Investment into the development of science, research and technologies is a key factor that can significantly enhance (or even build up) our capabilities to cope with changes and issues in general, and in security and defense in particular.

One of these changes that the Czech Republic will have to resolve in the next approximately ten years is establishing a professional army.

To achieve a high standard each process – whether it is a technological or social one, must be preceded by research and development, and the professionalization of the army is such a process. Research processes must precede the implementation and application processes. Theory should go before practice, and not vice versa; practice should not try to justify theory retrospectively. For example, the calculation of advanced research and of the impact of technologies on the operations after 2020 states: *The framework is limited by those technologies where there exists a reasonable assumption that they will be developed and fielded by 2020. Military systems usually take so long to procure that fielded technology in 2020 must already exist in 1998, albeit in the form of basic and applied research. Thus the prediction task for 2020 is to take today’s “blue skies” research and deduce, in general terms, the potential defense applications that it will satisfy.*

Similar considerations with even shorter time intervals apply to the implementation of conclusions as regards developing a professional army. Necessary progress here includes time to delineate principles, time to establish organizational changes needed for their application, the equipment of troops and time to master new principles and new assets by new professionals.

A professional army would bring about such an important change of conceptual and practical conditions for assuring the security and defense of the country that this requires using a program and system approach. This approach should incorporate intentions into individual programs and projects.

The entire professionalization process should be effected in accordance with the developed, discussed and refereed “Program of Professionalization of the CAF (the Czech Armed Forces and System of the Czech Republic Defense)”. The development
of this program should be grounded on analyses and research studies based especially on foreign experience and comparison with possibilities of its application in the Czech Republic.

A Program of creating a regular army should encompass both the preparatory and implementation stages. In the preparatory stages, the initial conditions of professionalization must be analysed and strategic objectives of professionalization and procedures how to accomplish them must be established. In this respect, the initial conditions are not favorable – there is no comprehensive system of scientific knowledge. Various hypotheses which appear are not evaluated, reviewed and or refereed on a scientific basis; they are not compared with alternate proposals; there is no concept of a professional army stemming from the conception of CAF build-up (the Czech Armed Forces and system of the Czech Republic Defense). Frequently, the numbers and structures defining targets in a near or more distant future are assessed subjectively, instead using more accurate data. Indeed, the cost of maintaining a regular army requires very high resources that is why it is necessary to develop a factual analysis of possibilities of funding the build-up and exploitation of a professional army. Political or lobby pressures to accelerate or bypass the preparatory stages can result in an extension of the implementation stages of professionalization, or increase of costs in eliminating losses.

The first research project should result in the “Program of professionalization of the CAF (the Czech Armed Forces and system of the Czech Republic Defense)”. A part of this Program will be a Project of scientific, research and technical support for the professionalization process that would cover all the problems connected with the implementation in this interdisciplinary concept. For example social, sociological, psychological, medical, military, economic, resource, demographic, international and internal dimensions should be linked to the organizational, technical, technological, information, operational, tactical, educational, accommodation and legal issues.

The content of the Project of scientific, research and technical support will be analyses and studies about the basic issues of professionalization which should be in compliance with the requirements of those responsible for the other parts (projects) of the Program of professionalization of the CAF.

Thus, scientific and research support will be needed for the recruitment program, and the retention and turnover of military professionals.

The timetable of research must outline the necessary capabilities that the CAF should achieve before establishing requirements for required military professionals. Simultaneously with professionalization, the requirements for future capabilities will also be changed. The restructuring of forces from larger organizational units able to conduct classical combat operations to more flexible, more general units with appropriate mobility, resistance and universal deployability will have to be achieved. This will lead to new requirements for military professionals at all levels, from
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individual soldiers up to commanders and officers capable of working in multinational environments: requirements for independence, physical and mental toughness, capability of communication and ability to apply information technologies. A new structure to military professionals will be needed. Another factor that will impact this structure will be the type and standard of weapons and weapon systems they will operate.

Recruitment of new candidates for military professionals will be the basic condition for professionalization. The possibility of recruitment from various categories of military professionals in relation to the labor market will have to be analyzed. In the first phase, greater numbers of especially lower categories will replace the soldiers of the conscription-based armed forces, later on a continuous rolling system will be used.

Research of these problems can use the results and experience from the professionalization of the armed forces of other NATO countries and the following issues will have to be addressed:

- At what numerical stage of professionalization will there be no increase of personal costs compared with the current situation,
- What is the period of maximum utilization of special qualifications of a professional? (For conscripts this is about half a year),
- What conditions should the armed forces provide for professionals to be able to compete on the labor market,
- How must the recruitment process respond to a changing situation on the labor market for which research of the following critical factors will be needed:
  - Duration of contract (minimum length, shorter contracts will be preferred),
  - Image of the armed forces,
  - Social security and benefits,
  - Education provided to the serving professionals,
  - Costs of one professional (GDL 12 000 in the Netherlands),
  - What is the most effective method of promotion.

Another program that will need a significant research support is the program of military training and education.

As already mentioned in connection with the recruitment process, an offer of the best possible education plays a very important motivation role. Furthermore, this is important in the process of service itself since it is decisive for creating necessary capabilities. Education and training provided is also very important for the process of turnover of military professionals because it facilitates easier transition from the armed forces to a civilian career; it improves the employability of professionals after their transfer to reserves.

While nearly all other areas of economy have been transformed through technological innovation and accompanying structural changes in the course of the
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20th century, the methods of military education and training rather seem to survive for whole generations. By accelerating developments and by adoption of information education and training we should be able to ensure for each professional access to the best possible education and training tailored to his needs and to the needs of the armed forces anywhere and anytime.

Therefore, research support should be focused on mainly non-traditional, but perspective areas of education and training. From the standpoint of training, it refers to the use of simulation and modern training technologies to enable individuals to work with modern weapons and weapon systems. It also refers to the use of electronic learning. Computer technology and multimedia technologies provide the possibility of individual out-school education during an entire professional career.

Research in this field should be concentrated on:

- Development of didactic tools applying information technologies to the environment of synthetic education, for the environment of joint decision making, man-machine interface, systems of interactive instruction, relationships between interactive learning and a tool for retrieving multimedia data bases and digital libraries,
- Development of evaluation tools to measure knowledge, skills and experience,
- Digitalization of information resources and their availability.

In studying the above fields, it is necessary to take into account that information technology has a potential for the significant improvement of all aspects of future defense capabilities, incl. the preparation of professionals. Modeling and simulation are also robust means with a possibility of rapidly recoverable applications in the field of training and education of professionals.

A large-scale and complex program of professionalization of the CAF will require an interdisciplinary approach both during its development and its implementation. Therefore, all elements of the defense community should participate in it. The Program should not be developed in a hurry to the detriment of its quality because one of Murphy’s law says: “…we never have enough time to make something properly, but we always have time to do it again and again…” and many concepts and programs prove it.

It seems that strong political and social pressures as well as foreign experience have already decided that the Czech Republic is to have a professional army. So, it will not be necessary to lose time by deciding whether to go ahead or not. Effort will be focused on analyses of the gradual professionalization of the ACF (the Czech Armed Forces and system of the Czech Republic defense) starting from the armed forces of mixed type with an increasing professional element. Due to the complexity of the issue and especially because of the need for huge resources, we should examine whether to implement the Program of professionalization of the CAF first as a pilot program for selected elements (immediate reaction forces and rapid reaction forces) in order to
verify the processes of professionalization and the possibility of their application to other elements with greater experience and effectiveness.

In developing of the Program of professionalization of the CAF it will be desirable to use the NATO-CDE initiative (Concept Development and Experimentation). This initiative is aimed at perspectives of development and the evaluation of new concepts before spending considerable resources on their implementation, and it uses both alliance and national potentialities. The Program of professionalization of the CAF could be one of the pilot national activities of the Czech Republic to accomplish the CDE objective.

One note to be added in conclusion. The Program of professionalization of the CAF should not only cover the recruitment, preparation and functioning of new professionals but also the creation of more suitable conditions for more efficient permanent re-professionalization. From the professionals of the past and present to the professionals who will henceforth be needed.