

# HANDBOOK FOR WEAPON WATCHERS



## **the Weapon Watch**

Monitoring of weapons in European and Mediterranean  
ports

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# HANDBOOK FOR WEAPON WATCHERS

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## *Introduction*

This workbook is aimed above all at pacifist and anti-militarist militants who approach the analysis of international arms transfers and the nonviolent protest against the trafficking and infringements of laws and treaties ruling such transfers.

This workbook is intended to be a practical introduction to the field observation, where the “field” are the roads, stations, ports, airports, warehouses, etc. These are the bottlenecks, but also the “non-places” through which the continuous flow of goods passes, concrete symbols – and abstract fetishes – of the present global capitalist civilisation.

The challenge is to distinguish in this uninterrupted flow of goods, armaments and war ammunition: very special goods, subject to many controls and restrictions, used by states to ensure the defence of their territory, but also for defending their economic interests away from borders, and even to wage wars to “free” peoples and give them our very selected, albeit problematic, democracy.



*Figure 1: Canadian-made armoured vehicles produced for the Saudi Royal Guard by General Dynamics Land Systems in the plant of London, Ontario, photographed by Genoa dockers in the hold of the Saudi ship “Bahri Yanbu”. On the left, the label placed on each vehicle.*

In human history, it is not new that weapons serve to impose the will of the strongest on the weakest. More recently – typical of the technology era – is the danger that arms manufacturers could strongly influence the decisions of elected representatives in democratic parliaments, and that the economic interests that trigger the war could prevail over the peaceful will of the peoples. It is a danger that was seriously admitted more than sixty years ago by Eisenhower, a former president of the United States and commander of the allied armies that defeated Hitler and Mussolini in 1945.<sup>1</sup> In the meantime, states have transformed from buyers of arms to means of selling and export weapons.

States buy weapons with the money from taxpayers, and certainly a percentage of taxpayers is in favour of the use of weapons in international politics as a deterrent, instrument of conflict, to maintain public order. However, a large part of the public does not agree with the gigantic investments going to the military industry, subtracting them from health, education, public transport, the promotion of equality. For this reason, governments and manufacturers of arms prefer to keep everything related to the sale of arms to third countries confidential, even though almost all arms are sold by governments to governments (G2G), and governments authorise manufacturers to export them.

War ensues, indeed the dozens of wars underway today, where weapons and bombs manufactured by our countries are used, with the work and ingenuity of technicians and workers trained in our schools and universities, employed by “excellent” companies based in our countries, and which as such operate in a largely protected market.

<sup>1</sup> See Eisenhower’s Farewell Address to the Nation, 17 January 1961.

Those companies would seem an exception in the world of the global free market economy that deeply dominates daily life, in reality they are its backbone. They produce for war, which is the ever-functioning engine to solve the unsolvable crises of the global economy.

### *Acknowledgements*

The following pages would never have been written without the courage and determination of the comrades of the Autonomous Collective of Port Workers of Genoa (CALP). Who, with the example of their protests, have shown the way for an anti-militarist and pacifist movement to rebuild with the vision of a new internationalism.

Many friends and comrades contributed with suggestions and remarks, starting with the members of the Weapon Watch and the Observatory OPAL of Brescia. In particular, I thank Brittany Arneson and James Tierney for the precious and meticulous editing work, and the preview readers Gianni Alioti, Jackie Anders, Luis Arbide, Sergio Curi, Riccardo Degl'Innocenti, for their advice. This work was made possible thanks to the support of Rosa Luxemburg Stiftung, and in particular of MEP Özlem Demirel (LEFT group) and her staff.

Much of what is written here incorporates the intent and the method of a series of research published in recent years by Amnesty International and the International Peace Information Service (IPIS) of Antwerp. In particular, my thoughts go to Sergio Finardi (1950-2015), founder of the TransArms Research Center on Defense Logistics and author of pioneering studies.

(c.t.)

Milan, September 2022

Cover image: One of the four “Iron Dome” missile batteries (manufactured by Rafael in Israel, but purchased by the US military) arriving at Andersen Air Base in Guam (Indian Ocean) for a two-month test. It is unloaded from a container ship onto a flat rack container (ISO code 42P3) chartered by Triton International, the world leader in container leasing (<https://militaryleak.com/2021/11/10/us-army-deploying-iron-dome-mobile-all-weather-missile-defense-system-to-guam/>).

## 1. What is the logistics Industry

The logistics industry is a global business with a level of technical sophistication. In essence, it seeks to coordinate all operations – tangible and intangible – relating to the transport of goods, putting them at the service of both manufacturing production and mass consumption, according to various criteria: economy, speed, efficiency, and volumes.

Its importance has grown. Today, logistics modifies and redesigns the organisation of the entire “logistics chain” of a commodity or a group of similar goods.

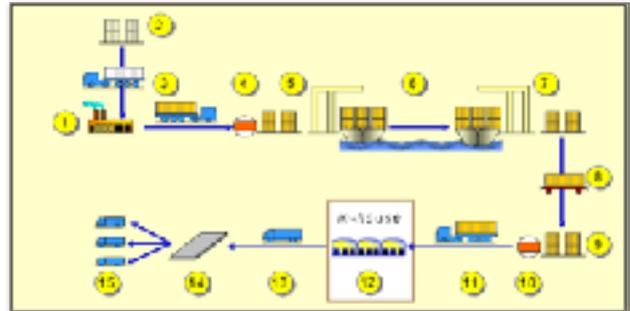


Figure 2: Diagram of a multimodal logistic chain.

In general terms, the goods that can travel more slowly – because of lower commercial value or scheduled delivery to the customer – are destined for sea transport, the most expensive or urgent ones go by air courier. Rail transport is obviously used where extensive railway networks exist. A logistics chain can easily employ and integrate different modes, but road transport is the most flexible and universal option.

The *logistic revolution* guided the last half-century of global economic development, helping to include international trade of previously marginal or closed areas. In particular, it accelerated the growth of leading economic powers, such as China and India. In another way, it has definitely achieved world geographical unification, and put it to work as if it were a single gigantic assembly line, under the influence of aggressive, polluting neo-colonial capitalism.

Today, an effective logistics chain rules production and consumption. It must therefore adapt its methods and rhythm. This is done depending on transport needs: from raw materials to semi-finished products, to component assembly and final delivery. This would also include packaging and safe disposal of slag and waste. The global transport network is under a lot of pressure, and reveals numerous bottlenecks and congested traffic nodes, especially ports. On the demand side, regular deliveries have become essential for faster, “tense”, and outsourced logistic chains, servicing Toyota lean production systems without stock and e-commerce distribution.



Figure 3: A M1A2 SEP V3 Abrams main battle tank loaded on a Mafi trailer, rented by Saeco company.

There is also a significant financial aspect that has caused and is causing serious speculative “bubbles”. Transport costs have dropped considerably especially thanks to bigger container ships integration of “on the ground” methods (transshipment terminals, intermodal transports, “door-to-door,” etc.) that were standardised by the shipping industry.

It is this huge, but fragile, world transport system that is also responsible for moving weapons, following the same routes and techniques dedicated to the transport of non-military goods (after all, a large part of the military ones are dual-use goods). What can enter a container – small arms, components, spare parts, ammunition of all kinds, etc. – follows the same logistic chain of non-perishable containerised goods. For the transport of armaments mounted on motor vehicles

(armoured vehicles, tanks, self-propelled howitzers, mobile command centres, rocket launchers, etc.), Ro-Ro type ferries are used or rail transport when possible. It is rare for large air carriers to be used for these items. For non-standard equipment, there is a wide range of techniques for all modes.

In the case of supplies destined for conflict areas, only “last-mile” deliveries are taken over by specialised military personnel (both in regular armies and informal militias). Usually, a defence logistic chain involves reliable commercial operators, bound to the ministries of defence by particular and remunerative contracts, based on timing and risk of the provided services.



Figure 4: A Turkish-made BMC Tugra 8x8 truck carries a BMC Altay heavy tank with a 6-axle trailer.

It is confirmation of what we experience every day: the logistical revolution has changed the way we produce, consume, work, and has certainly not spared the armies and the military industry. Historically, the turning point was the war in Vietnam, when the container found its first mass application in the military thanks to a pioneering company, Malcolm McLean's SeaLand.<sup>2</sup> Up until that time, logistics had been an exclusively military activity, a new “scientific” discipline introduced in the military academies of the 19<sup>th</sup> century. This was particularly true after the Franco-Prussian War of 1870-71, to rationalise the rapid movement of troops and materials during a military campaign. Hence the gradual establishment of logistic departments and command in all modern armies.

The armed forces of the United States have been relying on outsourced logistics for decades using a model of the privatisation of war that has now become dominant. The big logistic integrators boast of being suppliers to Western defence ministries, primarily to the Pentagon. These integrators have their own departments dedicated to “government services”: FedEx, Maersk Line, UPS, APL, Hapag-Lloyd, Kühne+Nagel, Agility<sup>3</sup> etc.

This is not surprising because defence contracts are very profitable, often in the long-term. They also help to establish a reputation as a reliable contractor. Furthermore, the close relations between major logistic providers and military and governmental structures strengthen mutual interests. These include both the companies’ politics of lobbying and the possible “revolving doors” for skilled military personnel. In fact many senior executives in the main logistic companies have been trained in military academies or have served in the armed forces. This lack of separation between state and



Figure 5: A manifesto for an anti-militarist campaign in Germany.

<sup>2</sup> Marc Levinson, *The Box*, 2006.

<sup>3</sup> In May 2020, Agility Defense & Government Services (DGS) was selected – along with other companies – to transport US Army troops, equipment and materials to Europe, with a three-year contract worth up to \$ 49 million. <https://logistics-manager.com/agility-dgs-selected-for-u-s-army-transport-contract-in-europe/>

industry obviously encourages forms of corruption in order to secure contracts on the domestic and foreign field.

A “logistic integrator” can play several roles within the same transfer of goods. It can take care of all or part of road transfers, port operations, temporary storage, real sea-air-rail transport, and transshipment. It can propose a door-to-door solution, which includes all stages of the transfer and related documentation, or delegate specific tasks and routes to freight forwarders and transport agencies.

The central role of logistics is an important opportunity for anti-war and anti-militarisation movements. It allows us to take an in-depth look at changes in the economy and society. In addition to critically carrying out counter-information. This being essential in containing the lack of controls of the military-industrial complex, acquired in recent decades thanks to “humanitarian wars”, “export of democracy”, and “war against terror”. By stressing aspects of privatisation and commercial trivialisation at the same time, independent observers can detect and make public what the players in the arms market prefer to keep confidential, despite being fully paid for by the taxpayers.

The unveiling of the profound connection between war and the market economy cannot in itself really change the perspectives of globalised humanity. This is a task for a strongly organised mass movement, which at least partially re-establishes the link between freedom and social justice and clarifies – updating it to the present technical horizon – the relationship between violence and democracy. Therefore, it may be useful to study how the war economy has interacted with the “peaceful” consumer society and the digital revolution. In addition what deceptive notions of “return to peace” are. Historically it has always been partial both in terms of time (see the conflicts marking the second half of the 20<sup>th</sup> century and then the first part of the 21<sup>st</sup>) and space (peace “for us” at the price of war for others).

Logistics, like a tool, can help to turn the spotlight on practices related to the export of arms, international collaboration programmes, and the very functioning of the technical-industrial apparatus prepared and supported by nation states. Moreover, during the preparatory work for the Arms Trade Treaty, approved by the United Nations in 2013, there had already been a serious attempt to include logistic operators and transporters among the figures responsible for a transfer of arms, and therefore, to place their business under control. Unfortunately, the representatives of the industrial countries opposed it.

## 2. Distinguish the types of weapons and their packaging

From the point of view of their transportation as a finished product, we must distinguish several types of armaments:

- a) small arms
- b) ammunition (light and heavy)
- c) spare parts and components of weapon systems
- d) weapon systems on wheels
- e) tracked weapon systems
- f) aircraft
- g) light boats

Excluded from the previous types, there are also large ships and airplanes, whose delivery to the final destination takes place with their own means, and extraordinarily non-standard weapon systems, which require special transport solutions (the so-called “cargo projects”).



Figure 6: A form of "extreme" transport: "Blue Marlin", a semi-submersible heavy lift vessel of the Dutch company Dockwise, loaded the hull of the "HMAS Adelaide" helicopter carrier intended for the Australian Navy at the Navantia shipyard in Ferrol, Spain, to deliver it – after a two-month voyage – to the BAE Systems Australia shipyard in Victoria, where the ship will be completed.

For a non-professional observer, weapon transport is not easy to spot. Commercial vehicles are normally used, and – with the exception of ammunition and explosives, which we will discuss separately – no special precautions are required to transport and handle these types of goods. When size and weight allow, conventional reliable logistic operators are used, often known to be regular logistic service providers on behalf of the military and governments. Sometimes, the large industries that produce armaments have equipped themselves with subsidiaries to “internalise” part or all of the logistic chain of some specific products.

Let's start by examining small arms. These are also the most widespread, the easiest to transport, and consequently, present in all common wars, where they are mainly responsible for the majority of civilian victims, effectively the real “weapons of mass destruction”.<sup>4</sup> To give an approximate idea – probably by default – of their diffusion, the estimated number (2017) of the small arms in circulation on the planet were over a billion, of which only 20% were in the hands of the military and police, the rest available to civilians (40% owned by US citizens).<sup>5</sup> Each year, the Italian small arms industry places 700,000-1,000,000 new weapons on the market, added to the stock already in circulation. As a non-perishable and almost exclusively mechanical product, needing simple manual maintenance, a pistol or assault rifle can shoot and kill even many decades after their manufacture. Moreover, the quantity of small arms removed from the market and annually destroyed is very limited.<sup>6</sup>

<sup>4</sup> “The death toll from small arms dwarfs that of all other weapons systems, and in most years greatly exceeds the toll of the atomic bombs that devastated Hiroshima and Nagasaki. In terms of the carnage they cause, small arms, indeed, could well be described as ‘weapons of mass destruction’”: so the UN secretary Kofi Annan said at the Conference against the illicit trade in small arms, in New York in June 2006.

<sup>5</sup> Carlo Tombola, *Controllare per pacificare dopo Auschwitz e Hiroshima*, in: “L'altronovecento. Comunismo eretico e pensiero critico”, vol. V (editors Massimo Cappitti, Mario Pezzella, Pier Paolo Poggio), pp. 261 and ff. Data from Small Arms Survey working papers.

<sup>6</sup> In almost twenty years of activity in the former Yugoslav area, South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC) and UNDP have managed to eliminate about 290,000 small and light weapons.

Light weapons and ammunition are transported in boxes, crates, and pallets; all packaging which in turn can fit into a container.

The maximum capacity of a pallet is 1,500 kg.<sup>7</sup> A twenty-foot equivalent unit (TEU) container is



Figure 7: Containers seized on the “Eolika” ship by the Senegalese customs police. in the port of Dakar.



Figure 8: Boxes of ammunition with Fiocchi Munizioni brand inside the containers on the “Eolika” ship, packed in pallets.

just over 6 metres long, with a maximum capacity of 21 tons. The forty-foot (12 meter long) “sea container” has a maximum payload of 43 tons. In a 20’ container 10-11 pallets can be placed on one level, in a 40’ 20 American pallets and 24 Euro pallets.

According to the unit weight of small arms and their packaging, and limit a single pallet load to one ton, a 20’ container could contain about 10-12,000 guns, or 3,000 assault rifles, or 400 Javelins, or 750 Stingers.



Figure 9: Ukrainian soldiers place US-made FIM-92 Stinger missile containers at Kiev Boryspil airport, arrived from Lithuania aboard a C-17 of the Strategic Airlift Capability-Heavy Airlift Wing (SAC-HAW) based in Pápa, Hungary.

**Table 1: Weight of some small arms models (without magazine)**

Sources from corporate and military classifications.

- Pistols	Weight (kg)	- Submachine guns	Weight (kg)
Glock 17 9mm	0,7-0,9	IMI Uzi	3.5
Beretta M9/92F	0,9-0,95	PPSh -41	3.5
Beretta APX	0.8	MP 40	4
Sig Sauer M17/M18	0.8	- Machine guns	
- Rifles and assault rifles		FN Minimi	5-7
Beretta ARX-160	3-4,5	FN MAG/L7A2 7.62mm	10-14
Beretta CX4 Storm 9mm	2.6	PKM	9

<sup>7</sup> This is a very approximate value. There is a great variety of pallets, different in size and material. For example, a American standard 40”x48” wooden pallet withstands a dynamic load of 1,300 kg; Euro pallets (EPAL) have two main dimensions, 80x120 cm and 100x120 cm, respectively 1,500 and 800 kg of capacity.

H&K G3 7.62	4.5	Browning M2 50mm	38.15
H&K SA80	4.8	<b>- Sniper rifles</b>	
H&K G36	3-3,8	Accuracy L115A3	6.8
Colt AR-15	3	Barrett MK22	7
AK 47 7.62mm	4	Sako TRG-22/42	4,7-5,3
AKM	3-4	<b>- Portable missile systems</b>	
Sig SG 550	4.1	Javelin	24.3
Sig Sauer XM5	4-5	FIM-92 Stinger	15
FN F2000	3.6	Mistral	18.7
<b>- Shotguns</b>		9K38 Igla	18
Mossberg 500	3.5	<b>- Mortar systems</b>	
Remington 870	3,2-3,6	L16A2 81mm	35.3
Benelli M4 12mm	3.8	Expal 81mm	47.4

### 3. Carrying explosives and ammunition

While the transport of weapons does not require special safety obligations, explosives and ammunition are subjected to a series of obligations and precautions in all modes of transport and in warehousing. In fact, they are considered “dangerous goods” according to the various institutions regulating the safety of international transport (IMO for maritime transport, IATA for air transport, RID for rail transport, the European ADR agreement for transport on road, the international CSC convention, etc.).

The classification of explosives and ammunition is always in Class 1, the most dangerous. Depending on the reactivity of the explosive contained and its incendiary power, bullets and bombs fall into different subclasses:

- 1.1 if they present a risk of mass explosion
- 1.2 if they present a projection hazard but not a mass explosion hazard
- 1.3 if they present a fire hazard and a minor explosion hazard or a minor projection hazard or both
- 1.4 if they do not present significant risks; only a small danger in case of ignition or initiation during transport with effects largely confined to the packaging
- 1.5 if they contain substances which are very insensitive to a mass explosion hazard
- 1.6 extremely insensitive articles which do not present a risk of mass explosion



Figure 10: Labels for explosive goods, according to the IMDG Code rules.

Each subclass is also divided into compatibility groups. For example, white phosphorus ammunition is classified 1.2H or 1.3H, those containing detonating substances are placed in group



Figure 11: BLU (“bomb live unit”) 109 B anti-bunker bombs, photographed during a military exercise at Andersen US Air Force base in Guam. The label “explosives” of class 1.1D is placed on bombs and packaging.

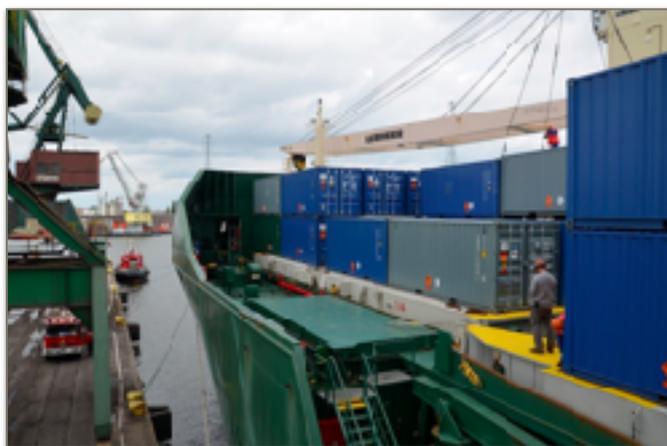


Figure 12: Placing containers with “explosives” labels on the edge of a ship docking in the port of Gdynia, Poland.

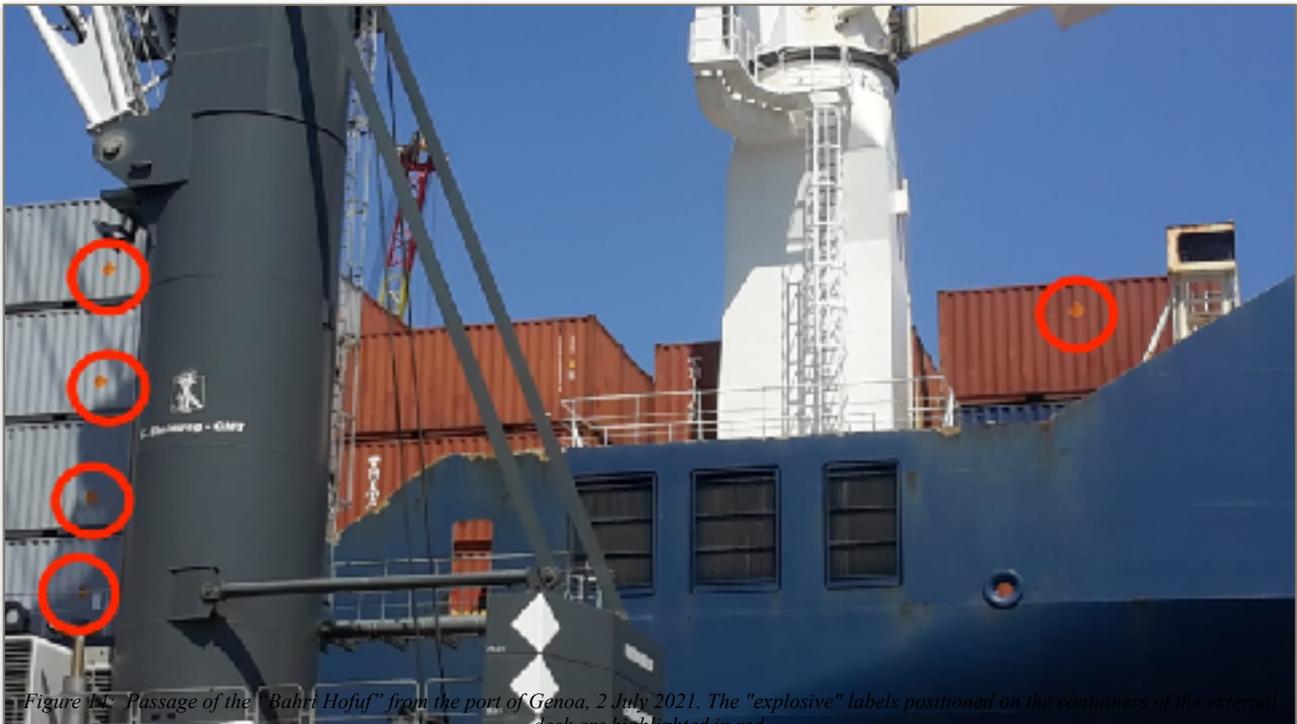
D, and fireworks are placed in group G. Most ammunition (i.e. packaged in such a way that it cannot accidentally explode or degrade by fire) travel with the 1.4S classification.

In all modes of transport, the risk of explosion (Class 1) must be compulsorily signalled to operators. This is done with appropriate diamond-shaped orange “labels” on all sides of the container or pallet, on the sides of the railway wagon, and in general, on all loading units, except for small quantities of Class 1.4S.<sup>8</sup> For the mandatory transport documentation for dangerous goods, see § 9 below.



*Figure 13: Ukrainian soldiers unload Javelin anti-tank systems at Kiev's Boryspil airport. In the background, Kalitta Air's Boeing 747 flying direct from US Air Force Base Dover, Delaware. The "explosives" label indicates the presence of ammunition in cylindrical containers.*

For transport by sea, particular attention is required to the segregation of the goods. The basic principle is quite simple: dangerous goods, which in case of contact could give rise to a dangerous reaction, must be adequately separated. Containers containing ammunition and bombs must be on the deck, as far as possible from the vessel operational areas; in different cargo units they can be both on deck and in the hold, obviously always observing the segregation criteria.



*Figure 14: Passage of the "Bahrí Hofuf" from the port of Genoa, 2 July 2021. The "explosive" labels positioned on the containers of the external deck are highlighted in red.*

<sup>8</sup> We refer here to the 2006 edition of the IMDG Code, the most recent available in free downloading. The current edition 2020, which includes amendments 40-20, entered into force on 1<sup>st</sup> of June 2022.

According to the IMDG Code, ammunition must stay in specific areas when during a transfer they have to wait for boarding in the port area. For example, in the port of Genoa there are areas intended for the parking of dangerous goods in five different terminals.<sup>9</sup>

Dangerous goods on board must be placed by the first officer in the stowage plan on the basis of documentation from the shipper or shipping agent. The latter has the task of listing the dangerous goods presented on boarding in a particular document, the Dangerous Goods Manifest. Explosives and ammunition must be placed on the deck or stowed, following several precautions (depending on the ship type: cargo, passengers, mixed ro-ro, etc.). For example, they must not be placed near dangerous goods of other classes.<sup>10</sup>

In Italy, air transport of weapons and ammunition of war on civil aircraft needs the exemption of the provisions of international regulations.<sup>11</sup> This is provided if the applicant can guarantee a satisfactory level of safety and the need for using air transport. In the case of goods forbidden on the grounds of safety, even in the case of simple transit on the national territory or overflight, the ICAO exemption is granted by the Ministry of Foreign Affairs “only in the presence of significant interest from allied and friendly countries”.<sup>12</sup>

A specific analysis should be devoted to radioactive goods, whose shipment is almost always direct, on vehicles and with dedicated personnel, often military. When the shipment of radioactive goods took place or was planned through a civilian transport network, public protests or the cancellation of the programme occurred. This was the case of the train with nuclear waste between France and Germany in 2011, and of the project to transport by rail of 44 tons of uranium and plutonium from Northern Scotland to the reprocessing plant in Cumbria, also in 2011.<sup>13</sup>



Figure 15: A military escorted column of vehicles on British roads in 2011. In 2016, the British government decided to abolish the "radioactive dangerous goods" sign on trucks carrying nuclear waste.

<sup>9</sup> In the port of Genoa, parking areas for dangerous goods can be found in the following terminals: PSA Genova Prà , SECH, IMT-Messina, Spinelli, San Giorgio.

<sup>10</sup> IMDG, Annex 4, Resolution Msc.328(90) – Adoption Of Amendments To The International Maritime Dangerous Goods (Imdg) Code (Amendment 36-12).

<sup>11</sup> This is established by Annex 18 to the Chicago Convention of 7 December 1944 and ICAO Document No. 9284 / AN 905.

<sup>12</sup> <https://www.enac.gov.it/sicurezza-aerea/merci-pericolosedangerous-goods/trasporto-armi-ed-esplosivi>

<sup>13</sup> <https://www.theguardian.com/environment/2011/aug/26/nuclear-train-dounreay-sellafield-opposition>

#### 4. *Transporting weapons by sea*

The maritime mode is the basis of the entire international trade, on which all the logistical advances of half a century have been built. Due to its efficiency and low costs on large volumes of traffic, it is irreplaceable over long distances. It is estimated that around 50,000 commercial ships move 10-11 billion tons of cargo annually.<sup>14</sup>

About 3.5 billion tons of goods pass through European Union ports every year.<sup>15</sup> The most valuable goods (finished products, components, spare parts) packed inside over 90 million containers.<sup>16</sup> Through such a gigantic flow of goods, weapons can go unnoticed, camouflaged in the mass, mostly hidden from view. As we have seen, even highly dangerous goods, such as ammunition and explosives, are not easy to distinguish. To identify them and orient ourselves in the infinite combinations available in global logistics we can also proceed in another way, and concentrate – rather than on goods – on routes, militarised ports of loading, specialised operators, and types of vessels.

The transport of armaments by sea takes place largely through consolidated and stable logistic chains, with high standards of security and reliability, like those regularly used by the military apparatuses of developed countries. Defence supply chains can be dedicated to a single client or a single industrial project or destination. Alternatively they can use part of the so-called regular services (liner services) with periodic scheduled passages along a fixed route.

However, in the major exporting countries, even the most renowned arms manufacturers and governmental apparatuses themselves can organise more “opaque” shipments by sea for “less transparent” operations and for “less reliable” destinations.

The world of shipping is a tangle of relationships, traditions, and opportunities. This is a double-sided world. On the one hand we can see hyper-specialised shipping markets, dominated by strong national flags, with new ships and reliable crews. On the other hand we have niche markets, in which flags of convenience operate with ships so old as to be at the limits of navigability. These are manned by semi-illegal pickup crews. Within this world driven by commodities, it is not difficult to conceal weapons or their final recipients.

Let's start with the general typological data of the world's commercial fleet.<sup>17</sup> Of all the ships in circulation – about 75,000 from the smallest to the gigantic – the most numerous types are tanks for all types of gaseous and liquid products: almost a quarter in number and almost a third of the total tonnage. Another important category is solid bulk carriers, one sixth by number but one third of the total tonnage. Tanks and bulk carriers are of no interest in the detection of weapon movements.

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<sup>14</sup> 11.1 billion tons in 2019, 10.6 in 2020 (of which 72% is dry cargo): <https://hbs.unctad.org/world-seaborne-trade/>

<sup>15</sup> In 2019. Source: Eurostat, *Maritime transport of goods - quarterly data* [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Maritime\\_transport\\_of\\_goods\\_-\\_quarterly\\_data](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Maritime_transport_of_goods_-_quarterly_data)

<sup>16</sup> If we add up the movement of the EU and Turkey, we arrive at about 105 million TEU, a figure comparable to the total container movement of the UK, USA, Canada, South Korea, Japan. Source: OECD Data, *Freight transport and Container transport indicators*, 2017-2020 data. <https://www.oecd-ilibrary.org/sites/16826a30-en/1/4/1/index.html?itemId=/content/publication/16826a30-en&csp=190cc6434d2fccf11e2098c12744cdb5&itemIGO=oeed&item#wrapper=book>

<sup>17</sup> The following are our processing based on Equasis data, *The 2020 World Merchant Fleet Statistics* (excluding fishing vessels and tugs).

Far more important are three other classes related to transporting goods with the highest unit value. The first is general cargo class (or multi-purpose vessels), usually small or medium-sized ships that overall represent a fifth by number and a fifth of the global tonnage. This is the segment with the highest average age, over 25 years, which is commercially managed mainly as “tramp ships”. These are usually awaiting a new cargo in port or in navigation, generally operating in limited maritime areas. The evolution of maritime transport imposed by the container has led to the evolution of general cargo into specialised container ships and pushed shipowners towards an offer-side competition with larger and larger ships. For this reason, more than five thousand container carriers (7% of the global fleet) account for 18% of the circulating tonnage, and are comparable in average size to the large bulk carriers.

Finally there is a further specialisation of general cargo, the roll-on roll-off class, able to load and unload vehicles and equipment on rolling trailers (roll trailers, low-boy chassis, etc.) without any handling. All in all, it is a well-characterised and quantitatively limited segment. According to Equasis, the total number of ro-ro ships is 1,444 (2020), less than 2% of the world’s commercial fleet (less than 4% by total tonnage). More than half of the active vessels are under 14 years of age, a lower average age than general cargo. The ro-ro segment also tends to increase the tonnage of the new units, albeit to a lesser extent than the container ships.



*Figure 16: Hizir armored military vehicles, manufactured by the Turkish company Katmerciler AŞ, are about to be loaded in the port of Mersin, Turkey, on the “Jolly Cobalto” ro-ro ship owned by the Italian company Ignazio Messina & C. Final destination Uganda, via Djibouti.*

A few years ago a group of independent researchers hypothesised a specific activity to control the movement of weapons transported to West African ports of destination, focusing attention on some companies with important ro-ro fleets.<sup>18</sup> In fact, ro-ro are particularly suitable for transporting tanks, armoured vehicles, self-propelled howitzers, and light vehicles that can be equipped with machine guns.

A useful distinction may be to distinguish between the ro-ro operators mainly in the short sea shipping (SSS) or deep sea shipping (DSS) market segment. The first group includes the ferries operating on the short haul, often as “accompanied transport” (vehicles plus passengers). The DSS, on the other hand, offers scheduled services to intercontinental and oceanic traffic currents, in particular with highly specialised ships of the pure car truck carriers (PCTC) type, the high-end ro-ro market transporting new and used cars and industrial vehicles. This segment is dominated by the Scandinavian company Wallenius Wilhelmsen (each of its 54 ships currently in service can carry between 5,500 and 8,000 cars per trip), and other “strong” flagged companies (NYK, MOL and “K” Line are based in Japan, Høegh Autoliners in Norway).<sup>19</sup>

<sup>18</sup> It was one of the projects of the Chicago-based NGO TransArms, founded by defense logistics experts and indirectly supported by Amnesty International and the European Commission.

<sup>19</sup> <https://maritime-executive.com/article/understanding-deepsea-ro-ro-shipping>

Excluding car carriers and smaller and older units, fewer than 500 ships (including passenger ferries) are operating in the DSS market segment.<sup>20</sup> We should also keep under observation the con-ro subclass, a mixed container plus ro-ro type with on-board cranes, created to operate in ports with little equipment on land (or with high handling costs). Many of the 37 ships of the Grimaldi group (the world's largest ro-ro operator), all nine ships owned by the company Ignazio Messina & Co., and the six sister ships of the Saudi company Bahri (respectively in second and fourth place in the DynaLiners ranking of ro-ro fleets) are con-ros.<sup>21</sup>

Many of the world's industrial systems, and all international trade, must turn to maritime transport for their dense and incessant exchanges of energy, raw materials, semi-finished and finished products. Governments also use it extensively. First of all for routine and extraordinary military needs (international manoeuvres and regional military crises), and of course in the event of a generalised conflict. Since professional armed forces now have the ability to cover the logistical needs only of their operational troops, the whole complex logistic chain that precedes them is the task of commercial operators committed to government contracts.



Figure 17: One of the two AB 412CP helicopters, formerly belonging to the Italian Coast Guard and purchased by the Uruguayan Navy, landed in the port of Montevideo, where it arrived aboard "Grande Argentina" con-ro ship owned by Grimaldi Lines company.

If we take into consideration the US Navy, the only military fleet capable of maintaining control over all the seas of the planet, its present force of 296 ships includes one hundred governmental logistic ships (the US Navy claims that this number will not be increased, even

when the overall force will stand at 500 ships).<sup>22</sup> Indeed, the US Maritime Administration has a national reserve fleet of 91 ships, 41 of which are for emergency response in case of conflict or serious emergencies (almost all are ro-ros built in the 1970s), which are out of service and moored in three US naval bases.

Although they can be reactivated quickly (1-3 months), these ships are unable to ensure the rapid deployment of troops and materials in case of need in the short term. As a result, since 1996 (under the Clinton administration), the United States had adopted a special programme (the Maritime Security Program, MSP), recently extended until 2035, to charter another 60 ships on the market. According to the most recent list, 34 container ships, 18 ro-ros, 6 general cargo heavy lifts, and 2 tankers are currently under contract. They must comply with certain conditions: they must embark crews composed only of American citizens and fly the US flag, so much so that some shipowners have had to change their naval classification register to comply with the clause. They can carry out commercial operations, but if necessary (humanitarian crises or international tensions) make themselves available to the military authorities.

<sup>20</sup> DynaLiners, June 2020. <https://www.shippingitaly.it/2020/06/19/grimaldi-e-messina-ancora-al-vertice-mondiale-della-flotta-di-navi-ro-ro/>

<sup>21</sup> Top ten ro-ro operators, list updated in May 2022. <https://www.shippingitaly.it/2022/06/11/grimaldi-e-messina-ancora-al-vertice-della-flotta-ro-ro-mondiale/>

<sup>22</sup> <https://www.wsj.com/articles/america-needs-a-bigger-navy-admiral-mike-gilday-pentagon-defense-spending-11645649492> (February 2022).

Large global operators must undergo costly due diligence to be admitted to the programme in exchange for constant and profitable contracts with the US government. In the fiscal year 2022, the Federal Transport Administration forecast an outlay for the MSP alone of US \$314 million (+5% compared to 2021).



Figure 18: In the port of Antwerp "Arc Integrity", a Wallenius Wilhelmsen's car carrier formally operating under the US flag for the shipowner Fidelio Limited Partnership Inc., is unloading heavy military material destined for Ukraine, before continuing to Bremen and Klaipeda (July 28, 2022)

One of the historic contractors, Wallenius Wilhelmsen company, has ten reflagged US ships engaged in the MSP programme (7 ro-ros and 3 general cargo heavy lift), for which the New Jersey-based Fidelio Limited Partnership company – one of the US subsidiaries controlled by the large Scandinavian group – received \$49.9 million in the last year.<sup>23</sup> But the MSP is not the only programme that Fidelio has earned payment from: for example, the Department of Transportation has bought deep sea services from Fidelio for \$19.9 million with direct payments. In addition, Wallenius group also operates with other subsidiaries based in the

United States and Europe enlisted in the Voluntary Intermodal Sealift Agreement (VISA) programme to supply intermodal services abroad.

Many of the ships operating under the MSP are involved in one of the largest military-logistic campaigns in recent history. Of the sixty ships of the MSP programme, 18 (7 ro-ros, 10 container ships, and a general cargo heavy lift) are engaged in the "naval bridge" in support of Ukraine after it was invaded by the Russian army. These ships frequent passages in Baltic and North Sea ports, where they unload weapons and materials then continuing to their destination on trucks, railways, and river barges.

Fidelio's car carriers also go as far as Gdansk-Gdynia and Klaipeda, but first they always pass through Southampton (where they load British material), Antwerp, and Bremerhaven, the latter true continental turning points for US weapons. Maersk, Farrell, and Hapag-Lloyd container ships also reach Polish and Lithuanian ports, but they rely more frequently on those of the North Sea, including Hamburg.

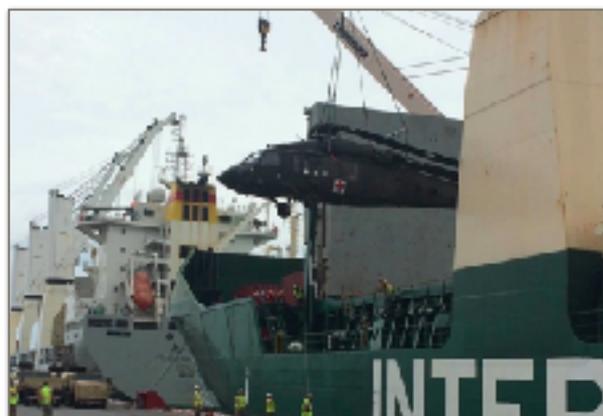


Figure 19: The MSP programme has a global dimension. Here a UH-60 "Black Hawk" helicopter landed in the port of Sattahip, Thailand, from the ship "Ocean Grand", an Intermarine general purpose heavy lift on charter to the US Military Sealift Command, which departed from the joint base in Tacoma, Washington, to support four months of military manoeuvres in the Pacific area.

If maritime logistics, at the service of the military-industrial transport complex of the United States, represent the state-of-the art segment of the global defence market, the panorama is quite different

<sup>23</sup> USA Spending, Recipient Profiles, Spending by Prime Award: [https://www.usaspending.gov/federal\\_account/069-1711](https://www.usaspending.gov/federal_account/069-1711)

regarding the more marginal segment, the on-demand and occasional services, often for doubtful or illegal recipients.

We have already seen how wide the market offer of general cargo ships are, especially for small-medium size and above average age vessels. We must not generalise. Also, highly professional shipowners and managers operate in this field, especially in countries with a great seafaring tradition (e.g. Baltic and North Sea ports). Alongside these, however, there is a plethora of small

shipowners, often with a single old ship passed from hand-to-hand and with a flag of convenience, typically dedicated to tramping.



*Figure 20: Senegalese customs officers on board “Eolika” ship off the coast of Dakar, during the night seizure of three Italian-made ammunition containers.*

Recently, in Italy, the media dealt with the case of “Eolika”, a tramp ship, which loaded in the Italian port of La Spezia, three containers of light ammunition officially destined for the Dominican Republic, but seized by the Senegalese coast guard off the port of Dakar.

In fact, there were a lot of significant elements of alert: the age of the ship (39-year-old), the ownership (a Lebanese company), the management (a Greek manager already involved in the trafficking of explosives), the flag (the Cooperative Republic of Guyana is listed among “convenience countries”), the detentions imposed on the ship by the port authorities of various countries, the use of two different maritime brokers for chartering the ship to an internationally renowned manufacturer like Fiocchi Ammunition. Equally important, all of this took place without the Italian authorities having the slightest suspicion of “triangulation” towards an illegal destination in West Africa.<sup>24</sup>

<sup>24</sup> To the case of the “Eolika” ship, the Weapon Watch has dedicated a series of articles on its website: <https://www.weaponwatch.net/2022/01/20/munizioni-fiocchi-su-una-carretta-del-mare/> <https://www.weaponwatch.net/2022/01/21/dossier-sul-caso-della-nave-eolika/> <https://www.weaponwatch.net/2022/02/03/cosa-insegna-il-caso-eolika/>

## 5. Transporting arms by air

In 2006, shocking air tracking reports, revealed the size of the US-led torture export programme (the “extraordinary renditions”), with the involvement of 54 governments, including 15 EU countries, and 1,245 secret flights. This to move hundreds of suspected terrorists to places where illegal detention and torture were practiced.

With similar tracking, illegal arms transfers can also be brought to light and reported.<sup>25</sup> Due to the size of the overall logistical movements, it should not be surprising that information and journalistic cases about “air traffickers” have been more frequent than the maritime ones. In terms of traffic size (69 million tons, forecasted for 2022) and number of cargo aircraft (2,010 in 2019), it is a very small market, albeit growing and even competitive compared to maritime mode for some logistic chains. Due to the vocation to serve long distances, it is quite common to use the ton per kilometre (t/km) as a statistical unit of measurement of the air cargo.

For the layman, it may be surprising that an important part of air transport is carried out using the large holds of scheduled passenger aircraft, especially for non-stop routes. It is one of the ways used by airlines to compensate for irregular passenger traffic, thanks to which the sector shows greater resilience than other modes. This was seen during the recrudescence of the COVID-19 pandemic, when many large companies faced the collapse of passenger services with a rapid conversion to air freight (the so-called *preighters*, from p[assenger] + [f]reighter). This process allowed companies to thwart the risk of bankruptcy and/or the sale of the aircraft, and to return to the passenger market at the first signs of recovery.<sup>26</sup>

Consequently, mixed passenger-freight companies prevail in this market, even if important operators are specialised in cargo, both because they are dedicated to particular routes and equipped for particular services (postal deliveries, express couriers, heavy lifts, etc.). However, from a quantitative point of view, most of the goods move on aircraft permanently dedicated to cargo. Services can be with regular (scheduled) or unscheduled (charter) connections, statistically inseparable, but – like tramping in maritime transport – more willing to transfer illegal or risky weapons and to cover less recommendable brokers.

**Table 2: Ranking of the main airlines for freight transport (excluding charter traffic)**

Source: IATA, *World Air Transport Statistics 2021*. M t/km = million of tons per kilometre

International			Domestic			Total		
Rank	Airline	M t/km	Rank	Airline	M t/km	Rank	Airline	M t/km
1	Qatar Airways	13740	1	Federal Express	9390	1	Federal Express	19656
2	Federal Express	10266	2	United Parcel	7353	2	United Parcel	14371
3	Emirates	9569	3	Air Transport International	1374	3	Qatar Airways	13740
4	Cathay Pacific Airways	8137	4	Atlas Air	1084	4	Emirates	9569

<sup>25</sup> About this issue, the research by Brian Wood and Johan Peleman, *The Arms Fixers: Controlling the Brokers and Shipping Agents*, published by IPIS of Antwerp and NISAT of Oslo in 1999, played a pioneering role.

<sup>26</sup> <https://www.reedsmith.com/en/perspectives/global-air-freight/2022/01/carrying-the-load-use-of-passenger-aircraft-to-haul-cargo-during-covid19>

5	Korean Air	8091	5	China Southern Airlines	996	5	Cathay Pacific Airways	8137
6	Cargolux	7345	6	Kalitta Air	990	6	Korean Air	8104
7	United Parcel Service	7017	7	SF Airlines	934	7	Cargolux	7345
8	Turkish Airlines	6958	8	Air China	838	8	Turkish Airlines	6977
9	China Airlines	6317	9	United Airlines	687	9	China Southern Airlines	6591
10	China Southern Airlines	5595	10	China Eastern Airlines	679	10	China Airlines	6317
11	Air China	5283	11	ABX Air	491	11	Air China	6121
12	AeroLogic(1)	4870	12	Shenzhen Airlines	469	12	Atlas Air	5458
13	Lufthansa(4)	4827	13	CargoJet	439	13	Kalitta Air	5211
14	AirBridgeCargo Airlines	4609	14	Hainan Airlines	341	14	AeroLogic(1)	4870
15	Atlas Air(4)	4374	15	Delta Air	339	15	Lufthansa(4)	4828
16	Kalitta Air(2)(4)	4221	16	Aeroflot Russian Airlines	304	16	AirBridgeCargo Airlines	4609
17	Singapore Airlines	4156	17	American Airlines	300	17	Singapore Airlines	4156
18	EVA Air	3888	18	Xiamen Airlines	285	18	United Airlines	3950
19	Asiana Airlines	3586	19	Sichuan Airlines	283	19	EVA Air	3888
20	Polar Air Cargo(4)	3438	20	All Nippon Airways	283	20	Asiana Airlines	3601
21	Ethiopian Airlines	3393	21	China Postal Airlines	272	21	Polar Air Cargo(4)	3478
22	United Airlines	3263	22	Shandong Airlines	257	22	Ethiopian Airlines	3394
23	KLM(4)	3025	23	Japan Airlines	254	23	All Nippon Airways	3172
24	All Nippon Airways(4)	2890	24	LATAM(4)	242	24	KLM(4)	3025
25	Silk Way West Airlines	2876	25	IndiGo(1)	200	25	Silk Way West Airlines	2876

(1) IATA estimate

(2) US Department of Transport

(3) UK Civil Aviation Authority

(4) The airline has additional coverage notes, see IATA notes

Almost all the air cargo “top 25” companies are suppliers of services for the military of their own or friendly countries. Countless confirmations can be easily gathered by consulting open sources.

- In addition to the 233 aircraft in service, Qatar Airlines also operates a Boeing C-17A “Globemaster” (tail number MAB), a large aircraft exclusively for the use of US military aviation and more reliable allies. In reality, the aircraft marked MAB is owned by the Qatar Emiri Air Force, which owns seven other C-17As. In this case, QEAF chose to adopt the commercial livery of QA – a civil airline also belonging to the Doha government – to circumvent the restrictions imposed on military aircraft in some large airports, such as London. On its web page, Atlas Air claims to routinely supply the US Department of Defence and many defence ministries of EU countries.
- In January 2016, some Boeing 747s of the Azerbaijani company Silk Way West Airlines loaded several tons of Paveway bombs manufactured under Raytheon license by RWM Italia – a subsidiary of the German group Rheinmetall – at the Italian airport of Cagliari Elmas. The Azerbaijani cargo calls in Cagliari were repeated even after the German government activated the embargo on bombs

destined for Saudi Arabia and used by the Riyadh armed forces against the civilian population in Yemen.

- Korean Air has been managing spare parts depots for US armed forces aircraft since 1978. Recently (November 2020), Korean Air was awarded a contract worth approximately \$215,000 for the service life extension and spare parts depots for US Air Force F-16 fighters located in Korea and Japan. The case of the Korean Air Lines flight KAL 007 New York-Seoul, shot down in 1983 by a Soviet fighter after having violated Soviet Union airspace, belongs to one of the darkest pages of the Cold War.



Figure 21: Between 2016 and 2018, some Silk Way West Airlines Boeing 747-4R7Fs (tail numbers 4K-SW008 and 4K-SW888) repeatedly made a stop in Cagliari-Elmas to circumvent the German embargo on RWM

- In January 2020, a Boeing 737-400 from Cargolux – the largest European all cargo company, based in Luxembourg – delivered two AW109 attack helicopters manufactured in Italy by Leonardo – over the four ordered by the government of Nigeria – with a direct flight from Milan Malpensa to Nnamdi Azikwe International Airport in Abuja.<sup>27</sup>
- In August 2021, the Pentagon used the Civil Reserve Air Fleet to evacuate 28,000 Afghan refugees from American bases in a few days: this was done with 18 civilian aircraft supplied by American Airlines, Atlas Air, Delta Air Lines and Omni Air (3 aircraft for each company), Hawaiian Airlines (2 aircraft), and United Airlines (4 aircraft). Other flights have been provided on a voluntary basis by Southwest Airlines.<sup>28</sup> The CRAF is a programme allowing the federal government to oblige airlines to make their aircraft available to military authorities, created to build the “Berlin airlift” in 1948-49 and later used only during the first and second Iraq war.
- In his memoirs, George W. Bush revealed that he had proposed twice, in 2000 and 2004, the name of Frederick “Fred” Smith, founder and CEO of FedEx, pioneering leader in air-land express transport, as Secretary of Defence. The interested party declined on both occasions.<sup>29</sup>

Commercial cargo fleets almost exclusively employ Boeing or Airbus aircraft, with about a hundred MD11Fs still in circulation (the aircraft has not been in production since 2000). The large Soviet-designed aircraft are often supplied in charter for special transport: Antonov An-124 (20 in civil service, 120 t of payload) and Ilyushin Il-76 (at least a hundred in civil service, up to 60 t of payload) They are operated by Russian, Ukrainian, and ex-Soviet companies, as well as Arab and African companies.

All these aircraft also have military versions, but some large cargo aircraft are exclusively for military use. For example, the Boeing C-17 “Globemaster” (about 250 in service, 77 t payload), Alenia C-27J “Spartan” (about 80 in service, 25 t), Lockheed Martin C-130-J “Hercules” (about 500 in service, 20 t load), and Lockheed C-5M “Super Galaxy” (52 in service, 100 t load useful).

<sup>27</sup> <https://www.defenceweb.co.za/featured/nigerian-air-force-receives-second-batch-of-aw109-helicopters/>

<sup>28</sup> Among the companies that have undergone the CRAF, Omni Air is the only one that does not appear among the “top 25” in the world cargo market. It specialises in charter and is one of the few airlines willing to fly on behalf of Immigration and Customs Enforcement (ICE), the federal agency that carries out the expulsions of illegal immigrants in exchange for substantial government contracts. Omni Air has been a major partner of Amazon for many years, along with CargoJet, Atlas and Sun Country. In 2021, Amazon became the main shareholder of ATSG, the holding company that controls Omni Air and also ABX Air. Human rights activists recently launched a campaign to pressure Amazon to dissociate itself from the forced repatriation operations of ICE and its broker, Classic Air Charter, already implicated in the CIA’s extraordinary renditions. <https://theintercept.com/2022/02/17/amazon-ice-deportation-flights-omni/>

<sup>29</sup> George W. Bush, *Decision Points*, New York, 2010. James C. Wetherbe, *The World On Time. The 11 Management Principles That Made FedEx an Overnight Sensation*, 1997.

**Table 3: Commercial aircraft and their payload**

Source: Our integration from Felix Braun, *The Air Cargo Load Planning Problem*, Dissertation bei der Fakultät für Wirtschaftswissenschaften des Karlsruher Instituts für Technologie (KIT), September 2019.

Type/Model	PAX	Payload (t)		Cargo volume (m <sup>3</sup> )	ULDs	
		max	net		MD	LD
<b>narrow body</b>						
A320	180	19	2	37	0	0
B737	122	15	2	23	0	0
B757	186	25	6	51	0	0
<b>wide body</b>						
A330	300	109	17	150	0	32
A340	335	112	15	158	0	32
A350	325	76	15	170	0	36
A380	555	89	12	175	0	36
B747	412	67	13	177	0	26
B767	269	44	15	114	0	30
B777	370	70	27	214	0	44
B787	242	43	12	137	0	28
<b>freighter</b>						
MD11F	0	93	93	535	26	32
A330-300F	0	60	60	669		
B747F	0	113	113	615	29	32
B767-300F	0	56	56	586	24	7
B777F	0	103	103	580	27	32
IL-76TD-90	0	50	50	180		
AN-124-100	0	120	120	1000	11 TEU	

**PAX:** maximum number of passengers. **Max payload:** maximum carrying weight (passengers + cargo); **payload net:** carrying weight of cargo only, net of passengers, baggage, fuel. **Cargo volume:** volume of cargo compartments. **ULDs** unit load devices: **PMC;** **MD** pallets on the main deck; **LD** container AKE on the lower deck.

Comparing aircraft can be difficult. The competition between Boeing and Airbus has led to innumerable versions of the basic models on the market. These are set up and configured in various ways, which can also

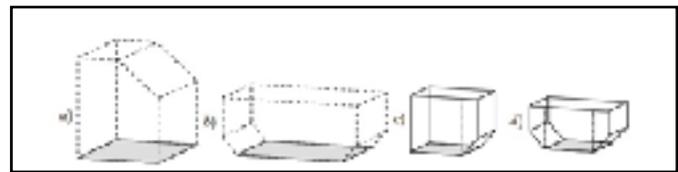


Figure 22: Examples of pallets a) for the main deck b) for the lower deck. Examples of containers for the lower deck c) standard half of wide-body aircraft d) complete for narrow-body.



Figure 24: A soldier from the 436<sup>th</sup> Aerial Port Squadron, stationed at Dover Air Force Base, Delaware, prepares an aerial pallet of weapons and ammunition to be sent to Ukraine.

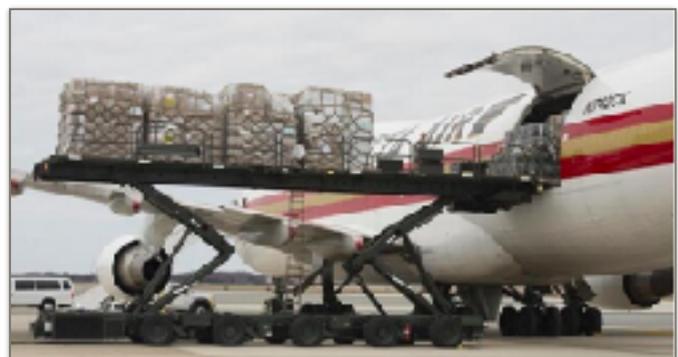


Figure 23: Air cargo pallets are loaded through the main side door onto a Kalitta Air Boeing 747 at US Air Force Base in Dover, Delaware.

vary greatly in terms of load, volume, profile, and access of the holds.

Also, for this reason, air cargo has adopted unit load devices that are different to devices used for maritime and land transport. In cargo aircraft, small special aluminium containers are stowed on the lower deck (usually for goods and baggage in passenger aircraft), while on the upper deck pallets of different sizes make better use of the cargo volume. The most used air pallets (PAG and PMC)

measure 210 or 230x304 cm with a payload of 6,000 kg on the main deck; on the lower deck their payload drops to 4,600 kg.

As usual, the specialised charter market is the most atypical and advanced field for logistic applications. Here Western clients entrust to companies equipped with large – and much cheaper – Russian-made aircraft.

A customised logistics chain for high-tech and expensive weapon systems can be entrusted only to highly reliable companies. For example, in December 2019, four Leonardo helicopters, headed to Malaysia, were collected from the Italian plant near Varese. They were then transported to Malpensa Airport by Geodis FF Italia, which also took care of the load aboard the Antonov An-124 owned by Volga-Dnepr airline, a Russian company based in Ulyanovsk.

Upon arrival at Kuala Lumpur airport, the staff of Geodis Malaysia safely managed the unloading and reloading of the cargo on the trucks and delivered it to the end customer, about 65 km from the landing site. The operation took place in just three days, and it was necessary to obtain the permits to fly over 18 countries between Italy and Malaysia, again by Geodis Freight Forwarding, which had already managed a similar shipment destined to Pakistan.<sup>30</sup>

According to out-of-date sources from the Italian Ministry of Foreign Affairs, one Italy-Afghanistan flight on an An-124 would cost €250.000.<sup>31</sup>



*Figure 25: A Mi-171E helicopter coming from Serbia and destined for the Nigerian Air Force, is delivered through the tail ramp to the Makurdi base by an Ilyushin Il-76TD (tail number RA-76502) owned by Aviacon Zitotrans.*



*Figure 26: Four Leonardo AW139 helicopters for Pakistan Air Force are boarded through the front ramp on an Antonov An-124 owned by the Ukrainian state company Antonov Design Bureau, in Milan Malpensa.*

<sup>30</sup> <https://aircargoitaly.com/gli-elicotteri-volano-alto-con-geodis/>

<sup>31</sup> See Mario Pietrangeli, “Il trasporto strategico terrestre: passato, presente e futuro”, *Informazioni della Difesa*, 1/2007, p. 27.

## 6. Transporting weapons by rail

According to experts from the US Army, the integration of maritime and rail transport is essential in supporting the logistical effort of a large expeditionary fighting force. In fact, in the event of a great operational effort, two thirds of military transport destined for maritime loading is borne by the railway. Again, in the United States it is necessary to rely on private operators, since after 2015, 70% of military railway personnel were laid off.

Similar considerations apply to all countries and continental areas with solid railway infrastructures (Europe and Russia, Indian and Chinese subcontinents, North America), outside of which the movement of weapons and military supplies by rail is only episodic. It should be emphasised that international military transport by rail is infrequent for many safety and technical reasons (shape of tunnels, differences in track gauge, and voltage and power of electric locomotives), remaining more often confined to the national field.

By vocation, rail transport is more suitable for heavy and bulky goods, vehicles, and containers. Military materials – especially tracked and wheeled vehicles – are for planned



Figure 27: A special train from the NDA National Defence Academy passes Mathura Junction, Uttar Pradesh. A pair of diesel engines pulls 26 flatcars with tanks and loading chutes, trucks, armoured vehicles and light vehicles, 4 passenger wagons equipped with kitchens and services, and 6 freight wagons.



Figure 28: A CSX freight train on the "Clinchfield Road" with military cargoes bound for the port of Wilmington, North Carolina. Note the orange labels and the apparent lack of segregation between flammables and explosives.



Figure 29: Brescia station (Italy), freight yard, eight trucks of the Italian Army are routed by rail. The loading operations took place over three days, under the control of military personnel. The shot is due to a citizen who has filmed all the phases.

expeditions, i.e. for deliveries of new vehicles or for manoeuvres and training programmes. Large shipments of ammunition are also routed by rail, usually in containers. In the event of a conflict, the railways are penalised by their greater rigidity and fragility, and become easy targets and certainly cannot be used in the "last mile".

However, they can be useful, and cheaper, even over long distances for non-urgent scheduled operations. In 2006, the logistic command of the Italian Air Force, with the logistics company Omnia Express owned by the Ferrovie dello Stato group, organised a rail transport from Italy to the Italian base of Herat, in Afghanistan – distance 5,810 km – with 15 flat cars RGS (20 m long each) and two freight trains. The contract also includes a transfer by road from the barracks to the departure station, a change of the platforms in Ciop, Ukraine for passing to the Russian gauge,

permits to pass through seven states, and the unloading operations and the delivery to the base of Herat. It was completed in 30 days.<sup>32</sup>

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<sup>32</sup> Mario Pietrangeli, quoted., pp. 26-27.

## 7. Transporting weapons by road

Truck transport is the universal transport par excellence, even over medium-long distances and for any type of service. Armies have large fleets of multi-drive vehicles for heavy lift towing and special application. We are interested in specialised civil operators, with mostly ordinary means, who are well known by the forwarding agents of defence companies and reliable because they are professional.



Figure 30: A semi-trailer of a US transport company specialising in the transport of weapons and ammunition, later absorbed by the mega-group Daseke Inc. The “explosive” labels are correctly displayed.

initials FTL) more expensive for the shipper, but ultimately guarantee the carrier with often multi-year durations and a safer and faster logistics chain.

From the point of view of an independent and anti-militarist observer, vehicles transporting armaments are identifiable only when they are visible, while it is very difficult to spot if they are in containers. Most of the specialised hauliers use vehicles without signs or with commercial signs that are not very recognisable. If they carry ammunition, they often travel during the night to make mandatory labels less visible. At a transit point and intermodal crossings, where cargo passes from one vehicle to another, weapons can be more easily spotted.

From the point of view of road haulage operators, the convenience of carrying weapons depends very much on the type of contract. Recently, in the United States, some LTL (*less than truckload*) transporters have given up on transporting light weapons, even disassembled, in reaction to the recurring mass murders.<sup>33</sup> Carriers operating in this particular service – suitable for small market orders retail without urgent delivery – know that carrying weapons involves more risks and responsibilities. Consequently, weapons represent a negligible percentage of the goods taken over.

In general, light weapons travel with dedicated contract transports (or *full truckload*, in the



Figure 31: APCs (armoured personnel carriers) of SETAF (US Army Southern European Task Force) are departing from Niamey to conduct military operations in northern Niger.

<sup>33</sup> <https://www.freightwaves.com/news/ltl-carriers-say-no-to-hauling-firearms>. Saia Inc. is listed on NASDAQ and had \$1.8 billion in revenue in 2020 with 10,600 employees.

## 8. How to read digital transport tracks

Many legal loopholes have made the “invisibility” of military transfers less secure, opening up the possibility of more available information based on the digital traces, left by the commercial management of logistic chains. In part, they also concern the specifics of defence logistics.



Figure 32: Example of coding of ISO 6346 containers, i.e. of general use.

Vehicle plates, railway wagon identification codes, ship names and flags, and aircraft tail numbers can be tracked with the many tools freely available on the net. It is often important that this data is accompanied by an exact annotation of the date, time, and place of a spotted passage. Less known, but very useful, is to track the owners and users of trailers and maritime containers through the coding numbers marked on the chassis.

Some aspects of the investigation are peculiar to the mode of transport, when an on-board vehicle transponder is installed. In aviation, transponders have been installed since World War II to provide “friend / foe” information to ground radars. In the 1950s, a second signal was added for the commercial air traffic management, regulated on the basis of the 1944 Chicago Convention, which established the ICAO. Basically, every moving aircraft is inserted in a network of radio and radar signals that provide its identification, position, flight data, any anomalies, etc.

In maritime transport, ships of gross tonnage over 300 ton – subject to the SOLAS Convention for the protection of human life at sea – must use the so-called AIS (Automatic Identification System), which provides the name, route, speed, geo-positioning, and many other dynamic and static data related to the ship and its voyage. These also include a particular two-digit code: the first digit indicates the category of the ship (passengers, cargo, tanker, etc.), and the second indicates – for cargo ships and tankers – four types of transportable dangerous goods: HAZ A (Major Hazard), HAZ B (Hazard), HAZ C (Minor Hazard), HAZ D (Recognisable Hazard). For example, the transponder of a HAZ A container ship transmits the number 71.1.<sup>34</sup>

It is common for the owner or captain of a ship holding “sensitive” weapons to turn off the AIS because they are illegal or at the limit of legality. It should be noted that the SOLAS Convention allows the AIS to be shut down “if the master believes that the continual operation of AIS might compromise the safety or security of his / her ship”,<sup>35</sup> thus opening up to a wide discretion in fact devoid of international sanctions. However, many consider the “concealment” of the AIS signal as a *deceptive shipping practice*. This line is followed by the US Treasury Department and the maritime authorities of many Western countries, for making economic and commercial sanctions against some countries effective, in addition to the insurance system operating in international maritime

<sup>34</sup> The complete list can be read here: <https://help.marinetraffic.com/hc/en-us/articles/205579997-What-is-the-significance-of-the-AIS-Shiptype-number->

<sup>35</sup> See IMO Res. A.1106(29) “Revised Guidelines For The Onboard Operational Use Of Shipborne Automatic Identification Systems (Ais)”, 2 December 2015.

trade.<sup>36</sup> In our opinion, therefore, the shutdown of the AIS during the transport of arms and ammunition must be considered a risky practice. This is indirectly a confirmation of the will to conduct non-transparent operations and to escape the controls of national and international laws regulating the transfers of weapons and ammunition.

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<sup>36</sup> <https://maritime-mutual.com/risk-bulletins/automatic-identification-system-ais-cloaking-and-consequences/>

## 9. How to read a supply chain thanks to the documents it generates

Between 2012-2013, during the preparatory work of the International Arms Trade Treaty (ATT), it was clear that an effective control on the arms transfers could only be achieved by making all the figures participating in it responsible: brokers, transporters, freight forwarders, credit operators, intermediaries for buying and selling, insurers, etc. All of these actors participate and organise the logistic chain and obtain economic compensation from it. The strongest actor – at this moment the shipowners – is responsible for incorporating all of the other actors into the single figure of the “logistic integrator” who follows the goods door-to-door.

Ancillary services to the sale produce documentation.

Being able to consult accompanying documents during an arms transfer is difficult, but extremely important as it can make public any infringements of international laws or treaties. Of course, the documents are falsifiable, a container with weapons or ammunition can be accompanied by documents declaring a different content or a figurehead as the recipient. The majority of all crimes can only be brought to light through criminal investigations conducted by the authorities.

However, because weapons are included in the gigantic global flow of goods where great economic interests are operating, large multinational players can suffer from the negative publicity of a criminal investigation. Moreover, investigative journalists and NGOs often focus their attention on the major players in the arms trade, sometimes subject to sharp press campaigns. For producers, the fear of an accusation of complicity in arms trafficking may be sufficient to deter illegal or risky behaviour, and to seek the authorisation or at least tacit approval of the political and military authorities.

The main document for figuring out the cargo of a ship – but similar documents must also be completed in all other modes of transport – is the *Cargo Manifest (CM)*. In fact, it collects all the bills of lading, each relating to each individual loading unit on board.

The *Bill of Lading (B/L)* is the central document for many aspects of shipping.

It reports the following data:

- the manufacturer, i.e. the company that manufactured the weapons and / or sold them
- the origin of the shipment, that is, if it left the manufacturer's factory or warehouse or passed through a *groupage* warehouse or an intermediary
- the type of packaging
- the total weight
- a description of the goods
- the forwarder, that is the transport agent in charge of the arms transfer and very often to secure the cargo and carry out the necessary customs operations
- the ship with which the transport is carried out
- the date of departure of the trip and that of probable arrival (*estimated time of arrival*, ETA)
- the recipient, which is usually a military or government entity, or an authorised commercial operator
- the delivery address
- the bank on which the payments are supported, and which usually acts as a guarantor of the “payment success” for collecting the goods at their destination.



be accompanied by the certificate of complete loading of container and/or vehicle (Container/Vehicle Packing Certificate).

On the ship, the captain must fill in the Dangerous Goods Manifest, i.e. all those that are gradually loaded and unloaded along the ship's route.

Sometimes, the documentation is visible on the goods and on the packaging, as can happen for the same military shipments by air cargo.



Figure 34: Cargo pallets loaded onto a Kalitta Air Boeing 747 at Dover Air Force Base, Delaware. The documentation on the individual packages and the "pallet poster" on the harness are visible.



Figure 35: The bill of lading model FIATA, for combined or multimodal transport.

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