

# Air transportation is essential for many industries management essay

[Business](#), [Management](#)



So it can be said that air freight logistics is selected ' when the value per unit weight of shipments is relatively high and the speed of delivery is an important factor'.. Air carriage cost relies on many various features. First, it is dependent on dimensional weight of cargo, which is the level of efficiency with which cargo fills a cargo compartment of the craft. Moreover the price of an airfreight hangs on an airport choice, on existence of direct flights to the needed destination and the space occupied by cargoes. And certainly cost can become quite high if the usage of several airlines, cargo terminals, warehouses is necessary to complete the delivery. The arrangement of some additional services like " door to door" service, increases cost too. cargo aircrafts can be classified into following groups according to their carrying capacity: aircrafts of small capacity, which can deliver cargo of weight up to 27 tons; aircrafts of average capacity or narrow-bodied aircrafts can deliver cargo of weight from 27 to 55 tons; wide-bodied aircrafts of average capacity can deliver cargo of weight up to 64 tons; wide-bodied aircrafts of big capacity can deliver cargo of weight up to 120 tons.[1]4. As it was already mentioned, not, all kinds of freight can be transported by planes. Thus there are some criteria which should be considered before choosing a plane as a mode of transportation. First of all, cargo shouldn't have acute angles which could damage integrity of a package of other transported goods. Transported products shouldn't be made of materials, which can get ignited easily, blow up/detonate, or enter into dangerous reaction. Also cargoes which exhale inflammable gas, heat, toxic substances, are forbidden for air transportation. To sum up air cargo shouldn't change its chemical, physical and other properties which could lead to its damage or cause danger in such conditions

as influence of vibrating force, barometric pressure and very low or high temperatures<sup>5</sup>. Therefore, many authors agree that the air carriage is the most costly (high-priced) and the fastest way to deliver goods to the concrete destination, and there are cargoes which could be transported only by air. So, mainly small objects with high-value or emergency deliveries which should travel big distances, are the most suitable for air transport. There are a lot of manufacturers, especially which produce microelectronics with high value, which are heavily dependent on air transport. It is the only way for them to connect spatially disaggregated operations. For example, Intel, one of leaders in the world in of computer chips production, is extremely reliant on air transport: The Philippine operations of firm receive the main inputs and export their production primarily by planes. 6. Usually, air is used to ship valuable, time sensitive, or perishable goods on big distances. It especially fits to maintenance of " just-in-time" production and distribution strategy with low levels of stock. Air transportation has also influence on a specialized emergency market when fast delivery of goods, such as medicals and edibles, is more important than cost problems. Another important characteristic of freight is that it provides access to new products and products which can't be grown up during some seasons. For example, people who live in the northern hemisphere can receive fresh products from the southern hemisphere even during winter. It is also significant, that in the bellyholds of passenger aircraft and on dedicated freighters is carried a great share of the world's trade. Thus, air transportation's share of world trade in goods is only 2% measured by weight but more than 40% by value<sup>[2]</sup>. 7. Meanwhile, on the allocated cargo vessels and in bellyholds of the passenger

plane, a growing share of trade in the world bears. The share of air transport of world trade in the goods makes only 2 % measured in revenue, but it is more than 40 % value. 9. pipeline is an important type of transport, but despite of that, when it comes to transport choices it is often forgotten and is very seldom appreciated by common society, mainly because it is hidden underground. Meanwhile, Hundreds thousands of kilometers of pipeline every day bear oil and gas " invisibly" for the energy consumption of the world. mainly Pipelines are used for transportation of crude petroleum, refined petroleum products and natural gas[3], though in local scale pipelines can be used to carry water, and in some exceptional cases for shipment of dry bulk commodities, such as coal in the form of liquid. Chopra and Meindl consider that pipeline can be in the effective way to deliver crude oil to port or refinery, however sending gasoline to a gas station via pipelines doesn't justify investments into them and meets more efficiency when is done by truck. Usage of pipelines is the most appropriate when rather steady and big amounts are required and in landscapes where no other sufficient mode of transport is available. Routes of the pipeline usually connect the isolated regions of manufacturing with the main cleaning and production centers in case of oil, and with the largest inhabited areas in case of natural gas. The pipeline price usually consists of 2 components - the fixed component connected with peak usage of shipper and the second charge, concerning the real transported quantity.[4] This structure of pricing stimulates the consignor/sender to use the pipeline for a predictable component of the demand and to use other modes to cover fluctuations. Costs of pipeline construction can change in dependence of its diameter and

increase in proportion with distance and with viscosity of liquids (need for pump stations). There are known following types of pipelines: gathering, feeder, transmission and distribution lines[5]. Gathering pipelines are those which travel short distances and move products from wells to oil batteries or natural gas processing facilities. They specialize on carrying such products as natural gas, crude oil and combinations of these products sometimes mixed with water; also it delivers natural gas liquids such as ethane, butane and propane. Feeder lines have the opposite function to gathering ones – they carry products such as crude oil, natural gas and NGLs from batteries, processing facilities and storage tanks in the field to transmission pipelines. These Transmission lines are also called energy-highways and transport oil and natural gas within the region and across international boundaries. In its turn this type can be divided into natural gas, crude oil and petroleum product transmission lines. And the last type is Distribution Pipelines which are usually operated by local distribution companies and move mainly Natural gas to homes, businesses and some industries. Why Pipelines are so necessary for the world economy? Speaking about the main advantages of this mode, the following ones can be named. First of all, As it was already mentioned, Pipelines are the most efficient the cleanest and the safest mode which can deliver large amounts of crude oil and natural gas. For example, only one Canadian company CEPA transports every day so much crude oil and oil products that it could fill 15, 000 tanker trucks and 5, 000 cars. Pipelines don't exhale gases and pollute the environment in contradistinction to these modes. The next reason is that such large quantities of natural gas are feasible to be transported only the pipeline, not by truck or a rail. Also

they require considerably smaller quantity of energy to work, than operational trucks or a rail, have much smaller carbon footprint and mode is more cost-effective than others. Moreover, water and gasoline brought by pipelines are used to heat up our houses and firms and as a fuel for our cars accordingly. Products brought by pipelines are used to produce hundreds of others in such industries as pharmacy, chemistry and others. However, as each mode of transportation, pipelines have their own specific disadvantages. Pipelines almost everywhere are constructed only for a definite purpose: to bear only one commodity from one location to another. [6]In my opinion it is one of the main weak sides of this mode. Also one of the main disadvantages of this type is its inflexibility. After construction, which usually costs a lot, it is impossible to remove it in order to adapt to demand expansion. Another minus is that there are special limits of capacity and impossibility of pipeline constructed from location to another to adapt to geographical changes in production or consumption. From everything said above about pipelines it becomes obvious that each country highly relies on this mode and the main ones which have the longest pipeline system are the USA, Russian Federation, China, Canada. Moreover, pipelines are continuing to extend, as more and more countries depend on import of their energy resources. So, the oil and gas companies are expanding their pipeline networks and here are several of the longest pipelines in the world which are built or are still being under construction. First, West-East Pipeline Project is one of the main natural gas delivery projects, which includes construction of four pipelines and was built to link east markets of China with western resources and provide intermutual and constant improvement. Yamal-Europe

Pipeline is system of natural gas distribution, lying across Russia, Belarus, Poland and Germany. The oil pipeline of the East-Siberia-Pacific-ocean (ESPO) pipeline will export crude oil from Russia to the Asian Pacific markets of Japan, China and Korea after the construction finishes, on length of 4,700 km. The original project suggested to assemble the pipeline of Angarsk, Russia in Daksin in northern China. Then in 2003 it was connected with the project of pipeline from Taishet. As it is expected, the construction of this pipeline will be completed by 2014. As it was already said, pipeline network is expanding very fast and Russia doesn't lag behind the progress as it is one of the leader gas and oil exporters. For example, on the 8 of October 2012 a Nord Stream's twin pipeline system, which runs through the Baltic Sea from Vyborg, Russia to Lubmin, Germany started to function. Two 1,224-kilometer offshore pipelines is the most direct link between reserves of gas in Russia and the European union energy markets. The route of "Nord Stream" crosses Exclusive Economic zones of Russia, Finland, Sweden, Denmark and Germany, territorial waters of Russia, Denmark and Germany and is predicted to meet 25% of the additional gas import need of Europe in 2025.[7] Many international experts worked on construction of these pipelines under the most difficult conditions and they managed to finish it only in 30 months. The precise routing of the pipelines had been agreed over a four-year period of intensive consultations with the nine countries bordering the Baltic Sea. Environmental monitoring results confirm the low environmental impact from the construction of the Nord Stream Pipelines. So now the Nord-Stream double pipeline system has a possibility to deliver

within at least 50 years the total of 55 billion cubic meters of gas per year to European firms and houses.

**The construction of the Nord stream pipeline is not only beneficial for Russian and Europe separately, but it also strengthens the collaboration between these two great economical units. As Shareholders' Committee Chairman Gerhard Schröder said: " Nord Stream is truly an expression of cooperation and trust between the European Union and Russia"[8]**

21st Century Supply Chains for Europe : the fifth transport mode for freight  
Nowadays there are held many investigations to find a new mode of transportation alternative to the conventional systems of road, rail, air and water because of many reasons. Today road freight has become the dominant mode of freight transportation in all European countries. Because of that air pollution, noise, traffic jams are steadily increasing. Moreover, it is calculated that today 92% of the fuel or energy which is used to deliver freight is wasted on moving the vehicles and Only 8% is spent on moving the goods[9]. Congestion is strangling the supply chains of Europe and adding to the major issues of climate change, dwindling oil reserves, environment pollution and safety. ? Thus, several research groups in Belgium, Germany, Italy, the Netherlands and the United Kingdom, are united under the guidance of the International Society for Underground Freight Transportation, which focuses on the " fifth" transport system. ISUFT is a global network of researchers and consultants from universities, consultancies and engineering companies, which carry out projects on underground freight transportation in Europe, the USA, Japan and China.



Their joint ambition is to develop and to implement a very sustainable, cost effective method of solid goods transportation, based on automated transport, electrically powered and using capsules or other specific vehicles in dedicated underground tubes. This innovation should decrease oil dependence, congestion and greenhouse gas emissions. Recent studies of these research groups have shown that all the essential technologies exist to develop an operational system which will fit for the demands of the 21st century. Economic advantages should be found in almost direct delivery (more need for trips there and back with the mixed cargo), service of twenty four hours, a low variable and operation costs, flexible batch dimension, and short turn-around times. And last but not least a much lower cost of life cycle. Social advantages concern low environmental impact, which results in reduction of noise, visual pollution and CO2 emission. Moreover, the implementation of this new transport can reduce congestion problems and power use, lead to more intense use of available place and increase traffic safety. So if results of researches will prove that freight pipelines are really feasible and economically, socially and ecologically justifiable, then the team should prepare the European development plan aimed at producing a world leading freight transport system according to the needs of the 21st century. If they will succeed freight pipelines can be used in different fields for different purposes. 1. In urban areas, for the purpose of provisioning post offices, retail trade, catering establishments, hospitals, offices, and consumers. This application is designed for the transportation of load-units of pallet size. 2. Internal or between industrial complexes, logistical centers, and multi-modal terminals, such as airport and harbor complexes. 3.

Collection or long distance transportation of agricultural products, aggregates and solid waste. 4. Inland or cross-country transportation of maritime containers. Here it is important to say, that projects of creating this new mode of transportation have appeared long time ago (?) but still didn't succeed. Though the advantages of it are obvious, the construction of tube network requires great investments which can't be easily received especially now, when the economies haven't yet absolutely overcome from the world economical crisis. Moreover, Europe now faces more essential issues such as unemployment, precarious position of Greece and instability of euro. Thus, the future of creation a new way to deliver goods by underground tubes is still under question, but in my personal view the investments on it would be justified