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Air cargo supply chain safety in international transport corridors (ITC)

Today's international business global transformations, its trans-border nature and logistics direction, the special issue of supply chain security is becoming increasingly urgent, requiring unprecedented scale and effectiveness of logistics management activities, changes in logistics practices, individual and system processes, procedures and actions.

Threats to security arise both at the regional, national, and global levels. Accordingly, there is a growing need for strategic and operational coordination, cooperation and partnership between the United Nations as a whole and business entities of such international formation as global supply chains and international transport corridors (ITC) for passenger and freight transportation. Due to increased danger conditions, such entities act as a holistic object for through control of integrated systems synchronized flow processes.

A separate problem is the classification of supply chains safety types and directions. The focus on economic security is insufficient. Today we must take into account both ecologic and technogenic safety of logistics processes and technologies, and goods themselves, which are moved through ITC, as well as the threats of international terrorism [1]. After all, the supply chain and its movement is associated with a saturated vehicles infrastructure and routs, warehouses, handling equipment, communication systems and computer facilities and information technology.

Reducing security in the supply chain leads to increased risk of cargo theft, corruption, fraud, organization and management mistakes. In some countries, this is facilitated by the possibility of open access to information about goods movement over the Internet, the lack of a single informing system for freight incidents, the possibility of receiving confidential data about entities and organizations and other fraudulent acts, as well as low level of unlawful actions legal regulation during the process of commercial cargoes transportation, and especially dangerous goods. The supply chains security problems in Ukraine are exacerbated by the lack of a single system of transport safety standards, crime situation deterioration, and noticeable decrease in responding by law enforcement agencies.

The supply chains security system is designed to solve a whole range of interconnected problems: resolving conflicts between the participants interests; control of responsibility transfer; security assurance strategy and tactics which are based on modern scientific concepts, rights, standards and best practices, new models, methods, technologies and techniques; taking into account modern international approaches to the organization and management of supplies in accordance with the ISO 28.000 requirements to the security of the global supply chain [7].

World experience in a supply chains security system building draws attention to the most important elements in chain link activities, namely: the quality of supply chain participants' services; the quality of services provided by organizations ensuring the security of the supply chain, territories and flow routes; category of cargo; packaging and marking features; tracking and tracing tracking technology; cargo safekeeping technology; list of transport reserves by type of transport; chain information support; list of characteristic obstacles in the logistics flows way; a list of necessary internal flow processes that cover the entire supply chain; characteristics of external conditions that affect the work of all links in the chain; a list of security threats in the supply chain (with upgrades); a list of significant issues (occurring during the implementation of security threats) [2, 9].

Supply chain security is identified as an activity to maintain supply chains at the level of stable operation (viability), which includes the process of counteracting unauthorized actions, planning, monitoring and improving the system of complex measures covering organizational, managerial, legal, physical, technical, technological, insurance, financial, economic and cultural aspects in order to reduce losses, detect and prevent offenses and other security threats, bring the perpetrators to justice, achievement results of maintaining security management policies [6].

The main link in the supply chain is transportation, and the most vulnerable stage of transportation is the airlift of air cargo, as there are serious threats of aircraft capture, terrorist bombings, unauthorized carriage of plastic explosives, weapons, nuclear materials.

Typically, air freight transport is only a part of intermodal transport. Transportation can be defined as a key logistical activity associated with the movement of products by a certain means of transport within the defined technology in the logistics chain, which consists of complex and elementary logistics operations and functions, including forwarding, cargo handling, packaging, transferring the ownership of goods, insurance risks, customs procedures, etc.

Intermodal is the system of cargo delivery by several types of transport on a single transport document with transshipments from one mode of transport to another without the freight owner's participation.

One of the main directions of the transport policy implementation in the world in recent years is the organization of the functioning and development of international transport corridors and their involvement in the international transport network. This is due to the factors of globalization, the new scientific and technological revolution, global integration processes. International transport corridors (ITC) are a set of different types of transport, providing significant volume of cargo and passengers transportation in the areas of their greatest concentration (Miroshko V.) [5]. According to V.A. Karasev, ITC is a part of the international transport system, which provides significant international transportation and includes the rolling stock and transport infrastructure of all types of transport, warehouses terminals, the single legal, technological and information base [3]. Transport corridors act as blood vessels in global integration processes. Second Pan-European (Cretan) Transport Conference, held in 1994, identified 9 main routes of the ITC. The 3rd Pan-European Transport Conference (1997) to these 9 corridors

added 4 Pan-European transport areas (PETRAs). It should be noted that there are four ITC from nine existing which pass through the territory of Ukraine [1, 4].

Today, ITC is implementing an expanded range of transport services. This is, firstly, the delivery of goods in the shortest possible way and in the shortest possible time. Transshipment of goods from one mode of transport to another and processing are also taking place in the ITC. The whole complex of transport operations requires the development of both the means of communication itself (highways, railways), and transport and warehouse complexes for loading and transshipment of goods (water and air ports, railway stations, container terminals), all transport infrastructure (access roads, repair enterprises, the wide area of services).

The ITC concept provides the rapid and safe movement of passengers and cargo. This will be achieved also through the creation of preferential terms of transportation on the routes of a particular ITC, when there are such conditions inside its borders:

- there are simplified rules and the actual procedure of customs, sanitary, frontier and other registrations of passengers and goods movement;
- privileged (25-50% reduced) tariffs are used for all types of services and fees, including processes of customs, border, sanitary and other registrations, for transportation by all kinds of transport, for terminal and port charges etc.;
- there is a single control body that unites and synchronizes the work of ITC and its individual sites and services;
- there is a stable legal base and reliable protection and cargoes and passengers safety from criminal and robbery attacks are provided;
- all sorts of changes after their careful development are gaining strength in 3-6 months after the previous extensive informing of passengers, shippers and consignees in the countries, through the territory of which ITC passes.

Ukraine has an extremely high rating of transit freight traffic in the directions east-west and south-north. But the problem is the lack of transport highways which could meet the international standards. Integration at ITC requires a new level of logistics infrastructure in each of the transport industries – modern-day areas for customs control and warehousing, suitable conditions for cargo temporary storage, taking into account specific security requirements, as well as the development of information channels, and so on.

Taking into account the fact that there is a sufficiently developed system of regional airports in Ukraine, and many of which have international status, their reconstruction and retrofitting into aviation transport and logistics centers and regional clusters with district air hubs and colonies of the feeder airports and local branches can become the leading strategy for the development of air transport constituent in the structure of current and future ITC global supply chains. After all, more than 60% of air transportation in Ukraine is accounted for international flights. So, Kiev is connected by airlines with 55 countries. Among them are the countries of Europe and the Middle East, the USA, Canada, etc., and ahead - the serious prospects of India, China, Japan and others.

The main specific feature of the air cargo transportation segment in the ITC is its limitation beyond the corresponding air corridors, which are usually established by military or diplomatic requirements.

The air corridor is defined area of airspace, where an airplane must remain during the transit through a particular region, and its violation is a serious danger to the aircraft existence.

The international transport corridors that cross Ukraine are converging in the largest transport hubs - Lviv, Kyiv and Odesa. The international transport corridor # 3 passes through Lviv, and the corridor No.5 ends here; through the Kyiv passes the corridor # 9 and ends corridor # 3; the corridor # 9 is connected in Odessa with the Euro-Asian transport corridor (it has been recognized yet by three countries: Ukraine, Azerbaijan and Georgia). The basic airports of these regions are actually the aviation portals of the relevant ITC.

For today, the transport system of Ukraine is not quite ready for the proper volume of international transit transportation. The main directions of development of the national network of international transport routes in Ukraine are:

- modernization whose parts of ITC, which are limiting their throughput;
- ensuring the conformity of technical means and the transport network to international standards;
- ensuring European standards of transportation quality - speed, safety, service, goods keeping, information services;
- signing and adherence to international documents governing other European countries while the process of transport operation regulating;
- infrastructure development for all modes of transport.

Conclusions and suggestions

It is necessary to follow next statements regarding the security-related activity in all air links of air cargo supply chain in the ITC system:

- 1.To fulfill aviation safety standards requirements when organizing air transportation.
- 2.To create by analogy with the USA the Transport Security Administration (TSA).
- 3.To set up the ID-cards for the transport workers.
- 4.To establish a control system of goods movement with preliminary electronic messages about any imported or exported cargo.
- 5.To perform scanning contents of each container before loading on the vehicle.
- 6.To carry out obligatory C-TRAT certification (Customs–Trade Partnership Against Terrorism)
- 7.To organize the system for providing all mandatory information from the carrier-importer by 12 points (10+2) of security standards requirement [7].

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