

DISTRIBUTION AND FIELD LOGISTICS

Trends in the management of resources
needed in military missions and solutions
proposed by Spanish industry

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con las **Administraciones Públicas**



Carlos Calvo González-Regueral is colonel (reserve) of Spanish Army. In July 1984 he graduated as a lieutenant as part of the 39th promotion of the Spanish General Military Academy. Until 1995, he served in the Parachute Brigade, in logistics units and in the HQ of the Rapid Reaction Force. Graduated from the War College in 1997, he served as Staff Officer in Army Personnel Command, the Spanish Joint Staff and the HQ of Eurocorps. As colonel, he was Chief of Staff of the Army's Logistic Brigade. During his military active duty, he was assigned several times to the Directorate General of Armament and Material in the Spanish MoD where he has served in the Sub-directorate General for International Relations, the Sub-directorate General for Planning, Technology and Innovation and in the Cabinet of the Spanish National Armaments Director. As colonel, he was during five years responsible of the planning area of the Directorate General. He is veteran of three operational tours in Bosnia Herzegovina (1993 and 2002) and Kosovo (2004). He has completed several courses on acquisition policy and procurement of weapons systems in Spain, Germany, France and at the European Defence Agency. He has successfully completed the Senior Logistics Management course of Ceseden and a degree in Strategic Studies offered by the National Distance Education University. He is the author of more than 100 publications for various national and international media, and is a frequent contributor to IDS.

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Foreword

Lieutenant General Francisco Braco Carbó
Commander of the Operations Command

From our most immediate surroundings, where permanent deterrence and defence operations provide essential knowledge of our territory and our maritime, air and cyber spaces, so as to guarantee our security and be in a position to respond to any threat, to places as diverse and distant as Mali, Colombia, Latvia, Somalia, the Indian Ocean and the Antarctic, our units, our men and women, work 24 hours a day, 7 days a week, 365 days a year on the essential task of maintaining the security of Spain and our allies, which cannot be allowed to risk being interrupted.

This year marks the fortieth anniversary of our accession to NATO in May 1982. The European Union followed us in 1986 and in 1989 it participated for the first time in two Peacekeeping Operations: UNAVEM in Angola and UNTAG in Namibia. Over the course of 34 years, more than 180,000 military personnel have been deployed in operations outside Spain. We have continued to make this effort and currently have some 3,000 military personnel deployed in UN, NATO, EU, bilateral and coalition operations.

None of this would be possible without good operational logistics. Logistics that must adapt to continuous change and progress; that must set out - or rather, continue - on the path towards greater resilience, based on the three pillars of digitalisation, automation and sustainability; that must maintain and promote that essential collaboration with companies in the sector so as to stay up to date and be able to find the best solutions to new challenges; that has, in short, an immense asset full of possibilities in the national industry - as the reader will see in this eDossier - that we must discover and use to our advantage.

In today's dynamic, changing and unpredictable world, logistics is an increasingly demanding challenge. Situations that seemed impossible only a short time ago are now becoming a reality, such as the current war in Ukraine, which is creating a wide range of challenges and uncertainties for the logistics sector and supply chains; or the covid-19 pandemic, which brought the entire world to a halt and whose effects on production, trade, transport and supplies are still being felt.

This is the challenge we face in the Operations Command, where we work every day to ensure the operability of our units, aware that the supply of a critical spare part, the speed and coordination of essential transport, the provision of adequate health support and efficient economic management are as crucial to the success or failure of the mission as tactics, shooting and manoeuvres.

As Clausewitz rightly said: "The end for which a soldier is recruited, clothed, armed, and trained, the whole objective of his sleeping, eating, drinking, and marching is simply that he should fight at the right place and the right time". To this, I would add: "And to do so motivated, with dignity and in conditions befitting a soldier of 21st century Spain". In this e-dossier sponsored by Aesmide, for which I have the honour of writing a prologue, you will find many valuable ideas and initiatives for such an important purpose.

1. Overview

When addressing a subject as broad and complex as logistics, it is first necessary to outline the scope of what we are going to discuss. Logistics encompasses a combination of activities that are strategic for modern societies. Its importance has been particularly evident during the pandemic. From a military point of view, Logistics has been considered one of the three constituent parts of Military Art, together with Strategy and Tactics.

The Academy's dictionary gives four meanings of the term. One of them defines it as the "part of a military organisation that deals with the movement and maintenance of troops in the field". Another as "the combination of means and methods necessary to organise a business or service, especially distribution".

These meanings distinguish between the military and business worlds; however, these are becoming increasingly connected. In both cases it is a matter of providing resources to a given organisation in the right place at the right time. When we focus on the specific field of military needs, we can understand Logistics as the series of activities and processes aimed at managing the resources needed to build, move and use forces to complete their missions.

The Spanish military doctrine differentiates between distribution logistics and field logistics. The first encompasses those activities that connect goods with consumer units, while the second includes all the support necessary for the forces to be able to perform in operations.

Therefore, logistics is key for generating resources,

distributing them for use by users, and sustaining operations for as long as they need to be carried out. Not to mention the logistical importance of redeployment activities once operations have been completed.

In this context, described in a very general manner, we will focus in this document on the distribution capabilities of all types of resources that the business sector can provide, especially the Spanish sector based around the AESMIDE companies, and on the role of field logistics or operation sustainment in relation to basic needs such as food and the provision of resources for daily life and field camps. From a military technical perspective, the latter would fall into supply classes 1, 3, 4 and 6.

The importance of logistics has been particularly evident during the pandemic

In addition, it is important to specify that among the logistics functions mentioned in the military doctrine, we will focus on supply and partially on works, leaving other functions, especially maintenance, for later publications.

SUPPLY CLASSES	LOGISTICS FUNCTIONS
I. SUBSISTENCES	PERSONNEL
II. CLOTHING AND INDIVIDUAL EQUIPMENT	SUPPLY
III. POL	MAINTENANCE
IV. CONSTRUCTION	MEDICAL ASSISTANCE
V. AMMUNITION	TRANSPORT
VI. WELFARE	CONSTRUCTION
VII. MAJOR EQUIPMENT	CIVIL AFFAIRS
VIII. MEDICAL	
IX. SPARES	

Figure 1. Supply classes and logistics functions
(Produced in-house)

2. Trends

Traditionally, Armies covered the generation, projection and sustainment needs of their forces with their own means. The trend to downsize armies, especially in the West, over the past 30 years has led to the outsourcing of some logistical activities to civilian services.

The classic military problem remains the same: deploy a large force many miles from national territory in barely accessible areas with resource and infrastructure challenges, and sustain that force for the duration of operations. Resources must be brought in and distributed. Furthermore, the infrastructure for survival and services must be built in hostile areas with as small an ecological logistics footprint as possible. To give an idea of the scale of the challenge, the US deployment in Operation Iraqi Freedom required the transport of 230 ships carrying 1.6 million tonnes of supplies and almost 8,500 flights carrying 400,000 passengers and 150,000 tonnes of cargo. 57 million litres of fuel were required daily and almost 8 million litres of water. In total, rations were provided to feed a city of 50,000 inhabitants for one year.

Since military logistics activities present specific challenges due to the terrain or environment in which they are required to operate, the first step is to determine what types of services are “outsourcable”, primarily in the power projection and sustainment phases of operations to complete or to complement the capabilities of official bodies with others provided by civilian or corporate logistics operators supporting activity in the field.

In this sense, in the process of creating, coordinating and deploying a force, it is important to have the most in-depth knowledge possible of the military’s own capabilities, and which will require external contributions. This gives rise to the need for good “logistical intelligence” to identify who has the appropriate capabilities and resources, in what quantity and when they are available. The COVID experience should have taught us that from a logistical point of view it is important to be prepared to be able to react quickly to any situation. A principle that has traditionally been very prominent in military operations. It is not so much a question of stockpiling resources just in case, but rather of having the necessary tools to be able to make them available when they are needed. While in some ways the need to have enough supplies in warehouses to be able to respond immediately has also been highlighted, it is perhaps more important to have the necessary tools to be able to initiate services quickly. The need to ensure supply is creating the weakness of over-reliance on global supply chains. This concern is reflected in Spain’s National Security Strategy, which envisages the establishment of a strategic reserve, real or virtual, to make resources available in case of need.

There is a tendency to outsource some logistics activities to civilian services

This makes logistics valuable as a science for determining and supplying needs and as an art for making a lot of resources available quickly. In the traditional logistics cycle of identifying needs, obtaining resources and distributing them, civil-military cooperation is increasingly necessary.

Although traditionally all logistics problems were considered transport problems, emerging

trends show that there is a need to have the capacity to respond to and view the activities that must be supported and the status of the resources throughout the chain. This results in the need for good management to facilitate quick decision-making and a timely response. From an organisational and procedural point of view, logistics, especially distribution logistics, should not follow linear or hierarchical models. It is about having flexible structures and streamlined procedures that respond quickly to needs.

Thus, good logistical intelligence and organisation are two basic principles for ensuring support and reacting quickly and flexibly to unforeseen events.

Although in multinational operations the responsibility for logistical support falls to each individual country, it is also necessary to establish agreements or structures that facilitate collaboration. In NATO, structures such as the JLSG (Joint Logistic Support Group) have been created and Spain has been a pioneer through its Army Logistics Brigade, which in 2015 ran a multinational logistics headquarters as part of the Trident Juncture exercise, supporting some 30,000 troops from 16 countries who deployed almost 5,000 vehicles of all types and 1,000 containers to provide everyday services in the field.



Deployment in Zaragoza Air Base during Trident Juncture 2015

Civil-military cooperation is increasingly necessary in the traditional logistics cycle

The EDA, meanwhile, considers the field of logistics as one of the areas with the greatest potential for collaboration and sees the need to establish good distribution networks to sustain operations as one of the essential overarching activities. What the Agency calls “smart logistics” is one of the most in-demand areas in the immediate future and there is a growing need to integrate capabilities that eliminate redundant elements.

2.1. THE ROLE OF TECHNOLOGY

For some activities such as those that encompass distribution logistics, the use of advanced technologies can improve the accuracy, reliability and ability of those in charge of logistics services to respond. Technology also makes it possible to predict and respond more quickly to increases in demand, have the ability to react to unforeseen events, make logistics more intelligent, improve the transparency of processes and facilitate the handling of cargo in warehouses and terminals.

Managers of logistics organisations need to have a good technology and communications infrastructure in place so that data is available and able to be processed in order to respond to customer needs in a timely manner. Communication networks must be capable of supporting large volumes of data and must be able to operate securely to guarantee the service.

Digitised processes, which must be simple, allow the entire supply chain to be visible, the status and

availability of the resources to be tracked in real time and make monitoring and managing the supply flow easier. New technologies make it possible to track resources throughout the supply chain, reducing management time, costs and human errors.

The use of artificial intelligence helps to make predictive logistics really effective and efficient through the proper management of historical data and the handling of a huge volume of data that helps logistics planning activities to anticipate users' needs.

However, we must not forget the importance of other technological developments such as alternative fuels to reduce transport costs, improve transport efficiency and respond to the demand for environmental sustainability. Other solutions will help improve activities in warehouses or terminals through the use of robotic systems, exoskeletons or additive manufacturing technologies to reduce supply levels in operational areas. Similarly, from a military point of view, it is important to have inertial navigation systems to ensure the control of resource flow in GPS-denied environments.

Most experts believe that logistics activities are in any case already benefitting and will benefit even more in the future from a set of interconnected technologies that should not be considered in isolation.

The use of artificial intelligence helps to make predictive logistics really effective and efficient

Furthermore, in the area of field logistics solutions, the EDA emphasises the potential for collaboration, especially with regard to new materials that enable greater energy efficiency and protection. Water supply deserves its own mention. [Within the framework of the EU's H2020 GENAQ programme](#), the Stratus project was carried out. This enables water to be generated from condensation in the atmosphere in particularly arid areas as a sustainable alternative to supplying bottled water, which requires a considerable logistics effort and creates plastic waste.

TECHNOLOGY	IMPACT	UNCERTAINTIES
Artificial intelligence	Improvements in logistics planning, decision-making support and needs forecasting	Availability of reliable data
Internet of things	Improved visibility of the supply chain and resource tracking	Communications security Data Privacy Collaboration Protocols Regulation
Communications	Real-time information on the resource situation	Communications security
Blockchain	Less human errors	Compatibility between solutions
Robotics	Less manpower Improved warehouse processes Lower costs Shorter delivery times	Legal liability Ethical issues Regulation
Additive manufacturing	Less demand for transport	Speed and quantity of production Profitability Availability of raw materials

Table 1. Top 6 technologies in logistics distribution (Produced in-house with data sourced from PWC)

3.

Business support

Business logistics and military logistics activities both seek to strike a balance between efficacy and efficiency. In other words, to guarantee the cost of the service remains reasonable. The increasing involvement and experience of the business world in responding to the large volumes of demand from the civilian market allows for valuable contributions

to the military domain. Today's civilian market can guide and support military users more efficiently than it could just a few years ago.

Companies are taking on more and more responsibility in supporting military organisations

In both cases it is necessary to plan the needs of customers with reliable and manageable data in order to have sufficient information on needs and consumption and to respond in a swift and timely manner. Furthermore, in both cases it is important to establish reliable predictions to anticipate needs,

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taking into account the resilience of the supply chain, from the raw material level through product creation and distribution to the end user, as well as the associated information flows. Proper supply and demand planning allows levels to be better managed, in terms of both quantity and the range of resources necessary. Information systems allow streamlined ordering and delivery procedures to be established, better stock control, documenting processes and evaluating service performance.

The civilian distribution logistics sector is based on a number of principles that are also applicable in the military sector. For example, adapting to the needs of each customer, making timely deliveries, being reliable and guaranteeing supply, as well as offering 24hr availability at any place and under any conditions.

Today, businesses make significant contributions to transport, including the management of terminals and customs services, in addition to sourcing supplies and designing, installing and managing infrastructure for camps, as well as providing support for everyday life and services.

Companies are taking on more and more roles of responsibility in supporting military organisations, both on a permanent and operational basis, following processes in which a supply class manager (clothing, food, spare parts, field equipment, fuel or other) coordinates the capabilities of different manufacturers and distributes needs through a logistics operator to the supply points determined by the armies. Simplified, the process can be as shown in Figure 2.

3.1. MARKET FORECASTS

The distribution logistics market is a compartmentalised market that depends on different parameters such as the type of transport,

the type of user or the geographical area of action. In recent years, it has been marked by the growth of e-commerce, a trend that was already apparent before 2020 but which has accelerated.

It is estimated that the global logistics market in 2023 will be double that of 2016

In 2019, the IMF estimated that the world economy would grow by 3.4% in 2020. There was a significant contraction that year, but growth of 6% was recorded in 2021. Current forecasts foresee a more moderate pace of 4.4%. Within this overall framework, it is estimated that the global logistics market will have doubled by 2023 compared to 2016. The CAGR growth forecast for the distribution logistics market between 2022 and 2030 is more than 7.5% per annum. It is estimated that as many as 6 million jobs could be created worldwide as a result of this growth. The commercial logistics market in Spain tripled between 2000 and 2019, jumping from 6.5 billion to 19 billion dollars. Distribution-related activities accounted for approximately one third of that volume. The specific military logistics market was worth around USD 350 million in 2018, with an expected CAGR growth of around 5% until 2025.

The international market has been affected in recent months by a complicated geo-economic situation, due both to the lingering effects of the pandemic and the resulting economic crisis, and the current security situation and instability. In this complex environment, many countries have introduced protective measures that affect international trade but revitalise domestic activities in domestic markets, where local solutions are being sought.

At the same time, there are certain legal and political constraints on trade that have a global effect. In

HIGH LOGISTICS MANAGEMENT



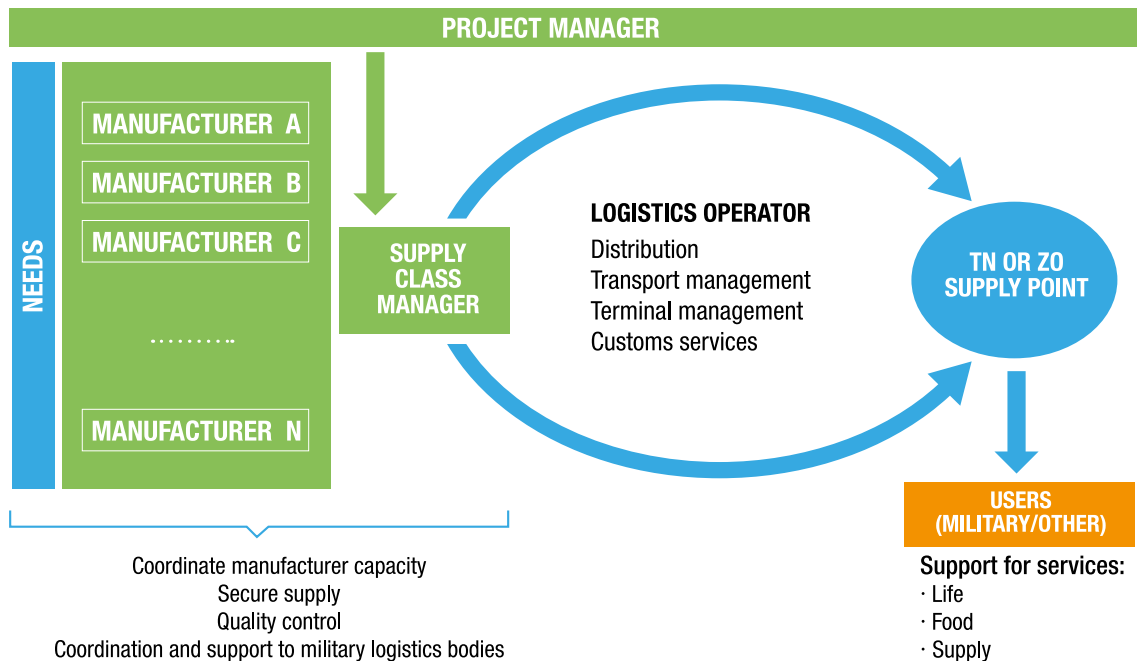


Figure 2. Business support scheme for military organisations through a logistics operator (Produced in-house)

particular, the trade war between the United States and China. In the first half of 2019, Chinese trade with the United States fell by 7% and US exports of goods affected by Chinese tariffs fell by 38%. It is uncertain whether the current situation will last, but the reality is that, among other effects, supply chains are now moving outside China, which is benefitting other countries.

It is estimated that the global logistics market in 2023 will be double that of 2016

In addition, it is worth mentioning the influence of other factors, such as the increase in price of raw materials and their reduced availability, as well as the increase in price of essential elements for transport, plus the specific problems experienced by air transport. As an example, freight costs for 40-foot containers have quadrupled in the last year. This obviously affects distribution times and costs.

In 2020, a total of 54 million tonnes of cargo was transported by air. The problems posed by the pandemic, especially airport congestion in some parts of the world, affected the ability to supply goods in this manner.

This forced some activity to shift to maritime transport, which experienced an increase in demand. As a result, many port services were congested by increased traffic and a lack of capacity to handle higher volumes of cargo. On top of this, the temporary blockage of the Suez Canal in June 2021 caused additional problems for sea freight traffic. Meanwhile, in 2021, the road transport market grew by up to 7%.

The most significant increase occurred during the first half of the year, as a result of the rebound effect after the COVID pandemic. It is estimated that at an international level, land transport activity is returning to 2019 levels, although this sector is particularly affected by the increase in fuel costs.

In the short term, the distribution problems caused

TYPE		EXTERNAL			INTERNAL			OPEN DOORS			TOP OPENING		EMPTY WEIGHT	MAXIMUM WEIGHT	VOLUME	CONNECTIONS AND TEMPERATURES
		LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH				
20' Dry Van		6,058 m	2,438 m	2,591 m	5,900 m	2,345 m	2,400 m		2,335 m	2,290 m			2250 kg	28240 kg	33,30 m3	
40' Dry Van		12,192 m	2,438 m	2,591 m	12,030 m	2,345 m	2,400 m		2,335 m	2,290 m			3630 kg	26850 kg	67,70 m3	
40' High Cube Dry Van		12,192 m	2,438 m	2,896 m	12,030 m	2,350 m	2,710 m		2,335 m	2,595 m			3800 kg	26600 kg	76,50 m3	
20' REEFER		6,058 m	2,438 m	2,591 m	5,500 m	2,285 m	2,255 m		2,285 m	2,210 m			3400 kg	27280 kg	28,30 m3	180/220V y 380/440V, 50/60 Hz, +25°/-25°
40' REEFER		12,192 m	2,438 m	2,591 m	11,575 m	2,285 m	2,250 m		2,280 m	2,200 m			4500 kg	30400 kg	58,70 m3	380/440V, 50/60 Hz, +25°/-25°
40' High Cube REEFER		12,192 m	2,438 m	2,895 m	11,575 m	2,290 m	2,550 m		2,290 m	2,435 m			5200 kg	29250 g	68 m3	380/440V, 50/60 Hz, +25°/-25°
20' Open Top		6,058 m	2,438 m	2,591 m	5,900 m	2,330 m	2,380 m		2,330 m	2,220 m	5,740 m	2,190 m	2250 kg	28230 kg	31,80 m3	
40' Open Top		12,192 m	2,438 m	2,591 m	12,045 m	2,340 m	2,380 m		2,335 m	2,255 m	11,890 m	2,185 m	3650 kg	26830 kg	67,10 m3	
20' Flat Rack		6,058 m	2,438 m	2,591 m	5,900 m	2,400 m	2,285 m	5,700 m	2,250 m	2,285 m			2500 kg	30150 kg	27,60 m3	
40' Flat Rack		12,192 m	2,438 m	2,591 m	12,150 m	2,400 m	2,035 m	11,835 m	2,230 m	2,035 m			4900 kg	40100 kg	58,70 m3	
20' Collapsible Flat Rack					5,900 m	2,148 m	2,176 m						2870 kg	27610 kg	27,60 m3	
40' Collapsible Flat Rack					12,035 m	2,240 m	2,034 m						5450 kg	30480 kg	54,80 m3	

Table 2. Types of containers (Integra International)

by increased lead times for raw material availability and freight costs will continue into 2022, which will force logistics operators to make a greater effort to forecast and plan demand.

As we have mentioned, the volume of e-commerce has increased as a result of the pandemic, which has had a knock-on effect on the global solutions logistics services market, which has grown by 8%. There has also been an increased demand for storage space as a result of the pandemic, especially in Europe and the US.

In terms of field logistics solutions, it is a highly fragmented market with a high level of competition, which for defence applications takes advantage of the solution's duality, and in which each nation meets its needs based on the capacity of domestic suppliers, most of which are SMEs with exciting technological capabilities. Again we will refer to the growing market for water generators, which is expected to reach EUR 7 billion globally by 2025.

4. Spanish companies. Aesmid abilities

The distribution and field logistics companies that operate in Spain [as part of the AESMIDE](#) group turnover more than EUR 300 million per annum. Of this, the average amount invoiced to the Armed or Security Forces is 15%, and as much as 80% in some cases. The average combined turnover of the sector abroad is 10%, although some of the companies have a turnover of between 60 and 90% abroad. These companies collectively employ more than 1000 employees directly.

This group of companies provide wide-ranging

DISTRIBUTION AND FIELD LOGISTICS COMPANIES			
COMPANY	ADDRESS	WEBSITE	CAPABILITIES AND ACTIVITY
BERGÉ SHIPPING	C/ Alcalá, 65 28014 Madrid	www.bergeycia.es	Distribution logistics. Intermodal logistics services. Port services. Vehicle distribution.
BLACK BULL	C/ Albert Einstein. Edificio Insur Cartuja - Planta 1 41092 Sevilla	www.blackbull-group.com	Distribution logistics. Intermediaries in the trade of various products and combined administrative services. Vessel in harbour support, supply of spare parts and fuel, operations support.
CLIA SISTEMAS	C/ Vicente Aleixandre, N° 2 28523 Rivas Vaciamadrid (Madrid)	www.clia.es	Distribution logistics. Supply, repair management and after-sales service for aircraft, naval and defence equipment. Inventory management. Representation and consultancy services for high-tech companies. Advanced project management systems and logistics tracking of aircraft parts.
DSV AIR AND SEA	P. Empresarial Las Mercedes. Avda. de Aragón, 330 28022 Madrid	www.dsv.com	Distribution logistics. International transport and logistics.
GAHN	C/ Velázquez, 11- 6º dcha 28001 Madrid	www.gahn.es	Distribution logistics. Integrated management. Integrated management and control services for TJVs (temporary joint ventures) and consortiums. Operational logistics centre with customised storage, handling, reverse logistics, distribution and support services. Organisational and management consultancy, information and communication systems and brand image.
GENAQ TECHNOLOGIES S.L.	P.I. Los Santos. Breviar de los Santos, 44 14900 Lucena (Córdoba)	www.genaq.com	Field logistics. Supply and generation of water.
I-4S	Camino Robledo de Chavela. 9B 28210 Valdemorillo (Madrid)	www.i-4s.com	Field logistics. Manufacture, sale and maintenance of army tents, accessories for field logistics and CBRN defence products
INTEGRA INTERNATIONAL	C/ Tierra de Barros, 2 28823 Coslada (Madrid)	www.integra-intenational.es	Distribution logistics. International logistics operator.
SICPA	C/ Goya, 24 - 5ª Planta 28001 Madrid	www.sicpa.com	Distribution logistics. Security solutions.
TECNOVE	Avda. de Alcázar, 8 13640 Herencia (Ciudad Real)	www.tecnove.com	Field logistics. Field solutions. Manufacture of vehicle hulls and special vehicles. Containers. Design and construction of field hospitals. Construction and management of military camps. Restoration services.
UCALSA	C/ Oquendo, 23 - 4ª planta 28006 Madrid	www.ucalsa.com	Field logistics. Food. Comprehensive maintenance and power services. Temporary infrastructure.

Table 3. Distribution and field logistics companies (Aesmide)

global capabilities. Many of them have a long history, in some cases with as much as 150 years of experience. It is a segment dominated by Spanish companies, mostly SMEs, which have established very fluid relationship channels with their users. It also includes companies that are part of large national and international groups with a presence and capacity that covers almost the entire world.

Their services include integrated project management, provision of global services such as

those of an integrated logistics operator and freight forwarder, support for supply chain management, vehicle distribution, intermodal capabilities, provision of critical or essential resources such as fuel, generation and supply of water, provision of spare parts, clothing and equipment, food, technological security and risk control solutions, and direct support for deployed forces through the construction of camps or operations bases, sanitary facilities, field logistics support, or protecting the force against NBC threats.



Transport of military equipment (Integra International)

This group of companies have great capabilities that complement each other, so they can provide services for needs involving directing, coordinating, managing, monitoring and controlling logistics support projects in general, as well as distribution logistics, with the capacity to act practically all over the world and the ability to satisfy the basic needs of field logistics, helping to reduce the logistics footprint in military deployments.

4.1. SUCCESS STORIES

The capabilities of AESMIDE companies and the experience of many years of work both internationally and in Spain mean that we can share some remarkable success stories.

The clothing supply model used by the Spanish Army and currently provided by the joint venture UTE Grupo 20, has been rated by the user authorities as a national and international benchmark. It is a more than decade-long success story of providing permanent support to members

of the Spanish Army for the supply of clothing and equipment, with a focus on continuous improvement and staying in permanent contact with military leaders. This close relationship and the provision of a personalised service tailored to the specific needs of each individual have made it possible to optimise resources, reduce stock levels, improve logistics management and save more than 50% on costs compared to other, more traditional supply models. It is a model in which partial capabilities are combined in order to guarantee supply with state-of-the-art quality levels, which can be extrapolated to other types of resources or supply classes. The process is based on a management system devised, designed and implemented by [GAHN](#), a company that has the capacity to design, organise and manage end-to-end logistics projects, including reverse logistics capabilities, that can also be applied to other types of supply.

The custom of logistics operators supporting the Spanish Armed Forces dates back to the early 1990s. SLI-DSV is the logistics operator of choice for the Spanish Ministry of Defence and its experience in operations involving joint planning with defence staff (EMAD) includes the deployment of resources, sustainment and withdrawal of Spanish contingents in Afghanistan; support and sustainment of Spanish forces stationed in Lebanon and the deployment and sustainment of the Army's Air Defence Command in Turkey. SLI-DSV provides strategic transport for Spanish units in NATO exercises in northern Europe and for the deployment of NATO rapid deployable corps. In terms of on-the-ground activities, it provides transport support for materials and equipment procured in the United States, such as the CH47F Chinook helicopter modernisation programme.

[Black Bull Group](#) is another leading logistics operator with extensive national and international



Modular solution for a field deployment (i-4S)

experience of supporting our Armed Forces. It is currently the only agent providing a catering service to Spanish units deployed outside Spain. It provides services to military vessels in more than 500 ports around the world, including operations with the Spanish Navy, and is one of the US Navy's main contractors globally. Black Bull Group is a leader in providing bunkering services to the vessels of several countries at any required location. Its security department offers security and risk management solutions and consulting services in high-risk and emerging markets, providing protection, prevention and risk mitigation plans. Its team has extensive experience in security and operations planning and offers comprehensive and flexible security and safety solutions to meet the needs of any organisation.

One of the main concerns in today's logistics environment is related to security. The company SICPA is a world leader in establishing access control solutions for facilities and tracking and controlling assets such as ammunition and explosives, weapons, spare parts or fuels, while using high security marking to prevent fraud or counterfeiting.

Many Spanish companies in the sector have a long history, some dating back 150 years

[UCALSA](#) has significant experience in providing services both on national territory to Spanish Armed Forces organisations, as well as in different foreign operations. Among the former, it is worth highlighting the support provided to the Spanish Air Force for its [Tactical Leadership Programme \(TLP\)](#), in which it supplies food, maintains facilities, cleans, launders and manages recreation facilities. UCALSA's international experience providing bottled water, food, cafeteria and supermarket services dates back to 2005, when it supported units deployed in Bosnia-Herzegovina, Lebanon and Pakistan. Its capabilities have allowed it to become a go-to for the Spanish Armed Forces and other international organisations over the last 15 years, supporting contingents deployed in field infrastructure with the construction of camps with 1,350 beds and provision of corresponding management services in [EUFOR Congo](#) (N'Djili

and Kinshasa), Gabon (Libreville), and Afghanistan (Herat and Qala-e-Naw). The services provided include the design, supply, transport, construction, operation and maintenance of accommodation, office and living infrastructure and services.

For the United Nations, UCALSA carried out border demarcation work between Iraq and Kuwait between 2012 and 2013. In the field rations sector, UCALSA has supplied since 1994 more than 13 million rations adapted to different cultures for the Spanish Army as well as for others (US Army, United Kingdom, Portugal and Morocco). Between 2005 and 2018, it carried out a project in Angola for the design, construction and commissioning of a ration packaging factory

and distribution network, in which more than 6 million rations were supplied.

Meanwhile, [TECNOVE](#), in addition to its extensive experience in special vehicles and containers, provides capabilities in modular field infrastructure, field hospitals and support services for facilities and food services in the field, playing a very important role in supporting operations in Lebanon. During the pandemic, TECNOVE provided the Spanish Air Force with a special vehicle for transporting patients and helping them board Group 45 Falcon and A310 aircraft.

[INTEGRA](#) is a logistics operator with 100% Spanish capital that specialises in the international transport of all types of goods and is a member of



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**DEFENCE & SECURITY
ACTIVITY:**
Company specialised in Integrated
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Security Sector.

Comprehensive management of turnkey projects. Custom logistic

GAHN is a company specialized in the comprehensive management of entities to develop turnkey projects, which involves the acquisition global product and multi-service services and require the participation of several companies set up as Temporary Joint Ventures (TJVs) or Consortiums.

GAHN has provided, for 28 years, comprehensive management, control and logistics services for the Spanish Armed Forces and Security Forces and Bodies.

These services include:

- Planning.
- Control and technical monitoring.
- Personalized Information Systems.
- Process integration, development of management and control procedures.
- Coordination of the partners.
- Technical and Quality coordination and monitoring.
- Management and advice to the TJV,s.
- Custom logistics.

WE MANAGE EFFICIENCY

We lead projects providing
integrated solutions

the IFLN (International Freight Logistics Network). Through this network, it offers its customers local capabilities in more than 100 countries. Among its specialist activities, it is worth highlighting its years of experience managing transport for the US Department of Defence through the Rota Naval Base. In the civil sector, its experience extends to projects involving the transport of components for industrial and petrochemical plants, mining, telecommunications equipment and aeronautical material in Africa, Asia and South America. Its extensive experience as a logistics operator has enabled it to support the Ministry of Defence in transporting arms and special materials that require very specific capabilities, both for handling and transporting the cargo and for distributing and delivering it in line with the appropriate security requirements.

In the field of deployable infrastructure support, [i4S](#) provides field tents and accessories with NBC protection capabilities that enable modular and multi-purpose solutions to be offered for command posts, deployable sanitary facilities and the construction of camps for supporting military operations or emergency situations.

of uncertainty further reinforces the need for cooperation between the military and civilian worlds in order to be able to deal with different situations with guaranteed success by pooling capabilities.

The uncertain situation after the pandemic and invasion of Ukraine reinforces the need for civil-military cooperation

The coordination of military organisational capabilities with those of the business sector results in robustness and strength and the establishment of mechanisms for the exchange of knowledge, experience and ideas is perhaps needed now more than ever in order to provide an effective and efficient service. In this area, the experience of AESMIDE companies can be very useful so we can be at the forefront of a strategic field like logistics.

5. Conclusions

Distribution and field logistics activities are facing the challenge of incorporating the possibilities of new technologies in order to better respond in a geo-economically complex environment. The already complex environment they found themselves in due to COVID has now been worsened by the situation caused by the invasion of Ukraine. This situation

Links

Black Bull Group. <https://blackbull-group.com/>

Eufor RD Congo. https://eeas.europa.eu/archives/csdp/missions-and-operations/eu-for-rd-congo/index_en.htm

Gahn LGC. <https://www.gahn.es>

Integra International. <https://integra-international.es/>

I-4S. <https://www.i-4s.com/>

Sicpa. <https://www.sicpa.com/>

SLI-DSV. <https://www.dsv.com/es-es/>

Spanish Association of businesses bidding for public sector contracts. (Aesmide).
<https://aesmide.es/empresas/>

Stratus Project, within the framework of the program UE H2020 GENAQ
<http://www.genaq.com/es/home/proyectos/>

Tactical Leadership Program (TLP). <https://www.tlp-info.org/>

Tecnove. <https://www.tecnove.com/>

Ucalsa. <https://www.ucalsa.com/>

Acronyms and abbreviations

AESMIDE. Spanish Association of businesses bidding for public sector contracts.

CAGR. Compound Annual Growth Ratio.

EDA. European Defence Agency.

EMAD. Defense Staff.

EUFOR RD Congo. European Union Force in the Democratic Republic of the Congo.

IMF. International Monetary Fund.

JLSG. Joint Logistic Support Group.

NATO. North Atlantic Treaty Organization.

NBC. Nuclear, Biological and Chemical.

TLP. Tactical Leadership Program.

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