

**“Industrial analysis of opportunities
derived from the Collaborative Database
(CODABA) in the field of Medical
Evacuation (MEDEVAC) equipment”**

EUROPEAN DEFENCE AGENCY

Insights into cooperation opportunities in the field of
MEDEVAC equipment

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ABBREVIATIONS

AECC	Aeromedical Evacuation Coordination Centre
CDP	Capability Development Plan
CODABA	Collaborative Database
CSDP	Common Security and Defence Policy
EAG	European Air Group
EATC	European Air Transport Command
EDA	European Defence Agency
EDTIB	European Defence Technological and Industrial Base
EEAS	European External Action Service
EU	European Union
EUMC	EU Military Committee
EUMS	EU Military Staff
MEDEVAC	Medical Evacuation
MS	Member State
MoD	Ministry of Defence
NATO	North Atlantic Treaty Organisation
PMS	Participating Member State
SMEs	Small and Medium-sized Enterprises

1 EXECUTIVE SUMMARY

MEDEVAC is a crucial component of all military operations. But MEDEVAC also requires heavy logistics and equipment, despite a low level of use in most operations.

This study delivers market analyses for MEDEVAC helicopters, MEDEVAC armoured and non armoured ambulances, and for MEDEVAC modules for helicopters and ambulances.

The results of the study show that out of these topics, **MEDEVAC modules** seem to have the most potential for collaboration at the EU level.

Most suppliers identified are SMEs with a strong national activity, making the market a competitive but fragmented one. A variety of turnkey and bespoke solutions at a relative low cost exist in this field.

The formulation of common requirement and the pooling of the demand on MEDEVAC modules would enable:

- ▶ Consolidation of the market
- ▶ Reduction in R&D and production costs
- ▶ Economies of scale up to 45% for pMS
- ▶ The use of such capabilities beyond the military MEDEVAC use
- ▶ Better interoperability between forces in multinational and joint operations.

1.1 AN ARGUMENT FOR COOPERATION IN THE FIELD OF MEDEVAC EQUIPMENT

The decline that affected European defence budgets for over twenty years, and more acutely after 2008, has halted. Tensions at the Eastern and Southern borders of Europe are likely to influence threat perception and budgetary decisions of most European countries. Net defence budget variations between 2015 and 2016 are positive across European regions. They amount to +19.9% in Central and Eastern Europe, +9.2% across South-Eastern Europe, +2.7% across Western Europe, and +1.6% across the Nordic region. This trend may have a positive impact on European military capabilities and defence output¹.

Indeed, after several waves of defence budget cuts, European MoDs have increasingly realised the risk of not being able to cover the full spectrum of military operations. MEDEVAC is a crucial component of every military mission: a robust and efficient tactical MEDEVAC capability reduces the amount of war casualties. With European countries involved or preparing to be involved in more operations on the ground, efficient MEDEVAC has never been more important. This is even more true with public support for military operations largely depending on the number of casualties².

European countries currently involved in operations need to ensure safe evacuation of their soldiers from the battlefield to the nearest field hospital, as well as to make sure they have enough capabilities in case of massive casualties, or if they have to operate on several fields at the same time. On the other hand, and in light of tensions at the borders of Europe, pMS currently not involved in military operations must ensure that, should the need arise, they have access to MEDEVAC capabilities. However, MEDEVAC requires heavy logistics and equipment that not all countries are able to guarantee on their own.

These capabilities could therefore be co-owned or shared with other European countries. Indeed, successful cooperation programmes have manifold benefits, including³:

- Economy of scale: pMS meet capability requirement at an affordable price
- Stability of project
- Increased interoperability: common requirements help countries work together on international missions
- Strategic cooperation programmes help to maintain the EU defence industrial and technology base and to ensure security of supply as well as autonomy of action instead of relying on non-EU off-the-shelf solutions
- Positive side effects occur, including technology sharing, technology development, common standards definition, integrated logistics, intellectual property rights and successful exports.

Collaboration also binds together the participating nations not only from the military perspective, but also industrially and politically. National and transnational mergers have likely been encouraged by the increased collaboration between European States, and collaboration has assisted the specialisation, consolidation and rationalisation of the defence industry. Some parts of the European defence market

¹ Defence budgets and cooperation in Europe : developments, trends and drivers – IAI, IRIS, SWP, RUSI, ELIAMEP, FOI, PISM, January 2016

² http://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1070&context=political_science_facpub

³ <http://www.defenceiq.com/air-land-and-sea-defence-services/articles/debate-european-defence-collaboration-vs-national/>

are still fragmented and a rationalisation is needed. At the political level, consensus and unity are promoted through countries that share their defence sector, thus strengthening the common purpose⁴.

The benefits of bilateral and multilateral cooperation with like-minded partners, on a range of concrete issues like education, training, maintenance, upgrade or logistics are increasingly recognised across pMS. Many instances of bilateral cooperation have been launched in recent years and MEDEVAC could prove to be a good field to launch cooperation in the EDA framework. Initiatives built on existing regional cooperation frameworks, and thus on existing trust, such as the Visegrad 4, and the Region Security Support Programme (ReSAP)⁵ could be the way forward. Lessons learned from initiatives such as NORDEFECO and their activities could also be taken into account in order to avoid duplication of efforts.

In this short study focusing on tactical MEDEVAC, the following topics of interest for collaboration have been identified:

- MEDEVAC helicopters
- MEDEVAC armoured Ambulance vehicles
- MEDEVAC non-armoured ambulances
- MEDEVAC modules for helicopters and ambulances

For each of these topics, the research team has screened the market and identified several providers. The companies and their main products are presented in annex 1 of this study.

As a result of the analysis of the MEDEVAC market, it seems that there are several ways in which pMS could benefit from collaboration at the EU level, with the support of the European Defence Agency. These elements underlining the added value for cooperation are synthesised in the table below:

⁴European armaments collaboration – Policy, problems and prospects. Ron Matthews, Routledge, 2013

⁵ The three-fold goal of this programme is to strengthen the capabilities of regional allies, to enhance regional collaboration, and to promote Polish defence industry abroad, mostly by using some financial instruments to facilitate acquisitions or joint development projects involving Polish defence companies. This initiative is led by Poland and directed towards Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania and Slovakia - Defence budgets and cooperation in Europe : developments, trends and drivers – IAI, IRIS, SWP, RUSI, ELIAMEP, FOI, PISM, January 2016

Topic	Assessment of market	Added value of cooperation	Challenges	EDA possible role
MEDEVAC helicopters	A highly competitive market dominated by American providers. No major capability development programme planned in pMS	Cooperating at EU level could prove beneficial in two domains: continued training and sharing of capabilities.	Currently, cooperation in the field of MEDEVAC helicopters appears to be less of a priority for pMS.	Support an initiative to pool NH90 helicopters for combat MEDEVAC missions ⁶ . Facilitate training exercises focusing on joint interoperability for Medical and casualty evacuation;
MEDEVAC armoured ambulances	A large European market with a multitude of actors, dominated by large companies. PMS are currently focusing their procurement efforts on the acquisition or modernisation of land systems, including armoured ambulances in some countries.	Increasing synergies and interoperability between countries with similar models of vehicle. Developing modular kits that fit partially or wholly, in the majority of platforms to facilitate the conversion of vehicles, and therefore avoid having to develop too many variants of a vehicle.	Most Member States are already equipped or have launched programmes to acquire such capabilities.	Support regional bilateral and multinational initiatives already launched to build on current efforts from pMS. Facilitate discussions on future common standards and requirements for land systems, including armoured ambulances.
MEDEVAC non-armoured ambulances	Relatively similar providers to the ones for armoured ambulances. In addition to the traditional military actors, smaller civilian actors providing expertise for vehicle conversion have been identified.	An opportunity could arise in conversion solutions to transform non-armoured vehicles into light armoured vehicles. This would increase the flexibility in roles of ambulances.	As the study focuses on tactical (including forward) MEDEVAC, the topic of non armoured vehicles seem less the focus for cooperation. Indeed, transport vehicles must be provided with the same level of protection as the vehicles used by the	Considering the strong dual-use dimension of this topic, the EDA could look into synergies with the European Commission's initiatives to set up and/or share comprehensive crisis management capabilities.

⁶ NH90 represents a flagship programme within the EU. It is also likely to become one of the most common helicopters among EU Member States. A pooling initiative should likely focus on one model to ensure its success.

			combat troops they are supporting.	
MEDEVAC modules for helicopters and ambulances	A important number of SMEs providing several types of services and capabilities: MEDEVAC modules, procurement of platforms, conversion of platforms.	<p>The analysis has demonstrated a high potential for collaboration at the EU level.</p> <p>Developing flexible systems that can be integrated into multi-role vehicles or helicopters, thus reducing costs of developing several variants of a vehicle.</p> <p>Important economies of scale (up to 40%) seem possible in this field</p>	<p>Renewing MEDEVAC capabilities through common pooling may not be a current priority for Member States</p> <p>There is a lack of common requirements</p>	<p>Support work at the EU level to develop standardised medical modules to convert transport helicopters and armoured vehicles into MEDEVAC capabilities.</p> <p>The EDA could support the launch of a Request for Information to the modules providers to gain a better overview of potential savings.</p> <p>Training of technicians and medical teams.</p>

According to the EDA, the aim of cooperating at a European level in the field of MEDEVAC is to develop MEDEVAC capability in all its aspects, finding effective shared solutions through multinational cooperation in terms of assets, procedures and interoperability. This could be facilitated by harmonising requirements, which might lead to joint procurement initiatives also considering a modular approach as well as common training and/or cooperation in maintaining and operating capabilities.

All in all, pMS could work alongside the EDA to assess current MEDEVAC limitations; to improve the interoperability of medical evacuations at operational and tactical levels; to develop harmonised procedures for medical logistic supply; to establish a lessons-learned mechanism for analysing the MEDEVAC-relevant experiences from CSDP and current operations.

1.2 HELICOPTER MODULES AS A BUSINESS CASE FOR COLLABORATION

1.2.1 Inputs from MEDEVAC modules providers

Taking into account the results of this study, MEDEVAC modules have the potential for collaboration at the EU level. The EDA could propose to Member States to establish common requirements in order to launch a collaborative programme on MEDEVAC modules compatible with existing helicopters. Defence cooperation includes both operational and procurement aspects, by linking the acquisition to training and exercises, maintenance and logistics, as well as operational deployments in a range of international missions. A wide range of frameworks for cooperation can therefore be envisaged. A feasibility study would aim at comparing such options and identifying the best framework for collaboration.

In the framework of this study, nine suppliers of MEDEVAC modules for helicopters were contacted by email with a short questionnaire. **Two consortia of companies, and one company representing four different Member States** in total supplied the research team with replies on their offers.

The products of these three companies/consortia are presented in more detail in the providers' fiches in Annex 4.1.

The replies highlighted three elements: firstly, a clear interest from some of them to potentially provide equipment for several pMS. They underlined the fact that they would be able to provide highly flexible modules, adaptable to many helicopter models. Secondly, they mentioned that cost-savings and economies of scale would be possible (up to -40%), pertaining that the companies receive specific and detailed requirements from pMS. Finally, a pooled demand would be beneficial to reducing production costs and send better quotations. It would give more certainty and visibility for the business. Additionally, it would support the interoperability between forces and reduce the time needed for training purposes.

1.2.2 SWOT analysis

Based on the study and elements provided by the contacted MEDEVAC modules providers, the following SWOT analysis can be made for helicopter MEDEVAC modules as a business case for collaboration at the EU level.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Competitive market (existing solutions on the market, many providers) • Turnkey and bespoke solutions available • Market mostly composed of SMEs • Flexible and low cost modules adaptable to many helicopter models • Regular helicopters can be “transformed” into MEDEVAC capabilities. 	<ul style="list-style-type: none"> • National markets making it a fragmented market • Unique solutions tailored for each customer/country. No standardized solution • Not all solutions are fully compliant with NATO Stanag

<ul style="list-style-type: none"> • Dual-use market with a wide range of applications (disaster relief, civilian medical evacuations) 	
Opportunities	Threats
<ul style="list-style-type: none"> • Demand from several Member States seems to exist • Modules often usable on other platforms (ex: fixed wings, ambulances etc.) • Relative low cost of solutions • Reduction of R&D and production costs • Important economies of scale can be done resulting in more competitive offers • Better production visibility for SMEs • A less sensitive defence market enabling the sharing of requirements • Some companies are ready to work as a consortium to develop solutions 	<ul style="list-style-type: none"> • Renewing MEDEVAC capabilities through common pooling may not be a current priority for Member States • Larger production costs (customised solutions rather than standardized ones) • Lack of critical size for SMEs • Lack of common requirements

1.3 MAIN FINDINGS OF THE MARKET ANALYSIS

1.3.1 Analysis of the demand side

The analysis of the CODABA⁷ data, as well as of information on national plans derived from open sources through additional desk research revealed that many European countries are in the process of or planning to acquire new MEDEVAC capabilities.

This document identified the four following topics, which are of interest for collaboration:

Topic
MEDEVAC helicopters
MEDEVAC armoured ambulance vehicles
MEDEVAC non-armoured ambulances
MEDEVAC modules for helicopters and ambulances

⁷ Collaborative opportunities database of the EDA

The selection of these four topics is based on several factors:

- Expressed interest by pMS
- Relative matching in terms of substance
- Relative matching in terms of timelines
- Strategic capabilities/services for the battlefield

Several Member States plan to procure capabilities or have on-going programmes to acquire new capabilities. Therefore, the EDA underlines that synergies might be found in sharing requirements documentation, test and evaluation results as well as lessons learnt from acquisition processes.

Finally, it is important to note that many collaboration schemes already exist (within NATO, EATC, EAG, NORDEFCO frameworks) and focus on MEDEVAC. These initiatives aim at ensuring capability and training requirements and the definition of standards. Pushing for new collaborative projects would thus be even more impactful if they take into account the work done in these initiatives.

1.3.2 Analysis of the supply side

In part 3, a market analysis and a list of potential suppliers is presented. A more detailed overview of available products is at Annex 1. This summary is aimed at technical experts, should collaborative initiatives be launched at the European level.

The main results of the market analysis are:

- **MEDEVAC helicopters market**: this market is highly consolidated, with two large European suppliers. This topic seems less relevant for the development of common procurement programmes;
- **MEDEVAC armoured ambulance vehicles market**: a large number of suppliers in Europe were identified (over 12 Member States represented in the sample). However, half of the suppliers identified stem from three countries only (Germany, France and Poland). Considering that the majority of Member States have on-going modernisation or procurement programmes, it seems difficult to develop common systems at this stage. The EDA could however be the appropriate platform to address standardization issues and to develop training activities to enhance interoperability among countries.
- **MEDEVAC non-armoured ambulances market**: the suppliers of non-armoured ambulances are to a certain extent the same as for armoured ambulances (with the exception of actors such as Land Rover). Considering the requirements from on-going operations, it seems that non-armoured ambulances are less of a priority for pMS, therefore decreasing the added value of collaborating on this topic.
- **MEDEVAC modules for helicopters and ambulances market**: two types of suppliers have been identified for this topic: companies that develop systems (such as MEDEVAC kits, stretchers, anti-vibration systems) and companies that are able to equip vehicles or helicopter cabins in order to convert these platforms to perform MEDEVAC roles. SMEs play an important role in this market, and often work as consortia to propose more robust, comprehensive solutions. Companies propose both turnkey and bespoke solutions in this field, and some have indicated that economies of scale of up to 45% could be achieved by pooling demand. The

study has focused on companies that supply military forces, however many more exist in the civilian sector and have developed solutions for medical evacuation.

The EDA could encourage cooperation at the EU level on the development of standardized MEDEVAC kits to convert transport troop helicopters and armoured vehicles into MEDEVAC capabilities. Cooperation could be initiated between countries already using the same platforms, for instance between users of NH90 helicopters or for the Boxer ambulance between Germany and the Netherlands. In addition, the EDA could play a role in the training of technicians to install such modules and of medical teams to ensure medical care onboard during tactical MEDEVAC.