EARTO Security & Defence Research Group Position Paper
Designing the European Preparatory Action for Defence Research (PADR) & the European Defence Research Programme (EDRP) – Involvement of RTOs
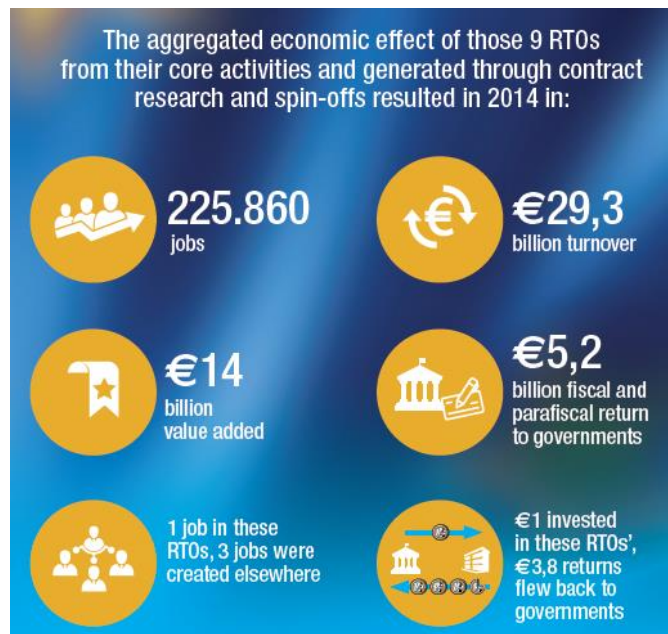
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Background
Over the course of the European Preparatory Action for Defence Research (PADR) development, several meetings, and tentative follow-ups took place between the members of the EARTO Security & Defence Research Working Group and representatives from EDA and DG GROW. Concerns have been raised and partially acknowledged regarding the openness of the PADR programme and its preparation. In this context, European RTOs are today stating their interest in a stronger involvement that would require embracing more Technology Readiness Levels (TRLs) than aimed at so far within the PADR (today focus mainly on high TRL levels).

European RTOs Offer to Bring Impact to the PADR and EDRP
RTOs are Research and Technology Organisations. They are applied research institutes, dedicated to transfer of Research towards industry. As such they are an indispensable group in a successful EDRP.

RTOs produce, integrate and transfer science and technology to help resolve the grand challenges of society and support Europe's industrial competitiveness. RTOs are key players in the innovation chain, bridging the gap between basic research and practical application.

According to EARTO study on economic footprint, aggregating the effects from 9 RTOs' core activities and generated through bilateral contracts and spinoffs, results in a total of 225.900 jobs created in the European economy that can be linked to the activities of the 9 RTOs included in this footprint. For each job in these 9 RTOs, another 3 jobs are created elsewhere in the European economy: either at the suppliers of the RTOs or in the broader economy.

The aggregated economic effect of those 9 RTOs from their core activities and generated through contract research and spin-offs resulted in 2014 in:

225.860 jobs

€29,3 billion turnover

€14 billion value added

€5,2 billion fiscal and parafiscal return to governments

1 job in these RTOs, 3 jobs were created elsewhere

€1 invested in these RTOs', €3,8 returns flew back to governments

European RTOs Offer Great Defence Research Knowledge & Innovation Infrastructures
First, European RTOs are non-for-profit organization and as such are already providing independent advice to the European Commission and EU Member States on various matters involved with Security & Defence. Getting such independent advice will be key for the setting up of the EDRP.

In addition, leading European RTOs have strong experience and expertise in relation to defence research and in relation to supporting their individual Ministries of Defence (MoDs) that should be utilized further when designing a successful EU-level defence research programme as follows:
- **AIT** (AT) has a MoU with the Austrian MoD for strategic cooperation and information exchange; R&D projects on national and international level.
- **CEA** (FR) is a key player in R&D for Defence and Security, which is one of its four main missions. CEA works closely with the French Defence agency (DGA) and defence industry. Activities range from basic research to the development higher system level innovative technologies.
- **Digital Catapult** (UK) does joint Open Innovation with the MoD's Research Organisation.
- **EURECAT** (ES) cooperates with MoD linked bodies for R&D in a range of technological fields.
- **FOI** belongs to the Swedish MoD and works closely with the Swedish Armed Forces. Research activities cover such matters as security policy as well as a wide range of technologies and applications.
- **Fraunhofer** Group for Defence & Security (DE) receives basic funding from the MoD (roughly 40% of their budget), and does defence research in a wide range of technological areas as well as strategic planning support and technology forecast for the armaments branch;
- **KEMEA** (GR) cooperates with MoD at ministerial level for R&D purposes;

- **ONERA** (FR) reports to the French MoD and holds a key role both as technology provider to defence industries and expert for the benefit of French defence procurement agency, in a wide range of defence technologies. ONERA was awarded 1 PADR pilot project (Euroswarm).
- **Tecnalia** (ES) is a member of TEDAE (Spanish association of defence suppliers) as well as of the interministerial Spanish group being advisory for the PADR. Member of various EDA Captechs.
- **TNO** (NL) receives basic funding from the MoD for improving strategic military capabilities and conducting technology forecasts, and is the MoD R&I lab for many decades.
- **VTT** has a Partnership Agreement with the Finnish Defence Forces (FDF), and a membership in the FDF Technology Advisory Board and in MATINE (National Scientific Advisory Board for Defence). FDF and defence industry are VTT's key partner and customer.

The above listed co-operations represent decades of efforts that gave European RTOs an in-depth understanding of cross-border defence research cooperation (e.g. NATO, EDA, Bi-/Trilaterals), including its opportunities & pitfalls. Indeed, besides their close collaboration with their national Ministries of Defence, most RTOs have worked with EDA and/or NATO as well. In addition to defence-related knowledge, RTOs also have an in-depth understanding of EU Research Framework Programmes' opportunities and shortfalls (see EARTO memo on RTOs participation in Horizon2020 today).

In practical terms, European RTOs can efficiently support the European Commission DG GROW and the European Defence Agency (EDA) in designing the EDRP & PADR:
- by crosslinking and harmonizing research between Member States thanks to their involvement in ongoing R&D activities and their long-standing cooperation with Ministries of Defence;
- by supporting technology transfer to companies which is a core competence of our RTOs today: including RTOs in any research programme will result in more IPR, patents, and spin offs;
- by organising the innovation hubs around defence: to develop national/regional/EU clustering, RTOs involvement is critical due to their wide multi-disciplinary networks and knowledge reservoirs, connecting Ministries of Defence, other relevant practitioners (e.g. police), universities, NGOs and society at large;
- by establishing cooperation with similar organizations in smaller Member States, not only for defence, but also for e.g. space applications.

EARTO WG Recommendations for the Design of the EDRP & PADR
In the view of optimizing the efficiency of the EDRP, the complementarity and added value of this European programme versus national Ministries of Defence's programmes, the following actions are recommended:
- To establish a contact point for communication between EARTO and the European Commission DG GROW;
- To establish a dialogue group between EARTO and the European Defence Agency (potentially via the national R&T Point of Contacts);
- To reinforce the inclusion of lower TRL (1-4) research in PADR and the later programme to enable disruptive results.
- To arrange for the sustainability of Defence Research related infrastructure within RTOs;
- To clearly the rules for participation of the future programmes (special attention needed the ownership of IPR and rules for the availability of foreground including the compensation after a project);
- To consider RTOs to evaluate the dual aspects of Defence research to establish synergies with technologies from other sectors.