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## SANDERA – The Future Impact of Security and Defence Policies on the European Research Area

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### Purpose

SANDERA (The Future Impact of **Security and Defence** Policies on the **European Research Area**) explored the future relationship between two critical policy domains: namely, the EU strategy to move towards the European Research Area (ERA) and those EU policies focused on the security of the European citizen in the world. More particularly, SANDERA investigated the possible future relationship between the ERA and defence research and innovation policy.

### Heightened Significance of Security Poses Challenges to European Research Area

Over the last decade, the EU has developed a **defence and security policy dimension**. It comprises

- the externally-oriented *Common Security and Defence Policy (CSDP)* and
- the internally-oriented policies for countering terrorism and protecting the EU's borders, critical infrastructures and energy supplies.

These developments have been complemented by defence research activities, pursued by EU member states (MS) and supported by the European Defence Agency (EDA). Security research emerged as a new theme under the Seventh Framework Programme (FP7), and there are also national programmes in seven MS.

The EU has also adopted **policies to create a European Research Area**. However, the ERA has not addressed security and defence challenges and associated research questions.

### Scenario Approach and Policy Analysis Toolkit

SANDERA used a scenario approach in order to explore the future relationship between ERA and defence research and innovation (R&I) policy. The SANDERA team

### Four Project Objectives

As a foresight project SANDERA did not aim to predict the future. Instead, SANDERA sought to **initiate debate** and to provide useful inputs for policymakers and associated stakeholders by allowing for structured thinking about the possible paths along which the relationship between security and defence policies and the European Research Area may evolve. While looking towards the year 2030, SANDERA attempted to **provide insights that inform policy making** in the nearer future.

SANDERA pursued **four specific goals**:

- to identify drivers of change in the relationship between the ERA and defence research and innovation policy,
  - to develop alternative scenarios of its future,
  - to analyse the policy implications of the scenarios and develop indicators of change and
  - to stimulate dialogue and stronger networking between the security and defence and science, technology and innovation (STI) policy communities.
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- developed a concept of a policy domain that can be more or less “vertically integrated”. “Vertical integration” refers to the degree to which a domain is Europeanised in terms of the conduct of the activities, how they are planned, organised, implemented, budgeted and controlled;



- examined the relationship between domains that we term “horizontal integration”;
- developed ideal type “tones” for the relationships: indifference, cooperation, integration and competition;
- identified drivers of change that might influence a move in the direction of one of those “tones” and built four scenarios based on those tones.

The SANDERA team also

- considered the policy implications for the ERA of a move in the direction of each scenario;
- developed indicators for each scenario that might act as “early warning” signals;

- created a policy analysis toolkit providing a typology of different sorts of policy intervention.

SANDERA engaged experts from EU member states and Brussels – government, industry, academia and civil society – with experience in either European research (policy) or security and/or defence (policy).

Following an extensive desktop research on existing foresight exercises on our topic, we interviewed about 100 experts and conducted two workshops in Brussels in November 2010 and May 2011 respectively.

## S&T Policy Meets Security Policy

The **starting point** for the SANDERA project was our belief that changes in the relationship between European security and defence policies and European STI policy could have profound implications for European science and technology and the pace and character of the move towards the ERA.

We observed that

- there are very few academics or practitioners in the STI policy community in Europe who are systematically studying this relationship;
- the work that has been done on the relationship between security and defence policies and STI policy has been centred on the United States;
- there has been little dialogue between the STI policy and security policy communities.

### Changing Dynamics

The SANDERA team identified three key elements that may influence the future relationship between the ERA and defence research and innovation policy:

**Knowledge dynamics** refer to the changing processes of knowledge creation, accumulation and use. Recently there has been the rapid expansion of the generic capabilities that create technological commonalities across seemingly unrelated innovation domains.

- The simultaneous growth and integration of the knowledge base increases technological uncertainty because disruptive innovations will now occur in a much greater number.
- It can lead to heightened techno-economic and techno-military rivalry both regionally and globally.
- New technological capabilities can change the security landscape by empowering new actors.
- Our growing dependence on complex high technology infrastructures creates new vulnerabilities.

All of this puts considerable pressure on the defence innovation systems of individual countries. A typical

response to this pressure has been the efforts to increase the connectivity between the defence and civilian parts of the innovation systems, with the “dual-use technologies” playing the role of lynchpins. However, even the largest countries will not be able to internalise the required knowledge base to stay self-sufficient, suggesting a need for international cooperation.

**ERA dynamics** refers to the changing political landscape due to the policy initiatives that deliberately try to shape and influence research and innovation in the Union. The European Research Area was launched in 2000 and has changed the governance of research (and innovation) across Europe considerably, having led to new forms of functional coordination and integration in the governance of research. ERA is a broad, deliberately ill-defined concept to tackle key institutional challenges of research and research funding in Europe, such as fragmentation of research funding and research efforts, the openness of data, mobility of researchers, horizontal and vertical coordination of funding and policy making and subsequently of research activities. The ERA has sought to create a truly open market for research and knowledge and by re-organising governance for research and creating new institutions and organisations for funding in Europe. In doing so, research is meant to contribute much more directly, effectively and efficiently to tackling societal challenges and to improve Europe’s position in the innovation performance with the US, Japan and a whole set of emerging economies.

**Security dynamics** refers to the changing security and defence environment as we start the 21<sup>st</sup> century. After the end of the Cold War, European states have faced new security threats and risks connected to the rising interdependence between states, as well as the spread of new technologies upon which our societies increasingly rely for everyday life in addition to the traditional defence challenge.

The boundaries between security and defence have blurred in terms of threats and technologies utilised, yet they have remained very strong and distinct at the institutional level. Particularly the defence sector retains some distinctive characters, regarding, for example, the research and development but also the procurement

process, and has experienced a lower degree of “vertical” integration than other sectors.

There have been developments at the EU level in the funding of security and defence research although this field remains primarily the domain of member states. SANDERA notes the security research programme established under the Seventh Framework Programme. We also note the role of the European Defence Agency. SANDERA also emphasises the growing attempts to promote closer linkages between the Framework Programme and the European Defence Agency’s defence R&D agenda through the Commission-EDA *Framework Co-operation on Security and Defence Research*.

## Four SANDERA Scenarios and Their Policy Implications

### Scenario 1: ERA and Defence R&I are *INDIFFERENT* to Each Other in 2030

By 2030, the relationship between the ERA and European defence research and innovation (R&I) is predominantly characterised by indifference. Despite the legal possibilities provided by the Lisbon Treaty, *defence* R&I has not become a cornerstone of the ERA concept and has not entered the mainstream ERA debate. Defence is largely seen as a technology follower rather than a technology leader; innovations in defence technologies draw on civilian technologies. While the policies for the ERA are pursued at EU and national levels, defence R&I activities are conducted primarily through relationships between MS.

ERA and defence R&I policies are set and implemented independently, without any noteworthy communication between the two policy communities. There is no institutionalised structure to discuss defence technology needs with ERA. Hence, there is no flow of resources between the two domains. Intellectual property rights (IPR) and research funding rules are kept separate. Actors keep this separation intentionally. The Indifference Scenario is characterised by defence R&I not being featured among the ERA Grand Challenges.

#### **What should be done if we want to move towards a world of “INDIFFERENCE” in 2030?**

Even if the two policy domains remain largely indifferent to each other, policy makers in both fields should carefully observe the developments in the respective other domain.

**Enhance strategic policy intelligence capacity:** ERA and defence policy makers should install an “early warning system” system of change in this area and the consequences this might entail for ERA.

### Four Scenarios to Explore the Future Relationship between ERA and Defence R&I Policy in 2030

The key issue addressed in the SANDERA project has been whether the relationship between defence research and innovation policy and the ERA may change in the future. It will be noted that the SANDERA scenarios provide contrasting visions and one of the key differences between the scenarios is the extent of horizontal integration (between defence research and the ERA) and vertical integration (between MS and the EU level).

### Scenario 2: ERA and Defence R&I *COOPERATE* with Each Other in 2030

By 2030 the relationship between the ERA and defence R&I is characterised by closer linkages between ERA and defence research. The distinction between security and defence R&I has remained in place and the successor of the Framework Programme continues to be restricted to non-lethal applications. Co-ordination between the European Commission and the EDA develops along the lines of the *Framework Co-operation on Security and Defence Research* to promote synergies. ERA and defence R&I policy makers identify many common interests while retaining their distinctive goals, regulations and rules and working with separate funding mechanisms.

ERA and defence R&I policies are set independently, but mechanisms are put in place to co-ordinate policy implementation. Regular, systematic dialogue on distribution of resources leads to efficient use of financial and human resources. IPR rules are kept separate. Defence is not featured among the ERA Grand Challenges but receives increasing attention in ERA policy goals and rationales. However, civil security is perceived as a societal Grand Challenge and security R&I is addressed with the full range of ERA policy instruments.

#### **What shall be done if we want to move towards a world of “COOPERATION” in 2030?**

**Deepen the existing dialogue:** For the Cooperation Scenario to develop fruitfully, a new level of policy discourse and awareness must be established. Cooperation between agents pursuing different final goals is most likely to occur around shared sub-goals.

### Scenario 3: ERA and Defence R&I *INTEGRATE* with Each Other in 2030

By 2030, defence R&I is fully integrated into the ERA and has become another element of the EU’s research and innovation policy very much like security or aeronautics. A political decision has been taken by the European Council that defence research should be included in the Framework Programme and Programme funds should be used for technology development in support of CSDP tasks. There is recognition by policy actors from the ERA and defence R&I policy fields that working

together generates mutual benefits using common policy instruments and rules on funding and IPR recognising mutual restrictions. Defence R&I for CSDP missions is integrated across MS and EU institutions.

**What should be done if we want to move towards a world of “INTEGRATION” in 2030?**

**Develop a shared vision and set common goals:** In a first step, this discourse should focus on the European level and involve all relevant European agencies and initiatives (EDA, ESA, FRONTEX, EUROPOL, EUROJUST), the Commission (DG Research, High Representative for Security) and representatives from the Council Secretariat and the Council itself.

**Remove current limitations:** Defence and non-defence research would be addressed in one framework, and the EDA would need to be associated to the work of the Commission in an appropriate way.

**Scenario 4: ERA and Defence R&I  
COMPETE with Each Other in 2030**

By 2030, the relationship between the ERA and European defence R&I policies is characterised by competition between their rationales and visions for European science and innovation. Both policy domains are vertically integrated, each pursuing goals according to a separate logic of integration and without considering the other area. When both domains are integrated with an equal voice at EU level, one can anticipate conflicts associated with different political visions of the world: on one side, a free circulation of knowledge championed by people associated to research and innovation capabilities and firms; on the other, the sharing at European level of geostrategic considerations.

**What should be done if we want to move towards a world of “COMPETITION” in 2030?**

**Developing policy goals based on the principles of human security:** The EU would deliberately abstain from any role in the defence research field and instead stress the civilian ethos of the Union’s science and technology policy.

**Strengthening institutional separation:** The separation between defence, security institutions and civilian institutions would require clearly separated budgetary lines. It would be crucial to support the Competition Scenario that the EDA’s activities and objectives are clearly separated from the goals pursued through other instruments, such as the future Common Strategic Framework, which would need to reinforce its *exclusively* civilian character.

## Stimulate Thinking and Dialogue

The value of the SANDERA scenarios lies in their capacity to stimulate thinking rather than their accuracy as estimates of future developments. They are not intended to be forecasting tools. They seek instead to help policy makers and other stakeholders to identify the implications of certain policy developments and specific policy decisions, such as, for instance, a move *towards* a closer (or more distant) relationship between defence research and the ERA. In this way, policy makers will be able to make better informed choices in the present and will be better able to apprehend and comprehend future developments as they unfold.

SANDERA has also used the process of scenario development to stimulate dialogue between the defence research policy and S&T policy communities and has sought to facilitate the emergence of new policy networks that cross the boundary between STI policy and security policy. Our project stemmed from the belief that there was a need for greater dialogue between the two communities as a means of developing a shared understanding of the opportunities and threats posed by policy actions and developments at the intersection of security policy and STI policy.

The SANDERA team sees the emergence of an explicit defence and security dimension to EU science and technology policy as a policy innovation of potentially profound importance to the future character of European science and technology policy and the move to the ERA. Accordingly, we believe that SANDERA should be the beginning rather than the end of dialogue between policy communities as a means of promoting an open debate in Europe on these issues.

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**About the EFP:** Policy professionals dealing with RTD, innovation and economic development increasingly recognize a need to base decisions on broadly based participative processes of deliberation and consultation with stakeholders. Among the most important tools they apply are foresight and forward looking studies. The EFP supports policy professionals by monitoring and analyzing foresight activities and forward looking studies in the European Union, its neighbours and the world. The EFP helps those involved in policy development to stay up to date on current practice in foresight and forward looking studies. It helps them to tap into a network of know-how and experience on issues related to the day-to-day design, management and execution of foresight and foresight related processes.