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State of play of the Pilot Project and the Preparatory Action on Defence Research

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- Thank you, Madam Chair for the opportunity to address the SEDE Subcommittee on the Pilot Project and the Preparatory Action on Defence Research.

- My name is Dirk Tielbuerger, Head of Unit of EU-funded Defence Research and Deputy Director of the Research, Technology and Innovation Directorate at the European Defence Agency.

- Following previous visits from the EDA Chief Executive and my Director to the SEDE subcommittee, I will present today the state of play of the Pilot Project and Preparatory Action on Defence Research, including the three examples of projects.

- As you all well know, the European Union Global Strategy initiated a series of work strands with the potential to change the European defence landscape, including the European Defence research environment.

- In that framework, the Pilot Project and the Preparatory Action on Defence Research are meant to pave the way for a strong R&T dimension of the future European Defence Fund in the next Multi-Annual Financial Framework.

[The Implementation of the Preparatory Action towards a European Defence Research Programme]

- As you will recall, the Pilot Project was introduced by the European Parliament in the EU budgets 2015 and 2016 with the aim to test the most efficient use of spending for defence research in the EU framework, including the management by EDA of the EU budget. The Pilot Project was therefore entrusted to EDA by the European Commission through a Delegation Agreement which was signed on 16 November 2015. As a result, EDA became responsible for the management of the Pilot project and its activities. The call for proposals, the submission of proposals, the evaluation and the awarding of the grant agreement were thus organised and coordinated by EDA.

- This first step was taken with a small budget of only 1.4 M€. Nevertheless, that was an excellent start of the EU funded Defence Research. I am now pleased to report that all three Pilot Project activities were successfully closed in the first semester of 2018.

- With its three research activities, the Pilot Project provided a real opportunity to test cooperation between the European Commission and EDA, and how to work together with industry and RTOs. I wish to thank the SEDE Subcommittee for being at the origin of this Pilot Project, that has provided a first template for the activities that followed, be it in terms of modalities or in terms of topic finding, project selection or monitoring of the work of the winning consortia.

- The Pilot Project was crucial as it tested for the first time the conditions for defence research in an EU framework; it also paved the way for the launch of the European Commission's Preparatory Action on Defence Research (PADR) in 2017.

- With its total budget of 90 M€ over three years, the PADR is a much bigger endeavour than the Pilot Project and was launched by the European Commission to demonstrate the added-value of EU-funded research in the defence sector. The PA is therefore a genuine test-bed for proving the relevance of European defence research and for laying the foundations for the European Defence Fund. Also, this time, management of the programme was entrusted to EDA by the Commission through a Delegation Agreement that was signed in May 2017.

- Having that in mind, let me emphasise that project management by EDA goes well beyond comparable civil research practice, since the project officers in charge have a permanent two-way advisory role aiming at ensuring consistency between what the grant holder teams are developing through the projects and the actual capability and technology needs of Member States' Ministries of Defence.

- The PADR encompasses three work programmes over three years, even though the activities themselves will take longer to be completed. The approved budget was 25 M€ for 2017, 40 M€ for 2018, and 25 M€ in 2019. This total amount of 90 Million euros allow us to further "test" various tools, topics and areas of research, thus improving our understanding of a productive future Research Dimension of the European Defence Fund.

- And beyond the testing of modalities, both the PP and PADR have led to concrete results in the areas that had been identified beforehand.

- All in all, with the PP and the PADR, being well on track, our assessment of the work done so far is very encouraging.

- The cooperation with the Commission is excellent and the reports from the Independent Observers have been very positive.

- But allow me to get into some more details of PP and PADR for you.

[PP and PADR SCOPE]

- You can see here the PP and PADR scope to which the projects I will briefly introduce today correspond, along with the other projects already signed and those to come from the 2018 and 2019 calls.

- The Strategic Clusters identified in the PADR Scoping Paper were: Autonomous platforms; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); Effects; and Force Protection and Soldier Systems.

- You can also see the corresponding Research, Innovation and Technology areas projected on the screen.

- In the first work programme in 2017, the PADR financed projects were coming from three different areas: Technological Demonstrator for enhanced Situational Awareness in a Naval Environment, Force Protection for advanced Soldier Systems beyond current programmes, and a Study for

Strategic Technological Foresight. In the second work programme in 2018, the activities financed covered: System on Chip, Effectors and a second study on Strategic Technological Foresight.

- This year, the calls are expected to be published in the coming weeks, as requested by the European Commission. The deadline for the submissions of proposals for the calls and topics managed by EDA will expire at the end of June. One call, a fully open one, will be managed by the European Commission and will be ready for submissions at the beginning of September. At the end of this year, or beginning 2020, EDA plans to sign the last grant agreements.

[Projects Update]

- In order to illustrate the variety of projects already covered and concrete output delivered, I have selected one project from the Pilot Project, EuroSWARM, and two projects from the PADR: OCEAN 2020 and GOSSRA.

- Pilot Project EuroSWARM:

  - This research action was funded by EU with €434k, and it had a duration of 15 months (after 3 months extension). The project was led by an academic institution and 4 Member States were represented.

  - The project "Unmanned Heterogeneous Swarm of Sensor Platforms" developed novel techniques for adaptive, scalable and robust operations of unmanned heterogeneous swarm and demonstrated the proposed solutions based on a small-scale set of experiments.

  - Given its limited budget, to conclude such a project with successful demonstrations – both simulated and real environment –is excellent value for money.

  - Just to give you some more insight what Euroswarm is about, think of a scenario with an EU camp in a foreign, not necessarily friendly country. A fixed wing drone, meaning a small unmanned plane, circles over the camp in order to detect threats. In case of those, rotary wing drones, meaning small unmanned mini-helicopters take off and inspect the potential threat. If further inspection is necessary, also ground drones will close in. All the heterogenous drones are coordinated by a computationally powerful ground segment. The Euroswarm demonstration covered all that and was even able to handle more threats at the same time than own available drones.

- o Interesting technologies were addressed in the course of the project, and therefore follow-on activities are already under discussion in EDA, which confirms the interest from Member States' Ministries of defence in this project.

- o This also shows that the downstream role of EDA is essential to ensure the uptake of developed defence technologies with a view to develop them into defence products for the Ministries of Defence of Member States.

- Moving on to PADR OCEAN 2020:

  - o As the biggest project of the PADR, the OCEAN 2020 demonstrator has been funded with €35,5M over 36 months. The project consortium comprises 42 entities, coming from 15 different MS and 1 international organisation.

  - o The "Open Cooperation for European mAritime awareNess" addresses maritime surveillance and interdiction missions at sea with air, naval surface and underwater unmanned systems, integrated into fleet operations for enhanced situational awareness. It has planned demonstrations in the Mediterranean and Baltic seas to show innovative solutions for fusion of multiple data sources integrated with Combat Management Systems (CMSs) into a secure network to create a Recognized Maritime Picture.

  - o In a way, Ocean 2020 is a large-scale scenario of Euroswarm, this time, however, in a much bigger and maritime area. Therefore, the robustness of the drones and the communication requirements are much more pronounced, and we talk about a demonstration with the involvement of Navy ships from different member states and the take-off and landing on those ships.

  - o The project is already well advanced and several major review meetings were already held with positive conclusions. The organization of the first demonstration has started, which will take place at the end of October 2019.

- Among the soldier system-related activities of the PADR, let me now brief you on the GOSSRA project.

  - o The "Generic Open Soldier System Reference Architecture" project has been funded by EU with €1,5M, and it has a duration of 22 months.

The project consortium comprises 9 entities coming from 7 MS. The project kick-off meeting was held in June 2018.

o The project aims at the development of a Soldier System Reference Architecture ready for standardization covering: electronics, voice/data communication, software, human interface devices, sensors, effectors.

o The architecture is not meant to define the exact equipment of the soldiers, it aims at interoperability. Therefore, the standards and the interfaces are described so that European forces complying to this architecture can work together, including the necessary logistics and common operations. In fact, we aim to stipulate the architecture in a NATO STANREC, meaning a standardization recommendation. This once again underlines that we want to complement NATO from the European point of view, not to go in competition with NATO.

o The project is benefiting from previous EDA studies and projects in this area, which had a key role in providing inputs to the GOSSRA technical requirements. The cross-fertilization among projects is key and has been tested in EuroSWARM, which demonstrates that an EU centrally-funded project can induce an ad-hoc project as follow-up activity. GOSSRA demonstrates that it can also work the other way around.

o As proven in a recently held workshop with subject matter experts, the project is well on track to successfully reach its expected outcome: a single common standard, which can be used by all EU Member States and NATO allies.

[LESSONS LEARNT REGARDING MODALITIES]

• When it comes to lessons learnt in the process, allow me to indicate some specific observations on the implementation of the PP and PA.

• While testing the collaboration between EC and EDA and the impact of EU funding, certain modalities regarding IPRs, handling of EU Classified Information and special reports are also being tested. These are important areas. For example, regulating IPR must strike a balance between guaranteeing a necessary flow of information and protecting information generated with EU funding while making sure that MODs, which are the targeted final users of the technologies, have appropriate access rights.

- The process also tested ways to hold consultation with stakeholders, how to finalise description of topics as well as the absolute necessity of taking defence specificities into consideration. Unlike in the civilian R&T, we need to consider the military requirements in the topics description or foresee follow-on activities due to the difficulties of the technology uptake in the defence sector.

- When it comes to EDA, the lessons learnt show that the role of EDA can be threefold, encompassing the implementation process with activities downstream, as well as upstream.

[IMPLEMENTATION]

- The smooth proceeding and management of the PP and PADR calls for proposals and of the projects have shown that the Agency is fully fit for purpose to handle the implementation role.

- We are already building on the lessons learnt from the Pilot Project. While keeping the best practices, we need to develop further what is to be improved, and thereby adapting to the larger scale of the Preparatory Action.

- On the practical implementation, EDA and the Commission share the general assessment that the original rationale and objectives of the PP and the PADR are largely met to date, demonstrating that EU funding can effectively support EU defence research needs, based on a structured cooperation between the Commission and EDA.

- Considering the preparatory character of the action, the first two work-programmes have been implemented successfully; the Calls were swiftly launched and opened; the response to the Calls was overall satisfactory; the evaluation was professionally handled; the first grant agreement was signed before the end of 2017, the other grants agreements of the 2017 calls were concluded in due time and the ones of the 2018 calls are under preparation.

[DOWNSTREAM]

- Moreover, as seen with EuroSWARM, a downstream role in order to best exploit the results of the R&T projects within the EDF context could be also envisaged. The uptake by MS of the results of research conducted within the EDF will be, in fact, the ultimate measure of its success. This can be done via follow-on projects within the EDF, via EDA ad hoc projects or

through national or multilateral capability projects. The uptake is a necessity to transform research into future military capabilities.

- Given the nature of the defence market, choosing the right topics, in line with Capability Priorities, and making sure that Ministries of Defence are fully aware of the outcome is essential to ensure that taxpayer money is spent on useful projects. This is precisely where EDA has brought a real added-value in in the PP and PADR.

- In order to capitalize on the results obtained in PADR projects, MoDs will have several options to develop the project further. EDA could support the analysis on how those outcomes could contribute to improve defence capabilities and with an EDA recommendation on the way ahead in terms of future collaborative programmes.

- Whatever option is envisaged for a potential follow-on project, EDA will play its role to promote cooperation, but the choice of the appropriate framework will remain up to the Member States.

  However, an optimal exploitation of the results of the different projects is not ensured, which is critical in order to decide on follow-on activities. Therefore, the publication policy, the presentation of the information in relevant fora, and further on the exploitation of the results, necessary for the benefit of Member States, given the nature of the Defence Market, is an important defence specificity.

  [UPSTREAM]

- Equally important, EDA plays a crucial 'upstream role' in supporting Member States and the European Commission in the preparation of the PADR work programme. The Agency's contribution stretches from organising coordination meetings to consult Member States and assessing topics submitted by Member States to facilitating prioritization, clustering and narrowing down of topics.

- Lessons learnt from the Preparatory Action are vital in preparing for the future European Defence Fund. Among those one important one: EDA's prioritisation tools, such as the revised Capability development Plan and Overarching Strategic Research Agenda (OSRA) should inform the development of the future Work Programmes of the EDF and of related technical descriptions.

- The Overarching Strategic Research Agenda (OSRA) combines the top-down approach – from capability needs to technologies – and the bottom up approach – from new emerging technologies to capabilities – to better harmonise EU defence research priorities and identify potential funding instruments. The end product of this OSRA framework outlines those R&T areas, where a cooperative approach at European level would bring added-value. On the one hand this information is expected to help Ministries of Defence in their decision to lead or contribute to cooperative R&T projects, on the other hand it will also inform EU decisions regarding the areas to be funded by the future EDF.

- For a fully-fledged Research Dimension of the EDF, this needs to be done via a portfolio approach. The EDA R&T Planning process encompasses all steps from technology identification (tech watch and foresight and CapTech networks of experts), to technology assessment (CapTechs and OSRA analysis) and technology prioritization (OSRA prioritization tool). Therefore, it can serve a portfolio approach as needed. At the time of growing demand and growing defence investments across our MS, when qualified human resources in the realm of Defence Research are stretched, EDA structures and expertise should not be duplicated, and non-defence considerations should be avoided. EDA expertise and structures can thus be used to ensure consistency between capability and research priorities, while allowing for innovation.

- EDA's upstream work also ensures that the topics finally selected are linked to priority military capability needs of Member States. This is an essential feature of defence research: to ensure that the technical requirements of the projects match future Capability needs defined by Member States and reflected in the Capability Development Plan (CDP).

- As earlier mentioned, EDA has been a key contributor to the drafting of more detailed technical requirements, the typical example being the key role of the Land System CapTech to provide input on appropriate areas to address for future Soldier Systems or of the CapTech Radar for Electronic Warfare. This experience has showed that when describing the topics in future calls, the impact of the level of detail of the topics should be considered.

- In addition, EDA helped in the upstream role in the preparation of the Preparatory Action by consulting all stakeholders: governments, industry and RTOs. This upstream work enabled EDA to consolidate views and to

pass them to the Commission as an input to the debates in its As-If Programme Committee.

- Taking into account all these elements, EDA contributed to the choice of relevant topics and the associated technical requirements, handled the implementation of a research programme and supported the identification of follow-on activities. In particular, EDA assisted with the definition and the prioritization of research areas and topics, ensuring that they respond to capability priorities agreed by Member States in the CDP.

- Therefore, I can say that EDA has successfully played an upstream, downstream and an implementation role for the PP and in the PADR. In addition, the PP and PADR demonstrate that this institutional arrangement is productive.

[INSTITUTIONAL RELATIONS]

- Last but not least, a key achievement is the way of working between EDA and the European Commission and both sides are committed to work together to make EU funded Defence Research a success.

- The sharing of expertise from both institutions, EDA with its large defence background, and the European Commission with a wide know-how from support to different sectors of the European market, creates a combination of skills that are instrumental for the success of the PP and the PADR.

- In conclusion, I believe that the PP and PADR are very useful testbeds in view of a future EDF.

- The evidence so far demonstrates that EDA has the right mechanisms, skills and background to support this work upstream, in the implementation and downstream

- Thank you for your attention, and I stand ready to answer your questions.

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