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## **Plan for Scientific Activities of the National Defence Academy of Latvia 2023-2032**

According to the NDAL Development Strategy for 2023-2032, science, research and innovation are considered an important element of national security, national defence and military industry. The primary scientific objective of the NDAL is to study international and national security and national military defence, while coordinating the development of military innovations aimed at strengthening practical national defence capabilities. As an institution of higher education in applied sciences, the practical contribution of the NDAL to strengthening Latvia's defence capabilities is essential.

Two research centers have been established within the NDAL - the Security and Strategic Research Centre (SSRC) and the Defence Technology and Innovation Centre (DTIC). The SSRC is primarily tasked with scientific activities, while primary role of the DTIC is to coordinate scientific activities and promote partnerships between the National Armed Forces (NAF) and the private sector to facilitate the development and production of military technologies in Latvia for the NAF. Scientific activities are carried out not only by the staff of the NDAL research institutes, but also by the elected academic staff and guest lecturers involved in the implementation of the NDAL Bachelor's and Master's degree programmes.

As the only military academy in Latvia, the NDAL has as one of its objectives the development of military science in close cooperation with the National Armed Forces and international partners within the NATO alliance. As noted in the NDAL Development Strategy 2023-2032, today's NAF officers need to have a good knowledge not only of military security issues, but also of comprehensive national defence, contemporary strategic challenges, and the causes of international conflicts, NATO's structure, and its functioning and major challenges. This means that the scientific activities of the NDAL in the next 10 years should be oriented not only towards military security, but also towards the systematic study of security, strategy and contemporary threats, and the geographic focus of its scientific activities should be not only Latvia, but also Europe, the Transatlantic region and East Asia.

In the period up to 2032, the most important objective of the NDAL for scientific activity over the next 10 years is to increase scientific productivity and make a practical contribution to strengthening national defence capabilities. In the coming years, the NDAL will work on six scientific priorities:

- to improve the scientific productivity of academic staff;
- to develop the research skills of the NDAL academic staff;
- to involve students in research;
- to strengthen international cooperation in scientific activities;
- to coordinate military innovations according to the needs of the NAF and to implement scientific activities according to the requirements of the NAF and the Ministry of Defence;
- to communicate the results of research to the wider public.

1. To improve the scientific productivity of the academic staff;

Description of the objective: The academic staff of the NDAL is engaged in research activities and participates in both national and international research projects, however, the productivity of the research work of the academic staff within the NDAL is uneven. This calls for an increase in the number of scientific publications by 2032, including academic monographs published by international publishers; academic articles published in Scopus, Web of Science and ERIH+ academic journals; collections of articles published by international publishers; articles published in international academic journals not included in Scopus and Web of Science; and scientific results published in Latvian or international sources that do not meet the above criteria. It is important to note that the specific nature of the defence and military sector means that many publications are produced for the Ministry of Defence and are therefore not publicly available, but they are important for strengthening national defence capabilities and are produced in accordance with generally accepted academic standards. While moving towards increasing the number of high quality publications in international academic journals, it should not be forgotten that there will continue to be significant differences within the NDAL academic family between researchers whose primary task will be to produce high quality publications for international journals and researchers whose primary field of activity will be to participate in the NDAL study process and conduct research for the defence sector in Latvia and NATO.

Actions to be taken: Adaptation of the documents governing the recruitment, career development and remuneration of academic staff at the NDAL, with a view to stimulate scientific activity, with particular emphasis on the production of high-quality publications. Increasing the number of academic staff with doctoral degrees through recruitment and replacement, and stimulating the interest of existing academic staff without doctoral degrees to pursue doctoral studies in Latvian or foreign higher education institutions.

Indicators of success: Increase in the total number of publications in high quality peer-reviewed international academic journals compared to the previous reporting period, as well as regular research for the NAF, Ministry of Defence and

NATO. Increase in the overall Hirsch index of NDAL academic staff in Scopus and Google Scholar databases compared to the previous reporting period.

2. To develop the research skills of the NDAL academic staff:

Description of the objective: The Latvian science ecosystem is undergoing rapid changes, with academic careers increasingly linked to the availability of high-quality publications. Within the NDAL, too, there has been a gradual and increasing emphasis on the preparation of articles for publication in internationally recognized academic journals, but progress has been uneven. An important goal for the period up to 2032 is to increase scientific productivity, which cannot be achieved without improving and strengthening the research skills of the academic staff of the NDAL. In order to increase the productivity of scientific activity, the necessary conditions must be created to make this possible. The organization of compact seminars and short training courses is an essential prerequisite, in which Latvian or foreign experts would present their experience in preparing scientific publications and, through practical sessions, develop and strengthen the scientific writing skills of the academic staff of the NDAL. Academic staff of the NDAL will also be provided with opportunities to attend scientific methods seminars/courses outside Latvia, e.g. scientific methods courses offered by the European Consortium for Political Research. In some cases, short training courses on Academic English and scientific terms could also be considered to facilitate the preparation of publications by the academic staff of the NDAL. While all of the above also applies to some extent to the NDAL staff involved in practical research, the measures aimed at improving scientific publication skills are more relevant to those members of the NDAL academic staff who are mainly involved in preparing research for publication in international or Latvian academic journals.

Actions to be taken: Organization of research seminars with guest speakers from other countries to improve the knowledge and practical skills of NDAL academic staff in research design, the use of different methods (including quantitative) and academic writing skills. It would also be useful to organize online or face-to-face meetings with editors of academic journals to find out what editors expect from authors, what criteria are used to determine the quality of a manuscript and what are the latest trends in the selection of publications in leading academic journals in the security and defence sector. Organization of internal NDAL workshops where academic staff present their publications in progress to their peers in order to get feedback on what needs to be done to complete the research and prepare it for publication.

Indicators of success: By 2028, at least one event should be provided annually for the academic staff of the NDAL involved in the production of scientific publications, either to improve scientific writing skills or to provide information on what editors or publishers of scientific journals expect from authors of publications.

### 3. To involve students in research

Description of the objective: Involving students in scientific activities is an essential part of the study process in any higher education institution, as it gives students the opportunity to apply the knowledge they have acquired during their studies, to gain a better understanding of the usefulness of scientific methods and their applications, and eventually to ensure staff replacement as students pursue careers in science. Most of the student engagement is in the context of Master's and especially Doctoral studies, which has to some extent limited student engagement in science so far, as the NDAL does not offer PhD programmes and there are no plans to establish a PhD programme at the NDAL in the next 10 years. The NDAL Master's programme has so far been implemented in close cooperation with the Baltic Defence College (Tartu, Estonia). At the Bachelor's level, the specifics of the field and studies - during their studies cadets acquire not only theoretical knowledge, but also practical skills and the profession of a soldier in general - limit the opportunities for students to engage in scientific activities. However, there have also been significant achievements in terms of student involvement in research activities, with students participating in activities of the DTIC in recent years and the first Cadet Conference in June 2023, where several cadets had the opportunity to present the results of their research. This tradition should be continued and developed over the next 10 years.

Actions to be taken: Over the next 10 years, four actions are needed to strengthen student engagement in research. Firstly, NDAL students should continue to have the opportunity to participate in projects coordinated by the DTIC. Secondly, the Cadet Conference should continue as an annual event, and in the future it could be developed as an international event in cooperation with the participation of students from other NATO countries (and Ukraine), as well as synchronizing the Cadet Conference with the Annual Conference of the SSRC, giving cadets the opportunity to attend both the Cadet Conference and the Conference of the SSRC. Thirdly, the possibility of publishing the research presented at the Cadets' Conference as a conference proceedings should be seriously considered in the next 10 years, giving cadets the opportunity to publish the results of their work and, consequently, to strengthen their publication skills. Fourthly, new opportunities will be provided by the Master's programme that the NDAL plans to implement by 2028, which will focus on meeting the demand for Master's studies for defence professionals. Research relevant to the needs of the NAF is also conducted within the existing study programme, which is implemented in cooperation with the Baltic Defence College, but the new Master's programme will be implemented in Latvia, thus ensuring a closer link between students' research interests and the needs of the NAF, taking into account the research interests of the students themselves. The involvement of experienced professionals in the educational process will strengthen the scientific activities of the NDAL, as well as provide opportunities for research for the needs of the NAF.

Indicators of success: The tradition of organizing the Cadet Conference, which started in 2023, is continued as an annual event. The Cadet Conference

involves cadets from military academies in other countries, resulting in the conference being held in English or partly in English. The best cadet research papers are published in print or electronic form in the Cadet Conference Proceedings. Following the establishment of the new Master's programme, research theses are being developed to meet the needs of the defence sector.

#### 4. To strengthen international cooperation in scientific activities

Description of the objective: Latvia is part of the NATO alliance. Latvian soldiers are constantly deployed together in international missions and military exercises with soldiers from other NATO countries. Military integration within NATO is very strong, and this is reflected in the close relations between the NDAL and the military academies of other NATO countries, including cooperation between military academy scientists and research institutes. This close cooperation needs to be further developed and strengthened by 2032. During the reporting period, the academic staff of the NDAL has already been involved in research projects of military academies and defence research centers of other NATO and EU countries (e.g. USA, Estonia, Norway, Sweden, Lithuania, Canada, etc.), and this cooperation has resulted in joint publications and chapters in edited volumes. It is important to note that not only the academic staff of the NDAL participate in research projects of partner research centers and military academies, but also the researchers of the NDAL have taken the initiative and created research projects with the participation of researchers from NATO and EU countries. Cooperation has taken place not only in the form of research projects, but also in the framework of conferences, and the SSRC conference has become an important platform for cooperation within the NDAL, through which many internationally renowned security and defence experts have been invited to Latvia, and this cooperation has led to the identification of common research interests and the development of joint research projects. In the period up to 2032, the cooperation initiated needs to be deepened, with particular attention to cooperation with the military academies of the Baltic Sea region countries and with those countries whose soldiers are serving in Latvia as part of the NATO Enhanced Forward Presence Battle Group. During the reporting period, the academic staff of the NDAL has been involved in research projects implemented by the NATO Science and Technology Organization, and this cooperation will be continued in the future, thus ensuring the study of NATO research topics in the Latvian context and their transfer to the NDAL study process and research. Strengthening cooperation with Ukrainian military academies and research institutes is essential over the next 10 years. This is driven by Ukraine's experience of fighting Russian military invasion, as well as by Ukraine's potential NATO membership. Cooperation between the Armed Forces of Ukraine and Latvia is considered to be very close, therefore it is necessary to develop scientific cooperation between the military academies of both countries. Looking ahead to the next 10 years, there is also a need to develop cooperation with research institutions in non-NATO countries that are important for Latvia's security interests. At the same time, work will continue on Russia's foreign and security policy, military strategy and armed

forces. Worth considering is a possibility of providing the academic staff of the NDAL with the opportunity to attend courses, undertake internships at military academies and research institutes in other countries, and use sabbatical leave to undertake large and time-consuming research projects. Over the next 10 years, the academic staff of the NDAL should continue to attend international conferences on security and defence issues (e.g. ISMS and ERGOMAS conferences).

Actions to be taken: The following actions are needed over the next 10 years to develop international cooperation in science. First, there is a need for joint research projects with academic staff of military academies of other NATO countries and joint publications, with a particular emphasis on cooperation with countries represented in the NATO Enhanced Forward Presence Battle Group in Latvia. Second, there is a need to strengthen cooperation in scientific activities with Ukrainian military academies and research institutes. Thirdly, the academic staff of the NDAL should continue to be involved in NATO Science and Technology Organization research projects, as well as strengthen cooperation with the NATO Defence College (Rome, Italy). Fourth, the academic staff of the NDAL should take advantage of internship opportunities at military academies or research centers in other countries, and consider taking sabbatical leave for internships in other countries, e.g. with financial support from the US Fulbright Programme or BAFF.

Indicators of success: Joint research projects leading to joint publications (jointly produced research articles ready for publication and/or submission to academic journals). Exchange visits and participation in international conferences. Increase in the number of studies resulting from international cooperation compared to the previous reporting period.

##### 5. Coordination of military innovations in accordance with the needs of the SAF and implementation of scientific activities as requested by the SAF and the Ministry of Defence

Description of the objective: Military innovation and its coordination both within Latvia in cooperation with the private sector and internationally with NATO and EU institutions and agencies are becoming an increasingly important part of the scientific activities of the NAA academic staff. These processes are becoming increasingly important, taking into account the changing security environment in Europe, the increasing funding allocated to the defence sector, the growing needs of the NAF and the development of the defence sector in Latvia. The role of the NDAL units (DTIC) is mainly coordinating, trying to understand the needs of the NAF and cooperating with research centers in Latvia and the private sector to create solutions tailored to the specific needs of the NAF. It can be predicted that in the next 10 years the needs of the SAF will continue to grow, and the interest of research centers and private industry in providing the SAF with the technological solutions needed for national defence will grow accordingly. While there is a prospect that the NAA and NAF infrastructure could be used to generate military innovations, the biggest challenge will continue to be adapting existing technologies to the needs of the NAF. Such solutions should also build

on existing cooperation formats with the Ukrainian Armed Forces and military technology research centers, in order to transfer the Ukrainian experience gained from testing and deploying various military technologies in wartime. It is also important to ensure the involvement of NDAL students in the adaptation of military technologies to the needs of the NAF and (where possible) in the development of new technologies. There is also a need to take advantage of the opportunities offered by NATO and EU institutions and funding in the development of defence technologies.

Actions to be taken: Over the next 10 years, work will be carried out along the following lines. First, cooperation with the Latvian defence industry and the private sector in general should be further developed to provide the necessary technological solutions for the needs of the NAF. Second, further cooperation with research centers in Latvia is needed to ensure that higher education institutions are interested in cooperating with the defence sector and in conducting research whose results could be useful for the defence sector. Third, it is necessary to adopt and adapt Ukraine's experience in the war with Russia to the capabilities and needs of the Latvian defence sector. Fourth, students of the NDAL should continue to be involved in DTIC events - defence hackathons and makeathons. Fifth, if necessary, worth considering is the possibility of building NDAL infrastructure for the adaptation, development and testing of defence technologies.

Indicators of success: Adapting existing civil and defence technologies to the needs of the NAF, with a particular focus on 5G and UAVs. Implementation of specific projects in cooperation with the defence industry and Latvian universities. Regular organization of defence industry hackathons and makeathons with the involvement of NDAL students. Regular contacts with Ukrainian defence industry institutions with a view to acquiring Ukrainian experience in the use of certain military technologies.

#### 6. To communicate research results to the wider public

Description of the objective: The relevance of security and defence issues is driven by changes in the international environment, such as the intensification of US-China rivalry and Russia's full-scale invasion in Ukraine in 2022, which have led to a significant increase in public interest in security and defence issues. This is particularly important for Latvia as a small country that is strongly affected by changes in the international environment. This interest can be expected to remain steadily high as the Russian threat is unlikely to diminish in the coming years. Therefore, it is particularly important that the NDAL, as an academic and professional center of competence in the defence sector, actively participates in public discussions, improving the understanding of Latvian citizens on issues of national security and defence importance, as well as participates in international discussions on Latvian security and defence, with the aim of promoting the understanding of defence professionals and the public in Latvia's allied countries on the specifics of security and defence of Latvia and the Baltic region.

Actions to be taken: Provide up-to-date information on the competences and research interests of the academic staff of the NDAL on the NDAL website

for the media. Redesign the research section of the NDAL website, making it easier for visitors to access information on researchers' publications and media opinions on issues of importance to Latvia's security and defence. Regular participation of the academic staff of the NDAL in NATO policy discussion events, conferences and security forums in Latvia and other countries. Provision of contact information for the academic staff of the NDAL on the NDAL website for Latvian and international media.

Indicators of success: Progress towards funding to ensure that at least some of the publications of the academic staff off the NDAL in international journals are made available in Open Access format. Regular interviews of the academic staff of the NDAL in Latvian and foreign media, commenting on important security and defence issues. Participation in public debates in Latvia on issues of national security and defence importance, with the aim of raising public awareness. Increase in the frequency of viewing and downloading statistics of publications by the academic staff of the NDAL, e.g. strategic reviews published on the research section of the NDAL website.