenge is being able to plan for freight that is coming when there is a quick turn–around between customer drop–off and needing to have the plane loaded. We were asked to evaluate the current process and look for opportunities where our technology could be applied to gain efficiencies.

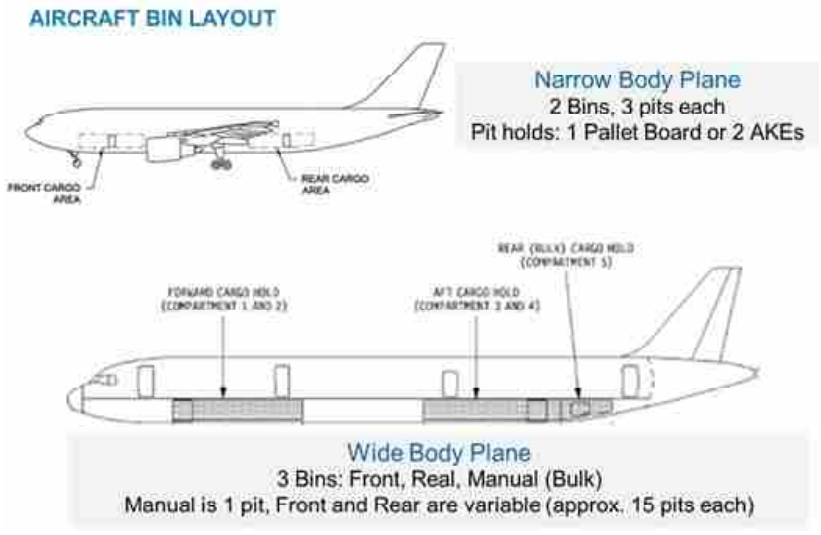


Fig. 1 : Available Space on Commercial Airplanes for Luggage and Cargo

Research Findings : There are four steps to get the freight from shipper to destination. At each stage there is a different user/stakeholder for the process to ensure success, written in italics:

1. Prepare cargo for plane loading at the cargo warehouse = Warehouse worker
2. Plan the location of the cargo load on the plane to maintain weight and balance = NOC load planner
3. Bring cargo planeside and load into the belly of the plane = Ramp crew
4. Deliver cargo to destination warehouse for customer pick–up = Warehouse worker

The value proposition for a Cargo customer is that they can get their freight quickly to its destination. They are required to drop off any freight five hours before the scheduled flight time. The cargo team needs to have it processed and planeside two hours before the scheduled flight time so that it can be loaded before the passenger luggage. This leaves only three hours for processing the freight through the warehouse. This may seem like ample time, but the warehouse has a peak time of 12–4 pm where most of the freight is coming in all at once. Additionally, the freight is not going directly from the customer to the plane but packages and pallets need to be consolidated on "super–pallets" that combine items going to the same destination (Figure 2). These take anywhere from 20 minutes to one hour to build up, depending on the size of the items being moved and the level of expertise of the worker.

Fig. 2 : Building "Super–Pallets" in the Cargo Warehouse before Delivering to The Plane

The next step in the process is to plan the plane loading, performed at the Network Operations Centre (NOC). The load planner needs to make sure the plane as a whole is balanced; above and below, front–to–back, and left–to–right for safe take–off, flying, and landing. They also need to insure the plane has adequate fuel given the distance and overall weight. As they determine the load locations their priorities are to accommodate all passengers first, then their luggage, and finally the cargo. If anything is going to be compromised, it will be delaying cargo rather than a passenger or luggage. In order to make these decisions they get information from various sources at different times. Four hours before flight time, they get information from the dispatch about the route, gas,

and runway location. From the passenger data they can calculate weight above the wing and load distribution based on seat assignment. Two hours before the flight, the NOC receives data from Cargo. Ideally, they would want the dimensions of the cargo to best plan but currently they only have visibility to weight and it is not available in real–time (when it was captured). The NOC planner then needs to provide the load plan to the ramp crew approximately 70 minutes before the scheduled flight.

The ramp crew need information from the NOC planner about the number of pallets and what assigned location they are to be loaded at. However, as the planner only knows weight there are times that the freight cannot fit in the assigned spot. The example shared with us by the customer is a shipment from a table tennis manufacturer. The shipment may say 200 lbs, but if that could either be flat boxes of tables or large pallets of ping–pong balls. The same weight could be drastically different dimensions. In the case where the cargo cannot go in the assigned spot, the ramp crew must make decisions about how to rearrange the freight. This change then is communicated back to the NOC and needs to be approved by the planner before it can be executed. Again, all of this is happening within strict time bounds to leave adequate time to load luggage and get the plane out on time after boarding passengers.

Fig. 3 : Palletized Freight being Loaded onto Plane

Fig. 4 : Containerized Freight being Loaded onto Plane

Solution Exploration : We evaluated the end–to–end process and looked at the needs across the cargo workers, NOC planner, and ramp crew. We concluded that the greatest opportunities are to provide dimensions of the cargo in real–time and a means of improved communication of information across the different locations/users. Working with engineers from our chief technology office (CTO) we identified two means of capturing real–time dimensions using machine–vision technology. This data is valuable to all users as it can be passed to the customer application for use 1) by the cargo worker to provided guided pallet building, 2) the NOC planner to know which location the freight will fit into, and 3) give greater confidence to the ramp crew of the plan. One of the two dimension solutions is able to be accessed by a mobile device, which the ramp crew already uses for load confirmation. If they could also measure the dimension, then they could provide information back to the NOC if a plan needed to change based on erroneous warehouse data. These solutions are being evaluated by the customer. Doing this type of generative research helps our team not only understand the need of a specific customer but also broadens our understanding of challenges in the transportation and logistics industry as a whole, so that we can proactively design solutions.

4.12 FURTHER READING :

1. Logistics & Supply Chain Management by Martin Christopher
2. An Introduction to Airline Economics by William E. O'connor
3. Lean Supply Chain and Logistics Management by Paul Myerson
4. Introduction to Logistics Systems Management by Gianpaolo Ghiani, Gilbert Laporte, Roberto Musmanno
5. The Handbook of Logistics & Distribution Management by Rushton, A., Croucher, P. & Baker

BLOCK SUMMARY :

On December 17, 1903, Orville and Wilbur Wright flew their aeroplane for the first time. Air flight has changed the world in numerous ways since then. The sheer concept of an aeroplane (or aeroplane, as they were known back then) was stunning when they first took to the skies. For thousands of years, man had wished to fly, and now he could. However, only 115 years ago, the concept seemed unthinkable. Airplanes now allow millions of people to travel quickly around the world every day, and millions of cargo are carried by air freight every day. Furthermore, advances in aviation led to the development of rockets and the start of man's space exploration.

In the years that followed, the rise of the internet helped to improve the air freight industry's reliability and accessibility. Most airlines now provide real–time flight status, as well as booking and tracking options, to their consumers. In addition, the industry is implementing electronic methods, such as the electronic air waybill, to reduce the amount of paper documentation associated with each cargo while also improving the transportation's security and safety. To answer to increased consumer pressure, many merchants are attempting to combine the air cargo delivery process with their customer care offering.

Despite broad expectations for a thriving economy, the air freight sector has remained a modest part of total air traffic for decades. Although there had always been dedicated cargo airlines, most carriers considered it as a secondary industry for much of the first five decades after WWII. Carrying "belly freight" has proven to be a lucrative business for several passenger airlines.

BLOCK ASSIGNMENT :

1. Elaborate the concept of ground handling with respect to air cargo.
2. How significant the air cargo industry for trade and commerce in recent years ?
3. Analyse the freedom of air agreement and give your comments.
4. Why cargo by ship is still considered better in some aspects then air cargo ?
5. What is the working system of logistics management ?
6. Enlist the infrastructure requirement for logistic management.
7. Define the term stakeholders. Explain the various stakeholders in logistic sector.

CARGO AND LOGISTICS MANAGEMENT

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ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is

particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect. All the best for your studies from our team!

CARGO AND LOGISTICS MANAGEMENT

Contents

Dr. Babasaheb Ambedkar Open University Ahmedabad

BBAATR-206

Cargo and Logistics Management

BLOCK 2 : AIR CARGO FORWARDING

AIR CARGO FORWARDING

Block Introduction :

A freight forwarder companies are those organisation who are specialised in arranging of storage and the shipping of produce on behalf of its consignor. They are also called as forwarders, or forwarding agents. They usually have contract with multiple carriers for movement of shipper's goods. Actually they do not move the goods but are specialist in logistics. They are also specialised in international shipments so they have expertise in preparation and processing of customs documentations. They consolidate small shipments into pallet size loads and then ship them to the desired destinations.

Block Objectives :

After understanding this block learns will have knowledge of :

- The various category of air cargo
- Documents required for conducting air cargo operation
- The content of air cargo labels and the significance of labels on cargo
- The rate charged for air cargo and components of rate

Block Structure :

UNIT 01

Cargo Classification

UNIT STRUCTURE

1.0 LEARNING OBJECTIVES :

After going through this unit the learner will be able :

- To distinguish the cargo
- The processing, packing or transporting of goods as per its nature
- Outgoing or export forwarding process

1.1 INTRODUCTION :

Air cargo is a costliest mode of transportation and accounted very lesser percentage of total shipping done. Before commodity going to be transported from one destination to other through air lot of steps and formalities needs to be followed. Forwarder follows procedures to send goods to their destinations. These procedures include scanning or detecting the cargo, document automation, transportation, the claims and complaints to be handled, international regulations, and insurance policies.

The freight forwarders are global shipping companies who are involved in arranging transportation of goods across the nations and linked as connecting commerce and businesses across continents. Responsibilities also include consolidating shipments from various shippers into larger units, preparing

shipping documentation and tendering freight to the airlines. Forwarders do not generally operate their own aircraft and may be classified as an "indirect air carrier". They are architects of transport because they arrange and coordinate trips for cargo along with required documentation for smooth transportation of cargo on behalf of shippers. The forwarder is also known as a Non–Vessel Operating Common Carrier (NVOCC) or shipment consolidator.

You already have study in last block that the cargo has to be transported carefully in such a way that no damage and delay should occur, failing that the chances of loss for both the parties that are the transporters and the customers. In sum we can say the process is very fragile and therefore it is performed with utmost precautions. Before getting into this business and process it is necessary to learn the management air cargo, very carefully. The trustworthiness and convenience towards the industry has been increased with the contribution of internet and communication technology advancement.

1.2 CLASSIFICATION OF AIR CARGO :

Air cargo carry various types of cargo to multiple destinations across the world it transports Letters, packages, war equipment, spare parts, pets, construction equipment and even other airplanes also. Air freight can be categorised into three main types :

1. **Freight that Rides on Passenger Airlines (Combi) :** passenger flight is carrying some freight along with the passengers and their baggage.
2. **Dedicated Cargo Planes Freight (Cargo Jet) :** carrying only freight
3. **Super Cargo Planes :** used for large equipment and parts such as wings of aircraft, battalions and so on

However, it is believed that, all type of commodities is not suitable for air transport. Most commonly, urgent goods, mail, spare parts, perishable food, drugs, vaccines and pharmaceutical products, luxury products, plants, live animals and so on are transported. On the basis of their nature, cargo can be divided into General Cargo and Special Cargo.

1.2.1 General Cargo :

It includes items such as Electronics, Toys, clothing, and textiles etc. it is accounted that the electronics industry accounts for almost 40% of the value of the entire international air cargo. However, this medium is costliest among all modes so the expectation is high efficiency and in an accurate condition. Due to urgency people choose to freight it by air, so it become more important for carrier or freight forwarder to take care of time involve in it.

General cargos require less documentation and fewer procedures handling and transportation. The shipment doesn't require special transportation condition so can transported by passenger as well as freight carrier however, it can depend upon qualitative and quantitative conditions.

1.2.2 Special Cargo :

This type of cargo includes human organs, human remains, pets and other animals, dangerous goods, perishable foods, over–dimensional and heavy weight items, valuables, art works, fragile items, hazardous materials. These goods need to follow many regulations as compared to general cargo. It has to go through

various inspections to ensure that it meet requirements as per the regulatory guidelines at the same time it is to keep in mind that not every airline will transport these items.

1.2.3 Physical Properties Based Classification :

Based on physical properties in the transportation, cargoes are divided into dry cargo, liquid cargo, and live cargoes. Each category has been divided into sub groups as per similarity in transport characteristics and conditions required for their safety.

1.2.3.1 General Dry Cargo:

Include any items which do not contain liquid, such as textiles, retail or consumer goods, machinery and hardware, electronics, etc.

1.2.3.2 Liquid Cargo :

They can be liquid food products, oil and its products, chemical substances, liquefied gas and so on.

1.2.3.3 Live Cargo :

Includes pets, Fish, Domesticated and Zoo Animals, Baby Chicks, Racing Horses and so on. However, human organs, tissues sample are also transported by cargoes.

1.3 IATA CLASSES OF DANGEROUS GOODS :

IATA DGR (Dangerous Goods Regulations) is published every year which consist Dangerous Goods classifications which is purely based on the UN Model Regulations. The model emphasises on various aspects of regulations in terms of dangerous goods. The emphasised aspects are transportation, storage, environment protection and so on. According to these guidelines the Goods are classified into 9 Classes, some of them have sub–divisions too.

1. Explosives
2. Flammable Gases
3. Flammable Liquids
4. Flammable solids
5. Oxidizing
6. Toxic & Infectious
7. Radioactive
8. Corrosives
9. Miscellaneous

1. Explosives 2. Flammable Gases 3. Flammable Liquids 4. Flammable solids 5. Oxidizing

6. Toxic & Infectious 7. Radioactive 8. Corrosives 9. Miscellaneous

Class 1 Explosives : Materials have property of rapid explosion due to chemical reaction. Common example include cartridges, Fireworks, Flares, detonators, Fuse, Primers, Explosive charges, Detonating cord, Air bag inflators, Rockets etc.

■ **Sub–Divisions : there are six divisions of explosive goods**

Division 1.1 : Substances and articles which have a mass explosion hazard and can affect entire load in spontaneously

Division 1.2 : Substances and articles which have a projection hazard but not a mass explosion hazard

Division 1.3 : Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both

Division 1.4 : Substances and articles which present no significant hazard; only a small hazard in the event of ignition or initiation during transport with any effects largely confined to the package

Division 1.5 Blasting agents : Very insensitive substances which have a mass explosion hazard

Division 1.6 : Extremely insensitive articles which do not have a mass explosion hazard

Class 2 Gases : This class includes liquefied gases, compressed gas, refrigerated liquefied gases etc. examples of this category include oxygen, natural gas, fire extinguishers, refrigerant, insecticide gases etc. These Gases can be dangerous due to their flammability, asphyxiates and so on.

■ **Sub–Divisions**

Division 2.1 Flammable Gases : Butane, Acetylene, Lighters (cigarettes), aerosols flammable, ignitable by ignition, and cause of ignition if leaking

Division 2.2 Non–Flammable, Non–Toxic Gases : Gases which are neither flammable nor poisonous.

Division 2.3 Toxic Gases : Gases liable to cause death or serious injury to human health if inhaled.

Class 3 Flammable Liquids : Flammable liquids can pose serious hazards due to their volatility, combustibility and potential in causing or propagating severe conflagrations. Common examples include many adhesives, paints, alcohol, diesel fuel, gasoline, acetone and kerosene. These liquid may catch fire easily.

Class 4 Flammable Solids : Spontaneous Combustibles; 'Dangerous When Wet' Materials: Flammable solids are readily combustible or may cause or fire due to friction even. Some of them are self–reactive which can be reason for exothermic reaction. In this class substances which are liable to spontaneous heating under normal transport conditions, or to heating up in contact with air, and are consequently liable to catch fire and substances which emit flammable gases or become spontaneously flammable when in contact with water are also added. Matches, Naphthalene, Camphor, Sulphur, Calcium carbide, Phosphorus, Sodium cells, Firelighters, Carbon etc. are some example of these types of substances.

■ **They have Sub–Divided into Three :**

Division 4.1 Flammable Solids : These are easily ignited, Self–reactive materials or thermally unstable and strong exothermic decomposition even without participation of air. Manganese resonate, Naphthalene and Matches burns vigorously if ignited.

Division 4.2 Spontaneous Combustible : That can ignite within five minutes after coming in contact with air or a self–heating material that, when in contact with air and without an energy supply is liable to self–heat. Phosphorous and sulphur start burning instantaneously; at room temperature.

Division 4.3 Dangerous When Wet : Substances which, in contact with water emit flammable gases: Solid substances that emit a flammable gas when wet. Sodium, Calcium carbide and Potassium are few example of this.

Class 5 Oxidizers; Organic Peroxides : Some materials that can start and support a fire through the oxidation are kept under this class. Organic peroxides are separated out because they provide everything necessary for a fire in one chemical. Commonly transported class 5 dangerous goods include hydrogen peroxide, potassium permanganate, sodium nitrite, ammonium nitrate fertilizers and oxygen generators.

■ **Sub–Divisions**

Division 5.1 Oxidizing Substances : these are material cause or enhance the combustion of other materials by yielding oxygen. Substances in this class includes: Ammonium nitrate, Potassium nitrate, Pool chemicals etc.

Division 5.2 Organic Peroxides : Either in liquid or solid form. Organic peroxides may cause to explosive decomposition, burn rapidly, be sensitive to impact or friction, reacts dangerously with other substances or cause damage to eyes.

Class 6 Toxic Substances or Infectious Substances : It causes hazard to health during transportation or is presumed to be toxic to human because it falls within a toxic category when tested on laboratory animals.

■ **Sub–Divisions**

Division 6.1 Toxic Substances/Poison : Toxic substances which are able to cause death or serious hazard to human health during transportation.

Division 6.2 Infectious Substances/Bio–Hazard : Infectious substances are substances which are known or are reasonably expected to contain pathogens.

Class 7 – Radioactive Material : Any material that can be responsible for emits radioactive rays or radiation and are potentially severe risks to human

health. Uranium hexafluoride, depleted uranium products, mixed fission products, Yellowcake, radio–nuclides, Uranium, Enriched Uranium etc. are commonly transported.

Class 8 Corrosives : Corrosives are substances which by chemical action degrade or disintegrate other materials upon contact. Corrosives cause severe damage when in contact with living tissue or, in the case of leakage, damage or destroy surrounding materials. Acids solutions, Batteries, Battery fluid, Fuel cell cartridges, Dyes, Paints, Sulphuric acid etc. are some example of this class.

Class 9 – Miscellaneous Dangerous Goods : Miscellaneous dangerous goods are substances and articles which during transport present a danger or hazard not covered by other classes. A few common examples include dry ice, lithium–ion batteries, vehicles, first–aid kits, life–saving appliances and fuel cell engines.

1.4 TRANSPORTATION OF GOOD AS PER CLASS :

As we came across, air transport is not a suitable mode for all types of goods. However, there are separate guidelines for different items. Cargo can be classified into general and special but it doesn't imply the generalisation of method and procedures for all type of cargo.

There are many regulatory bodies' which governed transportation and related activities for dangerous goods. They operate both national as well as international. Some of these prominent regulatory frameworks include the United Nations Recommendations on the Transport of Dangerous Goods, ICAO's Technical Instructions, IATA's Dangerous Goods Regulations and the WCO's Harmonized System.

Cargo planes are designed for moving cargo with wide range of options in terms of sizes so that it can accommodate varieties of cargos from small pallets of goods to even parts of planes. To carry cargoes Boeing 737, Airbus 340, Airbus 320, and Boing 747 are being used. Boeing 737 with capacity of 2 tons can be

operated in range of up to 4,650 km and is fitted with 2 central cargo bays; it is used to carry both passengers and cargo simultaneously. However it is a small aircraft compared to others. For transporting large and bulk cargo Airbus 340 is another option for air freight forwarders, which has a maximum capacity of 16 tons, a range of up to 15,000 km, and 4 turbines.

Antonov 225 Mriya, Boeing 747 F Freighter, Boeing 747–400 ERF, and Airbus 300–600 ST planes carry cargo only. Antonov 225 Mriya is the world's largest cargo plane which has a capacity of 250 tons. Airbus 300–600 ST is designed to transport large and oversized cargo, even a plane or a helicopter are being transported.

1.4.1 General Cargo :

General Cargo is transported in boxes, crates, drums or bales. Containers are also a form of general cargo.

1.4.2 Special Cargo :

In Special Cargo depending potentiality of hazards, dangerous goods are assigned to different classes. The United Nations (UN) classification dangerous goods, we have now gone through it and you must have understood why these classifications is required and updated every year. Here we are going to have a brief look on some cargo transported under special category.

1.4.2.1 Live Animals :

In order to reduce stress on animals that are going to be transported, as short journeys as possible. Animals are kept in approved cages or species appropriate shipping containers. Some countries and airlines have their own specific requirements for the carriage of live animals. The animals are carried in their respective soft ventilated bags/kennel in the prescribed size.

1.4.2.2 Human Organs :

Organs or tissue samples etc. are transported by air in both international or domestic wherever require and possible. The appropriately prepared and packaged organ/tissue from one destination to hospital of another destination GPS tracking can save time in searching cargo from a huge number of cargoes in the flight. Some forwarder mentions the word "Critical" on it.

1.4.2.3 Sentimental Shipments :

The mortal remains of the deceased are carried with special care and given a concern as it is related to sentimental of someone. At the same time the carrier/ forwarder and so on has to ensure various documentation processes. Passport of the deceased is an essential document along with that, the Death Certificate from a competent medical authority is also required. For carrying the remains Embalming and Packaging Certificate is also essential. Before loading the package you need to accompany photocopy of all these certificates along with the deceased's full name, age at the time of death, place of death and passport details.

1.4.2.4 Valuables :

Valuable cargo may include Gold, Platinum, Vehicles, share coupons, stamps, precious stones, Jewellery, watches and so on. In order to ensure security of valuables going to be transported there are various security equipment like tracking systems, alarms, additional locks, and immobilizers are placed. It is helpful for both forwarder as well as carrier secure transportation.

1.4.2.5 Perishable Foods :

It is considered that the best way to transport perishable goods is by air. Both fresh products (fruit, vegetables, meats, dairy, etc.) as well as frozen products (fruit concentrates, fruit pulps, juices, canned fish/meat etc.) are transported in temperature control containers. The goods that are transported are kept at the optimal temperature at all times.

1.5 CUSTOM CLASSIFICATION OF GOODS :

Whenever international shipping is done, it requires clearance from custom department of that country. It is mandatory process for both imported and exported goods despite of transportation mode. Before the cargo leaves boundary of its origin the shipper need to obtain the export clearance. Only after clearance, the shipper gets confirmation along with document confirms that all customs duties are paid and now shipment may proceed. The freight forwarder usually handles the process, but an individual can also hire a customs broker.

World Customs Organization (WCO) is an independent intergovernmental organization, which has been established to ensure Co–operation among custom departments of different country (almost 98% of world trade, having 183 customs administrations from all over the world. At the same time it also ensures improvements in efficiency and effectiveness of customs administrations along the borders. The classifications of goods are done for ensuring custom duty to be paid accordance with the category.

Indian customs department known as Central Board of Indirect Taxes and Customs (CBIC) regulates the imported/exported goods to/from India by any means. The carriers too have to ensure that the goods that are carried to/from India must follow the guidelines and regulation of CBIC. The CBIC regulates it by the provisions of the Customs Act, 1962.

All major trading nations have classified their imported goods according to the Harmonized System. It provides description and coding of goods on six general rules applicable to all trading nations. It is called HS nomenclature in which the goods are completely described within the customs declaration with all the important measures required. It serves as the foundation for the import and export classification systems used in the United States and by many trading partners.

The HS assigns specific six–digit codes for classifications of commodities. Individual countries may add few more digit in the first six digits for classification of country's good as per their requirement. For an instance Indian custom uses an eight digit ITC–HS Codes as per the national trade requirements, whereas the United States uses a 10–digit code to classify export goods, known as a Schedule B number, with the first six digits being the HS number.

These rules can be summarised as: (this is a basic idea, for in–depth knowledge you should refer to HS Classification Handbook, published and updated every five years by WCO)

GR 1 (General Rules of Interpretation–1) Basic Rule : classification shall be determined according to the terms of the headings and notes.

GR 2 (General Rules of Interpretation–2) Rule for Incomplete/ Unfinished Goods and Mixtures : Two rules (a and b) determine how incomplete or unfinished goods and mixtures are classified.

GR 3 (General Rules of Interpretation–3) Deciding Rule : Three rules (a to c) determine basic decision making when concurrences between headings occur.

GR 4 (General Rules of Interpretation–4) Catch–all Rule : It is not normally used, because rule 3 is sufficient for decisions.

GR 5 (General Rules of Interpretation–5) Rule for Packing Material : Rules if cases, containers or other packing material are classified as the goods contained or not.

GR 6 (General Rules of Interpretation–6) Subheading Rule : All five rules apply at subheading level.

❑ **Check Your Progress :**

1. The forwarder is also known as _____
   a. Non–Vessel Operating Common Carrier
   b. Shipment Consolidator
   c. Both a and b option
   d. Can't say
2. In general cargo electronics cargo accounts for almost _____
   a. 30% b. 40% c. 50% d. 60%
3. IATA classified dangerous goods into _____ categories.
   a. 9 b. 19
   c. 29 d. None of the above options
4. Class 1 explosives are categories _____ Divisions explosive goods
   a. 5 b. 6 c. 7 d. 9
5. Butane is classified as _____
   a. Class 1 sub–division 1.1 b. Class 2 sub–division 2.1
   c. Class 3 sub–division 3.3 d. All the above options
6. Ammonium nitrate, Potassium nitrate are classified as _____
   a. Class 3 b. Class 4 sub–division 4.1
   c. Class 5 sub–division 5.1 d. None of the above options
7. Infectious or Bio hazards substance fall under _____ category.
   a. Class 2 sub–division 2.1 b. Class 4 sub–division 4.1
   c. Class 6 sub–division 6.2 d. None of the above options
8. Live animals are _____ cargo.
   a. General b. Special c. Can't say
9. Central Board of Indirect Taxes and Customs (CBIC) regulations act come into effect from _____
   a. 1952 b. 1962 c. 1972 d. 1982
10. Harmonized System is a _____ Digit codes for classification of commodities.
    a. 5 b. 6 c. 7 d. 8

1.6 LET US SUM UP :

Air cargo is becoming important dimension for growing trade of world. It is relatively expensive to transport cargo by air, but also the fastest way of transport possible to cover medium to long distances. There are so many items like pharmaceuticals, chemicals, luxury consumer goods, jewellery, perishables, express parcels, airmail and so on. It consists of goods with a high value and/ or an operationally or commercially critical, and delivery time become very crucial.

The term classification implies arrangement according to classes or types. You need to classify them correctly so that all stakeholders in the supply chain, including the emergency authorities, know and understand about the goods they carry, and will handle it accordingly. This not only minimise the risk of health hazard but economically too important. This fact is especially important from the point of view of safety and environmental aspects since different types of cargo entail different technologies and practices and entails different types of risks that need to be taken into account.

Various authorities participate in ensuring the legalities and trade agreements among different countries. WCO is one of the prominent organisations which provide guidelines for carrying goods by crossing borders. The HS assigns specific six–digit codes for classifications of commodities. However countries can add some extra digit with this initial six digit code. Every country has their own rules and duty payable during import or export of goods.

1.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – c) Both a and b options

(2 – b) 40%

(3 – a) 9

(4 – b) 6

(5 – b) Class 2 sub–division 2.1

(6 – c) Class 5 sub–division 5.1

(7 – c) Class 6 sub–division 6.2

(8 – b) Special

(9 – b) 1962

(10 – b) 6

1.8 GLOSSARY :

Air Freight Forwarder : An Air Freight forwarder provides pickup and delivery service to and from the shippers dock.

Asphyxiate : Substance that can cause unconsciousness or death by suffocation (asphyxiation).

Battalion : A military unit, typically consisting of 300 to 1000 soldiers commanded by a Colonel, and sub–divided into a number of companies.

Cargo Aircraft : An airplane that is used to ship only cargo, no passenger traffic.

Combi Aircraft : A type of plane that combines the transport of passengers and cargo on the main deck of the aircraft.

Livestock : Animals that are kept on a farm, such as cows, pigs, sheep, etc.

Passenger Aircraft : An aircraft that carries passengers on the main deck and cargo on the lower deck.

Pathogens : Bacteria, Viruses, Rickettsiae, Parasites, Fungi and other agents such as prions, which can cause disease in humans or animals.

1.9 ASSIGNMENT :

1. What is the classification of dangerous good ?
2. How can we categories air freight ?
3. Differentiate between general cargo and special cargo.
4. What are the different transportations used according to the goods ?
5. Write a short note on custom classification of goods.

1.10 ACTIVITIES :

Make a list of few items (at least 10 items) analyse them and write their category as per DGI (Dangerous Goods International).

1.11 CASE STUDY :

■ **INCOTERMS 2010**

Facts

A company manufactures large tanks at its production site in Germany and sells them to a customer in Switzerland. The buyer and seller have agreed "CPT Zürich Incoterms 2010" as delivery conditions. The company employs a service provider to transport the tanks to Switzerland. During transportation the tanks are damaged and the customer refuses to accept them. He demands the delivery of new tanks.

Is responsibility for the damage to the tanks to be borne by the buyer or seller ? Can the buyer refuse to pay for the goods or is he bound to pay the sale price despite the damage? Has the seller discharged his obligation to deliver the goods?

Strategy

It is worth taking the time to consider the implications of delivery conditions before concluding a transaction in order to often avoid disputes later on. AWB's consultants will help you identify the most suitable Incoterms for your transaction or formulate a separate clause regulating the terms and conditions of delivery. They will analyse the planned transaction and propose solutions that reflect your individual needs.

AWB can also provide assistance in existing disputes concerning the interpretation of delivery terms – especially those involving damage to consignments.

Success

The interpretation of Incoterms is straightforward: in the case of supplies made CPT the seller is responsible for arranging transportation and bears the

related costs. However, the risk of losing the goods is borne by the buyer as from the contractual place of delivery. Therefore, if it cannot be determined who was liable for the damage to the goods, the buyer is responsible for the damage due to the early transfer of risk. Therefore, the customer cannot demand that the company supply new tanks.

https://www.awb–international.com/incoterms/case–study–incotermsr–2010

1.12 FURTHER READING :

Customs Manual 2014

Indian Trade Clarification based on Harmonized System (ITC–HS) https://mpeda.gov.in/?page_id=1052#:~:text=Indian%20Trade%20Clarification%20based%20on,suit%20the%20national%20trade%20requirements.

UNIT 02

Documentation

UNIT STRUCTURE

2.0 LEARNING OBJECTIVES :

After reading this Unit we will be able understand :

- The importance of documents in air cargo industry
- The different types of documents in air cargo
- The documents necessary for customs
- The requirements of documentation to export goods

2.1 INTRODUCTION :

Air cargo movement requires various documents in order to ensure correct delivery and minimisation of possible risk involved during carriage to the receiver. These documents represent the commitment of freight carrier's to transport the goods to required destination, under specific conditions (mutual agreement between the owner and the carrier). This is done in exchange for a monetary sum since it is a commercial activity. Whenever a carrier takes possession of the merchandise they issue transport document. That will be used by sender for tracking their good(s) transported and can ensure whether it is delivered to right recipient or not. It contains the terms and conditions under which the transport operation is going to take place. We can say it is evidence shows the activity. In absence of document can lead to loss of shipment(s), or can face problem during clearance & collection by receiver. While most of documents are mandatory, in addition some of documents needed as per the type of shipping good and the origin and destination location (when good has to pass custom department).

International trade requires lots of formalities and documentation. Freight forwarder assists in preparing of most of these. In some cases they give advice in export/import documents which must be prepared. With the requirement of digitalisation and environmental concern enables the reduce number of documents. In particular, with the development of a 'frontier free' Europe, trade within the EU States has become much easier with the abolition of Customs borders. In addition, the growth of e–commerce and internet technology further reduces the need for paper documents. Transport document in air transport is called an air way bill (AWB), that is a receipt issued by an international airline as an evidence of the contract of carriage but it is not a Document–title to the goods.

Due to high traffic and availability of resources such as portable devices, high speeds internet, software and so on enables and supports the requirement of single window environment. This permits the merchandiser to submit all the required data acceptability of the goods in a standardised format only once to all the statutory bodies at a single portal.

2.2 IMPORTANCE OF DOCUMENTATION IN AIR CARGO :

Each air cargo shipment is accompanied by appropriate documents. Different types of shipments require different document however documents such as Cargo Manifest and AWB are essential documents to carry with any type of shipment. Necessary documents are standardised and exclusive patterns valid worldwide. These documents contain the necessary information about goods transported with other information such as point of origin and destination, quantity, date and nature of goods transported and so on. This precise information is of the utmost importance for safety and environmental concerns. Despite their

differences, each of these documents provides details on particular shipment. Documents are not only required for custom clearance but also enables:

1. Identification of the shipment and its contents
2. Helps in handling, transport, storage and delivery
3. Exporter to get payment (Cash Against Document, Letter of Credit)
4. Ease in receiving of goods
5. Confirmation of received, shipped and ordered
6. Make insurance claims easy in case of loss or damage of shipment

2.3 AIR CARGO DOCUMENTATION :

The documents with air cargo are also called clearance documents for air cargo, which is generally used for customs clearance. Documents such as packing list, air way bill, invoice, commercial invoice, certificate of origin, etc. need to be printed out and stamped the official seal of the shipping company. These documents are required to be transported to both the destination airport and the consignee. For customs clearance, some countries accepted original documents only and they may not use the electronic version.

The complexity of documents may vary depending on the industry. To prove the legality of custody of the goods documentation is required. Regardless of industry or good types carriers must have to complete documentation on–hand for customs clearance. Any issues with AWB, contracts, and legal permissions could also cause problems. Customs clearance can be considered complex sometimes however it is not so since there is no single global standard. Let's have a look of some common custom documents :

2.3.1 Commercial Invoice :

It is issued by the seller of goods to the buyer. It is a proof of sale and is a legal document. During import customs broker uses this to assess the duties. It is preferable to prepare documents in English. Customs authorities focuses on invoice number, date, shipping company and receiving company, box number, product name, quantity, product item, total product price, product picture, receiving bank information, official seal of shipping company , transportation terms.

2.3.2 Packing List :

It is also a shipping document used in both domestic as well as international trade. It is information of contents of the goods to be exported and pasted on the exterior of the shipment. It plays an important role in the process. During booking freight forwarders need this list for booking and during clearance the customs broker need this for duty and taxes. Usually packing include: product name, net weight, gross weight, size of the single product, material, use, quantity of each product name per box, product customs code, number of boxes, size of box, shipping order for outer box, the details of the shipping company.

2.3.3 Certificate of Origin :

This certificate declares the place of origin of material or a product. In some country it is required in every case and in others only for specific products. The eligibility for import of good is determined by certificate of origin it also helps in duties, and entitled to any preferential treatment requirements.

2.3.4 Letter of Credit or Other Payment Terms :

A letter of credit is basically a letter from a bank guaranteeing that the seller will receive his payment on time and for the correct amount. If the buyer is unable to pay, the bank will be required to cover the full or remaining amount of the purchase, hence protecting the seller. It is a trade finance instruments in which letter from a bank guaranteeing that a buyer's payment to a seller will be received on time and for the correct amount. That means it is used to ensure the payment will be fulfilled between a buyer and a seller. If the buyer is not able to make a payment on the purchase, the bank will be required to cover the full or remaining amount of the purchase.

2.3.5 Air Way Bill (AWB) :

The freight forwarders are act as an agent of various airlines. On behalf of airline they completed air way bill which acts as a document of carriage. The document provides evidence of a contract for carriage between airline and exporter. As well it is also a freight bill and proof of receipt for shipment. AWB is a non–negotiable transport document and it is not a proof of ownership or document of title to the goods. It is also called air consignment note. House Air Way bill (HAWB) and Master Air Way bill (MAWB) are two types of AWB.

2.3.5.1 HAWB is a receipt of goods issued by a freight forwarder to a shipper, viewed as a contract of carriage.

2.3.5.2 MAWBis a transport document issued by an air carrier to the mentioned freight forwarder.

2.3.6 Unified Customs Declaration (UCD) :

A customs declaration is an official document that lists and gives details of goods that are being imported or exported. It is an act where a person shows his interest to place goods under a specific procedure. It's a legal obligation to place the shipment under a customs procedure, a customs declaration needs to be lodged. This document shows the lists with detailed description of goods bound for import or export. It has to submit upon arrival or departure at the border.

2.3.7 Notification to Captain (NOTOC) :

It is an essential document which informs the captain about dangerous goods is being loaded as cargo for transportation.

2.3.8 Inspection Certificate :

It is a document issued by indicating that goods have been inspected as per specifications of industry/government/ carrier. It is done prior to processing and the result is mention for use during shipment.

2.3.9 Bill of Entry :

Clearance of imported goods required information on the exact nature, precise quantity, and value of goods that have landed or entered inwards in the country. This document is known as Bill of Entry. Importer need to present cargo declaration during customs clearance. The document is standardised by the custom department of that country. In India Central Board of Excise and Customs regulates the custom activities so as it is responsible for standardisation of bill of entry.

2.3.10 Performa Invoice :

It is a commitment, prepared by the exporter before shipping the goods, informing the buyer about the goods to be sent, their value, and other key specifications (price quotation).

2.3.11 Air Cargo Insurance :

This insurance is a type of policy that protects the goods transported by the air. With the help of this policy the buyer or seller get insured to get reimbursement against damaged, destroyed, or lost items. Sometimes insurance may cover compensation for shipment delays.

2.3.12 Export Packing List :

It is more elaborated form of domestic packing list.

In this list the items in an individual package as well as also indicates the type of package i.e. box, crate, carton and so on with their dimensions and other physical features.

As we have discussed each cargo shipment in the air traffic is required to accompany with appropriate documents. Cargo Manifest (a consolidated list of all the cargo that is on board) and Air Way bill are documents essential for every type of shipment. Freight forwarders have through knowledge of documentation. International transport documents may be divided into: Transport Documents, Official Documents and, Commercial Documents.

1. **Transport Documents :** In air cargo Air Way bill is the primary document for the carriage of goods. It is the contract between the shipper and the air carrier for the carriage of goods, at the same time it also serves as a receipt of goods for shipment, a form of invoicing, and a document for the import, export and transit requirements of Customs.
2. **Official Documents :** In addition to the basic document of carriage, international freight transport requires regulatory documents such as those required for customs or other authorities. Dangerous Goods Notes, Certificates of Origin, or licence can be included in this category.
3. **Commercial Documents :** The commercial documents in a transaction are many and varied, and will depend on the nature of the consignment, methods of payment, etc. Examples of commercial documents include invoices, insurance certificates, letters of credit, and shipping instructions.

2.4 CUSTOMS DOCUMENTATIONS AND CUSTOMS CONTROLS :

The forwarder arranges customs clearance documents for both export and import consignments. Majorly the declarations are also done by them therefore they are responsible for the accuracy of these declarations. The import and export activities mainly involve ensuring of licenses and compliance required for shipping need to be done prior.

During export/import, Exporters/importer need to follow formalities and procedures by using required documents. Each document has their own uniqueness as well as they have specific purpose. These documents require expertise and export professionals to understand and prepare. Both the exporters and importers are in legal obligations to declare and record all goods which enter and depart

to and from the country's borders. The document preparation is an important part of the service provider i.e. forwarder. Exporting comes in two major forms:

Direct Exporting : Activity occurs between an exporter and an importer without the involvement of a third party. This is preferred by companies that are expanding or growing.

Indirect Exporting : It is simpler than direct exporting where exporting goods through various parties in the producer's country. Often it has seen that companies that are new to the exporting market prefer indirect exporting because it does not require much experience or special knowledge/skills or major cash expenditures.

The custom authorities are more interested in imported goods rather than exported throughout the world, because most exports do not attract controls whereas imports are controlled. Import controls are either Tariff or Non–Tariff barriers. The word tariff describes the classification system which is the beginning of all countries' import controls.

Various documents needs to be presented before customs along with other documents mentioned in above section. The import and export task of freight forwarder is little tricky so they need to be cautious and well planned.

2.4.1 Consular Invoice :

It is required document in some countries and contains important information such as the consignee, consignor, value and nature of the shipment and is validated by the consular official of the foreign country.

2.4.2 Dock Receipt :

It is accountability transfer document which is issued by the exporter or the freight forwarder to the shipping company as proof of receiving for shipment. The air way bill or bill of lading is prepared on the basis of it. While claiming compensation against any damage the dock receipt becomes handy.

2.4.3 Certificate of Free Sale :

A Free Sale Certificate is required in case of certain kinds of goods and in some countries. It is also known as a "Certificate for Export" or "Certificate to Foreign Governments". It is a document assured that the goods specified on the certificate are freely sold and produced in the country that seeking to export them.

2.4.4 Certificate of Conformity/Compliance :

This document is issued to both the importers as well as exporter indicating the shipped products as per required standards. It is a mandatory document for customs clearance of exports to many countries around the globe.

2.4.5 Inspection Certification :

Certificate of Inspection is a document certifying that the merchandising good(s) was in appropriate condition just before shipment. It is used as specifications of the goods shipped. It is an inspection report required by importing nations.

2.4.6 Bill of Entry :

It is a legal document completed by an importer or agent as custom clearance procedure in order to receive a delivery of imported cargo. It includes

Port code, IEC (Import Export code), License number, Customs house agent code, Importer's name, Importer's address and other related document. If the Bill of Entry is not filed within the stipulated timeframe (30 days within the arrival of goods at a customs location) the goods can be confiscated/ seized and are auctioned by the authorities. However importer can request for extension before the authorities for filling the Bill of Entry that can prevent auction if the authorities permits.

2.4.7 Export Declaration :

An export declaration provides information about the goods being shipped, including type, number, and value it is submitted by an exporter at the port of export.

2.4.8 Import License :

It is a document which allows transporting goods to a destination country to avoid problems in receiving of goods. It may depend upon destination as well as goods to be transported. The government on provides an authorisation for importation of certain goods into a country.

2.4.9 Export License :

It authorises the exporter of specific goods to transport his product in specific quantities in a particular country. Many items do not required any licence for exporting provided this item should not be on the Negative List. Negative list is the list of goods which is prohibited, restricted through licensing or in either or both import and export. It is divided into three prohibited, restricted through licensing or canalised.

Part–I Prohibited Items : This category items cannot be exported or imported. Generally items included in this category are wild life, exotic birds, timber, wood pulp, charcoal etc.

Part–II Restricted Items : These are the items are restricted through licence can only be imported or exported in compliance with applicable regulations.

Part–III Canalised Items : Canalised items can be imported or exported through using specific procedures or methods of transport, specified in the Negative List.

We may conclude from the above discussion that all goods could be exported, with the exception of those on the Negative List. These items can be imported or exported only with a licence through a specified canalising agency, or under special circumstances. As a result, before placing an export order, the exporter must verify the quality of the products.

The carrier has to file Import General Manifest (IGM) before arrival of cargo at destination country it has to present before the Custom of country. It is filed on the basis of Bill of Lading or Airway bill. This document contains the details of shipper, consignee, description of packages, description of goods, airway bill or bill of lading number and date, flight details etc. After that the necessary documents for import with customs under the said imported goods has to be filed by either importer or customs broker. It is done on the basis of IGM information. Discrepancy or mistakes in filing IGM may results in rejection.

2.5 EXPORT DOCUMENTATION REQUIREMENTS IN INDIA :

Export, import procedure provides ease as well as smooth and systematic operations in international trade. Basically this procedure is combination of various documents required as per trading item as well as destination. Like other country it is also bounded with international regulations. Each items and country required specific documentation procedure and requirement. Customs clearance is required for all import and exports into and outside of country.

In India, Directorate General of Foreign Trade (DGFT) and its regional offices regulates export trade. It is functioning under the Ministry of Commerce and Industry. DGFT formulates and implements policies and procedures required for exports from India.

In India under the Ministry of Finance Central Board of Indirect Taxes and Customs which was earlier known as Central Board of Excise & Customs. The correctness of description in bill of entry need to be examined, it has to be correct the Assessing officer at port/gateway check the goods and ensure whether the imported goods are restricted and required permission/license/permit etc.

The Custodian has to keep goods in custody until custom process need to be cleared. The custodian is approved by Principal Commissioner or Commissioner of Customs for this.

Conducive environment is needed for sustained economic growth in developing country like India. The current regulatory environment is extremely favourable. The mind–set of government is critical for achieving the target of sustainable development at a faster pace. "Aayaat Niryat Form" has been introduced as a single common application to reduce the number of documents.

❑ **Check Your Progress :**

1. Documents are not only required for custom clearance but also enables:
   a. Ease in receiving of goods
   b. Identification of the shipment
   c. Helps in handling, transport, storage and delivery
   d. All of the above options
2. The documents with air cargo are also called as _____
   a. Export documents b. Import documents
   c. Clearance documents d. None of the above options
3. Commercial invoice is preferable to prepare documents in _____ language in air cargo.
   a. Hindi b. Native Language
   c. English d. Any language of choice
4. Air Way Bill is also called as _____
   a. Consignment Note b. Cargo Document
   c. Both option a and b d. None of the above options
5. Notification to Captain (NOTOC) mean _____ goods loaded as cargo for transportation.
   a. Valuable Goods b. Essential Goods
   c. Dangerous Goods d. All of the above options

6. Performa invoice include detail _____

a. Value of goods sent b. Goods to be sent

c. Both a and b options d. None of the above options

7. Bill of entry must be filled within _____ days, otherwise goods may be confiscated and auctioned by the authority.

a. 30 b. 45 c. 60 d. 90

8. In India _____ Office regulates export trade.

a. Export–Import Council

b. Directorate General of Foreign Trade (DGFT)

c. Both a and b option

d. None of the above options

2.6 LET US SUM UP :

Airfreight involves the shipment of packages and goods via an air carrier. An air carrier could be commercial or charter. Transportation via air carriers allows shipments an easier gateway to anywhere that airlines fly and land. The process of airfreight is used in conjunction with other shipping modes. The process of air cargo requires many vital steps taken by the freight forwarder and the air carrier. Cargo Manifest and Air Waybill are documents essential for shipment. The main aim of a forwarder is to provide movement of goods whether it is working for an importer or an exporter, Import and export documentation is therefore essential for these movements.

Many products are permitted to export without any licence, while some are prohibited and some are canalised, requiring a licence prior to export. As a result, before approving and executing an export order, the exporter must determine if any licences are necessary or not. It is necessary to follow the procedure for importing and exporting products into and out of a country. The importer and exporter of the goods must submit valid documents to complete this process.

2.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – d) All of the options

(2 – c) Clearance documents

(3 – c) English

(4 – a) Consignment Note

(5 – c) Dangerous Goods

(6 – c) Both a and b options

(7 – a) 30

(8 – b) Directorate General of Foreign Trade (DGFT)

2.8 GLOSSARY :

Billed Weight : It is weight shown on an invoice and/or waybill, used to calculate freight charges.

Bonded Terminal : A customs–approved storage area for storing imported goods temporarily at airline terminal

Broker : An individual or firm that acts as an agent between a buyer and a seller, in return for a fee or commission.

Bulk Cargo : Cargo that is not packed in a shipper container or box and is stowed loosely in the hold of a ship

Cargo Insurance Certificate : It is used to assure the consignee that insurance will cover the loss of or damage to the cargo during transit.

Clearance : The completion of customs entry conditions that result in the importer receiving products from the customs authority.

Consolidation : Separate shipments assembled into single shipment for movement on one waybill from one location to another to reduce shipping rates.

Customs : Government authority that regulates the flow of goods to/from a country and collects duties levied by a country on imports and exports.

Customs Clearance : The procedures involved in getting cargo released after Customs formalities

Customs Duty : A tax levied and collected by custom officials of duties

Document–title : Any written instrument, such as a bill of sale, title deed, bill of lading, that proves ownership or control and possession.

Embargo : Temporary refusal to accept traffic for transportation at certain points or in certain routes due to emergencies, limitation of facilities, or other abnormal circumstances.

Importer – Exporter Code (IEC) : business identification number which is mandatory for export from India or Import to India.

Proof Of Delivery (POD) : A receipt with the signature of the recipient

Protectionism : government policies designed to restrict imports from coming into the country.

2.9 ASSIGNMENT :

1. Elaborate the significance of air cargo documents with examples.
2. What are the documents used for air cargo transportation ?
3. Describe the list of documents custom department require for hassle free air cargo movement.
4. What documents required by DGFT for export of goods from India ?

2.10 ACTIVITIES :

Visit any air cargo company and inquire about the documents they require to transport goods from one place to another.

2.11 FURTHER READING :

1. The Handbook of International Trade A Guide to the Principles and Practice of Export Consultant Editors Jim Sherlock and Jonathan Reuvid
2. Export–Import procedures: Documentation and Logistics by Prof. C. Rama Gopal

UNIT 03

Cargo Labelling

UNIT STRUCTURE

3.0 LEARNING OBJECTIVES :

After reading this chapter we will be able understand :

- The packing, marking and labelling
- The importance of labelling in cargo movement
- The regulation for labelling in India
- The impact of labelling on cargo goods

3.1 INTRODUCTION :

Do you need to open the box to know what the material inside it is? What is its nature (fragile/or not)? You will definitely say "no! Why should we!" you

are right because everything is written outside the box, it is label of that package that says about the product. During shipping other information like name of consignee and consigner, their address, phone number, weight/volume and other necessary information and instruction.

Packaging is wrapping the goods in container, drums, box, and so on. It is protection for inside good. Labelling is the display of related information on the package or product itself and is done after packaging. It can be a piece of paper, fabric, plastic or other type of material affixed on an item to provide information about the content, origin and use of such item. Anything printed on outer package of air cargo is label. It has multiple functions and much information on it. It is done on individual as well as group packages. Marking is an important aspect of labelling. Improper or incomplete information on packages leads to incorrect handling procedures, accidents, incorrect delivery, breakage, damage, losses in quantity, and customs fines. A clear and precise marking/labelling prevents from such situations. The colour wherever used has to be so clear that it can be stand out from that of the package at the same time it must be legible and durable manner.

Labels can be used as material identifiers and communicator of the materials in the package. The labels are prepared as per specifications and guidelines by various authorities. Whether it is colour, shape, size or so on everything is as per regulations. Handling, transportation, storage, safety, and emergency response etc. are affected by the label on it. Shipper uses it to track good(s) or create complain. It also assists the forwarder and other associated person in proper segregation requirements for warehousing and storage activities. The labels on package can help in avoiding or mitigating the incidents or accidents. Therefore it is important to ensure that the package only contains relevant markings on its outside package and any unnecessary marks must be removed to avoid ambiguity.

Labelling is one of the final elements of the shipping process. It should therefore be accurate and effective, which is a critical step in ensuring that items are protected during travel.

3.2 EXPORT PACKING, MARKING AND LABELLING :

Labelling is done with giving emphasis on various aspects of air cargo. Sign and symbols on labels are important to be familiar for forwarder so that they may keep these labels up to date for both domestic as well as international standards. Globally accepted language for transactions and other things in international trade is English so it is to be maintained in English mainly. Some countries like China, Korea, and Taiwan etc. also use their local language along with English. The information on the label and words indicating this information has to be large and as prominent as any other English wording on the package or label.

Export packing is the process of securing goods for safe journey to the destination country (produced within one boundary and sold beyond it). The labels contain information about the contents of the package. Cargo handlers may take preventative measures in all areas if they are aware of this. It serves variety of functions, including reducing the possibility of damage and providing guidance for loading, unloading, unpacking, transport, and storage. Not only that, but proper marking expedites delivery to the intended location. Some of important information on labelling is :

- Shipper's mark
- Nature of good
- Country of origin
- Weight
- Number of packages and size of cases
- Handling marks (international pictorial symbols)
- Cautionary markings, such as "No Freight on Top Fragile"
- Port of entry

Hazardous Labels on package alerts the handlers to follow precautionary major. Customs need to ensure whether duty is paid or not. It becomes easy to access the boxes by reading labels. When the package is confiscated or detained duty to non–payment of duty or any reason and need to be disposed of, the Labelling also provides instruction to use, recycle, or dispose of the package or product.

3.3 IMPORTANCE OF LABELS :

The air cargo needs to be arrived at the destination in perfect condition, with the ability to withstand natural disasters, handling stress, misuse or theft among other things. Sometimes it is observe that the receiver at destination got a tore or damaged packaged has been delivering or the item inside the packet was broken and the receiver is denying to receive because of condition of packet. Have you ever thought how and why this happen? It is due to improper transportation, handling, storage or any other related issues. This could have been prevented if it would have handled properly; it may happen because the safety/cautionary statement were not clear.

Labels are universally understood medium of product communication. It provides product related information inside a package. Regardless of language, ethnicity, religion etc. it has to deliver internationally within stipulated time. The language English is the authentic accepted internationally, it become easy to understand by everyone involved in it. During custom clearance and other process it is convenient too.

It indicates the type of hazard inside the package that implies special handling instructions and it's therefore protect the people involved in it whether cargo handlers or its users. Cargo package labels however have prime objective for cargo handlers and hence it protects and alerts employees against potential hazards. During loading it is important to know where a package should be kept and how. It is also need to consider that what two package shouldn't keep close to each other. After unloading of arrived cargo the labels help carriers in determining stowage and segregation. During exigency it serves as emergency responders, than the hazard labels for accident clean–up and potential evacuations.

Improper marking and labelling can results in non–acceptance or refusal by carrier so it may have to be returned. Sometimes it also results in delayed or may be retained by customs. It can result in high costs involvements both in–terms of money as well as time. Proper labelled goods can avoid customs holding and retention or rejection. Customs also required certain labelling standards which if disregarded or not followed it may even mean that your freight won't make it in or out of the country.

We should also keep in mind the factor that the exporter and importer may distant far from each other so the cargo is to move miles away from its origin. Proper marking guide the cargo to its required destination without hustle and bustle. Very often tranship is required for containerised cargo from different locations, in that case again labelling/marking become essential otherwise it may move wander.

In operational documentation is created in such a way that each shipment marks and numbers are included, so that it allows officials to identify and transfer the cargo accordingly. The packing department has to mark and label the cargo appropriately before preparing the commercial invoice and packing list. The marks and numbers must be clearly stated on the packing list as well as commercial invoice after the packing is done. This information is critical in all subsequent paperwork till it arrives at its destination. The cargo is unloaded at warehouse once it is moved to nearest Container Freight Station (CFS) for customs clearance. Here the authorities conduct the survey on the basis of packing list. Then the survey report is prepared on the basis of reconciliation of marks and numbers mentioned in packing list with the marks and numbers labelled on the items to be exported. This process matching continues at many locations during transit utility's arrives to its destination. However the Marking and numbers are also reflected on airway bill in order to verify and match during transit where ever applicable. Any mismatched or wrongly declaration can lead to hold at customs and may be fined.

3.4 EXPORT MARKING :

The primary purpose of export packaging is to unitise the content and protect them from situations (natural calamities, pilferage, stress and tear and so on) going to occurred during various stages as well as provide aid in handling until it is delivered.

Marking is essential component of export that also allows identifying goods imported or exported. In the international movement the export shipping mark is the principal identification for goods. There for it is universal (same in almost all participating nations) and is very simple and not at all elaborated to avoid confusion to the handlers. During the export process, there are three categories of data that must be marked or labelled. These are Essential data, Descriptive data and Instructions.

Essential Data includes: Name and address of exporter, Name and address of customer and, Case/crate/package number.

Descriptive data includes: Weight of the shipment, Order number, Port of shipment, and Origin and destination of goods.

Handling Instructions is given to avoid breakages and Language understandable to countries involve in handling. Boxes, crates and wooden cases are marked with handling instructions in the language of the country of origin. There are certain rules or rather call it guidelines for labelling export goods. For example: label has to be clearly informed about the quantity and quality of the goods shipped.

3.5 PLACE OF LABELLING :

The labelling is done one most visible part of a package. It should be convenient to be seen by cargo handlers, authorities as well as the receiver during

any process of movement of cargo. At the same time it must be conspicuous and easy to read without any obscurity or duplicate marking to avoid confusion too.

The level of hazards (primary and subsidiary) posed by the materials inside the package has to be clearly visible and should be bold enough to read. As we know the label is communication medium by specific symbols, colours, and codes that clearly and immediately identified by person involved in the process. The colour, code or symbol etc. used on label is as per guidelines of regulatory bodies but it should be kept in mind that the labels and packages should not look offensive or unattractive to the buyer too.

The Distribution Executives Interest Group (DEIG) issued guidelines regarding shipping Label which said it is to be placed on the top of the carton. The 'GS1 US' Application Standards for Shipping Container Codes directs the placement of the shipping label on the carton's side. The labelling placement also depends on the agreement by stakeholders based on the needs and abilities of each of them. That creates a systematic and unique symmetry for labels. During operational planning, both side– and top–label must be addressed.

Various guidelines states that the labels must be printed on a surface other than the bottom of the package and must be located on the same surface of the package and near the proper shipping name marking. Any incoterm applied to the package is also indicated on the label in such a way so that it can be easily seen and understood.

A – Address, name of the sender

B – Address, name of the recipient (customer)

C – a Maxicode (is a property right, machine-readable symbol system originally created and employed by Service provider. Suitable for tracking and

managing the shipment of packages, it resembles a barcode, but uses dots arranged during a hexagonal grid rather than bars):

D – Routing code: this is often the code to trace routing process inside carrier's company

E – A barcode: provides the postcode of the destination

F – Tracking Number: this is often an ID you and customer use to trace where the package is, and the way long it'll deem it to succeed in the ultimate destination.

G – Level of service

Some additional information need to be attached like :

- ✓ The load of the package
- ✓ Shipping class
- ✓ address (or return labels): this item aims for optimizing return process, reduce goods missing in returning process

The majority of this information would be filled by the carrier and service provider (like in this label UPS, United Parcel Service) only got to fill important, main information like name and address of sender and receiver and therefore the level of service

3.6 INCOTERMS :

The International Chamber of Commerce established Incoterms (International Commercial Terms) which are three–letter trade terms to facilitate cross–border trade. In other words, incoterms are the terms that specify the buyer and seller's obligations, risks, and expenses associated with delivery of goods that comprise the export transaction. These terms are frequently used in domestic and international trade contracts. It is essential and helps in easy international trading by providing standard terms recognised across the globe. It is updated almost every ten years and publishes an update for the trans–border commerce. These terms are not bounded to mode of transportation, however 7 terms (EXW, FCA, CPT, CIP, DPU, DAP and DDP) are used for all mode of transport whereas 4 terms (FAS, FOB, CFR and CIF) are used only for waterway transport. These codes can be found on airway bill too.

3.6.1 Incoterms Used for Multimodal Transportation :

(a) EXW (Ex Works) : By making items available to the buyer, the seller fulfils their commitment to him.

(b) FCA (Free Carrier) : This incoterm indicates that the seller delivers the items to the carrier or the buyer's representative.

(c) CPT (Carriage Paid to) : This incoterm denotes that the seller delivers the goods to the carrier or the buyer's representative and pays for international carriage.

(d) CIP (Carriage and Insurance Paid to) : Seller delivers goods to carrier or buyer–appointed agent and pays for international carriage and insurance.

(e) DPU (Delivered at Place Unloaded) : It was formerly called DAT (Delivered at Terminal) before 2020 incoterm. In this case, the seller delivers by unloading the items at a predetermined location and making them available to the customer.

(f) DAP (Delivered at Place) : The products are made available to the customer at a specified location by the seller.

(g) DDP (Delivery Duty Paid) : Seller delivers by placing products at buyer's disposal, cleared for import, customs paid, and ready to unload at specified location.

3.6.2 Maritime Incoterms (Suitable Only for Sea or Inland Waterway) :

(a) FAS (Free Alongside Ship) : The products are delivered by the seller by placing them alongside the buyer's chosen vessel.

(b) CFR (Cost and Freight) : The seller covers all costs and freight to the specified destination, and delivers when the products are loaded onto a vessel designated by the buyer.

(c) FOB (Free On Board) : Seller delivers when goods are on board a vessel selected by buyer.

(d) CIF (Cost, Insurance, and Freight) : Seller pays for costs, freight, and insurance to named destination and delivers when goods are loaded onto a buyer–designated vessel.

3.7 LABELLING NORMS AND REGULATIONS IN INDIA :

As we are aware that if one gets wrong shipping labels the operation can rapidly become costly, inefficient, and even reject to deliver. Despite Hazardous class or non–hazardous class the labels must be durable and able to withstand with weather. These labels must endure a 30–day exposure to normal transit circumstances without deterioration or colour change. The country seeks information in their local language however English is universally acceptable.

Products coming from any country meant for direct consumption require specific labelling. It may deviate from international. English is most preferred language for labelling. Depending on the consignment, all packets and containers should include information. With the exception of EOU products, Indian Customs is stringent and ensures that imported goods have all of the legally required information before entering the retail market or being sold for consumption. However, the Ministry of Commerce Government of India on November 24, 2000, issued notification regarding commodities imported into India must carry declarations on the label :

- Name and address of the importer
- Generic or common name of the commodity
- Net quantity (in metric).
- Date of Manufacturing
- Month and year of packing
- Maximum retail sales price (MRP)
- Packaged meant for institutional use require 'Not for Retail Sale' declaration

Before Customs clearance in India, the import consignments have to meet the above–mentioned standards. This labelling requirement does not apply to raw materials, processing goods, bulk imports, or any items that will be further processed before being sold to end customers.

In case of food (packaged food) items exported to India must indicate Non–Vegetarian/Vegetarian. As per definition foods consist animal(s) flesh or any parts

of an animal are called non–vegetarian. Eggs are included in this category while milk and milk products are considered vegetarian foods.

Non–vegetarian foods must have a symbol of a brown dot inside a brown square prominently displayed on the package in a way that contrasts with the background of the packaging while remaining visible near the product's name or brand. The symbol for vegetarian food is the same but green in colour.

3.8 FACTORS INFLUENCE LABELLING :

Labelling laws differ from one country to the other country and they do not follow a consistent pattern. Every country has its own regulations regarding labelling which enforce the compulsory and specify the type of information appear on label. It may include the name of the manufacturer, the country of origin, weight or volume and so on. Some countries require labels to be printed in more than one language whereas in some countries it is forbid to use foreign languages on label. Export labelling is influenced by certain factors. Again it can vary from country to country. These factors may be :

1. Language
2. Customs and other regulations
3. Instructions required
4. Ease in print and use
5. Length of the distribution channel
6. Environmental factors

3.8.1 Language :

Labelling is sometimes employed as a marketing strategy. Therefore the language on the package must focus to both origins as well as destination of the products. The objective is to reach the vast majority of people so that they can comprehend the product information on the package label.

3.8.2 Customs and other Regulations :

The labelling has to be done in accordance to government regulations. The standards are specified in regulation guidelines; therefore the labelling is done by following these guidelines. The error most likely results in a fine and a shipping delay.

3.8.3 Instructions Required :

Handling instructions is also very crucial in order to avoid misshaping to products as well as the workforces involved at various stages of its handling whether it is transported through single or multimodal medium.

3.8.4 Ease in Print and Use :

The laws associated with product shipping lanes may be complicated therefore, regardless of kind of product being shipped the companies tries to automate the labelling process in order to keep pace with production. So the labels should be design in such a way that it can be easily printed and can be used for different products as well. Every aspects of a label is comply with barcodes, logos, languages, formats and content including warnings, product information and even colour to meet global and regional requirements.

3.8.5 Length of the Distribution Channel :

The labelling should be planned by keep in mind that it should be withstand throughout the distribution channel. Too many middlemen are involved in a lengthy distribution channel as well it can take a longer time between production and final consumption.

3.8.6 Environmental Factors :

Weather and climatic conditions have a significant impact on both package design as well as the labelling material. Tropical climates, for example, need different packing than a cold environment. It is also need to keep in mind that the label and package has single time use and they need to dispose just after use so the end user have ease in it.

❑ Check Your Progress :

1. Which is the information on the label of export packaging ?

   a. Country of origin b. Handling Marks

   c. Port of entry d. All of the above options

2. The cargo is unloaded at warehouse and moved to nearest _____ for custom clearance.

   a. Shipyard b. Container Freight Station (CFS)

   c. Both a and b options d. None of the above options

3. The purpose of export packaging is to unitise the content and protect it from situations like :

   a. Pilferage b. Natural Calamities

   c. Stress and tear d. All of the above option

4. Three category of export data marked or labelled are essential data, descriptive data and _____

   a. Consignment Note b. Handling Instruction

   c. Both option a and b d. None of the above options

5. _____ issued guidelines to place label on the top of carton.

   a. Distribution Executives Interest Group (DEIG)

   b. IATA

   c. Directorate General of Civil Aviation (DGCA)

   d. None of the above options

6. _____ Coterms are used for all mode of transport whereas only _____ for waterway transport of cargo.

   a. 3 & 6 b. 6 & 3 c. 4 & 7 d. 7 & 4

7. Export labelling is influenced by certain factors. These may be :

   a. Custom regulation b. Distribution channel

   c. Handling instruction d. All of the above options

8. Which is not incoterm ?

   a. FAS b. DAT c. CIF d. CFR

3.9 LET'S SUM UP :

Shipping label displays the vital information for a carrier to transport a package from their origin to its final destination. Labelling is one of the last steps in the shipping process. So, it should be precise and effective, as this is a crucial step in ensuring that objects are secured while travelling. To meet worldwide and regional requirements, Every aspects of a label has to adhere to barcodes, logos, languages, forms, and content, including warnings, product information, and even colour. Only relevant markings should be there on the package to avoid any confusion during any stage of shipping. Labels also indicate the package's hazards, and markings guarantee that the shipment is handled properly to avoid spills, accidents, and exposure.

It is normally placed on the largest side of the package, ideally either on the top or side of the package. It is also important to care that it has to be of correct size so that it can fit entirely on the side where it is to be placed. At the same time also ensure that it is not folded over any edges so that the information can be easily seen or been able to be scanned.

Due to complications in regulations and shipping process, no matter what kind of product is going to be shipped the label has to be so informative that there is no misrepresentation. With marketing assistance, labelling must suit both global and regional regulations. Products intended for different markets require multi–lingual labels or should have scope to adjust as per language and other regulatory requirements without much confusion and can be hesitation generated for products going to be shipped. Any unnecessary marking on any part of packaging which may not be suitable for shipment has to be removed or obliterated.

ICC (International Chamber of Commerce) has created a three–letter trade terms to facilitate international trade these list of terms of agreement is known as incoterms. There are total 11 incoterms are used in different modes of transports.These are EXW, FCA, CPT, CIP, DPU, DAP, DDP, FAS, FOB, CFR, and CIF. These codes can also be seen on the air waybill. It is indicated over label and helpful in the process.

3.10 ANSWER OF CHECK YOUR PROGRESS :

(1 – d) All of the above option

(2 – b) Container Freight Station (CFS)

(3 – d) All of the above option

(4 – b) Handling Instruction

(5 – a) Distribution Executive Interest Group (DEIG)

(6 – d) 7 & 4

(7 – d) All of the above option

(8 – b) DAT

3.11 GLOSSARY :

Advice of Shipment : A note made to a local or international buyer informing them that their shipment has been dispatched and providing data on packing, routing, and so on.

Alongside : A term used to describe the side of a ship. Deliveries made "alongside" must be placed on a pier or barge within reach of the transport ship's tackle in order to be loaded.

Consul : A government official residing in a foreign country who represents the interests of her or his country and its nationals.

Cu. (Cubic) : A unit of volume measurement.

Cubic Foot : A volume enclosed within a one–foot–high, one–foot–wide, and one–foot–long space. It is equal to 1,728 cubic inches.

Cube Out : When a container or vessel has reached its volumetric capacity before its permitted weight limit.

Embargo : Order to restrict the hauling of freight.

Markings : Additional identifiers (other than hazard labels & placards) that further describe the package.

Placards : Standard hazardous IDs that are placed on outside containers, trucks, cylinders, and other transport vehicles must meet specified criteria.

Principal Display Panel (PDP) : The principal display panel (PDP) is the front of the package and is easily seen by the handler during handling.

Transhipment : When the cargo or a container is moved from one vessel to another while in transit to its final destination.

3.12 ASSIGNMENT :

1. What is the important information on the label of export packing cargo ?
2. Why is label so important on cargo ?
3. Explain the three categories of data on the label of cargo.
4. What is incoterms ? Explain the incoterms used in multimodal transportation.

3.13 ACTIVITIES :

Collect the at least 4–5 labels of cargo and observe the content on it and match it with the theory you have studied in this chapter.

3.14 CASE STUDY :

■ **Lithium–ion Batteries :**

There are strict rules about how lithium–ion batteries must be packed. Their poor packing, and their subsequent cartage on an aircraft, can have catastrophic consequences.

For many years, the bad packing of goods such as rechargeable batteries have raised huge concerns for airliners. Lithium batteries are prone to overheat and can ultimately cause quite dramatic fires.

In 2010, for example, a UPS Boeing 747 (a cargo aircraft) in the United Arab Emirates crashed. A fire had disabled the aircraft's oxygen system, smoke filled the cockpit, and the pilots were unable to see. The Boeing 747–44AF crashed near Dubai and both members of the crew lost their lives.

The UAE's civil aircraft authority investigated the incident, tracing the fire back to lithium batteries and other combustible materials which had been stored in the cargo hold.

Following the disaster, UPS started to use fireproof containers for their cargo.

The shippers in Hong Kong, the report noted, "did not properly declare these shipments" nor did they provide test reports as recommended by the United Nations.

Ten years later in 2020, UPS were once again the spotlight and were accused by the U.S. Federal Aviation Administration (FAA) for shipping improperly packed lithium batteries.

UNIT 04

Rate & Charges of Air Cargo

UNIT STRUCTURE

4.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able to know about :

- Classification of air freight rates
- Different factors affecting the air freight rate
- Principles of rate calculation
- Common freight charges in air cargo

4.1 INTRODUCTION :

As per definitions "Cargo" implies to goods that are can be transported by commercial air services, except passenger baggage. These "Goods" include courier, perishables, dangerous goods, live animal, human remains etc.

We have already studied in previous units that the Cargo is shipped throughout the world by various means. The medium of transportation depends on various factors like: distance to be carried out, types of goods to be carried, urgency and so on. Ocean mode is more convenient and reliable as well as economical than Air. But when some good is to be delivered to long distance in short time Air transportation becomes more feasible. However we also know some time it is required to use multimodal transport. The cost involved to carry these goods may also put effects on determining the rate at which the goods to be shipped to its destination.

A freight rate is a cost required to pay against transporting of cargo from one place to another. It is also depend on many factors like type of goods, mode of transportation, accountable weight and dimensions, final destination, fuel charges and so on. Air carriers use dimensional weight to determine cargo pricing. Documentation fee need to be paid by freight forwarder so this charge also must be considered in quotation. Normally the aircraft usually set the charges based on marginal cost and then adjusted for the level of service. The Air Cargo Tariff and Rules (TACT) provide comprehensive information to cargo professionals required for efficient shipment worldwide.

Freight forwarders needed to cover their labour, rent, stationary and other associated costs to give required customer care to consumers because the shipping sector has become a very competitive market among carriers, forwarders, and importers and exporters especially in international shipping. Due to empty legs and the balance between demand and available capacity, charter rates are comparably higher.

4.2 AIR FREIGHT RATES CLASSIFICATION :

Air cargo is preferred by global importers and exporters when they need to deliver items quickly. Freight class is a measurement system that carriers use to price freight rates and calculate the cost of shipping. Every airline has its own criterion for determining rates and tariffs. It is a specified classification system for goods shipped by aircraft. This classification system ensures that no customer should receive an unfair price. The commodities being transported or the density of cargo being transported determine the freight class of a shipment. Cargo aircraft is also known as freight aircraft, freighter, airlifter, cargo jet. All–cargo aircraft differ greatly from passenger planes in terms of features, and passenger plane design models are not included. Its transit time varies from short to long distance trips. The rate is therefore depends on this factor also.

Cargo rates are divided into five basic heads i.e. General cargo rate, Special cargo rate, Commodity classification rate, Baggage cargo rate and Live Animal cargo rates. These rates are predesigned and the quotation is released by particular airlines. They charge as per their own terms. It may slightly vary from airlines to airlines.

4.2.1 General Cargo Rate (GCR) :

The rate charged by a carrier for the shipping of cargo that does not have a special class or commodity rate. Initially it was introduced to cover most of air Cargo but now covers only a few. It is now the rate that a carrier charges for shipping cargo which is not subject to a discount or any other special class fee, or commodities price. Carriage of commodities that have not been allocated to a specific commodity classification rate is subject to general cargo rates. It consists of minimum rate (M), normal rate (N), and lower charge in higher weight (Q).

4.2.2 Specific Commodity Rate (SCR) :

The rate is applied to certain class of commodities. A common carrier rate differs from a class rate in that it is only applicable to a single product or a set of related commodities being transported between certain points or regions. Specific commodity rates are typically cheaper than general cargo rates, and they are published for specific commodities from a specific point of origin to a specific point of destination. The rates are subject to minimum weight restrictions and take precedence over class and general cargo prices.

4.2.3 Commodity Classification Rate (CCR or Class Rate) :

The transportation charge for items with comparable shipping characteristics is known as a class rate or commodity classification rate, and it simplifies the process of pricing different types of freights. The class rate has been evolved for pricing purposes of products transported. The procedure of determining carrier class rates is two–step process. The first is to identify the product's categorisation, and the second is to establish the precise rate or price depending on the product's categorisation. It's issued for specific commodities from a specific origin to a certain destination, and it's usually printed in Surcharged (S) or Reduced (R) format (R). It takes precedence above General Cargo Rates, regardless of comparisons.

4.2.4 Baggage Shipped as Cargo (R) or Unaccompanied Baggage :

Commercial airplanes also carrying commercial airfreight. Only personal wearing clothing and personal articles of a passenger may be included to transport as cargo. It includes personal items like portable typewriters, musical instruments, and sports equipment but excluding machinery, money, jewellery, watches, cameras, tickets, liquors, perfumes and so on.

4.2.5 Live Animals(S) :

Animals have been transported by air since long times. In today's modern world, carriage of live animals by air is considered the most humane and expedient method of transportation over long distances. Domesticated animals such as cats and dogs, as well as birds are also permitted on flights in the cabin or as checked in baggage depending on the regulations of the country of destination subject to policy of airline. Charge rate depends on animal carries.

4.3 COMMON FREIGHTS CHARGES :

On focusing global economy, companies are trying to gain a profit through expansion of their business in multiple nations. For doing so they need to follow various regulations which involves different types of charges too. Various charges along with shipment of goods charges are to be paid to concern authorities. These fees keep the corporation from becoming confused and losing money. For future reference, all documents concern to shipping expenses and records are kept and maintained for several years. The most common charges/cost involved in this regards are :

1. Cargo Insurance
2. Customs Duty
3. Demurrage
4. Booking Fee
5. Pickup Fee
6. Delivery Fee
7. Emergency Risk Surcharge (ERS)
8. Bunker Adjustment Factor
9. Peak Season Surcharge
10. Green Fuel Surcharge (GFS)
11. Disbursements

4.3.1 Cargo Insurance :

Insurance is required to safeguard against damages or theft during transit. It is obtain through freight forwarder.

4.3.2 Customs Duty :

The tax imposed on the goods when they are transported across the international borders also called "Tariff". In addition to the applicable customs duty, the Indian government charges a 1% customs handling fee on all imports.

4.3.3 Demurrage :

Charge need to pay as a result of a failure to abide by the rules agreed to in a charter agreement (failure to load or discharge the ship within an agreed time period).

4.3.4 Booking Fee :

This is an administration fee at origin from freight forwarder.

4.3.5 Pickup Charge :

It is the charge for picking up a shipment from a shipper's warehouse to the port/warehouse. The fee depends on distance and weight of goods.

4.3.6 Delivery Fee :

Like pickup charge delivery charge is collected for delivery of shipping item from a warehouse at the destination terminal to shipper's delivery point. It is also depend on distance and weight.

4.3.7 Emergency Risk Surcharge (ERS) :

This charge is paid to the carrier to cover additional protections in the event that the cargo is threatened by risks, piracy, or violence. This surcharge can only be applied to cargo moving through the Middle East, West Africa, and the Malacca Straits since these areas are more at risk. Moreover, it used to pay for additional bunker costs, insurance, and security measures.

4.3.8 Bunker Adjustment Factor Surcharge (BAF) :

It is charged to smooth out the impact of oil price fluctuations on carrier costs and changes periodically (monthly or quarterly). It is based on TEU (twenty–foot equivalent unit).

4.3.9 Peak Season Surcharge (PSS) :

It is a fee charged by the carrier in periods of peak demand. Despite the fact that carriers often charged higher basic rates during this time, they have to levy additional fee to cover incremental operational costs.

4.3.10 Green Fuel Surcharge (GFS) :

It can be imposed in lieu of using environment friendly fuel as it is costlier than regular fuel. This charge enables in purchasing environmentally friendly fuel and lowering carbon emissions (Check Low Sulphur Surcharge (LSC) used in ocean cargo)

4.3.11 Disbursements :

Disbursements are amount collected at the point of delivery for services incurred at the point of origin and are incidental to the consignment's air transport.

4.4 FACTORS AFFECTING AIR FREIGHT RATES :

The air cargo industry is highly complex. Setting rates that are both lucrative and competitive necessitates a thorough examination of a plethora of continuously changing variables. The uncertainty of freight cost due to changes in expenses that puts impact on transportation cost on company availing this service. As we know that freight is the consolidated transport of goods collected from several agencies, companies or individuals. It also impacts on import and export trade. The fluctuating nature of these costs is due to the fact that several factors influence the pricing of various air freight services and resources. The cost of air freight is highly dependent on the cargo's weight, as well as the origin and destination. There are many factors that determine the pricing of air cargo rate some of them are fixed whereas some are variable.

1. Demand
2. Weight (actual and volumetric)
3. Fuel surcharge
4. Freight Classification
5. Shipping Mode
6. Shipping containers
7. Speed of shipping
8. Manpower
9. Security charges
10. Pickup and delivery
11. Currency Exchange rate
12. Location of the origin and destination

4.4.1 Demand :

Theory of economics suggests the demand and supply factors, which states that whenever demand increased and supply decreased the price will be higher and vice–a–versa. Similarly in air cargo service when the demand for certain shipping services rises, the air freight rates rise with it. So we can say demand determines the price, if people are willing to pay more for certain service, the aircraft/freight forwarder should charge at the highest feasible price.

4.4.2 Weight (Actual and Volumetric) :

Volumetric weight is the overall size of a parcel and is measured in volumetric kilograms whereas the actual weight is the true weight of the package. The freight rates are determined by the greater of the volumetric and actual weights.

4.4.3 Fuel Surcharge :

This is an extra fee charged to cover the fluctuating fuel cost. The cost of using green fuel also impacts the pricing.

4.4.4 Freight Classification :

Freight class puts a huge impact on the freight shipping rates. Low freight classes have lower shipping rates and high freight classes have higher rate. Freight classes are determined by the weight, density, and handling of the shipment, as well as the liability of the shipment.

Freight having lower shipping rates includes the shipments with a higher density that won't be prone to damage easily. As a result, the products will be easier to handle. The higher freight classifications, on the other hand, have a lower density due to the consignment being too fragile to handle and easily damaged.

4.4.5 Shipping Mode :

Various shipping modes have their own impact on price determination. Choice of shipping mode is greatly depend on urgency of delivery the faster mode results in higher charge as well as some additional charges may applied on it.

4.4.6 Shipping Containers :

An appropriate container is essential for cargo security concerns. The cargo containers are designed in such a way that they may accommodate various sorts

of cargo while remaining safe. As a result, the type of container used for shipment will have an impact on air freight rates.

4.4.7 Speed of Shipping :

When a shipment is needed to send immediately or in less time duration, it usually involves high charges, due to the fact that when there is no time limit the forwarder can consolidate it with best suitable container that can reduce their operating cost hence urgent/express shipment may involve higher cost involvement.

4.4.8 Manpower :

The number and specialisation of people required for handling shipment also affects the air freight rate. Manpower also needed for handling paperwork, look after customs and other laws and they are to be compensated. For instance if the cargo size is huge, more people are required to ship it safely. These factors increase the operational cost and hence rates are to be increased.

4.4.9 Security Charge :

It is the charges mainly for the transportation security administration. It is claimed to protect the airline transportation industry from threats. The additional security measures specified by the airport authority are covered by this cost.

4.4.10 Pickup and Delivery :

At the terminal shipment handlers may be paid on a daily basis because it is not feasible to hire full time labours for this purpose due to uncertainty of requirements of number of person. They segregate the materials and deliver them to the required destinations. Terminal holding and handling charges are excluded from this charge.

4.4.11 Currency Exchange Rate :

Major countries have their own currencies. However the US Dollar is the main trading currency used in international trade. In case of other currency like Indian Rupee (INR), it has to be converting into US Dollar first. The carrier charges an additional freight shipping cost to cover exchange losses that arise when they need to convert costs and revenues from various currencies into US Dollar. The forwarder therefore needs to use the Currency Adjustment Factor.

4.4.12 Location of the Origin and Destination :

The distance between the source and the destination impact various operating charges of the flight so it impacts on freight charge i.e. more the distance more will be the cost of shipping. However the frequency of that destination can lower the charges despite of longer distance. The cost varies depending on the route, technology, and manpower involved. International operation requires additional taxes and processing complications that make it bit too costly than that of domestic.

4.5 PRINCIPLES OF RATE CALCULATION :

Air freight charges are calculated based on gross weight, gross volume, or volumetric weight and applied whichever is higher. The charge is quoted in one direction, from one airport to another. For instance the rate for Ahmedabad to Dubai does not apply for Dubai to Ahmedabad because traffic in the reverse direction may differ from that in the forward direction which is under IATA agreement. The mentioned pricing is for the minimum acceptable weight. The

same fee is charged even if the weight is less than the minimal weight. In addition, when the total weight exceeds a specific tonnage, concessional rates may be granted to attract more tonnage at cheaper rates."Break Points" are the weights at which concessions apply. If the weight of the shipment exceeds 100 kg or more, for example, a 10% discount may be available. The basic principles applicable to determining cargo charges are:

(a) The cargo's dimensions are measured in millimetres to the most extreme points of the object to be transported. This calculation determines the cargo volume (cargo volume= length × width × height).

(b) The airline charges the cargo based on the greater of the weight or volume. The aircraft calculates the relationship between weight and volume as:

1 metric tonne = 6 cubic metres

Or

6,000 centimetres cubed (cm3)* = 1 kilograms

Hence, 1 cubic metre = 166.67 kilograms of chargeable rate
* 5,000 or 6,000 or 7000 depend on different airlines.

(c) The air freight rate is determined by multiplying the negotiated kilogramme tariff rate for the particular item of cargo by the chargeable weight, which is always rounded up to the next half a kilogramme.

(d) The freight forwarder or airline will deliver a chargeable weight tariff from the origin to the destination airport after the chargeable weight tariff has been calculated. Generally the tariff is agreed by freight airlines or forwarders whoever is applicable.

(e) As we have discussed, depending upon the destination and the surcharges in effect at the time of shipment, the airlines may levy additional fees such as a fuel cost or any other. The air freight rate only covers the cost of carrying the cargo from one airport to other additional charges may apply as per class or other factors applicable to that shipment.

4.6 SOME SHIPMENT ASSOCIATED TERMS :

Some terminology associated to shipments is discussed here. These terms are important to know while dealing with air cargo. Some of these terms may be mentioned on label of the cargo too.

1. **Consignee Collect :** When the consignee or buyer receives the package, they are responsible for all charges. They are responsible for custom declarations, which are statements that prove that products are imported. They'll also have to fill out paperwork and file taxes.

2. **Cash on Delivery :** Once the items are delivered, the carrier collects the freight charges, which are then refunded by the shipper after they submit it to them.

3. **Prepay and Add :** In this case, the shipper is responsible for payment of freight and collects it from customers afterwards. This technique is depending on the healthy customer–shipper relationship.

4. **Drayage :** The technique of moving items across small distances is referred to as drayage. It is an essential part of intermodal shipping and includes the trucking of containerized cargo from one port to another port.

5. **Third Party Billing (TPB) :** The bill for the freight is responsibility of a third party, neither the shipper or consignee is responsible for paying the invoice.

6. **Free on Board (FOB) Origin :** In this situation the supplier is responsible for shipping costs up to a particular point, after which the buyer is responsible. The consignee/buyer is responsible in case damage of shipment.

7. **Free on Board (FOB) Destination :** In this situation when the title for goods passes through the dock of the consignee, the shipper pays the freight charges before it is being shipped.

8. **FOB Origin and Freight Prepaid :** In this system the shipper pays necessary charges while the consignee/buyer is responsible for the freight.

9. **FOB Destination and Freight Collect :** In this system, the consignee gets the title for goods and also pays for all charges.

10. **FOB Destination, Freight Collect, and Allowed :** In this system, the consignee is responsible for paying the freight charges as well as the local costs to the carrier when the shipment is arrived at destination. The consignee bears the risk and obligation for paying and settling all costs at destination.

11. **FOB Origin, Freight Prepaid and Charged Back :** In this the consignee is responsible for the freight, and the freight charges are paid by the consignee's agent at the origin in this method. The shipper then sends the consignee an invoice for the freight charges paid.

❑ **Check Your Progress :**

1. Which is not the type of fright rate for air cargo ?
   a. Specific Commodity Rate (SCR) b. General Cargo Rate (GCR)
   c. Custom Duty Rate (CDR) d. Live Animal Cargo Rate
2. Which is cost component involves in freight charges ?
   a. Custom Duty b. Demurrage
   c. Peak Season Surcharge d. All of the above options
3. The Green Fuel Surcharge is imposed in lieu of using _____
   a. Green wood as fuel b. Environment friendly fuel
   c. Both a and b options d. None of the above option
4. Which are the factors affecting the rate of air cargo ?
   a. Manpower b. Fuel Surcharges
   c. Currency Exchange Rate d. All of the above options
5. The dimension is measured in _____ unit for extreme points.
   a. Nanometre b. Millimetre c. Centimetre d. Inches
6. Generally _____ centimetres cubed is 1 kilogram.
   a. 3000 b. 6000 c. 9000 d. 12000
7. At what point the concessional rate may be applied to freight charges ?
   a. Break Point b. Discount Point
   c. Both a and b options d. None of the above options

8. The supplier is responsible for shipping costs up to a particular point, after which the buyer is responsible.

a. Free on Board (FOB) Origin b. Free on Board (FOB) Destination

c. Can't Say

4.7 LET US SUM UP :

In the world of global economy, E–commerce is flourishing as it can make things available at your doorstep. Beside that many units are depending on raw materials and partially completed good for their production or other process. These concerns on modern days business environment enables freight to move beyond the boundary. The operation needs amount of money to pay taxes and charges these charges they can only collect from the person/company availing their services. Air cargo comprises mainly three service sectors: mail, scheduled freight, and the charter freight.

Despite Ocean mode is more convenient and reliable as well as economical than Air, Air transportation becomes more feasible when good is to be shipped to long distance in short time. The unpredictability of freight costs due to fluctuating charges has an impact on transportation costs for businesses that use this service. Normally, the rates are set based on marginal cost and then adjusted for the quality of service provided. The Air Cargo Tariff and Rules (TACT) offer cargo professionals with all of the information they need to carry cargo efficiently around the world.

Because the shipping sector has become a very competitive market among carriers, forwarders, importers and exporters, and other associated costs, freight forwarders needed to pay their labour, rent, stationary, and other associated costs to provide required customer care to consumers. There are many factors that determine the pricing of air cargo rate some of them are fixed whereas some are variable. Demand, Weight (actual and volumetric), Fuel surcharge, types of Freight, Shipping Mode, Manpower requirements are among them.

Air freight charges are calculated based on gross weight, gross volume, or volumetric weight and applied whichever is higher and the charge is quoted for single direction,

4.8 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – c) Custom Duty Rate (CDR)

(2 – d) All of the above options

(3 – b) Environment friendly fuel

(4 – d) All of the above options

(5 – b) Millimetre

(6 – b) 6000

(7 – a) Break Point

(8 – a) Free on Board (FOB) Origin

4.9 GLOSSARY :

Backlog : Amount of goods still to be delivered or received and for which the planned or agreed date has expired.

Consolidation : Air Freight consolidation is combining multiple shipments into one under Air Way Bill. This can be a cost–effective and efficient method of transporting your cargo.

Charges Collect : Charges are to be collected from the consignee as stated on the air way bill.

Charges Prepaid : Charges are to be collected from the shipper as stated on the air way bill.

Empty Legs : Flights that are scheduled to travel without any passengers are commonly referred to as "no–fly" flights. When an aircraft needs to reposition or return for a charter, these are used.

Freight Revenue : Revenues from scheduled and non–scheduled freight transportation are combined in this revenue category.

TEU : A precise unit for measuring cargo capacity on container ships and facilities to provide ease in multimodal transportation.

4.10 ASSIGNMENT :

1. Check different charges involve in different mode of transporting freight.
2. What is the classification of air freight rate in cargo ?
3. Explain all the cost element considered while calculating freight charges.
4. How demand and currency rate affect the freight rate in air cargo industry ?
5. Write a short note Principle of Rate Calculation for air cargo industry.

4.11 ACTIVITIES :

Please follow the Task Description to complete the project.

Task Description :

Step 1 : Work in groups of 2–3 of your classmates;

Step 2 : Each member chooses famous forwarders and collects information on it.

Analyse their functioning

Step 3 : What documents they prepares

Step 4 : How can they minimise these documents without hampering laws

Step 5 : Determine their uniqueness and draw back with solution of problems they faced

Step 6 : Choose one member from your group to make a presentation.

Step 7 : Discuss the future trend of logistics forwarder in groups;

Step 8 : Choose one member from each group to make a presentation.

4.12 CASE STUDY :

■ **Five Reasons for High Transportation Cost**

Here's another case where freight cost as a percent of sales benchmarked high. This shipper of computer accessories had a demonstrated history of continuous improvement in freight cost as a percent of sales. In spite of this performance, the benchmark indicated the strong possibility that costs could be lowered. The following are the findings on each of the top five reasons for high transportation cost.

1. High Freight Rates :

The base LTL tariff used in this company was based on origin and the destination state. Rates were based on shipment size and on FAK classification. The questions to be answered were: Are overall rate levels competitive ? Is there any advantage to a state (rather than ZIP) based rate structure? The general rate benchmarking process described in Case Two (above) followed that. The results were overall levels higher than the lowest benchmark by 1 to 10 percent, depending on the destination region. States closer to the shipping point had good rates; those farther away had the most potential for reduction. For large states like California and Texas, there was some justification to "sharpen the pencil" and use ZIP–based rates; for most states the single rate base yielded good results.

2. Outdated Warehouse Network :

The most common problem in configuring a logistics system to serve customers while minimizing cost is keeping up with the changes necessary to meet the current demands for quality in product delivery. The concepts are clear and the tools are available; it's just that the pressure of day–to–day operations can easily put off the network re–evaluation until it is overdue. In this case, the most important change occurred on the supply side of logistics. Manufacturing had gone global. The current network was designed when over 90 percent of the products sold in domestic markets were manufactured in one of two centrally located plants. Now, over 50 percent of the product is made in the Far East and over 15 percent (and growing) is made in Mexico. Even with calculations on the back of an envelope, the client quickly realized that bringing product from China into the U.S. and halfway across the country before reshipping it to a Southern California customer would result in high freight cost as a percent of sale. Add to this a rapidly decreasing price structure and the result is an opportunity to do better.

3. Out–Of–Area Shipping :

Out–of–area shipping occurs when the primary shipping point cannot fulfill an order and the order is routed to an alternate facility. This happens when the primary shipping point is out of stock on one or more items or is overloaded with orders beyond the current capacity. When out–of–area shipping occurs, two things happen and neither is good! First, the transportation cost is usually higher because the secondary location is farther from the customer. Second, the transit time is longer for the same reason, so the shipment may arrive later than expected. A good database of freight bills, properly coded, can help to identify the extent of out–of–area shipping and provide the tools for estimating the additional cost involved.

4. Poor Compliance with Prescribed Routings :

Prescribed routings include the correct use of mode and carrier for a specific size of shipment. In most cases, local shipping personnel should follow the routing guide as prepared by a professional traffic manager. A routing guide should be customized for each location and include the best route and at least one alternative routing along with the cost and service difference between the two. Complete routing instructions may include specifications for parcels, emergency parcels, less–than –truckload shipments, priority LTL, and truckload shipments. The best mode and carrier should be specified by destination region, state, city, or ZIP Code as needed. As mentioned above, a good freight payment database can support analysis of compliance with these instructions. It is not unusual to

identify 15 percent freight savings in cases where professional routing guides are not maintained and where compliance is not monitored.

5. Split Shipments :

Compare orders to shipments. Are you able to ship perfect orders (on time, without errors and complete)? When orders are split into multiple shipments, the resulting individual shipments move at higher freight costs per pound than if they were all shipped together so that one shipment is created from one order. Inefficient things happen when split shipments occur. Beyond the premium in transportation cost, there are additional clerical and material handling costs that relate to the processing and receiving of each individual component of the order. The extent of this split shipment problem can be quantified if the freight payment database contains the unique order number corresponding to the freight bill. When more than one freight bill contains the same order number, a split shipment has been identified. The solution to the split ship condition may be in production. However, the planning and deployment techniques to make the best of the situation are urgently needed. Shipping costs can be as high as 30 percent above "normal" levels due to unnecessary split shipping.

In this case, opportunities amounted to 15 to 20 percent of transportation costs. The savings came from taking a first step in improving each of the five areas listed above. Not all of the issues have been solved, so the opportunity to improve next year still exists.

https://www.establishinc.com/five–reasons–for–high–transportation–cost

4.14 FURTHER READING :

1. Air Transportation: A Management Perspective by John G. Wensveen
2. European Air Cargo Programme (EACP) Handbook Edition
3. The Handbook of International Trade: A Guide to the Principles and Practice of Export, Second Edition, Jim Sherlock and Jonathan Reuvid

BLOCK SUMMARY :

Air cargo provides quick delivery, consistent arrival and departure times, the ability to send shipments practically anywhere, security and minimal risk, less packaging and warehousing, and the ability to trace cargo

Food, automotive parts, electronics, fresh flowers, medical supplies, high–value goods like jewellery, animals, horses, aeroplane spare parts, and many other critical shipments that support businesses and keep jobs around the world are all carried by air cargo. Since it supply variety of cargo it must be classified for smooth operation of cargo movement.

When sending products by air, you must complete and submit numerous key freight shipping documents. You may need some or all of the different forms, such as a commercial invoice, certificate of origin, air waybill, letter of credit, export declaration, and so on, depending on where the items are being delivered and what classification of commodities you're exporting.

It's critical to select a high–quality container that is appropriate for the cargo. Cargo for reliable placement and fastening onboard the aeroplane, as well as safety during transportation, trans–shipment and warehousing, air cargo must be properly packed. Dangerous cargo is also subjected to additional packaging and labelling standards outlined in IATA's Dangerous Goods Regulations.

Airlines often offer air freight rates to the market at two levels: a minimum (a flat price) and a per kilogramme pricing. The real charges are determined on the dimensions, volume, distance, and kind of cargo. Other components of air freight charges include fuel surcharges and extra expenses.

BLOCK ASSIGNMENT :

1. What is the difference between special and general cargo ?
2. Write a short note on Custom Classification of cargo.
3. How many types of documents required for the air cargo movement ?
4. Write the difference between direct and indirect exporting.
5. Explain the significance of incoterms in facilitating cross border trade.
6. What are the factors influencing labelling ?
7. What are the factors affecting air cargo rate ?
8. Describe the air freight rate classification and its types.

CARGO AND LOGISTICS MANAGEMENT

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ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is

particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect. All the best for your studies from our team!

CARGO AND LOGISTICS MANAGEMENT

Contents

Dr. Babasaheb Ambedkar Open University Ahmedabad

BBAATR-206

Cargo and Logistics Management

BLOCK 3 : SUPPLY CHAIN MANAGEMENT

SUPPLY CHAIN MANAGEMENT

Block Introduction :

Logistics have been considered as the cost–efficient process that comprises shrewd planning, implementation, and control over the storage and movement of goods from the manufacturer to the end–user.

Air transport is a component of many international logistics networks, managing and controlling the flow of goods, energy, information and other resources like products, services, and people, from the source of production to the marketplace. Logistics involves the geographical repositioning of raw materials, work in process, and finished inventories. In international trade, 90% of cargo by volume is transported by sea and only 0.5% by air. But this minuscule volume of air cargo translates to 35% of world trade by value or $6 trillion. Given that air carriers pride themselves on swift delivery and short transit time, the general rule in shipping is to move urgent, time–sensitive cargo by air. Let us understand the supply chain management for air cargo in this block.

Block Objectives :

After understanding this block learns will have knowledge of :

- Supply chain management of cargo & logistics
- Administration of demand and supply for the organisation & individuals
- Performance of supply chain in logistics
- Administration of logistic activity

Block Structure :

UNIT 01

Introduction to Supply Chain Management

UNIT STRUCTURE

1.0 LEARNING OBJECTIVES :

After reading this unit learner will have knowledge and understanding of :

- Different components of logistic management
- Various stakeholders in the business of logistics
- The process of air cargo
- How to do outsourcing of air cargo activities to other vendors ?

1.1 INTRODUCTION :

The supply chains are essential for the delivery of shipments to satisfy the demand of the market. Whether it is raw materials for production unit or finished goods for retailers. Air cargo is utilised in emergency situations or in the global supply chain for high–value items, but it is also the most expensive mode. The majority of cargo service companies rely on specific air and road transportation networks and facilities (inter and multimodal transportation).In Today's fast and competitive global economy companies are relying on fast and accurate delivery this has been possible with inclusion of air cargo solutions. New technologies enables its stake holders with information during air shipments this provide ease to all of them. Additionally, businesses who rely on these services have gained more comfort, allowing them to stay ahead of the competition in their respective fields. Businesses are discovering new ways to boost efficiency and save costs as air freight services continue to develop.

The planning, implementation, and control of all cargo activities in the supply chain are included in cargo supply chain management. Its goal is to develop a competitive infrastructure for international freight services and to synchronise demand and supply. For smooth functioning of this supply chain it consists of many parties like forwarders, shippers, carrier, and so on. The management of the air freight supply chain has advanced rapidly in recent years. New technologies that make the source–to–settle process more efficient for both the carrier and the client appear to emerge every week. Air carriers offer a fast and fairly expensive mode of transportation for cargo. Small, high–value items or time–sensitive emergency shipments that have to travel a long distance are best suited for air transport. Air carriers normally move shipments under 500 pounds, including high–value but lightweight high–tech products. Given the growth in high technology, the weight of freight carried by air has diminished over the past two decades even as the value of the freight has increased somewhat.

1.2 COMPONENTS OF CARGO SUPPLY CHAIN :

Each element of cargo supply has their own prospective for different services whether it is provided by them or outsourced it from third party.

Buyer : The buyer, purchaser or importer of the goods.

Consignor : The entity or individual who initiates the movement or transport of the goods.

Consignee : The individual who is designated to take or receive the goods is known as the consignee. They may also be tasked with holding things for delivery or sale by another party or agent.

Freight Forwarders : Freight forwarders are carriers that do not need necessarily to own any vessel. To transport the cargo they have contract with multiple carriers and shippers and they find best suitable among them. They provide the services necessary to export and import of goods through collaborations with shipping lines, truck companies, and so on.

Shipping Line : The Company which runs the cargo vessels that delivers from the port of origin to the port of destination.

Carriers : Carriers are those bodies which perform, directly or indirectly transporting goods from port of loading to port of discharge under their own or chartered vessels.

Interlining : is a voluntary commercial agreement to transfer goods from one airline to another mode of transportation. Since cargo need to move through different transportation companies a system of relations between trucking companies, airline networks and so on need to be developed and this system is known as interline. It also provides facility to handle passengers travelling on itineraries that require multiple flights on multiple airlines. Multilateral Interline Traffic Agreements (MITA) is an IATA agreement in which passengers and cargo use a standard traffic document such as an air waybill to move freight across multiple modes of transportation engaged in a routing in order to reach its final destination.

Terminal : where the cargo is assembled to load or unload into or from the aircraft.

Aircraft : Mode of transporting good.

Transportation Decision : A carrier makes investment decisions for transportation equipment (trains, trucks, planes, and so on) and, in some cases, infrastructure (rail), and then makes operational decisions to maximise the return on these assets. A shipper uses transportation to reduce overall costs while maintaining a high level of customer response. Their effectiveness is influenced by infrastructure (such as airports, intermodal mode). In addition, transportation policy need to try to prevent monopolistic power abuse, encourage fair competition, and balance environmental, energy, and social concerns in the transportation sector.

1.3 ROLE OF STAKEHOLDERS :

As other supply chain air cargo supply chain also consists of many parties who support the functioning of supply chain in smooth operation.

1.3.1 Buyer :

The buyer or importer either clears consignments on their own or hires a broker to help with various border regulatory agency procedures. The buyer is the one who purchases the items and is also known as the importer in international trade.

1.3.2 Consignor :

They picked the goods accurately from their storage areas and kept separately for packing, labelling and marking with appropriate documentation. By completing certain security conditions, a consignor helps to start the transportation of goods. They must also ensure that the cargo is delivered to the consignee on time.

1.3.3 Freight Forwarders :

Forwarders are companies that gather shipments from shippers and combine them in regional warehouses across the continent. They choose the export airport and transport it there to consolidate all goods according to the specified flight in their air cargo hub–warehouse. Air cargo shipments are transferred to handling agents, who load air cargo containers or assemble air cargo pallets, using local truckers. The planes are loaded from the apron with the containers or pallets.

1.3.4 Transporter :

The transportation is based on a contract between the shipper and the consignee, in which each party instructs the forwarder to organise the transportation based on the INCOTERMS chosen. The various aspects of ground transportation are outsourced as per the suitable condition. Usually the forwarder contracts with suitable an airline for transporting the shipment. The airline also has contracts with handling agents at the respective airports. As a result, a common supply chain management problem occurs when parties who do not have a direct contractual relationship meet at the warehouse of the handling agent and so show only a limited interest in a mutually optimum solution. Some companies also use responsive transportation to centralise inventories and operate with fewer facilities.

1.3.5 Shipping Line :

They ensure the cargo aboard their ships is transporting securely and efficiently from point of origin to point of destination, primarily from port to port, by employing their own vessels to transit scheduled routes at set times.

1.3.6 Ground Handlers :

They work on behalf of freight forwarders and/or aircraft operators as subcontractors. Ground handlers are in charge of dealing with operational issues based on freight forwarders' and airline operators' directions. The freight forwarder will release the cargo and tell the ground handler to deliver it to the aircraft operator once the consignment is ready for shipment.

1.3.7 Broker :

They are independent agency who facilitates the flow of goods from buyer to seller by organising air transportation or completing Customs procedures such as items declarations. Within a single business, brokerage services may combine with forwarding, consolidation, and even warehousing functions.

1.3.8 Customs :

Customs is responsible for carrying out government policies in areas such as tax collection, trade conformity and facilitation, interdiction of forbidden drugs, cultural heritage protection, and intellectual property law enforcement. They inspect cargo and modes of transportation as they enter, transit, or exit a country.

1.3.9 Consignee :

The consignee is responsible for paying duties and covering any freight charges that may accumulate on them. They also make sure that the items are in the appropriate condition as outlined in the airway bill. They must register a claim with the carrier right once if there is a discrepancy, and the carrier will be responsible with carrying out the request for refund or removal of the wrong item.

1.4 AIR FREIGHT PROCESS :

The success of air cargo hinges on a careful planning and execution. Customers/freight forwarders typically engage with carriers to ensure that compliance of transport requirements. In order to meet the requirements, a suitable incoterm is used. As we all know, forwarders are well aware of paperwork requirements, as well as cost and time limits. Domestic air cargo shipments differ from international air cargo shipments in terms of documentation since cross border air shipments require more documentation than domestic shipments. International shipments, also, require approval with the concerned country's Customs service. Another distinction is delivery time, as overseas items may take longer to arrive than domestic shipments.

Airfreight is used in combination with other modes of transportation such as rail, sea and Since then, it has become one of the most efficientdelivery solutions for exporting and importing in this century.Over the last few decades, the airfreight business has continuously evolved, and it is now widely regarded as a cost–effective and faster mode of cargo transportation.The freight forwarder and the airline must complete various critical phases in the air cargo procedure.Once the air cargo supply chain has been identified, the research has to focus on simulating the air logistics chain from the general to the specific in order to analyse it statistically.For various reasons, the air cargo handling process is extremely difficult. It includes various activities at both arrival and departure. All the activities needs a proper sequence in order to get a smooth operation.A typical air freight supply chain, on the other hand, includes Shipping, Forwarding out, Air Transport, Forwarding in and Consignment.

1.4.1 Shipping :

Everything from receiving a customer order to preparing it for last–mile delivery is part of the shipping process. It incompasses three vital steps as mentioned below :

1. **Assembling the Shipment :** Collection of products for consignee and preparation of packing materials and packing list are the first steps in shipment.While picking–up Proof of Acceptance (POA) needed to issue it shows that the good/s have been received to shipped it out.
2. **Making Shipment Suitable for Transport :** The assembled shipment need to be ensure the condition of the package which can withstand during hardship of transportation along with clear label on it so that it can avoid any confusion during any stage of supply chain. The required security documents and other relevant documentation to prepare to provide ease during transportation.
3. **Ordering Transport :** Once all of the requirements have been met, the parcels should be sent to the freight forwarder's warehouse and stored until picked up.

1.4.2 Forwarding Out :

An efficient inbound and outbound logistics network is essential for supply chain efficiency. Transportation is increasingly required for packaged items.When it comes to customer satisfaction and brand loyalty, the delivery time is the most important issue, so having the right conveyance is key. Freight forwarder during forwarding out also need to complete appropriate documentation for customs

before transporting the shipment.Consolidatation of all commodities in accordance with all necessary requirements and preparation master AWB (Air Waybill) is done by them. After that they Arrange for airline transit and notify the package's recipient.

1.4.3 Air Transportation :

Several critical operations are carried out during the transfer of the package during air transportation.The first stage among these steps is preparing and planning for the handling and storage of goods based on confirmed reservations. The next stage is to sort the goods and documents so that the ULDs (Unit Load Devices) can be prepared as per specific requirements. After the preparation it is to be loaded into ULDs andPrepare for warehouse storage and clear flight manifest. The last stage in the air transportation usually loading goods onto truck and dispatch to the warehaouse from their it is to be sent to load on to aircraft.

1.4.4 Forwarding In :

Forwarders or agent ussually starts import customs clearance before the cargo arrives at its destination countryin order to avoid any chances of delay in delivery due to clearance. During export, however the importing requirements are already considered.Before the goods leaves the forwarder's or forwarders' agent's destination warehouse, all customs activities must be completed. The custom authority cross checks and issues a clearance that shows that the duty has been paid and the import is done as per the regulation of the destination country.After that the customs release note is printed and all other required documents are arranged. Then arrangement for local pick up of the package has to be done and also Proof of Delivery (POD) along with other relevent document to provide ease during delivery to consignee.

1.4.5 Consignment :

Consignment activity include Receiving shipment, Unpacking and check before send for delivery. These activities are performed at forwarders or agents warehouse or storage area.

1. **Receiving Shipment :** Once the cargo has arrived, it is inspected for the total amount of items and any evident damage onceeverything has been cleared POD is provided.
2. **Unpacking Goods :** Unpacking of shippment from ULDs to shippment as it was recived at country of origin is required.Again the packet is to check thoroughly for any damages that may have occurred during transportation.
3. **Check Goods with Administration :** Now cross check is done with physical cargo and the packing list or procurement order to ensure any missing items. In case of descripancy a note or descripancy report need to prepare in–order to warranty claims along or payments for transport supplier where ever applicable or required.

   Once these formalties done then only it is ready for delivery.

1.5 OUTSOURCING LOGISTICS IN AIR CARGO (PARTY–LOGISTICS PROVIDER) :

As supply chain is a complex logistics system it required to have contract with different suppliers to perform various activities within it. In general outsourcing is a commercial technique in which an organisation contracts a third–

party (outside company) to complete tasks, manage operations, or deliver services on its behalf. The third–party provider arranges service or goods for the company by which they are contracted, performs the tasks either on site or at external locations. Outsourcing in air cargo business is done to reduce costs, increase efficiency, and increase speed within its supply chain. To obtain such benefits, companies who choose to outsource rely on the skill of third–party suppliers in conducting outsourced services. The core concept is that because the third–party supplier specialises in that work, it can complete it better, faster, and for less money than the hiring firm could.

In addition to delivering lower costs, minimise delivery time and increased efficiencies, outsourcing also reduced the burden to company in terms of resources that can be utilise for existing tasks or new projects that deliver a better return on investment than the outsourced functions. However, it can bring challenges and drawbacks for the organisation. Hence, to get better result, companies must properly manage their contracts and relationships with third–party providers, as they should keep in mind that they might have lesser control on some of the tasks and its quality. There is also a chance to lose some of their customer to whom they provide services as the data may be leaked by these outsourced companies.

■ **Party–Logistics Provider :**

A logistics service provider, often known as a third–party logistics (3PL) provider, is a business that specialises in supply chain management services such as warehouse management, order fulfilment, and shipping orders. A logistics provider takes care of freight storage and delivery, as well as raw material management. Transport–related operations are also included in the services provided by some professionals. This pertains to insurance policy subscriptions, mode of transportation selection, and the framework for administrative requirements. To deal with today's market's complex requirements the 1PL, 2PL, 3PL, 4PL, 5PL, and other levels of logistics services are available. Some have their own fleet of vehicles, while others completely outsource their goods' transportation and management.

1.5.1 First–Party Logistics (1PL) :

Also called Self Logistics, in this model applies to the firms are self–capable to administer, transportation and warehousing. They have dedicated fleets of vehicles to take care of their operations. They are having goods transported from their place of origin to their new place.

1.5.2 Second–Party Logistics (2PL) :

Traditional Transportation Provider In this case, the provider acts as intermediary between the buyer and the seller as they only handles the transportation part of the supply chain. They transport the goods from a particular transport area of the supply chain like airport, port, railway station, or bus stands. They are asset–based carriers that provide transportation utilising their own ships and contracted airlines. Freight forwarders, brokers, export management firms, export trading companies, shipper's agents, export packing companies, and so on are examples of this type of company.

1.5.3 Third–Party Logistics (3PL) :

The Logistics Service Provider, it is the most popular model. They are external logistics providers, who conduct all or part of the logistical function that

aren't handled by in–house logistics professionals, and manages both outbound and inbound transportation requests in addition to warehousing. They include inventory management and warehousing, labelling, product packing, customs brokerage, and IT services such as product tracking and delivery status determination, among others. 3PL began to popularise in the 1970s.

1.5.4 Fourth–Party Logistics (4PL) :

Supply Chain Overseer, this model is stretch version of 3PL, where the provider administers the entire supply chain. The corporations do not have any physical assets that can be used to move products in this arrangement. Instead, they serve as consultants to their clients, guiding them through the process. 4PL companies emerged in the mid–1990s with the primary goal of ensuring that all aspects of the supply chain are in good working order. They contracts with 3PLs, freight companies, and other companies to manage, planning and support required.

1.5.5 Fifth–Party Logistics (5PL) :

Solution Optimization Services also called logistics aggregator. 5PL is an upgrade to the consulting level of 4PL. In addition to the responsibilities of 3PL and 4PL logistics, the seller is given a framework for judicious planning and implementation of various supply chain segments. They combine the requirements of 3PLs and others into a bulk volume in order to negotiate for favourable pricing with various airlines and shipping providers.

21st Century is evident of the introduction of new technologies which significantly transforming supply chains. Further changes in the sector became unavoidable as artificial intelligence (AI) was developed and used. In near future we can expect 6PL, 7PL, 8PL, 9PL, 10PL and so on.

❑ Check Your Progress :

1. Consignee is the entity who is designated to _____ cargo

   a. Receive b. Send

   c. Purchases d. All of the above options

2. Freight forwarder is the one who _____

   a. Own the ships to transport the cargo

   b. Doesn't own the ship to transport the cargo

   c. May or may not own ship to transport cargo

   d. None of the above options

3. Ground handler work's on behalf of _____ as sub contractor.

   a. Freight Forwarder b. Aircraft Operator

   c. Both a and b options d. None of the above option

4. The consignee is responsible for paying _____ and _____ that may accumulate on them.

   a. Duties and Freight Charges

   b. Freight Charges and Fuel Surcharges

   c. Duties and Currency Exchange Rate

   d. None of the above options

5. A typical air freight supply chain doesn't include.
   a. Shipping b. Forwarding in/out
   c. Forwarding d. Manufacturing
6. Which is the most common and better party for providing logistic service in today's time ?
   a. First Party Logistic b. Second Party Logistic
   c. Third Party Logistic d. Can't Say
7. What kind of logistic provider is called as self logistics ?
   a. First Party Logistic b. Second Party Logistic
   c. Third Party Logistic d. Fourth Party Logistic
8. Consultation level of logistic party is _____
   a. 3 PL b. 4 PL
   c. 5 PL d. All of the above options

1.6 LET US SUM UP :

Air freight industry has evolved as a phenomenal industry in modern world. Businesses are discovering new ways to improve efficiency and reduce costs as air freight services continue to evolve. It plays an important part in modern logistics because it provides a highly integrated and complete facility with safe, rapid, dependable, convenient, and efficient services. It is a relatively new business when compared to land and sea freight transportation, yet it has been a huge enabler of economic development for countries. The reason behind it is that the air freight and integrated air express plays a critical role to time–based strategy – the primary challenge for the world's most–progressive firms. It also gives suppliers and customers additional flexibility, allowing for faster shipping in time–sensitive situations. Air logistics prioritises a client–centric approach and provides high–quality freight transportation services in order to meet customer needs.

The management of the air cargo supply chain has advanced rapidly in recent years. New solutions that make the source–to–settle process more efficient for both the carrier and the client appear to emerge every week. Air transport connectedness refers to the transportation of passengers, mail, and cargo with the fewest possible transit points, resulting in a route that is as short as feasible, with the highest possible user (shipper, consignee, or passenger) satisfaction, and at the lowest possible cost. A solid supporting framework is required to optimise connectivity. For the worldwide air transport market, air cargo is a very important business. This means that every airport or cargo handling agent that provides cargo handling services must understand the air cargo handling process. This includes trained cargo personnel, processes, a cargo information system, well–developed infrastructure, and effective process management. The Air Cargo Handling Process is a critical business process. The cargo supply chain is made up of several procedures that necessitate the completion of numerous activities in order to fulfil all of the steps.

Logistics is ubiquitous. 1PLs are companies that invest in their own transportation, support systems and resources, and people resources to plan and execute logistics activities to suit their demands. 2PL focuses on offering single services that contribute to a small part of the customer's supply chain, and these

services are often provided by sea, land, or air carriers. In general, all 3PL and 4PL operations are involved in supply chain activities from input materials to output products, transporting to the receiver, while the most notable example of 5PL focuses on E–logistics, or e–commerce–based logistics.

1.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – a) Receive

(2 – c) May or may not own the ship to transport cargo

(3 – c) Both a and b

(4 – a) Duties and Freight Charges

(5 – d) Manufacturing

(6 – c) Third Party Logistics

(7 – c) Third Party Logistics

(8 – b) 4 PL

1.8 GLOSSARY :

Clearance : The completion of customs entry formalities that results in the importer receiving goods from the customs administration.

Intermodal Shipping : a single container that is moved throughout from one type of carrier to the next.

Multimodal Shipping : Also called combined transport, combines more than one mode of transportation to move an individual shipment.

Accessibility : The ability of a carrier to offer service between an origin and a destination

Unit Load Device (ULD) : Either an aircraft pallet and pallet net combination, or an aircraft container

Proof Of Delivery (POD) : a technique for proving that a recipient got content delivered by a sender

1.9 ASSIGNMENT :

1. How multimodal transportation plays a critical role in global supply chain ?
2. Write a short note on the air freight process.
3. Analyse the relevant issues during selection of freight forwarder for air cargo.
4. Explain the outsourcing logistics in air cargo.

1.10 ACTIVITIES :

Make a list of all the stakeholders in air cargo sector. What are the method of engagement you will adopt for better results and satisfaction for these stakeholders ?

1.11 CASE STUDY :

■ **Aeronet Aids Historic Space Flight**

On July 19th, 2020, the United Arab Emirates' first interplanetary mission successfully took off from the southern tip of Japan, launching a car–sized probe

bound for Mars. The launch marked the beginning of the country's most ambitious space project yet, aimed at studying the weather on Mars as it evolves throughout the planet's year.

The spacecraft, named Hope, took off on top of a Japanese H–IIA rocket from Japan's Tanegashima Space Center. The probe's mission was to spend the next seven months travelling through deep space, periodically correcting its course with a series of engine burns. In February 2021, the probe put itself into an elongated orbit around Mars, where it could analyze the atmosphere and climate throughout the course of each Martian day.

Aeronet Worldwide role in this global aerospace logistics project began in early 2018, as we were asked to consult with the University of Colorado regarding packing, documentation, hazardous materials transportation requirements, air and sea transportation of the spacecraft, and ground support equipment. Hope was built at the university's Boulder campus, and was shipped to Dubai by an Antonov 124 aircraft for further testing and photo opportunities. After spending two months in Dubai, the spacecraft was flown, on the same aircraft, to Nagoya, Japan, where it would then be sent, via ferry, to the launch site.

The transfer operation required use of the Antonov 124's onboard crane to carry the spacecraft in a specialized temperature and atmosphere–controlled container. From there, the spacecraft was loaded onto a sea freighter, carried to Tanegashima's Shimama Seaport, and transferred, to the launch site. Aeronet was also responsible for the post–launch return of all ground support equipment, back to its origin at the University of Colorado.

One of the toughest challenges for Aeronet, was working with the Federal Aviation Administration (FAA) and U.S. Department of Transportation's Office of Hazardous Materials and Special Permits, in Washington, D.C., to obtain a special permit authorizing the purge of compressed air while in flight. This was viewed as a major win for the program, as it took over one year to be awarded the special permit.

Aeronet Worldwide is proud to have done its part, providing global aerospace logistics services, in helping the United Arab Emirates with this historic mission.

Source : https://www.aeronet.com/case–study–global–aerospace–aviation–logistics/

1.12 FURTHER READING :

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UNIT 02

Managing Demand & Supply

UNIT STRUCTURE

2.0 LEARNING OBJECTIVES :

After reading this Unit we will be able understand :

- About demand and supply basics
- Importance and challenges in demand planning
- Process of demand planning and with context to air cargo
- Supply chain management system

2.1 INTRODUCTION :

Air freight plays a crucial part in a healthy supply chain environment. The demand to deliver things quickly is fuelled by customer expectations and the urgency of shipments that must arrive as soon as feasible. To maximise revenue, supply networks must be as efficient as possible. Accurate demand planning is required to ensure that supply chains are efficient for inventories and, ultimately, revenue. All managerial activities and choices relating to planning and implementing strategies to influence the level of demand for any service offered at any given moment.

2.2 DEFINITIONS OF DEMAND & SUPPLY :

Demand management is a process that allows a company to adjust its capacity to meet demand fluctuations or manage demand levels through marketing and supply chain management methods. Customers' needs are balanced against the supply chain's capabilities in this process. If the right system is in place, management can match supply and demand proactively and execute the plan with minimal disruptions.

Supply planning however is defined as the process of determining the most cost–effective manner of supplying products to customers based on their known preferences. Retailers, distributors, and other distribution channels must work together to achieve this.

Demand planning is a supply chain management method for forecasting or estimating product demand to ensure that products can be delivered and consumers are satisfied. It aimed to establish a balance between inventory to meet demands and the same time it should not have excess of items in inventory. Demand can be influenced by a range of reasons, such as labour force changes, economic upheavals, extreme weather, natural disasters, or global crises events.

Large inventories are required for the supply process, which help meet consumer needs but come at a high cost. The demand method, on the other hand, does not match customer service availability requirements while saving money.

DCM (Demand Chain Management) is the management of supplier–customer interactions in order to provide the most value to the customer at the lowest cost to the demand chain as a whole. Supply chain and demand planning, like many other company functions, is becoming more computerised.

2.3 MATCHING DEMAND AND SUPPLY :

To be successful organizations have to be able to connect the supply and demand sides of the supply chain. The best business decisions only can be made by bringing the two sides together.

Demand Side : Demand side Management should focus on maximising revenue and margins. Demand generation is the domain of marketing and sales and it depends on customer demands. However, these demands can be created by various strategies in the percept of customer's mind. For that it is necessary to understand buying pattern and turn it into opportunity to maximise demand. Demand side of supply chain management can have as significant an effect on profitability as the supply side. To gain customer insight one need to take inputs from Marketing, Sales, Merchandising and Customer Service associates having common goal with different responsibilities.

Supply Sides : In supply side they need to focus on minimizing Costs and Inventory. It can be done by implementing systems to ensure that products are available when customers need them. Minimizing inventory expenses, acquiring goods, and shipping costs are all important aspects of good management. A business may utilise a combination of tactics to meet client needs, such as holding extra inventory, making–to–order, or buying–to–order. It requires smooth coordination and constant communication between Operations, Logistics, Supply Chain, Merchandise Planning, Procurement and Finance.

Bridging the supply and demand domains allows businesses to reduce costs while increasing revenue and margins. Examining a specific client, for instance,

may reveal that the consumer has a habit of ordering at monthly intervals. Each order necessitates a dash to your suppliers for a subset of materials. Engaging with customers and motivating them to place orders at more frequent intervals helps in reducing delivery time. This can allow the business to save money by avoiding supplier expedite fees and locating less expensive and slower transportation options. It's important to remember that demand management is a supply chain management function that aligns supply chain capacity with customer demands. Demand fluctuation must be reduced in order to save money and maintain consistent planning. Finding ways to reduce demand unpredictability and enhance operational flexibility is therefore a key component of demand management.

Demand management is a supply chain management method that balances the needs of customers with the supply network's capabilities. Management can match supply and demand proactively and execute the plan with minimal disruptions if the correct mechanism is in place. The process is not limited to forecasting. It entails aligning supply and demand, enhancing flexibility, and lowering variability. The demand management method is described in detail in this paper to show how it may be implemented within a company and managed across supply chain firms.

2.4 IMPORTANCE OF DEMAND PLANNING :

Customer is an essential component of supply chain if customer feels unavailability of product in market s/he may shift to other service provider/ supplier. It eventually become a reason to lose your customer and hence loss of revenue. At the same time when the inventory level increased or stock in the premises leads to unnecessary production cost. Demand management enables the organisation to examine the customers' requirements with the capabilities of the supply chain. An effective strategy towards this optimises the supply chain. Developing an effective demand management strategy enables:

- Distribution of Resources
- Helps in Avoiding Wastages of Resources
- Sales Policy
- Pricing
- Serves as a Direction to Production

1. **Distribution of Resources :** Inputs like human, materials and machines are processed into output. The firm makes judgments about capital allocation, manpower planning, and other issues. In other words, demand estimation allows a company to make key business decisions.
2. **Helps in Avoiding Wastages of Resources :** It helps in minimising wastage of raw materials, restocking, overstocking and under stocking of finished goods as well as unnecessary manpower. At the same time the expenses on inventory management can be reduced.
3. **Sales Policy :** Understanding demand allows for the optimal distribution of goods and services for the product, as well as the construction of successful sales policies.
4. **Pricing :** Pricing strategy can be aided by understanding demand for a product or service. As well as by the help of forecasting it is easy to plan budget of the organisation.

5. **Serves as a Direction to Production :** Plan for production can be done easily by help of careful demand planning.

The cargo flow demand for a particular airport is the sum of all the different shipments that pass through that airport, each with its own timing, origin and destination points, commodity type, packaging, shipment size, and service needs.

Air Cargo forecasting underlying market forces based on market assessments and economic theory, as well as an airport's physical capabilities and constraints are considered. Airports rely on cargo forecast for a many reasons, including master planning and budgeting. Airports that effectively project future traffic will be better able to anticipate their customers' needs, allowing them to flourish to their maximum potential. Various demand and supply components affect future levels of air cargo traffic and related activity for a specific airport/s over a given projected time. During this pandemic the airline adjusted their passenger ship into cargo ship by keeping in mind the upcoming situation.

■ **Types and Methods of Demand Planning :**

Demand planning may be done even more in the moment when the supply chain is better connected. Demand planning, when done correctly, can be a critical component in increasing a supply chain's profitability.

Demand forecasting approaches are difficult to choose because each case may necessitate a different approach. In a given demand–forecasting situation, management should be aware of the circumstances that favour one strategy over another.

1. Types of Demand Forecasting :

Demand forecasting can be done in a variety of methods. Depending on the forecasting model utilised, the forecast may differ. Multiple demand predictions are the best approach. This results in a more complete picture of future sales. Using many forecasting models can also reveal discrepancies in forecasts. These discrepancies may indicate the need for additional research or improved data inputs.

Passive Demand Forecasting : The most basic sort of demand forecasting is passive demand forecasting, which uses prior sales data. If you have solid sales data to work with, the passive forecasting methodology works well. Furthermore, this is an excellent model for companies who want to focus on stability rather than growth. It's a strategy based on the assumption that this year's sales would be similar to last year's.

Passive demand forecasting does not require statistical tools or the analysis of economic trends; it simply entails the use of historical sales data to estimate future sales data. While this makes passive data forecasting very simple, it's actually only beneficial for companies with a lot of previous data to work with.

Active Demand Forecasting : Start–ups and firms that are rapidly expanding frequently use active demand forecasting. The active strategy considers aggressive expansion strategies like marketing or product development, as well as the industry's overall competitive environment, which includes the economy, market growth estimates, and more.

Short–Term Projections : Short–term demand forecasting looks for a small duration in order to inform the day–to–day. It enables estimates to be adjusted depending on real–time sales data. It aids in promptly responding to changes in customer demand. It can also be used to manage a just–in–time (JIT)

supply chain or a continuously changing product portfolio. Most organisations, however, will only utilise it in conjunction with longer–term forecasts.

Long–Term Projections : Long–term demand forecasting is used to identify and plan for seasonality, annual patterns, and production capacity over a period of more than a year. A long–term projection is similar to a blueprint; by looking further ahead, businesses can focus on structuring their brands' growth trajectory, developing marketing plans, planning capital investments and expansion strategies, and more to prepare for future demand. Marketing, capital investments, and supply chain operations plan can be made by the help of this forecasting.

External Macro Forecasting : External macro forecasting takes into account broader economic trends. This forecast examines how those trends will impact organisational objectives. It examines the external influences that are causing commerce to be disrupted such as economic conditions, competition, and consumer trends. Understanding these dynamics can aid firms in identifying new product or service opportunities, forecasting potential financial issues or raw material shortages, and more.

Internal Business Forecasting : Internal business demand forecasting is a helpful tool for making realistic projections. It can also highlight areas where firm need to build capacity in order to meet expansion goals.

2. Demand Forecasting Methods :

One aspect of the process is deciding the form (or types) of demand forecasting to utilise for business. Another aspect is deciding on the forecasting approach to utilise. The five popular approaches for forecasting demand mentioned here.

Trend Projection : It is the easiest method of demand forecasting. here past sales data is used to forecast the future demands.

Econometric : The econometric demand forecasting method takes economic relationships into account. This method combines sales data with information about external factors that influence demand. For example, an increase in personal debt levels could lead to an increase in demand for home repair services.

Sales Force Composite : The sales force composite demand forecasting approach forecasts customer demand based on feedback from the sales team. This strategy brings together the sales department, as well as managers and executives. The group gets together to work on the forecast as a group.

Market Research : Customer surveys provide the data for market research demand forecasts. Sending out surveys and tabulating data takes time and effort, but it's well worth it. This strategy can provide valuable insights that internal sales data alone cannot deliver. This strategy is especially beneficial for new businesses that are still getting to know their clients.

Delphi Method : The Delphi approach, often known as the Delphi process, incorporates expert input into market projection. This strategy requires the involvement of outside experts as well as a qualified facilitator. It has opinion from industry experts.

2.5 CHALLENGES OF DEMAND PLANNING :

Demand planning is the process of examining past sales and transaction data in order to provide accurate estimates that will guide inventory replenishment and purchasing and more responsive to unexpected demands. It should be a

dependable procedure that helps inventory planners enhance the accuracy of revenue predictions, align inventory levels with actual consumer demand peaks and troughs, and increase profitability for a given channel or product.

The planning of demand is a long–term strategy for reducing inventory costs, anticipating changing buying trends, better informing suppliers, and, most importantly, meeting consumer wants at the correct time. It enables client demand to drive the close synchronisation of manufacturing, warehousing, shipping, and marketing. However, this fundamental, forward–looking aspect of supply chain planning necessitates a comprehensive awareness of purchasing trends and preferences. There are a few common obstacles that demand management implementation confronts.

1. **Availability of Previous Sales Forecasts :** Inventory planning is generally based on previous sales data, and a lack of access to these data can hamper the accuracy of forecasting future demand. Seasonal changes in demand for certain items can lead to overstocking or outages, resulting in obsolescence and missed order deadlines.
2. **Introduction of New Product :** New products have no previous sales data so the planners cannot predict and generally left in the dark to produce guesswork forecasts. Correct levels of stock prediction become difficult and the majority of the time it requires more frequent analysis. Working with businesses to develop demand modelling to determine the time, level, and position of promotions is a balancing act for sales.
3. **Accurate Monitoring of Inventory :** Traditionally stocktaking was done manually which was time and labour intensive, however with the passes of time with the combination of automatic and physical method is incorporated. Some organisation still believes in traditional approaches that can lead to inaccurate and out of date data. Due to that stock levels are difficult to monitor and the inventory forecasting and demand planning become much more complex. Without convenient access to stock level statistics, a company might easily accumulate unnecessary stocks in excess amount or experience stock outages if demand for a given product increases.
4. **Supplier Lead–Time Predictions :** Due to unavailability of past records firms often confused or uncertain about time requirement in delivery. When ordering new inventory, consider the order fulfilment lead time: JIT techniques to stock management have been shown to be ineffective, and delayed order fulfilment can result in lost sales and account cancellations. For improved insight into reorder point planning and urgent order requirements, planners should have a system in place that tracks each supplier and vendor lead time. To assure product availability, traditional merchants and wholesalers require substantial storage facilities in major metropolitan regions, as well as accurate inventory control. The supplier has to be ready for any unexpected situations like labour strikes, misplaced, theft or robbed.
5. **Demand Variability :** demand variability is the degree of variation in customer demand. In another word we can say it is the distinction between what business expects and what really occurs. Several variables influence demand fluctuation, including :

- Variation of demand across global enterprises
- A lack of visibility within and across supply chains
- Variable forecasting approaches at both the plant and customer level
- Increasing inclusion of more suppliers and subcontracts
- Increasing inclusion of smaller suppliers

2.6 PROCESS OF DEMAND PLANNING :

In order to optimise profitability, supply networks has to as efficient as feasible. For ensuring supply chains efficiency for inventory and, ultimately, income, accurate demand planning is essential. Demand management is the process of balancing the needs of customers with the supply chain's capabilities. it is a process of forecasting the demand for products to ensure they can be delivered and satisfy customers. In other words by the help of this management can proactively match supply with demand and execute the plan with minimal disruptions if the proper mechanism is in place. The method isn't just for forecasting. It entails aligning supply and demand, enhancing flexibility, and lowering variability. It aimed to create a balance between having enough inventories to meet demands without storing an excess.

Businesses lose its revenue if a product is unavailable in market due to out of stock, and they may lose their consumer to a competitor over time. On the other hand unused inventory occupies space as well as leads to unnecessary production cost. Business leaders may keep ahead of market shifts and make more proactive decisions by using demand planning, all while being sensitive to their consumers' requirements.

Process Flow : The inputs gathered from sales and marketing departments are used to create the demand planning process in today's firms. Before designing a strategy, they consider the risk variables. To boost flexibility and reduce variability, the company must align demand and supply. Forecasting demand is a scientific process. It must go through a series of procedures. At each stage, important considerations must be considered. A typical demand forecasting involves Objective identification, Nature of Product and Market, Factors affecting Demand, Analysis of Factors, Selection of Method, and Accuracy Testing.

1. The first step in demand forecasting is **Objective identification**. The planner must be clear on how forecast data is used and how it relates to the firm's forward planning. They must choose the type of forecast based on the scenario, such as short–run, active or passive, conditional or non–conditional, and so on.
2. The next step in this is the **Nature of Product and Market**. In this step the planer has to be careful about the consideration of whether the product is a consumer or production good, perishable or durable. It should also take into account the product's stage of development, such as its launch, growth, maturity, and saturation, or obsolescence and decline.
3. **Factors Affecting Demand :** Depending on the nature of the product and the nature of the forecast, different factors will acquire varying degrees of relevance in different demand functions. Furthermore, socio–psychological influences, particularly demographic, sociological, and psychological aspects affecting demand, must be considered.

4. **Analysis of Factors :** Depending on whether the economy's aggregate demand, the industry's demand, the company's demand, or the consumer's demand is being forecasted, a factor analysis is very significant. As per analysis it could be Trend, Seasonal, Rotational or Random factors.
5. **Selection of Method :** among various available forecasting techniques best suitable method has to apply to get better result in demand forecasting. (We will discuss methods of demand forecasting in next section.)
6. **Accuracy Testing :** There are a variety of accuracy testing methods, some of which are easy and affordable and others which are more complicated. This testing is required to avoid/reduce the forecasting error margin and, as a result, improve decision–making.

2.7 SUPPLY CHAIN MANAGEMENT :

It consists of flow of material, flow of Information, and flow of Money.

1. **Flow of Material :** A smooth movement of an item from the manufacturer to the customer is known as material flow. This is possible because distributors, dealers, and retailers all have warehouses. Quick movement of inventory without any stoppage through different points in the chain is required in order to minimise the cash cycle.
2. **Flow of Information :** The request for quotation, purchase order, monthly schedules, engineering change requests, quality complaints, and supplier performance reports are all part of the information flow from the customer to the supplier. Continuous interaction between the producer and the consumer become essential for a success of supply chain.
3. **Flow of Money :** The clients examine the order for accuracy based on the invoice raised by the producer. If the claims are true, money is sent from the customer to the producer. Money is also flowed from the producer to the consumer in the form of debit notes.

2.8 DEMAND PLANNING VERSUS SUPPLY PLANNING :

Supply chain management encompasses both supply and demand therefore optimising decision baking by bridging Supply and Demand Side is very much important. The goal of demand planning and supply planning is for the forecasted and actual demand for product or service to exactly align.It's basically a process of getting a better understanding of customer's purchasing habits and preferences.

Demand planning encompasses a vast number of operations in supply chain management. Production Planning, Production Scheduling, Inventory Planning, Procurement Planning, Performance Measurements, Methods and Decision Making are few of them. Whereas Supply planning is the process of determining the most cost–effective methods of delivering products to customers based on their known preferences. This requires proactive collaboration with retailers, distributors, and other distribution channels.

2.9 AIR CARGO DEMAND :

The air cargo services demand is driven by the highly diverse needs among shippers and consignees. It can involve things like overnight document delivery, time–sensitive items like transporting donor organs to hospitals, and coordinated distribution of components and products for multi–national high–tech firms. The key characteristics to describe air cargo demand are :

Origin and Destination of a Shipment : The range and cost of route and service alternatives that may be available are determined by the origin and destination of a shipment. Because most air shipments don't start or end at an airport, flow patterns are influenced by industrial and demographic factors.

Size of Shipment : Air cargo is often tiny and must be consolidated into pallets or containers for transportation to and from the aircraft. Larger shipments may require specific handling or aircraft types, but they are also more likely to be diverted to another means of transportation.

Type of Goods : The goods shipped by air may be perishable, valuable and so on as per the goods various shipping requirements are considered as we have studied in Block–2, so the demand forecasting and supply is affected.

Desired Level of Service : When compared to alternative surface choices, the ideal level of air cargo service often entails a trade–off between cost and quality of service as determined by transit time, reliability, and security (including maintaining perishable items).

The location and volume of air commodity production, consumption, and/or distribution within an airport's catchment region are the primary determinants of cargo demand. The location and competitiveness of other airports or means of transportation influence demand for any given airport. General economic trends, as well as specific area demographic and industrial trends, are significant demand drivers that affect cargo estimates, including:

Regional Demographics : Population and income levels influence the demand for inbound air freight.

Regional Employment and Production : Air commodity production volumes within an area dictate demand for outbound air services, which also influences inbound demand to the extent that machinery, parts, and components are shipped in by air to support that production.

Regional Industrial Location Patterns : Industries make decisions about where to locate and expand based on a number of cost and efficiency considerations. As a result, future growth in air cargo movements is reliant on non–transport factors that influence such decisions.

Shifts in Commodity Demand : Future air freight growth will be influenced by economic, industrial, and demographic factors that affect destination markets that trade with a certain regional market.

Shifts in Distribution Practices and Patterns : Intermediate demand for air and other freight transportation is driven by the necessity of logistics in both manufacturing and end product distribution. The expansion of regional distribution centres covering wide geographic areas has resulted in the creation of new air cargo for some airports, which is based on the efficiency of transferring cargo to meet the demands of other regions, rather than on local demand.

The impact of demand on an airport's air cargo projections is usually quantified using broad economic forecasts combined with some consideration of commodity and origin/destination mix trends. However, some other issues must be considered, particularly in markets that are primarily reliant on a single business that may relocate a commodity that may lose favour, suffer from environmental issues, or a foreign economy that is prone to dramatic fluctuations.

❑ **Check Your Progress :**

1. Which is the part of supply chain system ?
   a. Retailer b. Wholesaler
   c. Both a and b options d. None of the above options
2. Demand can be influenced by _____
   a. Labour Force Changes b. Extreme Weather
   c. Natural Disaster d. All of the above option
3. Demand side Management should focus on maximising _____
   a. Revenue b. Margins
   c. Both a and b options d. None of the above options
4. External macro forecasting doesn't takes into account.
   a. Competition in market b. Consumer trends
   c. Economic condition d. Individual needs
5. Which is the demand forecasting method ?
   a. Trend projection b. Delphi method
   c. Market research d. All of the above methods
6. What are the most common challenges in demand planning in air cargo sector ?
   a. Availability of previous sales data
   b. Monitoring of inventory
   c. Demand and supply variability
   d. All of the above options
7. Supply chain management doesn't include _____
   a. Flow of material b. Flow of information
   c. Flow of money d. Demand forecast
8. Air cargo depends on various aspects like _____
   a. Delivery distance of cargo b. Volume of cargo
   c. Transit time d. All of the above options

2.10 LET US SUM UP :

Airline In today's competitive business environment, companies will always need to respond to shifting customer demand. In some cases, this activity can span entire continents and fluctuate according to all sorts of disparate factors: the weather, trends, changes in consumer spending power, employment, climate change and government regulation.

The success of a supply chain is often linked to its efficiency, which can be traced back to the ability of managers to plan for revenue and inventory challenges. Those two facets of a business are tied to a crucial process in the world of supply chain: demand planning which is a multi–step process, dependent on the right tools, information and processes.

Demand management is successful when the final output is useful to prioritize and select a valuable strategically aligned portfolio. The more the

process is able to capture the real strategic commitment of the organization and merge it with the past on–going activities, the more demand is a success factor in building the correct portfolio. It should be treated as a specific matter to manage within portfolio management and assigned as a clear responsibility to a specific team.

All businesses with a supply chain spend valuable time making sure it adds value, but new advanced analytic tools make it possible to dig deeper into supply chain data in search of savings and efficiencies. This is important today, as profit margins are being increasing squeezed, due to business competition. Demand management requirements have changed dramatically in recent years as a result of accelerated competition, shorter product lifecycles, more mass customisation, increased demand fluctuation, internationalisation, and leaner supply chains. It is critical to precisely handle all three flows, namely material flow, information flow, and money flow, with little effort in order to produce an efficient and successful supply chain. Identifying which information is crucial for decision–making is a difficult challenge for a supply chain management. As a result, he or she would prefer to be able to see all flows with a single click of a button.

2.11 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – c) Both a and b options

(2 – d) All of the above options

(3 – c) Both a and b options

(4 – d) Individual needs

(5 – d) All of the above methods

(6 – d) All of the above options

(7 – d) Demand Forecasting

(8 – d) All of the above options

2.12 GLOSSARY :

Bottleneck : Constraint, obstacle, or planned control that limits throughput or the utilisation of capacity

Demand–Chain Management : Management of supplier–customer relations in order to provide the most value to the customer at the lowest cost to the demand chain as a whole

Demand Planning : A SCM process that enables a company to project future demand and successfully customize company output – be it products or services – according to those projections.

Revenue : The total amount of income generated through the sale of goods or services

Resources : Stock of money, supplies, personnel, and other assets that a person or organisation can rely on in order to function efficiently

2.13 ASSIGNMENT :

1. Define the terms Demand and Supply.
2. Explain the demand planning process with an example from air cargo industry.

3. How air cargo industry tries to match demand and supply by bringing two sides together ?
4. Write a short note importance of demand planning.

2.14 ACTIVITIES :

Analyse the demand and supply of air cargo industry from last 5 years data available from secondary source and comment about the future of air cargo industry.

2.15 CASE STUDY :

■ **Demand Chain Leadership – A Few Examples**

Demand Chain Leadership is the status that a company reaches when the unique total offering of its products and supply chain services, presented to the market in such a way that it enables customers to meet their own objectives, makes that company the preferred supplier, providing opportunities for revenue and margin increases.

This can only be realized by making a company's customers' needs – the source of demand – the driver in the design and packaging of a company's offering. Looking beyond the stated requirements of customers to their needs and objectives allows a company to design a total offering that exceeds what customers might state as their requirements, to a provision of products and services that makes that customer's success exceed anticipated results.

As an example consider any business that orders components, or supplies from a vendor. That business is not expert at ordering, and frequently orders too much or not enough, or the wrong mix of products. They also may not be capable of properly storing, or handling the products ordered when they arrive. This results in inefficiencies, stock overages and outages, damaged product, and wasted time as the customer's employees struggle to make corrections and get what they need.

Consider a hospital ordering medical supplies. The personnel are primarily service providers to patients, not stocking experts, or product experts. Vendors delivering to the surgery, to the refrigerator, to the stocking cabinet on the floor rather than the stockroom are not only better at making sure that the right products are at the right place at the right time and in the right condition, but they also have the presence to experience the true demand for the product they provide and the opportunities to witness and realize the unmet needs that they can fulfil.

As another example think about the distributor or retailer that orders from many competing vendors. For that distributor, the amount of time that it takes to receive the products ordered ties up their purchasing open to buy funds. The faster the vendor delivers the products, the faster the open to buy turns and the more bonus the buyer receives. This tends to make the faster supplier the preferred supplier. But only if the material arrives in the right format and with the right labelling to be processed error free. Making the arriving shipment easier to process slips it through faster than other vendors' products, making ours the preferred product. Scoring high marks on the buyer's rating sheets and helping him to turn his open to buy cash flow makes us the preferred vendor. or a manufacturer that orders parts and consumable supplies for its operation. Parts are assembled and supplies are consumed in specific ways as that company builds its own offerings. Noting the specific rates and methods of consumption – the

required orientation of the parts in the packaging, the labels needed, possibly the bracket or fasteners needed – allows the vendor to make adjustments to make it easier for the manufacturer, resulting in lower variable costs, the mantra of all manufacturing plant managers. Helping them achieve their goals cements the relationship and increases the potential for additional purchases. Furthermore, operating in this mode makes the vendor more likely to identify new needs first, becoming the preferred supplier.

This method and attitude applies not only at the hospital refrigerator, or at the distributor's receiving dock, or at the manufacturing plant, but at a higher level in the investigation, identification, and targeting of unmet needs by channel, by product line, by market in the demand chain as a whole. Assessing the market needs and using the techniques of supply chain management to meet and exceed these needs in new ways makes Demand Chain Leaders out of our clients.

This technique is not rocket science, but it does not happen overnight and is not simple. It may not apply to all of the channels, products, or markets of a particular company. It requires:

- A thorough investigation of the potential for application of this philosophy to a company's markets and customer base,
- Examination and improvement of that company's supply chain capabilities
- The identification and trial of specific opportunities
- The facilitation of the adoption of the approach into the culture of our client

Our methods have been refined over many years of working with over 1000 clients. To help our clients become Demand Chain Leaders we follow a tested and tried process of –

Market Assessment

- Demand Identification/Characterization/Segmentation/ Research
- Customer Requirements/Customer Needs
- Competitive offerings/Parallels in other industries
- Supply Chain Capabilities/Supplier and peripheral supplier product and service offerings

Demand Chain Design

- Estimates of market penetrations/Market share
- Sales, Marketing and Operations costing
- Proposal of Offerings: New/Combined/Bundled/ Unbundled/Value Added
- Market Trials: Customers/Movers and Shakers/ Investors/Focus groups
- Making the Case: Financial justification/Management Team Facilitation/ Board Presentation

Demand Chain Leadership Implementation and Facilitation

- Detailed Design of Policies, Processes, and Procedures
- Organizational design, staffing and training if needed
- Selection and Negotiation with outside vendors, 3PLs if needed
- Problem identification and resolution
- Continual improvement – it takes work to stay out front

Demand Chain Leadership results in increased customer satisfaction, increased revenue, and increased profit levels on the bottom line. Demand Chain Leadership sets your company apart from the competition and gives you the competitive edge for growth.

Key questions to answer about your business :

1. How can your company best utilize this business strategy ?
2. Which customers or markets or products benefit the most ?
3. What additional internal capabilities will you need in order to satisfy/ delight the customer base ?
4. What is the elasticity of sales revenue – how much revenue increase is possible ?

https://www.establishinc.com/demand–chain–leadership–a–few–examples

2.16 FURTHER READING :

1. Fundamentals of Logistics Management by Doughlas W Lambert
2. Logistics Management and Strategy Competing through the supply chain by Alan Harrison and Remko van Hoek
3. Business Logistics Management by Ballou, R.H.
4. Logistics Management and Strategy:Competing through the Supply Chain by Alan Harrison, Remko Van Hoek, Heather Skipworth
5. Logistics & Supply Chain Management: Logistics & Supply Chain Management 5th Edition by Martin Christopher

UNIT 03

Logistic Administration

UNIT STRUCTURE

3.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able understand :

- Logistic strategy and its importance
- The designing concept of logistic strategy
- Integration of logistic
- Logistic Management Information System

3.1 INTRODUCTION :

Logistics Administration supports entire supply chain procedures, from coordinating deliveries to managing shipping documentation. To be successful in this role, you should be well–organized and understand the order fulfilment cycle.

A logistics administrator supervises the deliveries and shipment of products and packages. They are responsible for monitoring and supporting the process of the supply chain. Because the entire supply chain environment is always changing, logistics positions have to be adaptable for any change. A well–thought–out strategy enables an organisation to anticipate service interruptions and choose how and when to respond in order to sustain peak service levels.

The logistics management takes consideration of supply chain that has an economic impact. It is crucial in ensuring that the product meets the needs of the customer. It also entails the effective integration of suppliers, manufacturers, warehouses, and stores, as well as the firms' activities at all levels, from strategic to tactical to operational.

3.2 LOGISTICS STRATEGY :

A logistics strategy is a set of guiding principles, attitudes, and driving factors that helps in the coordination of plans, goals, and policies among components of supply chain. It also helps in improving supply chain performance as well as enhance overall supply chain management. Implementation of logistics strategy ensures ability to adopt flexibility within supply chain. Logistics Administration assists with all aspects of the supply chain, from delivery coordination to shipping documentation management. It plays an essential role in the planning, implementation, and control of the effectiveness and efficiency of storage and commodities flow, as well as services and information, in order to meet consumer needs. Within the supply chain, a logistic administrator performs many methods such as planning and fulfilment, procurement, storage and distribution, budgeting, and control.

A logistics strategy emphasises on customer service, delivery time, quality, flexibility, Location and cost. **Customer service :** logistics manages stock levels, delivery times, and reaction times, among other things. This method enables businesses to gain a sustainable competitive edge. The term **"delivery time"** refers to the speed with which new products are delivered, as well as delivering at a customer's stipulated time. Fast deliveries are ensured by a unified logistical approach. A unified logistics approach ensures that clients receive **high–quality** service. The logistics strategy is based on providing a **flexible** or customised service that is adapted to each individual's demands. It also enables a company to react swiftly to fluctuating demand levels. Customers generally want things delivered as close to them as feasible, therefore the logistics strategy is to provide a service at the best available **location**. Lower **expenses** result in increased profits for the company and lower prices for customers.

1. **Approaches for Logistics Strategy :** Two logistics strategy approaches are commonly used Lean strategy and Agile strategy.

   Lean Strategy : Customer service is maintained while using fewer resources in lean operations. Beside that the strategy also aimed to minimising the cost involve in operation with minimum resources.

   Agile Strategy : An agile strategy aims to deliver outstanding customer service by responding quickly to a wide range of scenarios. In this strategy the organisations keep close eyes on customer demands and act quickly towards changes in demand and behaviour.

2. **Pull and Push Strategy :** It is demand planning strategy. The supply chain directs the activity of goods like when to produce, delivered or to store. This becomes easy if the planning is done by considering pull or pushes factors.

   The Pull Strategy : It is based on actual requirement basis and inventory is acquired when there is a demand as well the production and supplying processes in this supply chain are driven by actual consumer demand.In this type of planning there is less wastage if the demand is low.However, due to unanticipated circumstances, the corporation may not have enough stock to meet rising demand.

   The Push Strategy : However it is based on long–term estimates of customer demand. The manufacturer's previous ordering patterns are used to determine the production level in this strategy. It takes time to adapt to

demand variations, which can lead to overstocking, bottlenecks, and delays, as well as poor service levels and product obsolescence.

In reality, no company uses only push or pull logistics, but rather a combination of the two to get the most out of each which can be called as pull–push strategy. And this hybrid strategy is advisable for products with high demand uncertainty and high importance of economies of scale.

3.3 DESIGNING LOGISTIC STRATEGY :

Any formal logistics or supply chain strategy should aim to ensure that organisation is delivering exactly what consumers desire. Logistic administrators start to develop a logistics strategy by looking at four distinct levels of their logistics organization.

Functional Level : Any strategy should look at how each individual function in the logistics organisation achieves functional excellence. Functional business strategies aim to improve the execution of corporate and company strategy. Marketing and human resource strategies are examples of functional strategy.

Strategic Level : The logistics strategy should look at how the logistics organisation contributes to the company's high–level objectives by looking at its objectives and strategic supply chain decisions.

Structural Level : The logistics strategy has to look at how the logistics organisation contributes to the company's structural concerns at the highest level.

Implementation Level : The way a logistics strategy is implemented across the company is critical to its success. This includes creating an information system, implementing new policies and procedures, and creating a change management strategy.

■ **Developing the Strategy :**

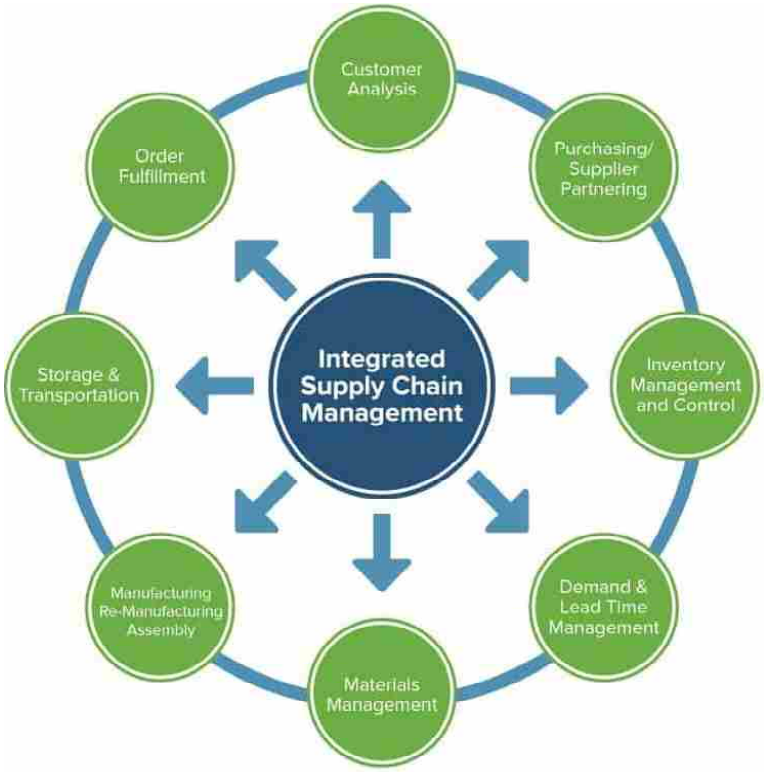
The process of developing a strategy is broken down into eight parts.

1. The external audit assesses the corporate environment and then identifies the characteristics that contribute to performance in that setting.
2. The internal audit reviews higher–level plans from a logistics perspective, providing context and overall logistics goals, as well as a strategic emphasis and possibly a logistical purpose.
3. Design the general characteristics of supply chains to ensure that the necessary services are delivered as efficiently as possible. This comprises network design, capacity, and technology used, among other things.
4. Set explicit objectives to demonstrate what each logistical operation must accomplish. The internal audit assesses how effectively present logistics meet these objectives and identifies areas for improvement.
5. To support the logistics network, provide the appropriate organisational structure, controls, and systems.
6. Benchmark logistics by analysing the performance of leading firms and developing metrics to compare actual performance to planned, optimal, and rival results.
7. Implement the approach by establishing the parameters for lower–level logistical decisions.

8. Monitor actual performance, search for ways to improve, keep tactics current, and provide feedback.

3.4 SUPPLY CHAIN INTEGRATION :

The process of integrating all parties engaged in the fulfilment of a product into a single system is known as supply chain integration. To ensure that everyone is working toward the same goal at all times, a lot of coordination and alignment is required. As we know, a supply chain is comprised of all partners involved in the procurement, production, and transportation of finished goods, as well as facilitating services. The system must have the application of shared management.



The concept isn't new, and it's been used by organisations all around the world to improve significantly their systems. While there are many different methods to incorporate this type of technology into a system, regardless of how it is used, information exchange will be one of the most critical aspects. When it comes to integration information exchange, most businesses go through a series of levels as they move toward full integration. These levels are :

- When each department or system within a firm manages its own supply chain and the difficulties that come with it called Baseline.
- In the next level, all of a company's departments collaborate to improve efficiency and cut costs by combining orders, scheduling jobs together, and taking other crucial steps and is called Functional Integration.
- Internal supply chain integration is third level and in this all the departments within a company are connected using the same systems.
- Now we move to a higher level, the External vendors, as well as all internal departments, are involved in the final step. External Supply Chain Integration is defined as providing a vendor with system access and encouraging them to act nearly as a separate department in order to achieve the best potential results.

3.5 REVERSE LOGISTICS :

When things are returned back from their final destination to another site in order to recoup value or for eventual disposal, reverse logistics is used. The product may be returned if it does not meet the needs of the client or if it has reached the end of its useful life. In other words we can say both a service (repair, recalls, etc.) and an environmental component are included in reverse logistics. Product returns, repairs, maintenance, and end–of–life returns for recycling or deconstruction are all examples of reverse logistics.

Reverse logistics requires an efficient, sustainable approach to resolve each individual item–level issue. It also requires complete support of senior management, which is seldom forthcoming. On the other hand, it is critical to the customer experience and must be managed appropriately. A successful reverse logistics programme maximises the value of each item returned and has a positive influence on the bottom line. The product's backward path, final form and destination are determined by the quality and distance travelled. A product's value decreases the longer it remains in the system moreover, damaged items and packages deteriorate more when they are re–transported. With each passing week, the market value of a time–sensitive category of products, such as those containing technological components, decreases. To ensure maximum reclaimed value, it's essential to keep products in the system for as little time as possible.

3.6 LOGISTICS MANAGEMENT INFORMATION SYSTEM (LIMS) :

LIMS is a system of records and reports either by the use of electronic or paper–based system. It collects, analyses, validates, and displays data that can be utilised to make logistical choices and manage the supply chain. Stock on hand, losses and adjustments, consumption, demand, issues, shipment status, and information on the cost of commodities managed in the system are some of the data aspects of LIMS.

Within logistics management, the fundamental purpose of an information system is to establish successful links between suppliers, consumers, and rivals. The mode of making these linkages might be offensive or defensive, depending on the logistics management strategy. This information is a crucial for company's overall information system that focuses on logistics decision–making challenges. The distinct elements that make up this system are the input, the output and the database and its associated manipulations.

The inputs are data elements required for planning and operating a logistics system, which can be collected from a variety of sources, including clients, corporate records, publicly available data, and company workers. Summary reports of cost or performance statistics, inventory or order status reports, exception reports that compare desired and actual performance, and reports that initiate action are all examples of the outputs of a logistics information system. The selection of data to be saved and retrieved, the techniques of analysis, and the basic data–processing procedures are all part of database management.

❑ **Check Your Progress :**

1. A logistics strategy is a set of _____

   a. Guiding principles b. Attitudes

   c. Driving factors d. All of the above options

2. A logistic administrator performs many methods such as:
   a. Planning and fulfilment
   b. Procurement and storage
   c. Distribution, budgeting, and control
   d. All of the above options
3. Logistic strategy doesn't focuses on _____
   a. Customer Service b. Delivery Time
   c. Non–flexibility in services d. None of the above options
4. Two logistic approaches are commonly used.
   a. Push & Pull Strategy b. Agile and Lean strategy
   c. Both a and b options d. Can't say
5. How many distinct level of logistic organisation are there in developing logistic strategy ?
   a. 4 b. 5 c. 6 d. 7
6. A supply chain is comprised of all partners involved in the_____
   a. Procurement b. Production
   c. Transportation of finished goods d. All of the above options
7. When each department or system within a firm manages its own supply chain is called as _____
   a. Baseline Integration b. Functional Integration
   c. Third Level Integration d. None of the above options
8. Internal supply chain integration is connected using the same system is _____ level of integration.
   a. Baseline Integration b. Functional Integration
   c. Third Level Integration d. None of the above options

3.7 LET US SUM UP :

The supply chain is changing continuously due to that logistics service provider is getting affected. So these companies should establish and adopt a defined logistics strategy to adapt to the supply chain's flexibility. Because logistics functions as an integrating or boundary–spanning function, it is a difficult and crucial activity. It connects suppliers and customers, as well as integrating functional groups within an organisation. With today's market's ever–increasing rivalry, it's more important than ever for a company to focus its efforts on strategic prospects.

The business environment and distinctive competence show where an organization is now. Reduce storage and distribution costs, increase brand reputation, establish more sustainable business practises, and meet consumer requests with a well–planned, personalised reverse logistics strategy. Most businesses lose money on reverse logistics, which is a sort of incoming freight. Many businesses avoid dealing with it because it is perceived as an expensive and hard problem.

3.8 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – d) All of the above options

(2 – d) All of the above options

(3 – c) Non–flexibility in services

(4 – b) Agile and Lean strategy

(5 – a) 4

(6 – d) All of the above options

(7 – a) Baseline Integration

(8 – c) Third Level Integration

3.9 GLOSSARY :

Agile Strategy : The ability for companies to stay competitive in their business by adjusting and adapting to new innovative ideas.

Lean Strategy : Strategies focus on producing more with less input

Benchmarking : The process of comparing one's performance to that of other leading organisations in order to improve performance

Business Performance Measurement : A set of quantitative indicators derived from a variety of sources that, when combined with a proper analytical process, enable a company's management to track and assess the present condition of a certain business, project, or programme.

Reverse Logistics : comprises of the sector of supply chains that process anything returning inwards through the supply chain or travelling 'backward' through the supply chain.

3.10 ASSIGNMENT :

1. What is the logistic strategy and its role supply chain performance ?
2. Describe the eight parts of developing logistic strategy.
3. Write a short note on supply chain integration.
4. Explain the term Reverse Logistics with suitable example.

3.11 ACTIVITIES :

Based on your understanding prepare a logistic strategy of any valuable or live stock between destination (preferably in two different continents) by air cargo.

3.12 CASE STUDY :

■ **Warehouse Redesign and Improvements for A Leading Tile Distributor**

Establish recommends a practical, implementable warehouse redesign and operational improvements with an ROI of 19 months that enables our client to store 33% more pallets than forecast and increases order fulfilment productivity up to 56%.

The Challenge

One of North America's leading building and construction material distributors was growing so quickly that its inventory had outgrown the existing

warehousing infrastructure necessary to support it. Establish was given the task to optimize the warehouse layout in a cost–effective and practical manner to support the operation for the next four years as well as to improve the operation's productivity levels to be used as a blueprint for improving the company's 17 other distribution centres across North America.

Initial Steps and Discovery Process

To accomplish this goal, Establish logistics consultants first became a presence in the facility learning the existing operation in great detail and accurately discerning the needs of the operation. Also, Establish gathered the necessary data and collaborated with the client's project team to determine the ideal inventory level of the warehouse and how to plan for it using pallet quantities.

Once Establish verified its knowledge of the operation with the client's project team, it was time to take a step back and use our previous experience and internally collaborate on the best way to revolutionize our client's operation.

Our Warehouse Redesign Expertise Leads To the Solution

Firstly, the pallets and crates in the existing operation could easily be floor–stacked and, therefore, the significant investment necessary for pallet racks had little to no ROI. However, after analyzing the order and transaction log, we recommended to set–up a forward pick area using few used selective pallet racks with one location for every SKU in the facility since many lines were picked in less–than–pallet quantities. In addition, to dramatically reduce the picking time, the supply chain consultants developed the specifications for order pickers to be used in the forward pick area.

For the rest of the facility, the floor–stacked pallets needed to be organized to increase productivity. Establish designed a location scheme utilizing striped lanes and scannable location labels. Using a detailed quantitative analysis of the four–year–out inventory levels, we created a layout using CAD and slotted the pallets into each location by product family and pallet quantity. The logistics consultants also redesigned the entire shipping and receiving area and recommended the break room to be relocated closer to the front offices of the facility.

Lastly, Establish came to the conclusion that the operation's warehouse management (WMS) system support had to be improved. Establish created a matrix of critical functionalities that the new WMS had to fulfill and brought in several vendors to demonstrate those capabilities. After a detailed cost–benefit analysis of whether to implement an out–of–the–box WMS or program it in–house, our client decided to program their own WMS in–house based on the functional support requirements determined by Establish. The supply chain and logistics consultants did extensive time trials to determine the time savings that the new WMS functionalities and redesigned processes would result in.

The Result

The implementation of Establishes recommendations for a warehouse redesign and operational improvements achieve an estimated ROI of 19 months, taking into account an order fulfilment efficiency increase of up to 56% and 33% more pallet capacity than forecast.

https://www.establishinc.com/warehouse–redesign–and–improvements–for–a–leading–tile–distributor

3.13 FURTHER READING :

1. Fundamentals of Logistics Management by Doughlas W Lambert
2. Logistics Management and Strategy Competing through the supply chain by Alan Harrison and Remko van Hoek
3. Business Logistics Management by Ballou, R.H.
4. Logistics Management and Strategy:Competing through the Supply Chain by Alan Harrison, Remko Van Hoek, Heather Skipworth
5. Logistics & Supply Chain Management: Logistics & Supply Chain Management 5th Edition by Martin Christopher

UNIT 04

Logistic & Supply Chain Performance

UNIT STRUCTURE

4.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able understand :

- Justify the requirement for supply chain performance
- Importance of supply chain management system
- Supply chain performance measurement of internal and external
- The Supply Chain Operations Reference model to improve the entire process

4.1 INTRODUCTION :

Logistics metrics are used to assess the effectiveness of both internal and external logistics services inside a company. Time, quality, availability, cost, profit, and reliability are all common metrics. The metric(s) used to measure performance determine the appropriate design for a logistic system or component(s) of a logistic system. In some cases, a system that performs well in one metric may not perform well in others. However, the goal is to create a system that meets or exceeds expectations in the majority of the criteria.

In today's competitive global market, performance indicators and metrics are critical to efficiently manage logistics operations. Global operations, outsourcing, supply chain, and e–commerce are all part of the global economy. Increased competitive pressure and the assumption that working cooperatively in supply chains might offer a competitive advantage are driving this trend. The actual difficulty for managers in this new business environment is to come up with appropriate performance measurements and indicators to help them make better decisions that will improve their organization's competitiveness. There are

so many traditional performance measures the best suitable measure/s can be used however some traditional indicators and metrics may no longer be appropriate in the current context, because many actions are difficult to identify.

Performance measurement is useful in describing present and past process as well as it is also used to set performance goals. Organisations measure their performance in order to keep track of their employees and departments, direct them as well as provide feedback so that the goal of organisation can be achieved.

4.2 SUPPLY CHAIN PERFORMANCE MEASURES :

Firms success depends on the timely and efficient movement of goods, an effective supply chain management system is critical. It has a control on the flow of products from the point of origin to the point of sale. To compete in the marketplace, supply chain stakeholders, on the other hand, require constant improvement methods. It emphasises the significance of supply chain and logistics KPIs. A balanced performance measurement system enables the manager get informed about the progress. Performance measurements are established in order to create priorities in order to ensure service quality. Priorities are used to guarantee that supplier network partners focus on providing value to end customers and that network partners can monitor how well the network as a whole performs against this standard.

Those performance metrics are considered successful which are clear, concise and easy to understand. The essential working elements of corporate operations should be reflected in metrics as well as it should incorporate both financial and non–financial success criteria for all levels of the firm. Supply chain performance measure can be said as an approach to evaluate the performance of entire system. These measures are divided into two categories: quantitative and qualitative. Quantitative metrics are those that can be converted into a specific number using mathematical procedures and provide exact data. Qualitative metrics, on the other hand, are more of a subjective opinion form based on the data provided. As instance, inventory levels, resource utilization ability to perform and delivery performance is quantitative and customer satisfaction and product quality is qualitative. Qualitative measures aren't actually measures as it depends on perception which can be created with the help of quantitative measures only. Qualitative variables aren't performance indicators; instead, they're employed to aid in the analysis of performance indicators.

1. **Qualitative Measures :** In Supply Chain some of the output measures such as product quality, trust, prominence, customer satisfaction, innovativeness and flexibility which cannot be measured numerically.

2. **Quantitative Measures :** The goal of quantitative measurement is to do statistical analysis, data is expressed quantitatively. When it comes to logistics, there are a variety of quantitative methods for analysing and improving the performance of each component of a supply chain. It is a sort of evaluation used to examine and track the performance of the chain.

   The Quantitative variables could be continuous and discrete. Continuous variables are measured in units such as kilogram, minutes, currencies, and so on, whereas discrete variables are measured in quantities such as seconds, minutes, and dollars. Discrete variables are used to keep track of things like new clients, complaints, and accidents, as well as anything else that has an integer value.

Quantitative Supply Chain assists the organisation in improving service quality, reducing excess stocks and write–offs, increasing productivity, lowering buy prices and operational costs, and more. Hence, It could be Financial or non–Financial measures.

3. **Financial Measures :** It includes the measuring of different cost whether operational cost or fixed cost or cost of assets required within supply chain. The most important goal to achieve within chain is to maximise revenue while keeping costs low. Using essential modules including activity–based costing, inventory costing, transportation costing, and inter–company financial transactions, the financial performance indicators may be integrated into one.

4. **Non–Financial Measures :** non–financial measures encompass lead time, customer service level, inventory levels, resource utilisation, and ability to perform and so on.

4.3 IMPORTANCE OF SUPPLY CHAIN PERFORMANCE MEASUREMENT :

Measurement is critical in every aspects of life as it allows assessing the success of efforts. Performance in SCM is critical to evaluate because the potential benefits of SCM make it attractive, but enhanced performance is not automatic. Just like any other organisational consideration, it must be done well to get favourable results. For supporting organisational improvement, performance measurement is critical. The importance of establishing an efficient performance measuring process has only grown as firms large and small realise that in today's highly competitive business world, long–term success depends on achieving goals with little failure. Organisation can get help by using Effective performance measurement to identify their strengths and shortcomings, top performers, areas for improvements, and benchmarks based on previous data.

The average metrics required for managing and measuring the success of an organization's supply chain system vary by industry, company, and scale of business, every organisation that wants to organise and manage their supply chain metrics must implement some key performance measurement systems. The key to measuring the existing condition and improvement potentials in logistics is to use performance management (PM).

4.4 SUPPLY CHAIN OPERATIONS REFERENCE (SCOR) :

The Supply Chain Operations Reference Model (SCOR) provides methodologies, diagnostics, and benchmarking tools to assist firms improve supply chain processes dramatically and quickly. In this model companies are requested to fill out a detailed questionnaire that is anonymously submitted, and the results are compared to those of other businesses in their field. This model aids global manufacturers in transforming their businesses into best–in–class enterprises. The SCOR model categorises the supply chain into ideal business processes and process groups. Within the value chain, this uniform framework allows for a cross–company study of all information, financial, and product flows.

The model has been developed to maintain the flow of goods from the manufacturer to the end user while also making structural improvements; a supply chain requires constant monitoring, modification, and improvement. The concept

is built on six business processes that can be utilised to improve the performance of a supply chain: plan, source, make, deliver, return, and empower.

Plan : Business objectives are matched with supply and demand, and best practises of the five main processes (plan, source, manufacture, deliver, and return) are analysed to increase efficiency, taking into account inventory, transportation, regulatory requirements, and resources.

Source : Purchasing goods and services while considering demand and availability, as well as the acquisition, receipt, testing, and provision of raw materials.

Make : Production planning and manufacturing, quality control, packaging, and demand forecasting of market–ready products.

Deliver : All processes linked to the delivery of completed goods and services, including order, transport, warehousing, and distribution management.

Return : Any form of return and disposal of items involves customer service and supplier operations.

Empower : Commercial rules, databases, risk management, legal requirements, contractual and business laws are all examples of supply chain management processes.

4.5 INTERNAL AND EXTERNAL SUPPLY CHAIN PERFORMANCE MEASUREMENT :

Internal measurement mostly focuses on a single company's value chain or logistics supply chain, which includes sourcing, incoming storage/transportation, operations, outward storage/transportation, and consumer distribution while external performance measurement focuses on evaluating the efficiency and effectiveness of material/product flows, services, information, and financials from the supplier's supplier to the customer's customer across numerous organizations/companies.

Internal performance benchmarking is used to assess performance across several business units or facilities inside an organisation, whether they are locally, nationally, or globally distributed. It requires performing the same measurements and analysing the findings at each distribution centre. It provides the benefits of cost–effectiveness, relative ease of implementation, easily available information, and, in many cases, rapid improved results. Internal supply chain performance is typically measured in terms of lead time, fill rate, and on–time delivery. These metrics are developed within a business and do not consider the entire supply chain. Considering only one company can result in instances where seemingly beneficial policies have unintended consequences for the entire supply chain. Taking these problems into account, as well as the fact that more companies are recognising the value of supply chain management, it's clear that supply chain performance monitoring tools across the entire supply chain are in high demand.

In external supply chain, benchmarking your supply chain against other companies can help your company in a variety of ways. Consider the following scenario:

- You can see how your supply chain performs in comparison to the industry average.
- You can look into and assess best practises in your business as well as supply chains that are similar to yours.

- External benchmarking is more likely to spur significant supply chain reform and innovation.

External benchmarking, on the other hand, is a far more difficult task that necessitates the selection of appropriate peers against whom to assess performance. It's not always easy to interpret data accurately, and the expense of implementation can be significant.

Unlike internal benchmarking, which can be done quite quickly with internal resources, a first–time external benchmarking project is best carried out with the help of outside experts. This will help you avoid the most common problems and may provide you access to a larger number of peer organisations than you would otherwise have.

❑ Check Your Progress :

1. Logistics metrics are used to assess the effectiveness of _____ logistics service in a company.

   a. Internal b. External

   c. Both a and b d. None of the above options

2. In competitive global market _____ and _____ are critical to efficiently manage logistics operations.

   a. Performance indicators b. Metrics

   c. Both a and b options d. None of the above options

3. Performance measurement is useful in describing present and past process. It is also used to set

   a. Customer service b. Performance indicators

   c. Performance goals d. None of the above options

4. Measurement is critical in every aspects of life as it allows assessing the _____

   a. Success of efforts

   b. Potential benefits

   c. Supporting organisational improvement

   d. All of the above options

5. Firm success in air cargo sector depends on _____

   a. Timely movement of goods b. Effective movement of goods

   e. Both a and b options c. Can't say

6. Product, trust, prominence, customer satisfaction, innovativeness and flexibility are _____ measures.

   a. Qualitative b. Quantitative

   c. Financial measures d. All of the above options

7. Measuring various cost like, operation cost, fixed cost, variable cost, cost of assets are _____ measures.

   a. Qualitative b. Quantitative

   c. Financial measures d. All of the above options

8. Supply Chain Operation Reference (SCOR) concept is built on _____ business processes that assist in improving performance of a supply chain.

a. 4 b. 5

c. 6 d. None of the above options

4.6 LET'S US SUM UP :

The primary goal of a high–performing supply chain is to manufacture items that correspond to consumers' demand cycles while providing the most value to them. Improving supply chain performance has necessitated the use of a variety of technology as well as managerial attention. Rapid, cost–effective, precise, and dependable supply chains are required in today's competitive economy. Supply chain management is no longer confined to the company's operational and functional departments. It is now a strategic issue that requires top–level management attention. The supply chain has significant influence over the creation of customer value.

The Supply Chain (SC) encompasses all actions related to meeting customer requests and transferring materials from the downstream to the upstream of the chain in order to meet those demands. Organizations should control activities to increase efficiency and effectiveness in order to meet supply chain objectives. Industries are constantly attempting to innovate in a variety of sectors in order to preserve or expand market share and revenues. As a result, developing appropriate metrics is critical to the success of any firm. Performance evaluation not only selects but also examines indicators in order to provide an assessment of the company's position and identify areas for development. The main focus of supply chain performance is on the operation of the company under investigation, with a special emphasis on its key processes that are interconnected with other supply chain members. Performance measurement is a set of measures used by a management to keep track of planned tasks and allocate resources to meet established objectives. All of the SC performance indicators can be classified into two categories: qualitative and quantitative.

4.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – c) Both a and b options

(2 – c) Both a and b options

(3 – c) Performance goals

(4 – d) All of the above options

(5 – c) Both a and b options

(6 – a) Qualitative

(7 – c) Financial measures

(8 – c) 6

4.8 GLOSSARY :

GDP : The total monetary or market worth of all finished goods and services produced inside a country's borders in a certain time period

Just–in–Time (JIT) : An inventory management method in which goods are received from suppliers only as they are needed.

Lead Time : Also called cycle time and is the business processes of interest, the supply chain process, and the order–to–delivery process can all be characterised as cycle time.

Order–to–Delivery Lead Time : Period of time between a customer placing an order and receiving the goods.

Performance Management : A year–round communication procedure between a supervisor and an employee that supports the organization's strategic goals.

Supply Chain Process Lead Time : Time taken for the supply chain to transform raw materials into finished goods, as well as the time it takes for the goods to reach the client

4.9 ASSIGNMENT :

1. What is the logistic metrics and it use in global market ?
2. Describe the six Supply Chain Operation Reference (SCOR) concept that assist in improving performance of a supply chain.
3. Write a short note on performance measurement.
4. How is internal and external supply chain performance measurement done ?

4.10 ACTIVITIES :

Develop a performance metric for a air logistics company of your choice.

4.11 CASE STUDY :

■ **Success with Supply Chain KPIs : A Brief Case Study**

In the early years of this century, a British division of a global brewing company decided to diversify into contract distribution to increase utilization and reduce costs across its national warehousing and logistics operation. The company's customers mainly comprised pubs and restaurants, which were either under individual ownership, or owned by the brewing company.

However, the traditional model for licensed alcohol sales was undergoing a transformation, with most of the major brewers disposing of their estates following freshly introduced laws, implemented to curb what was seen by the government as a barrier to fair competition in the industry.

As a result of these changes, several large pub companies sprang up, and the brewing company (the subject of this study) determined to sell distribution services to these entities. It won a porterage contract with one of the largest pubcos and suddenly found itself with one customer that represented more than 50% of its business revenue.

Threats and Measures : A Catalyst for Change

It wasn't long before problems arose, with the customer threatening to exit the contract under a service–level clause. Fortunately, the pubco's director was an ex–logistics guy who proposed an alternative solution.

The customer and the supplier would work together to develop KPIs that would highlight why many pubs were receiving deliveries with incorrect product quantities, and why even more deliveries were arriving late.

The partners developed a KPI portfolio, which, although hardly simple in the way this article advocates, served to highlight some severe issues in the supplier's warehouse and transportation functions.

The list of KPIs included delivery on–time and in–full (DIFOT). The in–full KPI was broken down into factors such as:

- Incorrect product quantity
- Incorrect product quality (wrong products)
- Deliveries with broken products/packaging

These KPIs were then cascaded to even greater levels of granularity, with the use of error codes to identify where and how delivery errors were originating.

How Supply Chain KPIs Opened Eyes

Over time, the KPIs revealed a range of issues, including picking errors, a lack of checks taking place in the loading of vehicles, unsafe loading practices, unsafe driving, and insufficient load–restraining measures. These problems were all carry–overs from an earlier era when the logistics operation primarily served an internal supply chain.

Quite simply, the logistics functions had not adapted to a new environment in which retail outlets were no longer "tied" to the brewery. Instead, customers could choose to take their business where they wished, which was precisely the pub group's intention if delivery performance did not improve.

However, given the visibility provided by the new logistics KPIs, improve it did. Within a year, the brewer's logistics operation was meeting initial "perfect order" targets agreed with the customer and working towards a raised set of service–level objectives.

The Outcomes Were Significant

Improvement in the brewing company's service provision was made possible because the KPIs had enabled the partners to identify specific issues, and then agree and implement plans to address them.

As a result, the brewing company not only averted the loss of its biggest customer, but went on to achieve a reputation for excellent distribution services, enabling it to acquire contracts with other major pub groups and become known as a leading beverage logistics provider. This success, in turn, helped to strengthen the brand's presence in the pubs of the groups that it served, and raise its profile in the British beer market.

4.12 FURTHER READING :

1. Fundamentals of Logistics Management by Doughlas W Lambert
2. Logistics Management and Strategy Competing through the supply chain by Alan Harrison and Remko van Hoek
3. Business Logistics Management by Ballou, R.H.
4. Logistics Management and Strategy: Competing through the Supply Chain by Alan Harrison, Remko Van Hoek, Heather Skipworth
5. Logistics & Supply Chain Management: Logistics & Supply Chain Management 5th Edition by Martin Christopher

BLOCK SUMMARY :

Demand forecasting is a major aspect in the master planning process for the air cargo transportation system, which is a huge and complex service system. Demand forecasting is critical for examining current cargo flight schedules and determining future air cargo facility requirements.

In a healthy supply chain ecosystem, air freight plays a crucial role. Although air freight is one of the more expensive modes of transportation, it has one major benefit: speed. Customer expectations and the urgency of shipments that must arrive as soon as possible fuel the need to deliver products rapidly. Air freight carriers can profit substantially from digitising their supply chain and increasing visibility for both themselves and their customers. This also helps to incorporate agility into the supply chain mix, giving supply chain managers more options.

A method for judging the performance of a supply chain system is to use supply chain performance measures. Management must get insight into how its supply chain functions and identify the necessary areas for improvement in order to ensure that every firm achieves its long–term aim. Measuring supply chain performance will assist a firm in achieving its short and long term goals, including sales, finance, Human Resources, productivity, quality, and the whole product life cycle. The lack of a collaborative framework to house measurements will dramatically increase the likelihood of resources being squandered, hence it is critical for a business to measure its supply chain performance.

Supply chain measurement guarantees that organisational behaviours are under control, saving the company money and ensuring long–term success. As a result, if you want to keep your organisation on track, you must use the major supply chain performance measurement methodologies.

BLOCK ASSIGNMENT :

1. What is logistic strategy ? Explain the designing logistic strategy.
2. Write a short note on Logistic Management Information System.
3. Supply chain management consist of flow of material, flow of information and flow of money, comment on this statement.
4. How demand planning is different from supply planning ?
5. What are the challenges in demand planning activity ?
6. Explain the terms Consignor, Freight forwarders, Consignee and Ground handlers.
7. What is the outsourcing logistics in air cargo or party logistics provider ?
8. Who are the different stakeholders in air cargo industry and the role of stakeholders ?
9. What is the importance of supply chain performance measurement ?
10. Differentiate between qualitative and quantitative measures.

CARGO AND LOGISTICS MANAGEMENT

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ROLE OF SELF INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self-instructional material are completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self- instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual- skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behavior should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminates interactive communication cues, such as pauses, intonation and gestures, associated with the face-to-face method of teaching. This is

particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self- instructional materials, be they print or otherwise. These materials are designed to achieve certain pre-determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user-friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect. All the best for your studies from our team!

CARGO AND LOGISTICS MANAGEMENT

Contents

Dr. Babasaheb Ambedkar Open University Ahmedabad

BBAATR-206

Cargo and Logistics Management

BLOCK 4 : AIR CARGO MARKETING & CUSTOMER SERVICE

AIR CARGO MARKETING & CUSTOMER SERVICE

Block Introduction :

In the logistics industry, standardisation appears to be a problem that requires our attention. Compatibility, interoperability, repeatability, and quality can all be improved using it. Because the existing unstructured logistics industry connects a variety of sectors, it is vital to integrate all of them in order to improve information flow. Standardization can help create uniformity to the processes used by distinct industries. This can aid in data tracking and processing, and it could be a solution for optimising the supply chain.

There is ample evidence to prove that a lack of standardisation leads to inefficient logistics operations and higher logistical costs. Countries must minimise their logistics costs through logistics standardisation in order to maintain strong global competition. As a result, standardisation is required across the whole logistics business, including packaging, labelling, container standards, process standardisation, and information technology standardisation.

Planning, delivering, and regulating the movement of physical commodities, marketing materials, and information from the producer to the market are all part of marketing logistics. The goal is to satisfy client requests while still earning a profit. To keep your competitive edge, you'll need to develop an effective product, price, location, and promotion strategy. These four marketing logistics functions assist the firm in reaching its target customers and delivering the items or services it sells to them.

Many firms' efficiency is dependent on their logistics. Getting goods to markets – or obtaining raw materials – becomes challenging without a robust logistics plan as part of your supply chain. However, there is another critical component to consider in order for logistical activities to run smoothly: customer service.

Any logistics chain will not function as efficiently as it should unless there is good communication and efficient customer care. As part of your logistics services, providing excellent customer service and communication is critical to your success.

Block Objectives :

After understanding this block learns will have knowledge of :

- Standardisation of logistic process and automation of this sector
- Sales and marketing of air cargo and logistics
- Customer service in air cargo and logistic industry
- The recent trends in air cargo and logistic industry

Block Structure :

Unit 1 : Standardisation in Logistics

Unit 2 : Sales & Marketing of Cargo & Logistics

Unit 3 : Customer Service in Cargo & Logistics Industry

Unit 4 : Future Trends in Cargo & Logistics Industry

UNIT 01

Standardisation in Logistics

UNIT STRUCTURE

1.0 LEARNING OBJECTIVES :

After studying this unit learner will develop understanding about :

- The impact of standardisation in cargo and logistic industry
- The challenges in cargo and logistic industry
- The automation process in supply chain management
- The process of standardisation and it application

1.1 INTRODUCTION :

Standardization is set of agreements that all concerns i.e. stakeholders in an industry or organisation must follow in order to ensure that all processes involved with the development of a good or the provision of a service are carried out according to predetermined guidelines. That means stakeholder of the system follows a set–up guidelines for the betterment of the industry where it is applicable. By following these guidelines it gives as surety about the constant quality of the product or services. It also assures the user that the similar goods will be reaching to them without compromising the quality or other related concerns.

So, by the help of above description we can say that the Logistics standardisation means the logistics for a large system that is being developed within facilities, machinery, and equipment, as well as the formation of national and international standards and standardisation systems of logistic system. As logistics is a part of supply chain management we must think about entire SCM. Therefore we can say that the standardization is vital in entire system because it helps to streamline the tasks that it processes for business partners, resulting

in increased efficiency. It is a method of assisting firms in smoothing out their global operations. The operations become smooth if we adhere with standardisation.

Discipline, attention, and a sound marketing and product strategy are required for success in air freight marketing and product management. The success of entire cargo market is significantly depending on logistic. It is one of India's fastest–growing industries and a major contributor to the country's economic development. So the requirement of standardisation in the sector becomes need of the time in Indian market too.

1.2 IMPACT OF STANDARDISATION :

Compatibility, interoperability, repeatability, and quality can all benefit from standardisation. Because the existing unstructured logistics industry connects a variety of sectors, it is vital to integrate all of them in order to improve information flow.

Standardisation can help offer uniformity to various sectors' processes. This can aid in data tracking and processing, and it could be a solution for optimising the supply chain. During times of constant market competition, analysing the efficiency of logistics processes requires a strong focus on customer service, lead times, and supply flexibility. One of the most important aspects of controlling analysis is supply chain efficiency analysis. Physical material flow through the supply chain is facilitated by transportation processes. Transportation is a crucial operation that ensures the availability of goods and services. The rise of the retail, e–commerce, and manufacturing sectors has accelerated the pace of its expansion. Logistics, of course, plays a critical part in the supply chain. Industries and educators are frequently confronted with issues in this burgeoning industry as they work to optimise the supply chain.

Countries must minimise their logistics costs through logistics standardisation in order to maintain strong global competition. As a result, standardisation is required across the whole logistics process, including packaging, labelling, container, process, and Information and communication technology. Supply chain management systems that include an optimisation plan grow revenue faster than those that don't. They are able to provide greater service to clients while lowering expenses across the board. Standardisation of the system is crucial for excellent performance in an industry where the three pillars are lean, fast, and transparent. The following are some of the advantages of standardisation:

- Reduced costs
- Reduced wastage
- Increased revenue
- Shorter turnaround time
- Productivity improvement
- Less Errors, losses, and delays
- Centralised communication
- Improved return on investment

1.3 STANDARDISATION OF PROCESSES IN LOGISTICS :

One of the pillars of lean manufacturing is standardisation. It may not be limited only to the purpose of standardising manufacturing. The development of

universally acceptable norms (standards) plays an equal importance in logistics as it does in production. Entire supply chain encompasses standardisation of two parts first is the standardisation of cross–industry generic supply chain processes, and other one focuses on the industry's unique characteristics and entails reorganising corporate operations to better leverage networks. Similarly there are two types of logistical procedures can be standardised. The first types is transport which includes forklifts, trucks, pallet trucks, cranes, and other procedures called handling used for loading, unloading, stacking, destocking opening and shutting packages, repackaging, data processing, and so on.

To ensure standardisation in any sector it has to develop Standard Operating procedure (SOP) and ensure to follow it. SOP in the term of logistics is the documents or plans that provide step–by–step processes and information to help smooth logistics services. Expect SOPs to include explicit directions for employees to follow for the benefit of entire chain. It's part of the arrangement to follow business standards, because establishing merely the most basic or vague plans can damage the reputation as well as operation will be in a fraught.

To ensure standard in logistic certain activities are performed they are :

1. **Receiving :** During receiving of shipment it is seal has to be checked along with tally the number mentioned in air–way bill. Bill of lading or packing list or other related document need to be checked so that proof of delivery can be issued. During unloading it is important to check for breakage or missing of object. After receiving formalities has been done than only it has to be sent for stocking in warehouse.
2. **Stocking :** Now these received items should be segregated and assigned spaces for different category of goods. Inventory need to be initiated to minimise the chance of misplacing or shortage.
3. **Packaging and Consolidation :** If it is inbound than it has to be unpacked from consolidated package or ULDs. If it is outbound logistic than consolidation is required in order to provide ease in transportation. It is important to ensure packaging material for its durability and can withstand to tear during handling any time.
4. **Maintaining Control for Inventory :** Inventory has to maintain separately for inbound and outbound. After every movements inventory needs to be updated. FIFO and LIFO techniques are used wisely.
5. **Marking and Labelling :** Both inbound as well as outbound logistics need to be marked in such a way that there should not be any confusion. The products are to be verified appropriately and labelled in accordance with domestic and international regulations and company policy. It is also important to ensure that the right packages are being loaded in the right truck.
6. **Transport Decision :** The best suitable transport mode is to be identified and the shipment needs to send accordance with types of goods, delivery time and so on.
7. **Dispatching :** Before the load is going to leave the port all the required documents are to be checked and processed as required. For instance during international shipment customs clearance is required.

8. **Tracking :** After dispatching the forwarder or service provider has to keep track until it is not being delivered to end customer where it is intended to be.

1.4 AUTOMATION IN SUPPLY CHAIN MANAGEMENT :

The supply chain business is continually reinventing itself at a rapid rate, thanks to the rising integration of advanced information technology in logistics and road transportation. In the long run, technological support helps to streamline operations. In terms of logistics management, it is critical to ensure that all things are correctly stored, transported, and delivered. Here, technological solutions become critical, and they play a critical role in ensuring efficiency at all levels. Automation in supply chain management especially in logistic operations significantly improves transportation company efficiency, which has a substantial influence on other stake holders in the chain. An automated process not only helps in improving profit margins, but other benefits are also associated. All the concern parties get benefited from incorporating automation into the channels.

Time and labour spent on manual entries can be reduced with the use of automation, resulting in increased efficiency in the process of arranging the flow of items in the supply chain logistics, and cost savings. The odds of making an error are also reduced, resulting in increased customer satisfaction and a better customer experience.

Logistics automation in the Transportation Operation System refers to all of the automation capabilities available to it for the appropriate management of the transportation and freight sectors. In the logistics sector, automation generally refers to the elimination of manual data entry for freight shipments and the availability of automatic retrieval options in the purchase of transportation for cargo. The advantages of automation include:

- Enhancement in Accuracy
- Real Time Freight Rates
- Safe Work Environment
- Improvement in Customer Service and experience
- Smooth operation
- Better Inventory Management
- Reduced Costs and wastage

1.5 LOGISTICS CHALLENGES :

The transportation and logistics industry is the foundation of any economy and the driving force behind all sectors, including manufacturing, agriculture etc. It's worth noting that, in many sectors, logistics is the single highest cost of goods supplied, and it's a vital success factor affecting productivity, profitability, and so on. Despite of fact the industry is facing challenges like increasing fuel price, customer expectations, environmental issues, shortage of drivers etc. are among them.

Sky Rocketing Fuel Price : Fuel price in global market is increasing day by day. That gives impact directly on transportation cost. Hence transporters are forced to increase fare compromising on cost the logistics has to face loss in their business. To overcome from this situation logistics companies are transferring

their business to a smaller number of carriers and negotiate reduced costs. However, some of they could focus on consolidation but again that can create situation of delays.

Customer Expectations : Nowadays in dynamic markets customer perspective is changing, both in terms of delivery times as well as quality of service. Logistics suppliers also have to work for improvement and standardise the customer experience across all regions, channels, and touch–points, including in–person interactions or other medium of communication.

Environmental Issues : There is a strong focus on decreasing emissions, owing to government anti–idling and emission–reduction measures, as well as public attitudes and cost savings. Modern truck models provide the best engine performance, pollution compliance, and mileage. These provide significant long–term benefits, but come at a high initial investment.

Shortage of Drivers : Truck drivers have challenging and demanding jobs all over the world. Companies are becoming more selective in their hiring due to government rules become more stringent.

Impact of the Economy : Political unrest, reduced production, increased consumer price index, and inflation have put a negative impact on product and service demand, significantly freight demand.

❑ **Check Your Progress :**

1. Benefit from standardisation are:
   a. Compatibility
   b. Repeatability,
   c. Quality
   d. All of the above options
2. Standardisation is required across the whole logistic process, including _____
   a. Packaging
   b. Labelling
   c. Both a and b options
   d. None of the above options
3. The process of standardisation starts from the _____
   a. Manufacturing
   b. Packaging
   c. Transportation
   d. None of the above options
4. The Standard Operating Procedure is _____
   a. Universal standard practise
   b. Documented plan or step by step procedure
   c. Both a and b options
   d. None of the above options
5. The reason for advancement in supply chain business is _____ .
   a. Timely movement of goods
   b. Effective movement of goods
   c. Introduction of innovative technology
   d. Can't say
6. Tracking is done until it is not being delivered to the _____
   a. Consignee
   b. Consignor
   c. End user/customer
   d. All of the above options

7. LIFO and FIFO are the techniques are used to _____
   a. Inventory control technique
   b. Qualitative and quantitative technique
   c. Financial measures
   d. All of the above options
8. Standardisation of process helps in _____
   a. Reduce wastage
   b. Shorter turnaround time
   c. Less error
   d. All of the above options

1.6 LET US SUM UP :

The standardisation of transport processes is a continual effort aimed at improving the activities associated with logistical processes. All company standards should be balanced, i.e. both strict and flexible.

The logistics industry has been fundamentally transformed by supply chain management automation. The logistics business has been transformed by higher efficiencies, powerful tools, better and safer work environments, and increased profits and lower operating costs. Automation is a self–updating process that will continue to evolve and change the Logistics and Supply Chain Management industry, providing better solutions every day.

1.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – d) All of the above options

(2 – c) Both a and b options

(3 – a) Manufacturing

(4 – c) Both a and b options

(5 – c) Introduction of innovative technology

(6 – c) End user/customer

(7 – a) Inventory control technique

(8 – d) All of the above options

1.8 GLOSSARY :

First–In, First–Out : labelling product with the dates it can be stored and discarding the older items.

Inventory : A complete list of items in a building

Standard Operating Procedure : set or prescribed procedures to be followed on a regular basis for the completion of specific operations or in specific situations

Return on Investment : a performance metric used to assess an investment's efficiency or profitability, or to compare the efficiency of several distinct investments.

1.9 ASSIGNMENT :

1. Which areas standardisation is required in logistics and why ?
2. What are the advantages of standardisation ?

3. What is Standard Operating Procedure (SOP) ?
4. Explain the term automation in supply chain management.
5. What are the challenges in logistic management ?

1.10 ACTIVITIES :

1. Study the Standard Operating Procedure of any reputed Air Cargo Company and comment on it based on your understanding.

OR

2. Find out the recent automation procedures in air cargo industry.

1.11 CASE STUDY :

■ **Freight Rate Benchmarking**

How do you know that your freight rates are the lowest possible? Division management, with their eyes on the bottom line, demanded an answer to the question. This client, a division of a large corporation, enjoys the benefits of corporate buying power in transportation services and expected competitive rates. In this case, the preferred carriers (and rates) are defined and available through corporate, but the carriers and routing are not strictly imposed on the divisions. "Local" decisions on carrier selection and routing are allowed, and compliance with corporate routing is not measured. Benchmarking and analysis were to provide the answer and identify any opportunity to reduce cost and improve profitability. Expectations were that the exercise would confirm that freight rates were good.

The client recognized that overall transportation cost benchmarking would not answer the question. Both overall freight cost as a percent of sales and cost per hundredweight are the result of the rate structure, as well as a number of other significant factors that could not be ignored. The plan was to benchmark average rates within small groups of comparable benchmark data. These benchmark data were from manufacturers who shipped from one or two shipping locations to the 48 United States. This creates a comparison group where the distances shipped are similarly long, ranging from local to over 1,000 miles. Benchmarks were to be prepared for each shipment size range corresponding to the LTL weight breaks in the tariff. This technique eliminates any differences in average shipping size of the participating companies from the benchmarks. Companies with identical freight classes were selected.

The database for comparison included freight bill detail for all shipments made over a six–month time period. The base data included origin, destination, weight and freight charges. The specific carriers used for each shipment were known but not used in the benchmarking analysis. In addition, the mileage for each freight bill was posted to the database. Bills were coded for LTL and truckload and separate comparisons were done for each. The comparison metric was cents per hundredweight per mile ($/lb./mile).

The analysis reported the lowest rate, average rate and a calculation of the savings potential by using the lowest rate for all shipments in the comparison cell, a section of the database corresponding to comparable shipping regions and destination areas. Once the overall picture was assembled by combining these cells into a summary report, an overall assessment examined rate levels and produced maps to illustrate the geography of the rate comparisons. Picture a U.S.

map image with red, blue and green "pushpins" placed at each shipping destination. Red pins are cities where average rates are 20 percent or more over the lowest rate. Green pins are 5 to 20 percent of the lowest rate. Blue pins are those where average rates are close to the lowest rate. These comparisons and maps can be prepared by shipping size and region of origin.

In this case, there were hardly any red pins. However, the overall rate savings potential on LTL was 12 percent and something less for TL. Regionally there were significant differences. Higher rate savings were possible for outbound shipments that were made from the plant in the "rust belt" region than from the more centrally located plant. There is an additional benefit from continuing carrier selection and rate negotiation work.

https://www.establishinc.com/freight–rate–benchmarking

1.12 FURTHER READING :

1. Logistics & Supply Chain Management: Logistics & Supply Chain Management by Martin Christopher
2. Disrupting Logistics: Startups, Technologies, and Investors Building Future Supply Chains. Editored by Wurst, Christian, Graf, Luca (Eds.)
3. Essentials of Supply Chain Management by Michael Hugos

UNIT 02

Sales & Marketing of Cargo & Logistics

UNIT STRUCTURE

2.0 LEARNING OBJECTIVES :

After reading this Unit we will be able understand :

- Concept of sales and marketing in service industry
- Marketing plan for cargo goods
- Planning marketing mix for cargo goods
- Assessment of marketing plan in cargo sector

2.1 INTRODUCTION :

The terms "Sales" and "Marketing" are often combined and used together. However it is irrefutable truth that both are interrelated and dependent for success. Recognising the importance of air cargo, airports are increasingly devoting financial and human resources to improving air cargo. When seeking additional or better air cargo service, it is critical for an airport to design a marketing strategy.

The acts that lead to the sale of products and services are termed as sales. In other words we can say the transfer of ownership of good(s) or services in exchange of money is selling. The act of persuading someone to purchase from your business is sales. It frequently entails some kind of interpersonal connection in order to persuade a prospect to become a customer. Most of these leads have come to you as a result of marketing efforts. So, marketing is the process of attracting someone (customers) towards the products and services being offered that forced to get ownership of that. In other words we can say the activities that lead to the sale of good(s) or services are referred to as sales. Each group's tasks are intertwined. In order to support sales, marketing is critical.

The distinction between marketing and sales is how close you are to converting a prospect into a paying customer. The techniques you utilise to reach new leads and develop interest in your company are referred to as marketing. It should include measurable benchmarks so you can determine which marketing strategies are both cost–efficient and effective.

The flow of physical commodities, marketing materials, and information from the producer to the market is managed by marketing logistics, which includes planning, delivering, and regulating the flow. These four functions assist the firm in reaching its target customers and delivering the items or services it sells to them.

When the sales and marketing teams work together to move a prospective customer from initial awareness to devoted customer, the organisation has an integrated marketing and sales programme.

2.2 CONCEPT OF SALES AND MARKETING IN SERVICE INDUSTRY :

As per concept of "right principle" marketing is the process of bringing the right goods, services, or ideas to the right people at the right time, place, and price, with the proper advertising strategies and the right people providing the customer service connected with those things, services, or ideas. Sales can be achieved after great marketing efforts.

All economic activities whose output are not a physical product or construction, are generally consumed at the time of production, and add value in forms it can be recreation, comfort, convenience, timeliness, and so on basically these are intangible in nature. The activities, benefits, or satisfactions that are offered for sale in connection with the selling of goods are referred to as service marketing.

Marketing is described as the process of generating, communicating, delivering, and trading offerings that have value for customers. This is accomplished in a variety of ways; marketing experts employ one or more of the five marketing ideas to gain consumer trust and establish profitable, long–term relationship. These concepts have been changing for decades and comprise production, product, selling, marketing, and society themes. Because not every concept is valuable to every organisation, this is a good moment to learn more about each one. However, service marketing encompasses concept of building trust, empowering service delivery personnel, establishing uniform processes, and promoting customer satisfaction.

A service is a collection of consumable and perishable advantages provided to a consumer by a service provider in order to ensure customer satisfaction. Transportation, hospitality, finances, accountancy, banking, insurance, Education, consultation, and health care is just some of the services available. The services sector, sometimes known as the tertiary sector, encompasses all of these services.

Service marketing is defined as "an integrated system of corporate activities aimed at planning, pricing, promoting, and distributing relevant services for the benefit of current and potential customers in order to fulfil organisational goals."The marketing concept was not recognised earlier in the services sector due to limited areas (banks, insurance, hospitals, and schools) and a lack of competition because the government was the prominent player. However, with the passage of time, the services sector improved, and new fields, such as

information technology, telecommunications, hospitality, tourism, and recreation, began to grow. Due to the emergence of a competitive environment, marketing efforts have become necessary. To promote the business, efforts in the areas of innovation, quality improvement, customer relationship management, and after–sales services have been started.

Consumer–oriented attitude is adopted now days. Profit is increasingly seen as a reward for ensuring consumer satisfaction. A company uses the consumer–oriented marketing approach bases all of its goals, policies, programmes, and operations on the needs of its customers. They also need to keep in mind that the requirement and customer expectation is changing so continuous improvement is highly required.

2.3 CARGO MARKETING PLAN :

The cargo marketing plan lays out the precise techniques that will be used to meet the overall goals. Each strategy should aim to highlight the airport's and region's advantages. A well defined marketing plan should be targeted at decision makers in important areas of the industry in order to achieve the objectives. Market assessment, clear, specific, and realistic objectives, strategies to achieve objectives, and input from other stakeholders are only a few of the topics included in the guidance for a marketing plan and air cargo development.

Despite airport capacity, area consuming and producing markets, transportation connectivity, redistribution capacity by air or land, aircraft capacity, and competing airports are all essential factors in determining the potential profitability of an air cargo company. As a result, cargo marketing must take into account all of the mentioned factors. Carriers Freight Forwarders are two primary targets for marketers. Each of these customers is important to the successful cargo operation of an airport. They share a close relationship and are dependent upon one another. With the notable exception of integrated/express carriers, the majority of an airline's air cargo revenues are derived from air freight forwarders, and a forwarder's decision to establish a gateway operation depends in large part on the availability of air service at a given gateway airport.

The market plan focused on awareness about services and air cargo capacities the organisation have in air cargo operation. Creating awareness about the business is necessary among freight service providers, forwarder and other stakeholders so that they come to know about the service being offered by airport. Once they start query about it the success of marketing plan starts. So it can be considered important stage of the plan.

When the air cargo marketing plan determines that a profit strategy to target specific carriers is required, this can be accomplished by giving precise analytic data that supports the profitability of the operation's existence in a particular airport. Annual reports, trends related articles are useful to determine the target customer as well as service expectations of stake holder can also be analysed. Marketing programs depends upon target audience. Initially it can take many forms. Broadly it can be Cooperative, Informational or combination of both. Cooperative programmes address social gatherings, while informal programming taking the shape of a business meeting held in the office. Both of these programmes are concerned with the competitive advantages of the business.

Cargo exposition and advertising are important parts of a marketing strategy. With the help of a well–designed advertising plan, a firm reaches a wider

audience, raise product awareness, and influence the target market. With the use of recurring advertisement the organisation will be able to send its message to the target customers with the use of the. Advertisement planning enables a business to send the correct message to the right people at the right moment in order to influence their purchasing decisions. Participating in conferences, seminars, and cargo expositions is a crucial aspect of a cargo marketing strategy since it allows the business to reach out to additional consumers and stakeholders. Beside that the marketers also focus on attending exhibitions, event sponsorship, and partnership in events organised by state and local governments.

2.4 MARKETING MIX FOR CARGO :

Customers are often present in the firm's location, engage directly with the firm's people, and are literally part of the service production process because services are typically provided and consumed at the same time. Customers look for any concrete clue to help them grasp the nature of the service experience because services are intangible.

Marketing mix is divided into two types, product marketing mix and service marketing mix. Product marketing mix comprises the Product, Place, Pricing, and Promotions. This marketing mix is most commonly employed with tangible commodities. In addition to above mention four Product, Price, Place, and Promotions service marketing mix also includes three other variables: People, Physical Evidence, and Process.

1. **Product :** Organisations use products to try to meet the wants of their customers. In this context, a product is everything that the company gives to potential customers, whether tangible or intangible. Most marketers, with some hesitation, refer to an intangible service as a product. In fact we should remember that it is the actual item that is on the market for purchase. The term "product mix" refers to the mixture of all available services on the market. Service marketing combines various activities for instance in terms of cargo as a service, combines documentation, forwarding etc.

2. **Place :** The term "place mix" refers to selecting where and how services will be provided to clients at the right time and in the right place so that best possible benefit can be achieved. Unlike Goods, services cannot be separated from their providers and must be delivered where they are. However, various providers can perform the same services. Decisions concerning how to physically transport a good have little strategic significance in pure services. Most services include the transfer of products in some way. These can be materials required to produce a service or the service itself, as the movement of products is its sole purpose.

3. **Price :** Price mix decisions include strategic and tactical decisions concerning the average price to be charged, discount structures, payment conditions, and the extent to which price discrimination between different groups of customers will occur. However, because of the intangible character of a service, price can become a highly important signal of quality in and of itself. The actual costs of items (if any), process costs (labour costs + overheads), and profits are included in the price of a service. Cargo services include official rates and market driven rates. Official rate comprises normal rate, specific commodity rate, bulk cargo rate as well as

class rate whereas market driven rate includes profitability and business generations.

4. **Promotion :** Production staff can become an important part of the promotion mix in services marketing as they have to convey about USP. Advertising, sales promotion, personal selling, and public relations have traditionally been part of the mix. When it comes to service promotion, boosting the seeming tangibility of a service is generally a priority.

5. **People :** The supplier and the services are inextricably linked. The people in the service marketing mix are these providers. Companies invest a lot of time recruiting and educating its employees and anyone else who represents the company to the consumer, such as an air hostess on a flight. All participants in the service delivery process, including the employees, the client, and other customers in the service environment, have an impact on the buyer's perceptions.

6. **Physical Evidence :** The value of services is intangible. However, they are frequently offered in conjunction with a large number of tangible aspects. The environment/location where the service is offered, as well as any tangible features that aid in the performance or transmission of the service, are examples of physical evidence. It is the tangible aspect of the service that's more or less complementary. Physical evidence indications allow the company to deliver consistent and strong message about the company's mission, target market segments, and service nature.

7. **Process :** The service delivery and operating systems are made up of the methods, mechanisms, and flow of activities that are used to supply the service. It is the route taken by the actual product from the manufacturer to the end user. Customers can rate the service based on the actual delivery, which improves customer experiences or the operational flow of the business. It also provides consistency in services. Some services are extremely sophisticated, requiring the consumer to complete a lengthy and complicated set of steps in order to complete the process. Process can be used in the planning and/or implementation of a project. However, it is always present when providing a service.

2.5 MARKET ASSESSMENT :

The term "market analysis" refers to a quantitative and qualitative evaluation of a market. It looks at the market size, different market categories, client buying patterns, competition, and the economy. It is the fundamental step in the development process of any product/service. Before creating strategies to start working on and investing in any new or current idea, product, or service, a thorough study of the market can be used to assess the demands and requirements of the market.

In Air cargo, the backbone of the marketing plan is an evaluation of the regional market, as well as an evaluation of an airport's strengths and shortcomings. Determine the prospective cargo market and the airport's and region's advantages as a commercial location. However it's too early to judge that airports having runway can serve the air cargo shipment effectively. Other stakeholders and variables are to be considered for successful air cargo operations. The connectivity from mainstream to loading and unloading area also needs to be included.

Certain dimensions assist in conducting a market analysis in common. These dimensions are Market Size, Market Growth rate, Distribution channels, Market Trends, Market Profitability, Key success factors and, Industry cost structure.

1. **Market Size :** The size of the market affects the analysis the larger the markets have more number of competitors. So it is important to ensure that product or services should stand out in a large market. In case of shortage in quantity or alter in quality allows the consumer to switch to a competitor. The size of market can be determined by available data from various sources or by survey.
2. **Market Growth Rate :** When evaluating the development of a certain product in a specific market, the market growth rate, it is the rate by which size market increases is a significant component to consider. Marketers frequently construct a marketing campaign with the goal of maximising a given market's growth rate. By the help of this the organisation can get idea about the prospective length of the market. It is done by extensive advertising, which allows consumers to gain a deeper understanding of the product.
3. **Distribution Channels :** It is a network of firms or intermediaries that a product or service passes through before reaching the final customer or end user. Firm can use existing or emerging distribution channel however, they need to asses both the channel with respect to their own strategy and future plans. Generally emerging channel provides opportunities to develop competitive advantages.
4. **Market Trends :** Market trends refer to the apparent direction of price fluctuations over time. Market trends apply to all assets and markets where prices or quantities bought and sold fluctuate. Past price movements are compared to the present price to determine patterns. They give idea about both the potential opportunities as well as threats.
5. **Market Profitability :** The net profit earned by doing business in a particular market is measured by market profitability analysis. In the market different company have different profitability. The average profit potential helps in analysing profitability of the market and hence ease in different decision regarding the same. Buyer power, supplier power, barriers to entry, threats of substitution and competitor (also called Porter's five forces) can be used to know profitability.
6. **Key Success Factors :** These are business practises that are crucial to maintaining a successful connection between business and customer and these factors are decided by the needs and preferences of Market and the customers.
7. **Industry Cost Structure :** In order to get a competitive edge cost structure analysis is critical because it examines all types of costs that are required to execute industrial processes. A review of the types of costs, cost behaviour, and break–even analysis are some of the several cost structure analysis approaches. In a business, there are many different forms of costs. A review of each type of cost structure is usually the first step in a cost structure analysis.

❑ **Check Your Progress :**

1. Marketing is the activity which leads to _____
   a. Awareness b. Sales
   c. Both a and b options d. None of the above options
2. A service is a collection of _____ by service provider.
   a. Intangible consumable b. Perishable consumables
   c. Both a and b options d. None of the above options
3. With the help of a well–designed advertising plan the cargo company can _____
   a. Reach wider audience b. Create product awareness
   c. Influence target market d. All of the above options
4. The Service marketing combines various activities for instance in terms of cargo as
   a. Forwarding service b. Combines documentation
   c. Both a and b options d. Can't say
5. The price for cargo services comprises of _____
   a. Official rates b. Market driven rates
   c. Both a and b options d. None of the above options
6. What do the 4 P's achieve when they work together ?
   a. Target customers b. Profit margins
   c. Creating Marketing plan d. None of the above options
7. The way a business combines the main marketing elements to sell products that meet the needs and wants of customers. This statement regarding marketing mix is _____
   a. Correct b. Incorrect c. Can't say
8. Business's marketing mix would NOT include :
   a. Profit b. Place c. Promotion d. Price

2.6 LET US SUM UP :

The idea of aggressively marketing an airport's cargo services is part of the marketing and business development strategy for the airport. Most major airports understand the value of air cargo to their overall growth strategy and have devoted financial resources and experienced employees to improving their cargo offering.

Before planning marketing for the air cargo sector, it is important to understand how it differs from other industries. The marketing mix notion is not founded on any theory; rather, it is based on the need for marketing managers to break down their decision–making process into some useful and productive acts. When it comes to using the 4Ps of marketing mix, which are product, pricing, promotion, and place, it is well known that these ideas have limitations when applied to services. Customer centricity is critical for service firms.

In the case of products or goods marketing organizations, customer interaction is often remotely provided through an agent or a retailer. The customer does not come in direct contact with the producer however in service organizations, the customer is involved in making the service specifications, and usually receives

the service personally. This interaction is direct rather than of remote nature. The customer and organization interaction is one of the key ingredients of customer satisfaction, and this makes customer focus an inevitable part of the organization.

2.8 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – c) Both a and b options

(2 – c) Both a and b options

(3 – d) All of the above options

(4 – c) Both a and b options

(5 – c) Both a and b options

(6 – a) Target customers

(7 – a) Correct

(8 – a) Profit

2.9 GLOSSARY :

Intangibility : As services are performances or actions rather than objects, they cannot be seen, felt, tasted, or touched in the same manner that we can sense tangible goods.

Marketing Mix : a combination of factors that can be controlled by a company to influence consumers to purchase its products

USP (Unique Selling Proposition) : The one thing that sets a company apart from the competitors

2.10 ASSIGNMENT :

1. What is the difference between sales and marketing ?
2. Explain the term cargo marketing plan.
3. What is marketing mix ? Explain the term product with example.
4. Write a short note on Market Assessment.

2.11 ACTIVITIES :

Study the marketing plan of any famous cargo & logistic company in your city. Do the market assessment based on your study as well.

2.12 CASE STUDY :

■ **Consolidation of Product Lines From Many Production Sites Into Fewer Shipments**

A major supplier of consumer hard goods maintained a system of nine regional distribution centres, in addition to six plants, to meet their goal of delivering to 95 percent of the country within one day of order placement. Although the capability to deliver in one day existed, the actual service provided was unclear because:

- Customers received 35 percent of their weight directly from the plants in full truckloads. Cycle times could be as long as five days.
- Poor inventory positioning often resulted in shipments originating from alternate facilities, resulting in longer cycle times.

- Actual cycle times were not tracked, even with the ambitious goal of shipping to customers in one day.
- Many facilities had overlapping service areas, which made the decision of choosing the primary shipping point less clear.

A more realistic goal for order cycle time was required. An extensive survey of customers concluded that there were indeed two separate requirements for order delivery: five days for full truckload orders (the same as currently provided) and two to three days for all other orders (one to two days longer than currently provided).

At the same time, logistics costs were high, especially warehousing and inventory carrying costs. A primary factor was that a high percentage of volume shipped during the last three days of each month, resulting in underutilized warehouse labour and stagnant inventory during the early part of the month. Any changes made to the number of facilities in the network would have a significant effect on inventory levels and warehouse overhead costs.

In the face of ever–increasing pressure to reduce delivery times, it can be very difficult for suppliers to keep up with customers. In response to this market pressure, companies can overcompensate.

Thirty–five percent of the business was currently shipping direct from the point of manufacture to customers in full truckload quantities. This portion of the business was already meeting customer requirements for cycle time in a very cost–efficient manner. Therefore, a computer model was developed placing a heavy emphasis on LTL delivery times, LTL rates and potential break bulk locations.

The addition of one to two extra days in available LTL transit time opened up many possibilities for closing or moving facilities. The final network was based on using six regional facilities, reduced from nine, to serve the LTL orders. This network met or exceeded the customers' service requirements at a savings of $1.3 million in transportation and warehousing costs. In addition, inventory carrying costs were projected to be $9 million lower with the new distribution network.

There are many factors that drive a company to examine their distribution network. Changing business, cost constraints and consolidating markets may all be reasons for a company to consider changing their distribution network. In many cases, the driving forces may be specific to a certain industry.

https://www.establishinc.com/consolidation–of–product–lines–into–fewer–shipments

2.13 FURTHER READING :

1. Marketing Management– John W Mullins & Orville C Walker, JrRust, Zahorik, and Keiningham,
2. Service Marketing by Addison Wesley
3. Service Marketing: Operations, Strategy, and Information Technology by Fitzsimmons and Fitzsimmons
4. Marketing Management in Air Transport (RLE Marketing) By Jack L. Grumbridge

UNIT 03 *Customer Service in Cargo & Logistics Industry*

UNIT STRUCTURE

3.0 LEARNING OBJECTIVES :

After reading this chapter the learner will be able understand :

- The importance of customer service
- The different levels of customer service
- The components of customer service
- The measuring of customer service quality

3.1 INTRODUCTION :

It is an era of customer centric world. Any logistics chain's functioning, growth, and success are all dependent on strong communication and efficient customer service. Communication built the trust, in logistic operation when the service provider gives quick responses the trust and relationship developed with the customer. The trust is a crucial factor in any industry. That's why majority of companies consider customer service to be an important aspect of their business.

In logistics, customer service refers to the operations, service acts, and added value that are offered. The goal is to provide clients with greater value than the core service they require, as well as the highest level of customer satisfaction. Today's enterprises and business organisations provide clients with a broader range of services in addition to their primary products. The logistic system's goal is to serve clients as well as or better than the competitors while also making a profit. Customer service is a chain of sales operations and addressing customer needs that begins with receiving orders and continues with the delivery of items to clients, with equipment maintenance services provided in some circumstances.

Customer seeks updating regarding their logistical journey by providing update and solving their queries enables them to know the firm comprehensively. A good communication channel is a consistent factor whether dealing with inbound or outward logistics. Customers' experiences influence a company's reputation. When it comes to dealing with a brand, they want it to be simple and painless. Customer service in logistics refers to efforts that help add value to the primary service that customers seek in order to maximise their brand satisfaction.

3.2 IMPORTANCE OF CUSTOMER SERVICE IN LOGISTICS :

Due to increased competition, rising consumer expectations, and the uniformity of the basic items offered, customer service is critical. High rates of order fulfilment, speed and frequency of delivery, inventory visibility, on–time delivery, quality of product on delivery, and proper documentation are all important variables in achieving high levels of customer service. It's a multi–faceted approach to achieving and maintaining market distinction. Different clients' needs have to be met through customer service. By promoting customer happiness and retention, logistics management plays a critical role in growing customer lifetime value. They do it all by :

1. **Provides Value :** Customers are more engaged and loyal when firms treat them properly, answer their queries, and go above and beyond their expectations.
2. **Retains Customers :** Client service is vital to retaining customer loyalty, and it must be properly planned and delivered on a continuous basis. It is less expensive to keep existing consumers than to acquire new ones. Since resources spent on customer care activities yield a much higher return than resources spent on promotion and other forms of client development. Furthermore, when a company is trustworthy and provides excellent customer service, delighted consumers become loyal customers.
3. **Creates Endorsements :** When it comes to product quality, customers frequently share their experiences with others. Customers that are loyal provide favourable endorsements and good online reviews, which can help businesses grow their brand. Poor customer service, on the other hand, will drive customers away. It's important to remember that, more often than not, consumers make their decisions based on recommendations from family and friends rather than advertisements. After having a favourable experience with a firm, the majority of customers are willing to recommend it to others.
4. **Reduces Employee Turnover :** It is also observed that the employees want to work for companies that value employee input, foster new ideas, and treat customers fairly. People are more engaged in their work when they work for a company that provides excellent customer service. They become brand ambassadors for the company. Furthermore, they are more likely to stay with the organisation despite commercial setbacks and economic shifts.
5. **Increases Recurring Revenue :** Recurring revenue supports in the development and maintenance of a reasonable budget for business owners. Long–term client connections can help generate recurrent revenue by increasing repeat business from existing customers. These sums make a business more stable and predictable, both operationally and financially, reducing the danger that business will take a sharp turn from month to month. Stability usually comes with a price tag.

3.3 THE COMPONENTS OF CUSTOMER SERVICE :

Price, product quality, and service speed are all important aspects of customer service that are interconnected. Customer service is heavily reliant on logistics, according to studies. On–time delivery, order fill rate, product condition, and accurate documentation are some of the most critical customer service factors. Pre–transaction, Transaction and post–transaction are three elements to customer service.

Pre–transaction : The goal of customer service pre–transaction elements is to create an environment conducive to excellent customer service. That is, it is a non–routine action. In qualitative and quantitative terms, this service element deals with the service level and related operations. Return policies, estimated arrival times, and contingency plans for problems that may arise during shipment are all included. Expectations are set at this stage; however it is critical that businesses follow established policies.

Transaction : Everything that happens between the times an order is placed and the time it is delivered to the customer is considered a transaction element. A company focuses on obtaining, packaging, and delivering the purchase to the consumer in a timely and cost–effective manner during the transaction phase of customer service. This phase also includes shipping planning, customer communication, delivery tracking, and delivery confirmation. The aim during this stage is simply deliver the right product to the correct location in the prescribed delivery time in accurate condition.

Post–transaction : This phase encompasses the various services required to support the product in the field, safeguard consumers from defective products, facilitate package returns, and handle claims, complaints, and returns. Since, customers respond to the total experience, therefore corporate customer service is the sum of all of these factors.

3.4 LEVELS OF CUSTOMER SERVICE :

The importance of balancing the degree of customer service with the cost of providing that service has already been emphasised. This equilibrium is difficult to define, but it can be succinctly stated as the point at which the additional revenue for each increment of service equals the additional cost of supplying that increment. The degree of customer satisfaction expressed in the proper execution of orders, the absence of errors, the effective provision of services, and constant striving to improve the level of service, as well as under the level of customer service standards, contract terms, or the usual requirements for quality of service. It's rare to come up with a policy that is perfectly balanced in terms of cost and service. Customers' recurrent orders are a result of good service in many cases. The entire logistics channel can benefit from tried–and–true customer service practises. Consumer demand is currently mostly determined by service quality.

Cost minimisation and service maximisations are two main approaches company used for balancing the level of service in logistic chain. Cost minimisation approach a financial strategy, enables an organisation to deliver goods and services in most cost–effective way while maintaining require level of quality. Elimination of waste, negotiation, outsourcing non–core activities, simplifies process and flexible working practices are few methods for reduction of cost. Whereas Service maximising strategy is a strategy where a distribution budget

is set and the "best" service is delivered within that budget. The best technique to take will be determined by the product, business, or market circumstances.

3.5 MEASURING CUSTOMER SERVICE QUALITY :

The degree to which a customer receives the level of service that they expect is referred to as service quality. There are two crucial factors to consider while assuring service quality: the customer's expectations and the customer's impression of the performance. The consumer might be regarded satisfied if the perceived performance meets or surpasses expectations. If the customer's expectations are not met, he or she will be disappointed. These expectations and the resulting perception of performance can be analysed along five dimensions: responsiveness, assurance, tangibles, empathy and reliability.

Responsiveness refers to how promptly the service provide is able to respond to the needs of the customer. The level of assurance that a customer has in the quality of a service is referred to as **assurance**. The physical components of service delivery are referred to as tangible which comprises the location, equipment, and individuals providing the services. **Empathy** refers to the service provider's feeling of caring for and understanding the customer's requirements. The ability of a service provider to continuously supply services that are reliable and accurate in comparison to what was promised is referred to as reliability.

Several indicators, such as the proportion of on–time delivery, the percentage of right orders, and the fulfilment rate, are used to determine the level of customer service. The optimal service level is a target service level where net profit is maximised while customer service is satisfactory. To increase net profit, it's critical to maximise revenue while lowering costs at that specific service level. Identifying the revenue and cost for each service level will provide the logistics professionals a starting point to make this critical decision. Revenue, cycle time, shipment cost, handling costs, and inventory costs are some of the factors to determine the optimum service level. Each level of service has an associated cost level. When activity levels are increased to meet higher customer service levels, costs increase at an increasing rate. Profit contribution curve results from the difference between revenue and costs at various service levels. The maximum profit point occurs between the extremes of low and high service levels.

There are several different customer service metrics that can be employed. The most important point is that whichever metrics are employed, they must reflect the customer's most significant service expectations. This isn't always as easy as it seems. The fulfilment of orders is one such example. This can be measured in a variety of ways, including :

- The number of orders completely satisfied,
- The number of lines delivered from a single order
- The number of line items or cases delivered from a single order
- The value of the order completed

There is no right or incorrect answer, and any of these could be used. The one that best suits the operation in question is the most appropriate. It may also be appropriate to utilise a mix of these measures, as will be demonstrated later. Organizations must establish clear, customer–service–driven performance measures that represent the true goals they are pursuing. Many logistics operations are often confronted with serious questions as a result of them. Any deviations should be examined cumulatively for realistic measurement.

Improving Service Quality : The techniques required to increase service quality will vary based on the situation, but they can be broken down into three categories: comprehension, performance, and communication. Increase the amount of time that firm employees, including management, spend observing and interacting with customers to gain a deeper understanding of their wants and requirements.

❑ Check Your Progress :

1. In customer centric era logistic function depends on _____
   a. Strong communication b. Trust of customer
   c. Both a and b options d. None of the above options
2. In rising competition and consumer expectation, importance of customer service in logistics is to _____
   a. Retain customer b. Provide value to the customer
   c. Increase recurring revenue d. All of the above options
3. The goal of customer service _____ elements is to create an environment conducive to excellent customer service.
   a. Pre–transaction b. Transaction
   c. Post–transaction d. All of the above options
4. Everything that happens between the times an order is placed and the time it is delivered to the customer is considered a _____
   a. Forwarding service b. Transaction element
   c. Both a and b options d. Can't say
5. Post–transaction phase encompasses the various services required to safeguard consumers from _____
   a. Defective products b. Facilitate package returns
   c. Handle claims and complaints d. All of the above options
6. Cost minimisation and _____ are two main approaches company used to balance levels of service in logistics.
   a. Target customers b. Profit margins
   c. Service maximisations d. None of the above options
7. There are two crucial factors while assuring service quality the customer's expectations and _____
   a. Profit of the company
   b. The customer's impression of the performance
   c. Can't say
8. Service indicators are use to determine the level of customer service, such as _____
   a. Jus t in time delivery b. Effective and efficient delivery
   c. Appropriate rate d. All of the above options

3.6 LET US SUM UP :

Customer service is a broad term that holds many elements ranging from product availability to after–sale maintenance. Looking at logistics perspective, customer service is the outcome of all logistics activities or supply chain processes. Corresponding costs for the logistics system and revenue created from logistics services determine the profits for the company. Those profits widely depend on the customer service offered by the company. In this chapter, we will specifically discuss what customer service means and its links with logistics and transportation, the inter–relationship between the cost and delivery of customer services, offered by the firm and the benefits of value–added customer services to the profit of the overall farm.

Customer service is a very important measure of the efficiency of a logistical system. Many measures and processes allow the logistics professional an opportunity to receive feedback from the customer on their efficiency. The adage that the customer is always right may not always be true but certainly reigns supreme in most companies. The complexity added by a global economy has increased the visibility of customer service in logistics and emphasizes the importance of measuring and examining the process. Customer service will influence many decisions in logistics and require much analysis for optimum performance.

3.7 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – a) Strong communication

(2 – d) All the above options

(3 – a) Pre–transaction

(4 – b) Transaction elements

(5 – d) All the above options

(6 – c) Service maximisation

(7 – b) The customer's impression of the performance

(8 – d) All the above options

3.8 GLOSSARY :

Dunnage : The packing material used to protect a product from damage during transport.

Embargo : A prohibition upon exports or imports, either with specific products or specific countries.

Recurring Revenue : The portion of a company's revenue that is expected to continue in the future

3.9 ASSIGNMENT :

1. What is customer in terms of logistic industry ?
2. How to retain customers and reduce employee turnover in logistic industry ?
3. Explain the components of customer service in cargo and logistics.
4. Write a short note on level of customer service.
5. How can we measure customer service quality in logistics ?

3.10 ACTIVITIES :

Examine the service quality of a cargo and logistic company (not necessarily air cargo) in your city.

3.11 CASE STUDY :

■ **The Customer's Voice : Food Processing Company**

A food processor, Company A, was recently purchased by a new parent company. The parent company wanted to determine the customers' service requirements for Company A as well as for a similar company they already owned. A customer service organization could then be designed that would efficiently utilize the combined resources of the two companies, while meeting all customer requirements.

To begin, customer contact lists were acquired from each company. Acquiring these lists was not a simple task. The order processing systems did not have updated customer master files, which made obtaining complete customer lists with names, addresses and telephone numbers a difficult undertaking. When the target list was complete, personal and telephone surveys were scheduled that covered over 50 percent of the sales of the two companies.

The results from the survey were striking. Many customers purchased product from both companies, and their perceptions of the parent company were terrible. These customers feared the impact the parent company would have on Company A. Not only was service poor, the parent had a reputation for purchasing smaller companies and making changes without consulting or communicating with customers.

Customers feared a repeat of this kind of treatment after the second acquisition. What disturbed customers most was the complete lack of communication. Customers were upset, and did not view the transition of ownership as a positive change. However, even before the acquisition, customers were not ecstatic about the service performance of Company A.

The lead–time performance of Company A was far below that of the requirements stated by customers, which was around ten days. In fact, lead–times were almost a week longer than required, at over 17 days. Competitors were meeting the ten–day requirement, which further eroded sales. The initial reaction to this information was disbelief. It did not seem possible that the lead–times could be approaching three weeks. After spending time thoroughly evaluating the process, it was determined that there were several reasons for the lead–times being so long.

The procedure for creating the final product often resulted in off–spec material, which delayed the customers' orders. Customer service representatives could not view inventory levels, which left customers uninformed on when stock may actually be available. After an order was entered, company policy was to accept any changes up until the point of delivery. Orders were often already sent to either Packaging or the shipping docks when the change was entered. Making the requested changes resulted in even longer delays.

The company began to realize the dire situation they were facing. The entire order management process had to be redesigned. Customers were still reeling from earlier changes by the parent company. They did not understand the lasting impact their lack of communication would have on many of the customers.

The company began two projects after the survey was completed. The first involved reengineering the business processes that caused the poor service. Many facets of the supply chain were examined, including forecasting, production scheduling, inventory planning, customer service, packaging, and warehousing. The goal was to design one flow of information and materials that would meet the requirements specified by the customers of both companies.

The second project involved communicating the new customer service awareness to existing and past customers. Many customers were still upset with service performance, and were close to removing their business. The company wanted to assure the customers that a repeat of the past performance would not occur. They were aware of their issues and were hard at work attempting to fix them.

It is crucial with very agitated customers that a company let their customers know they are already working to solve their problems. To do that, they must clearly understand what those problems are. This company had let service decline to the point of near catastrophe. There are many companies who are much more active in this area, and look to resolve customers' issues before they become major problems.

https://www.establishinc.com/customers–voice–food–processing–company

3.12 FURTHER READING :

1. Marketing Management– John W Mullins & Orville C Walker, JrRust, Zahorik, and Keiningham,
2. Service Marketing by Addison Wesley
3. Service Marketing: Operations, Strategy, and Information Technology by Fitzsimmons and Fitzsimmons
4. Marketing Management in Air Transport (RLE Marketing) By Jack L. Grumbridge

UNIT 04 *Future Trends in Cargo & Logistics Industry*

UNIT STRUCTURE

4.0 LEARNING OBJECTIVES :

After reading this chapter learner will be able understand :

- The current issues of concern in cargo and logistics
- The future trends in air cargo and logistic industry
- The scope of infrastructure development
- The scenario of Indian logistic industry

4.1 INTRODUCTION :

Every industry faces its unique set of issues, and digital disruption is present in all of them. Organisations must be flexible and create new momentum that acknowledges their industry's new reality. Organisations must adapt to changes not only today, but also tomorrow in order to be relevant. Logistics is undergoing significant change at the moment, owing to technological advancements, shifting consumer expectations, and severe laws. It is influenced by a number of things. For a corporation to succeed in today's market, these issues must be foreseen, prepared for, and exploited. Businesses need to go for continuous explore the future and consider future generations in order to remain relevant. However, because it is nearly impossible to forecast the future, businesses must actively examine several possible futures in order to anticipate potential disruptions. We should also keep in mind that in this highly competitive and digitalised world, the only firm that can deliver on one fundamental insight will survive and grow: put technology in the background and put people first. Putting consumers first does not negate the relevance of technology; rather, a thorough understanding of customers should aid in the selection of which technologies to adopt into the organisation.

4.2 CURRENT ISSUES IN LOGISTIC AND CARGO INDUSTRY :

Logistics industry is undergoing significant transformation, which brings with it both danger and opportunity. New technologies, new market entrants, new customer expectations, and new business models have all emerged in recent years. There are a variety of methods for the industry to respond to these issues, some evolutionary and others revolutionary.

The challenges in the industry could come from both the outside and the inside. Globalisation, technology, the demanding nature of the workforce, and environmental issues are among the external challenges, whereas customer service and quality, third–party networks, supply chain management, and changes in management and organisational style are among the internal concerns. These challenges can be overcome by mitigating these issues. Performance–based solutions include improved customer service, increased productivity, and assessing just–in–time and quick response requirements. Healthy stakeholder relationships and technical integration are operational and system–based solutions to these problems. Customer expectations are skyrocketing. Individuals and organisations alike demand items to be delivered faster, more flexibly, and, in the case of consumers, at a low or free cost. Customisation in manufacturing is increasing, which is wonderful for customers but difficult for the logistics business.

The Indian air transport sector is one of the most robust and fastest growing in the world. If critical shortfalls in the system are addressed, it could be a much greater catalyst for economic growth. The challenges of this sector particularly in India was examined by various bodies however the International Air Transport Association (IATA) has identified the five critical challenges for the success of this industry they are listed as Enhancing safety, infrastructural development, improvement in taxation policy, freedom of trade and, effective use of technology.

4.3 FUTURE PERSPECTIVE :

In the air cargo industry, there are numerous variables and aspects to be considered. The air freight sector is constantly evolving to keep up with market changes. Global economic activities, which are governed by world GDP, are the primary engine of air freight industry growth. Due to high unemployment in industrialised nations and lacklustre consumer purchasing behaviour, GDP growth has been largely flat. Advancement and innovation is providing ease through various dimensions.

1. **Manufacturing :** Recent changes in the manufacturing and shipping industries are resulting in the development of new high–speed logistic facilities capable of effectively integrating a variety of industry segments. In some cases, these new logistics techniques can be a significant job creator, approaching the employment level of traditional manufacturing operators.
2. **New Buildings :** With the rising storage cost of cargo and the scarcity of storage space at airports, modern cargo service providers are constructing their buildings to have more storage space and a faster transition time. As a result, taller buildings for cargo handling are required, and these taller buildings can accommodate highly mechanised equipment with sufficient depth and area. Although not all air cargo operations necessitate sophisticated equipment, such equipment is in high demand. The nature of the cargo, the size of the operation, the budget requirements, and the scheduling

requirements of forwarders and shippers all contribute to the demand for new buildings. Modern security also requires more space for equipment storage and internal storage.

3. **Complex Competition :** As large industrial or retail customers and suppliers become players in the logistics market themselves, not just managing their own logistics but turning that expertise into a profitable business model, the competitive set shifts in a different direction. Start–ups have emerged as a significant player in the logistics industry. As new entrants, they have a greater impact. Despite their enormous potential for innovation, their role as partners or competitors for established logistics service providers has yet to be explored. The most difficult and expensive last mile of delivery, in particular, becomes more fragmented, leveraging new technologies such as infrastructure and crowd–sharing solutions. These start–ups work with incumbents to supplement their service offerings. They are able to handle and generate massive amounts of data in order to develop an ever–expanding range of technology–driven solutions. Logistics incumbents are under attack from new digital business models on multiple fronts, but they may be able to use these potential competitors as a springboard to fuel next–generation growth and innovation strategies.

4. **Advancement in IT and Computers :** Internet technology has enabled cargo carriers and logistics management companies to send data over the internet quickly with ease. However cyber–attacks crop out forth as demon. It is very common so secure gateways are required to come into existence. By keeping security from these short of treat is quite essential now. Moreover, modern mobile technology has made people more at ease with technology, and the younger generation is very familiar with it. This new generation is expecting technically advanced and well equipped work environment. The workplace is now being influenced by new generation of managers who is incorporating technological traits into the environment and to the processes. The trend in every industry is focusing on adopting at multitasking, self–assured, technologically savvy, and instant gratification. With the technological advancement logistics industry is experiencing a great swift in demand and therefore significant changing can be seen in the industry. Since now business are going to be customer cantered so quick improvement can be seen in order to meet these fluctuating demands. They know the importance of adjusting themselves with the changing trends to survive in today's market. The modern consumer expects faster delivery options, same–day and next–day delivery, and last–mile services at low prices. Internet technology, the World Wide Web, electronic commerce, and other developments will alter the way a company must conduct business. These businesses must recognise the importance of leveraging the power of technology in order to collaborate with their business partners. The growth of collaborative working is the dominant theme in today's scenario, allowing the current market leaders to maintain their dominance. This could lead to a greater use of Physical Internet solutions, based on a shift toward more standardised shipment sizes, labelling, and systems. The technology is allowing the organisation to access information within their premises easily in limited time. These technologies aid in the coordination of activities required to manage the supply chain. Because of the increasing rate of technological advancement, the cost of information is decreasing.

4.4 INFRASTRUCTURAL DEVELOPMENT :

Infrastructure is a critical component of logistic systems, and its absence has a significant impact on economic growth. Despite the fact that their interdependence has been acknowledged, understanding of their effects and causalities is still in its infancy. Transportation and communication infrastructure are part of the logistic infrastructure. Modern airports use new innovative technologies for day–to–day operations, and they are becoming key players in the global transportation industry. Infrastructure for logistics is a critical enabler of India's economic development. The lack of logistics infrastructure will jeopardise India's growth. Because a large portion of India's future logistics network has yet to be built, the country has an opportunity to build infrastructure optimally in order to meet rising demand. The modern airport has a significant impact on production and cargo trends. The airports are now being shaped by adding a local and regional touch to their surroundings in order to stimulate shopping and purchasing at airport facilities. Airports are influential local and regional development organisations, which attract aviation–related businesses such as time–sensitive manufacturing and distribution facilities.

It is difficult to quantify the truck substitution component in the air cargo industry because many air cargo service providers operate as truck terminals, with some shipments arriving at the terminals being delivered to their final destinations by trucks or other modes of transportation. Because truck reporting at airports is not done systematically, measuring the volume of truck traffic is extremely difficult. Truck service providers play an important role in air cargo services, and they are one of the most important components in terms of customer satisfaction and on–time delivery.

4.5 INDIAN LOGISTICS INDUSTRY :

India is an important and convenient getaway for cargo ships travelling between Asia and Europe. As second largest population, we are an important consumer market with larger consumer base for many countries. The economy of our country is diverse, and the future growth trend indicates that the air cargo industry will continue to grow. In the Indian subcontinent, China is a major centre for air services. China has attracted a significant amount of foreign direct investment in the air cargo sector. China has the world's largest domestic market and provides cheap and skilled labour.

With inbound and outbound segments of the manufacturing and service supply chains, Indian logistics infrastructure is attracting the attention of both the business industry as well as from policymakers. The importance of managing this infrastructure in order to compete effectively has been slightly understated. The recent initiatives like "Make in India" programme, it seems that government of India actually taking part in its development and hence it is expected to increase cargo outflow from India as material is supplied from India to other parts of the world. With its large population, India has the world's fastest growing economy and the potential to play a significant role in the global air cargo market. The logistics infrastructure in India is being modernised to accommodate the growth of the e–commerce sector and manufacturing businesses. In the near future, India is expected to overtake the world's most powerful economy. India, on the other hand, must prioritise low–cost, high–quality services. Logistics costs include inventory holding, transportation, warehousing, packing, losses, and related

administration. A variety of activities will be required to close the talent gap in India's warehousing sector. This would necessitate a multi–pronged effort from a variety of industry players. Cities' linkage to ports and logistics parks is increasingly a top priority. To increase the efficiency with which cargo is delivered inland, the government chooses to plan a dedicated rail freight line.

Shortage of trained manpower is continuously creating operational issues in third–party logistics sector, as well as the manufacturing and retailing sectors, which are both practical and strategic. Poorly organised nature of India's logistics sector, its perception as a labour–intensive industry, and a lack of adequate training institutions have resulted in a shortage of skilled management and client service personnel. There is a lack of IT standards and equipment, as well as a lack of system integration. However with the plan of developing infrastructure youth can be encouraged towards this industry and with the adequate demands we can expect to have some dedicated training centres. With skill India initiative various courses has been introduce with training centres having modern infrastructure. Courses at graduation and post–graduation level at various universities are also encouraging new generation.

4.6 POST COVID–19 SCENARIOS :

During the countrywide lockdown, India has faced a number of challenges. Many industries have suffered greatly as a result of the disaster. Logistics and supply chain management is one of them. Shortage of labour, cargo capacity issues, manufacturing slowdown, order delays, stuck shipments, and demand and supply shocks have all had a significant impact on the logistics industry. The manufacturing shutdown has reduced demand for logistics services, putting downward pressure on prices in warehousing, freight, and logistics. Because of the lockdown in neighbouring countries, minimal export–import movements during this time have exacerbated the logistics crisis. Restrictions on air travel and international flights around the world due to pandemic have contributed to a slowdown in the movement of goods, halting first and last–mile transportation as well as intermodal movement of goods.

India's supply chains will go through huge transformations to challenge the demand and supply frameworks in the coming few years. Also, people are responding in a variety of ways and having different attitudes, behaviours and purchasing habits. However, in a post–covid 19 world, we can expect that the logistics and supply chain scenario will be completely different, and supply chain stress tests will become the new norm. The most significant shift will be the increased use of domestic sourcing to make supply chains more local. Following the lockdown, the role of government policies in promoting domestic manufacturing companies should increase, pushing the establishment of global value chains in India to serve not only domestic but also export markets.

❑ **Check Your Progress :**

1. Logistic industry is going through significant transformation in recent time in area like _____

   a. New market development
   b. Rising customer expectation
   c. Emerging business models
   d. All of the above options

2. Which of the mentioned below is not external challenge in logistic industry _____

   a. Changing technology b. Globalisation

   c. Environmental issues d. Customer service

3. Which of the mentioned below is not internal challenge in logistic industry _____

   a. Supply chain management b. Organisational working style

   c. Demanding nature of workforce d. Third party networks

4. Customisation is considered wonderful for _____ but difficult for the logistic business

   a. Company b. Customer

   c. Both a and b options d. Can't say

5. IATA has identified five critical challenges for the success of logistic industry in India. Among these five which is not mentioned below by IATA:

   a. Enhancing safety b. Infrastructure development

   c. Improvement in taxation policy d. Skyrocketing fuel price

   e. Freedom of trade

6. Global economic activities, which are governed by world GDP is flat due to.

   a. Stagnant production

   b. High unemployment in industrialised nation

   c. Lacklustre consumer purchasing behaviour

   d. All of the above options

7. In Indian sub–continent _____ is the major player in air cargo sector.

   a. India b. China c. Bangladesh d. Pakistan

8. India must work on _____ to harness the potential of air cargo and logistic segment.

   a. Low logistic costs b. Modernisation in services

   c. High quality service d. All of the above options

4.7 LET'S US SUM UP :

The logistics industry in India appears to have a promising future. This is largely due to the government's beneficial changes aimed at lowering logistics–related costs. Improving the ease of doing business through improved government policies and initiatives such as the Make in India campaign is expected to boost growth in the import–export and inland logistics sectors. As technology advances, the world is shrinking by the day. Customers' expectations are rising, and businesses are operating in an increasingly volatile environment. New computer and mobile device technologies are influencing how people communicate, work, and spend their leisure time. With advancement in manufacturing, complex competition, new building, advancement in IT & computers provides ease in the operation. As new entrants, they have a greater impact. Despite their enormous potential for innovation, their role as partners or competitors for established logistics service providers has yet to be explored. The most difficult and

expensive last mile of delivery, in particular, becomes more fragmented, leveraging new technologies such as infrastructure and crowd–sharing solutions.

4.8 ANSWERS FOR CHECK YOUR PROGRESS :

(1 – d) All of the above options

(2 – d) Customer service

(3 – c) Demanding nature of workforce

(4 – b) customer

(5 – d) Skyrocketing fuel price

(6 – d) All of the above options

(7 – b) China

(8 – d) All of the above options

4.9 GLOSSARY :

Employee Turnover : Also called employee turnover rate, is the measurement of the number of employees who leave an organization during a specified time period.

Facilities : The physical plant, distribution centres, service centres, and related equipment.

GDP : The total monetary or market worth of all finished goods and services produced inside a country's borders in a certain time period

Just–in–Time (JIT) : An inventory management method in which goods are received from suppliers only as they are needed.

Performance Management : A year–round communication procedure between a supervisor and an employee that supports the organization's strategic goals.

4.10 ASSIGNMENT :

1. What are the challenges to develop world class logistic facilities in India ?
2. Write a short on post–corona scenario of logistic industry.
3. Infrastructure is a critical component of logistic systems, and its absence has a significant impact on economic growth. Comment on the statement based on your knowledge.
4. Enlist the future prospective of logistic

4.11 ACTIVITIES :

As a learner study about the movement of cargo service in post covide condition

4.12 FURTHER READING :

1. Marketing Management in Air Transport (RLE Marketing) By Jack L. Grumbridge

BLOCK SUMMARY :

Logistics is a major determining factor in a company's efficiency and production. For the supply chain, a robust logistics plan is essential. If you don't have a robust logistics plan in place, moving items to the market or acquiring raw materials becomes an extremely time–consuming operation. However, logistics alone are insufficient. Customer service, standardisation and right marketing is necessary for the smooth operation of logistical activities.

The process of defining and applying technical standards is known as standardisation. Engineering criteria, principles, procedures, materials, products, processes, and equipments and components are all established through this process. Standards specify expected tasks and outcomes, as well as how processes and tasks interact to create required inputs and outputs within an organisation.

It may appear that logistics and marketing are diametrically opposed. The nuts and bolts of handling and delivering things are dealt with by logistics. Marketing, on the other hand, is a combination of imaginative efforts and the research that supports them. These two departments inside a corporation, on the other hand, share a symbiotic relationship. Clients, for example, want quick and efficient production and shipment, therefore logistics is becoming an increasingly crucial part of marketing.

In logistics, strong customer service is dependent on clear communication and on timely and damage–free deliveries. In addition, efficient customer service in logistics aids the logistics network in performing to its full potential. As part of the logistics services, providing excellent customer service and communication is critical to the company's success.

The focus of customer service should be switched from a product–oriented approach to a customer–focused strategy in order to develop a long–term relationship with customers and gain customer loyalty.

Logistics has evolved into a critical component of today's supply chain and distribution system. Despite the fact that the logistics service sector was formerly mainly unorganised, the industry is now developing due to rising demand for online delivery and the availability of goods by consumers.

The impact of the pandemic has caused many adjustments in the way logistics works. This is followed by the digitization of various businesses in order to work in every situation. Many new firms and startups are attempting to organise this industry by providing high–quality service. To make operations flow more smoothly, the government has incorporated GST and the E–way bill. In the following days, the globe will see a lot of progress in this field.

BLOCK ASSIGNMENT :

1. What are the advantages of automation in supply chain management ?
2. What are the activities performed for logistics standardisation ?
3. What is pricing in term of marketing mix ? Explain pricing included in cargo services.
4. Explain the term marketing and service marketing.
5. What is the importance of customer service in logistic industry ?
6. Write a short on measurement of customer service quality.
7. What are the recent trends and observation in logistic industry ?
8. Mention the challenges faced by Indian logistic industry in air cargo segment.