



# THE EFFECT OF THE MILITARY SPENDING INCREASE ON DEFENSE R&D

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**Abstract:** Military research and development represents a new perspective for equipping the army with modern capabilities at both national but also European level. All defense strategies and political speeches in recent years encouraged this new approach. With the increase of the budget for military spending in 2017, the defense research and the development of new technologies should be a major objective, accompanied by clear action plans and programs structured according to the current needs of the army.

**Keywords:** research and development; innovation; new capabilities; military spending.

Starting 2017, the defense budget increased to 2% of GDP. The Romanian Ministry of National Defense then received 16.23 billion RON, 5 billion more than one year before, thus being among the ministries with the biggest allocated budget. In August, the same year, the Army Endowment Plan for 2017-2026 was presented and approved by the Supreme Defense Council. It was focused on eight fund raising programs, one of these targeting the Patriot missiles. The other programs have not been made public yet, but we have been able to find within the open sources the following priorities: the 8x8 and 4x4 armored carrier for troops, C4I, multifunctional corvette and the continuation of the program F16 multirole fighter.

The acquisition programs are necessary and they are able to cover the needs of the army, especially on the short term. On the long run, however, in order to align with the standards of the future armies, the investment in Research and Development is mandatory. This goal could be found in almost all the post-2009 recovery plans for the army, but only few actions have been taken. The intention of this article is to present and analyze the perspective of the development of military capabilities by exploiting this field of research and development.

The main actors in the progress of the research

and development field in the military sector in Romania are the Ministry of National Defense, the Ministry of Economy and the Ministry of Research and Innovation, as well as the civil society organizations operating in this area. There are two representative documents regarding the development of this field in our country: *National Strategy for Research, Development and Innovation 2014-2020* and *National R&D and Innovation Plan for the period 2015-2020*. Both documents are drafted without clear lines of action. For example, the vision for research and innovation in Romania for 2020 is generic and we could not find in the content of this strategy some clear objectives on areas of strategic interest: "In 2020, Romania will become competitive at regional and global level through innovation fueled by R&D, generating wealth for its citizens"<sup>1</sup>. Another document, the law 232 on the national defense industry was adopted in 2016. Regarding the research and development, this law is targeting the cooperation between the national defense industry specialists and the research institutes for the design, testing and fabrication of products and services, the creation of centers of excellence that are able to share human and material research resources, the development of national R&D and innovation programs for assimilation of new military equipment, but also the knowledge of the operational and technical requirements of new products that are proposed to be included in

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<sup>1</sup> National Strategy for research, development and innovation 2014-2020, Romanian Government, Bucharest 2014.



the procurement plans. The same law establishes that *"The financing of the research-development-innovation activity is made from funds from the state budget, through the budgets of the structures of the National Defense System Forces, from the budgets of the economic operators, as well as from other sources, according to the law as a result of the approval of the programs by a normative act at the level of the Government's decision"*<sup>2</sup>.

The research in the field of military technology is coordinated by the Department for Armaments (DPA) within the Ministry of National Defense. DPA is also responsible for the acquisitions policies of the Ministry, it manages the relationships with the defense industry, plans and conducts the international cooperation regarding the armaments, evaluates and certifies the suppliers of the defense system and equipment. The management of research and development programs and activities is also under the umbrella of this department. But the national agency which has the expertise in this field is the Research Agency for Military Technics and Technology (ACTTM). It was set up in 1998 under the authority of the Armaments Department and ensures its scientific and technological competence. The research units within the Ministry of Defense carry out research and development activities based on the Ministry's Sectorial Plan for Research and Development, funded by the MoD budget. On the other hand, these research units can also participate in the defense and security programs funded by the National Plan for Research, Development and Innovation", from the budget of the Ministry of National Education.

According to the Department for Armaments, the main programs of the MoD which are in a research & development phase are: the 8x8 Armored Carrier, the 5.56 mm Assault Weapon and the "BOREAL 5" Mini-UAV Unmanned Aircraft System. With regards to the first project, the 8x8 carrier will be developed within the national industry through C.N. ROMARM S.A – U.A. MORENI. The 5.56 mm assault weapon has been tested and evaluated in 2012-2013 and it is now in the stage of research for a more advanced version, being also developed within the national industry, through C.N. ROMARM S.A. For the third project, the supplier is the Research

Agency for Military Technics and Technology<sup>3</sup> and this system can be used in military missions to collect and disseminate real-time data, but also for activities of reconnaissance, search, coastal or border guarding or road traffic monitoring both in the military and civilian environments. In addition to the state agencies, the Ministry of Defense also collaborates with other private companies. For example, the program called Integrated Security System for Military Objectives – SISOM – which was accomplished between 2015-2018, in collaboration with private providers (UTI Systems, Civitas Systems, Romtest Electronic).

Certainly, we can argue that there is room for better public visibility and higher efficiency of the research programs regarding the development and modernization of the army. A possible solution would be to cooperate with strategic partners. According to the European Defense Agency's analysis, EU Member States alone do not have the capabilities to carry out large-scale R&D projects. Thus, consolidated research activity should be based on harmonization of requirements and better synergies in order to reduce inefficiencies. The EU's objective is to help member states to establish a European procurement regime that is essential for the development and transfer of defense technologies as well as for strengthening solidarity and confidence in the EU. Member States and stakeholders should make full use of the possibilities already provided under the Research Program for Security - Horizon 2020 and continue to support the research mission by supporting the Union's external policies. The European Commission, through the European Defense Agency (EDA), proposed in 2016 to allocate more financial resources for research and technology.

Since the foundation of the Agency in 2004, more than EUR 500 million has been allocated by the member states to more than 150 R&T projects (Research and Technology)<sup>4</sup>. EDA's goal is not only to develop future defense capabilities but also to meet the current needs. EDA supports the cooperation between the member states of the Union in this area through the technology

<sup>2</sup> Law 232/2016, 22<sup>nd</sup> of November 2016, Romanian Parliament, published in the Official Monitor nr. 972, 5<sup>th</sup> of December 2016.

<sup>3</sup> Ministry of Defense, Department for Armaments, <http://www.dpa.ro>

<sup>4</sup> European Defence Agency, Research and Technology, <http://www.eda.europa.eu/what-we-do/eda-priorities/research-technology>



capability groups called CapTechs, which are made up of experts from the EU states. One of the main instruments needed for the good functioning of these groups is to prioritize the research and technology within the Union. There are two directorates within the CapTechs: *Capabilities, Armament and Technologies*, and *European Synergies and Innovation*<sup>5</sup>. The workgroups are focused on areas such as: Communication Information Systems & Networks, Systems of systems Battlelab and Modelling & Simulation, Cyber Research and Technology, Aerial, Ground and Naval Systems, Ammunition Technology - in the First Directorate - and Innovation Research, Materials & Structures, Technologies for Components and Modules, Radio Frequency Sensors Technologies, Electro-Optical Sensors Technologies, CBRN Protection and Human Factors, Guidance, Navigation & Control, Energy and Environment - in the Second Directorate. Each technology sector and working group is presented in the Strategic Research Agenda, the purpose of this document being to provide guidance regarding the research and technological development priorities. The research projects can be divided in two categories, depending on the number of the participating member states. The category B projects are initiated by at least two member states which may offer other countries the opportunity to participate, but not more than three or four, within the same program. The funding is carried out by the member states on a voluntary basis and the costs can be between 3 and 4 million Euro. The programs in the category A cost more than 10 million Euro, and more states can take part, the funding being also provided by member states on a voluntary basis. EDA is responsible for financing the feasibility studies or the verification of a technology area which requires research and development programs. In 2008, EDA published the Strategy for Research and Technology, which aimed at improving the European Defense capabilities and delivering the right technologies in time. Although the concept of this strategy is a valid one, in fact, the states' involvement is decisive for its functionality, as the incoherence of national goals regarding the research and technology and the Defense policies gap may make this process more difficult.

The decisions of the Ministries of Defense

<sup>5</sup> EDA – Capability Technology Groups.

must be harmonized. EDA does not have the means to create a common industrial policy in Europe. It has, however, the possibility to create a network of experts to encourage the research and the identification of the needs of the armed forces. Thus, research and innovation activities could lead to harmonization between member states, and through a policy of supporting the research and innovation the states can seek to integrate a European Defense industry. The Agency's success in this approach would be visible and measurable if the research efforts and activities could contribute to the improvement of the technological means at the European level.

In 2016, the European Commission initiated the Preparatory Action for Research under the Common Security and Defense Policy, its aim being to link European Union funded research programs and national procurement programs in the field of Defense. The Preparatory Action implies, besides the existing legal basis, the programming of the necessary financial resources. The European Union is already carrying out an extensive research and innovation funding program, Horizon 2020, for the period 2013-2020. The goal was launching the Preparatory Action in 2017 as a pilot program specifically focused on Defense research without overlapping with Horizon 2020. The lessons learned from this action will help member states to strengthen the future European Program for Defense Research. This new initiative, for which the EU allocates 25 million Euro, needs to be coordinated with the national research programs, complementing the member states' efforts but not replacing them. In 2017 EU also launched the European Defense Fund. One of its goals is to allocate funds for collaborative research in the field of innovative technologies and products for Defense. The European Defense Fund will also encourage the member states to cooperate in the development and procurement of Defense equipment and techniques, so states could jointly invest in the development of certain technologies. The programs developed under the umbrella of this Fund will benefit from an annual European public investment of 5.5 billion Euro.

Since 2016, at least at the level of the European Union, we have been able to observe a more intense activity in the Defense sector in terms of research and development of the new technologies. After a



period of crisis, significant spending cuts and new types of threats, EU member states finally realized that they had to invest in Defense equipment and work together in order to adapt to the new security environment and to develop current technologies, not only for the military equipment but also in the field of information, digital or satellite communications.

Taking into account the above presented data, we can argue that although Romania is in great need of co-operation in the field of research and innovation, the opportunities offered by the EU have not been very encouraging so far. However, as in the case of endowment with equipment, cooperation remains an important and decisive factor in Romania's ability to carry out military research and innovation programs. We also believe that the organization at national level is a necessary element in this development process. Starting from the European model for structuring the research and development programs, Romania has to plan multi-annual programs, financed by the state budget, as well as European grants. These programs should be very clear and well-structured, there should be a feasibility study and identification of the development needs, but it would also be necessary to set priorities and set up expert groups on specific areas. This effort must be complemented by the participation in the research programs at European and NATO level, but also by strengthening the partnerships. In order to take part to the European Defense Fund, our country needs to set up national research programs and to link them to European ones. Besides a coherent process of research and technological development, cooperation between state institutions and the private sector is also needed.

In Romania, the insufficiency of funds did not allow the development of the military technology research. With the allocation of 2% of GDP for Defense, an increase in funding for research is also needed. This is set out in the 2015 White Paper on Defense, together with Romania's goal of engaging itself in research programs conducted within the European Defense Agency. Regarding the positive aspects, analyzing the open sources and the information found in the press releases of the Ministry of Defense, we can argue that starting with the period 2016-2017, the field of research and development for defense started to be more visible

in the political discourse, trying its integration also into the civil space. For example, in May 2017, the Ministry of National Defense organized the workshop "Prototypes in the Ministry of National Defense", which brought together representatives of the ministries of Defense, Economy, and Research and Innovation. According to the MoD press release, the purpose of this workshop was "to identify solutions for the implementation of the governance program in the coming period that has as objective the revitalization of research structures so that they become the engine for the development of the national defense industry in the horizon 2020"<sup>6</sup>. The same year 2017, the first Competition for Innovation in National Security, PatriotFest was launched. This was organized by the Ministries of Defense, Ministry of Internal Affairs, Romanian Intelligence Service in partnership with the New Strategy Center, its goal being: "better preparation of national security for future challenges by attracting Romanian innovation resources and increasing the degree of transfer of innovation from private and academic fields to national security"<sup>7</sup>.

Analyzing the way how the subject of military research is covered in our country, we noted the following: the same as in case of equipment acquisitions, there is no multi-annual plan; according to the Department for armaments, the priorities of the MoD are unmanned platforms, armored carriers for troops, assault weapons and encryption techniques. We could not find in these open sources a timing and a budget planning of these priorities. We also believe that greater openness to public opinion, transparency of budgets and debates on these priorities and methods of achieving the goals could increase the visibility of military competences in research and draw the attention of the civilian experts on this current and usual field of research and development. At the same time, besides the increase of the Ministry of Defense budget for research and development projects, another solution could be to carry out research or innovation programs in the civil sector with funds from other ministries, as the Ministry of Research and Innovation and with results that could be applicable also in the military field.

<sup>6</sup> Press release 25/23.05.2017, Ministry of Defense, Department for Armaments, <http://www.dpa.ro/ce-facem/relatii-publice/comunicate>.

<sup>7</sup> [www.patriotfest.ro](http://www.patriotfest.ro)



Research, development and innovation should not be overlooked at political decision-making level as it may be the engine of our country's evolution. Achieving technology development programs is needed in both sectors, civil and military. Thus, the funds needed for the research and development projects can be accessed from several parts, not only within the Ministry of Defense. Certainly, this requires coordination among ministries and a clear direction of action.

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