



Using Scenarios to Characterise Complex Policy Interrelationships

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USING SCENARIOS TO CHARACTERISE COMPLEX POLICY INTERRELATIONSHIPS: THE SANDERA PRO- JECT

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ABSTRACT – *Project SANDERA focuses on the future relationship between three critical European policy domains: namely, the EU science and technology policy strategy to move towards the European Research Area and those EU policies focused on the security of the European citizen in the world both through EU defence policies and EU security policies. This paper addresses the methodological challenges of using scenarios to characterise complex policy interrelationships and reports on some aspects of the methodological approach being adopted.*

Introduction

This paper addresses some of the methodological challenges of using scenarios to characterise complex policy interrelationships and reports on the methodological approach being adopted by Project SANDERA.² Project SANDERA focuses on the future relationship between three critical European policy domains: namely, the EU science and technology policy strategy to move towards the European Research Area and those EU policies focused on the security of the European citizen in the world both through EU defence policies and EU security policies. SANDERA is a two-year project funded under the Seventh Framework Programme Socio-Economic Sciences and Humanities theme *Blue Sky Research on Emerging Issues Affecting European S&T*.

This paper is structured as follows: Section 2 provides some background to the SANDERA Project; Section 3 explains our rationale, project aims and methodological approach; Section 4 describes the methodological challenges presented by SANDERA and how we are seeking to conceptualise the complex policy interrelationships between the three policy areas; Section 5 explains how we are seeking to

² This paper reports on work that is the product of the joint efforts of a project team led by the Manchester Institute of Innovation Research (UK) and comprises the University of Lund (Sweden); CSIC (Spain); Stiftung Wissenschaft und Politik (SWP); Istituto Affari Internazionali (Italy); ARMINES (France); Copenhagen Business School (Denmark); Institute of Economics of the Hungarian Academy of Sciences (Hungary); and EGMONT Royal Institute of International Affairs (Belgium).

use our conceptual framework to identify drivers of change and build scenarios; and, in Section 6 we provide some conclusions and an indication of the next steps for Project SANDERA.

Background

Over the last decade, the EU has developed a defence and security dimension. In particular, the external-ly-oriented Common Security and Defence Policy (CSDP), renamed under the Lisbon Treaty and formerly known as the European Security and Defence Policy (ESDP), which is a major element of the Common Foreign and Security Policy of the European Union and is the domain of EU policy covering defence and military aspects. The Member States have also agreed a *European Security Strategy* that guides the EU's international security strategy with the objective of making the European Union “a credible and effective actor” that is “ready to share in the responsibility for global security and in building a better world”.³

The EU has also developed internally-oriented policies for countering terrorism with the appointment of an EU Counter Terrorism Coordinator and the development of policies designed to prevent, protect, prosecute and respond to terrorism and other security-related risks. These internally-oriented security policies and institutional arrangements comprise a somewhat diverse group of policies that comprise the internal dimension of fighting terrorism; policies for the protection of critical infrastructure; energy security; civil protection; and border security.

These developments have been complemented by a science and technology policy dimension. The Seventh Framework Programme has allocated €1.4 billion for funding security research for civil and non-lethal applications managed by DG Enterprise. The Specific Programme "Prevention, Preparedness and Consequence Management of Terrorism and other Security related Risks" was established under a Council Decision as part of the General Programme on "Security and Safeguarding Liberties" managed by DG Justice, Freedom and Security. The European Defence Agency has as one of its goals enhancing the effectiveness of European defence research and technology and – as well as acting as a catalyst for more European defence R&T collaboration, it has also acted as a customer for some R&T projects on behalf of a group of Member States or on the EDA's own account (although its budget for this has been modest).

When SANDERA was conceived in 2007 our working hypothesis was that the establishment of security and defence research as an element of the European policy mix was the start rather than the end of policy innovation in this field. This working hypothesis has already proven correct. By 2010, we can observe growing attempts to promote closer linkages between the Framework Programme and the European Defence Agency's defence R&T agenda. This comes against a background of political calls for closer cooperation on defence R&D between the EDA and the Commission from both the European Council and the European Parliament.⁴

Three developments are of particular note:

³ *A Secure Europe in a Better World*. European Security Strategy. Brussels, 12 December 2003.

⁴ COUNCIL OF THE EUROPEAN UNION Council Conclusions on the ESDP 2903rd External Relations Council meeting, Brussels, 10 and 11 November 2008; Council of the European Union Brussels, 11 December 2008 Declaration on Strengthening Capabilities; Report on the Implementation of the European Security Strategy - Providing Security in a Changing World, Brussels, 11 December 2008; Motion for a European Parliament Resolution on the European Security Strategy and ESDP (2008/2202(INI)) 28 January 2009.

- The emergence of ad hoc coordination between the civil security research theme within the Seventh Framework Programme and the defence R&D activities of the European Defence Agency in a number of fields;
- Moves by the European Defence Agency and the European Commission (at the request of the Defence Ministers of European Member States) to establish a European Framework Cooperation for Security and Defence together with the European Commission with the aim of “maximising complementarity and synergy between defence and civil security-related research activities”.⁵
- Growing discussions in Brussels about the possibility of including defence research in the Eighth Framework Programme (in particular amongst officials from the European Commission and the European Defence Agency).

Attention has focused mainly on the implications of such developments for European security and defence policies, the strengthening of the European Defence Technological and Industrial Base (EDTIB) and the balance between EU activity and Member States. However, Project SANDERA starts from the belief that the emergence of an explicit defence and security dimension to EU science and technology policy also has potentially profound significance for the future character of European science and technology policy, the Framework Programme and the move towards the European Research Area.

The move towards the European Research Area (ERA) has been an important theme in European science and technology policy for the last decade. The term “European Research Area” was coined in a Commission document published in January 2000 (“Towards a European Research Area”).⁶ In essence, the ERA approach was a wake up call for a step change in how the research landscape in Europe should be organised and governed, in order to improve its performance. The overall ERA idea was to do away with a traditional multi-layer governance of research in Europe and the scattered and divided landscape of research in Europe. We can identify six main goals of ERA policy as follows: (1) to contribute to a European internal market for research, where researchers, technology and knowledge (fifth freedom) circulate freely, (2) world-class research infrastructures, (3) excellent research institutions, (4) effective knowledge-sharing (5), well-coordinated research programmes and priorities, including a significant volume of jointly-programmed public research investment at European level involving common priorities, coordinated implementation and joint evaluation; (6) a wide opening of the European Research Area.

Accordingly, SANDERA will examine how future developments in European security and defence research and innovation policies combined with technological change and the evolution of European science and technology policies could interact in intended and unintended ways to affect the pace and character of the move towards the ERA as well as priorities for the 8th Framework Programme.

⁵ “EDA and Commission to work closely together on research”, European Defence Agency Press Release, May 2009.

⁶ Commission of the European Communities, “Towards a European Research Area (Com (2000)6 of 18/01/2000)”, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52000DC0006:EN:HTML>, accessed 21 March 2007.

Rationale, project aims and methodological approach

Project SANDERA thus focuses on the future relationship between three critical European policy domains: namely, the EU science and technology policy strategy to move towards the European Research Area; EU defence research and innovation policies; and, EU security research and innovation policies. In framing our study in this way we are aware that there is a growing blurring between defence research and security research and this is one of the issues that we will return to later in this paper.

Rationale

The core rationale for SANDERA is not only that these developments may have potentially profound implications for the future character of European science and technology policy but also that this topic has been almost entirely overlooked by both the academic and policy communities.

There are those who see potentially great opportunities arising from future developments in the relationship between European research and innovation policies security and defence and European science and technology policy. From the perspective of security policy, the importance of civilian-origin dual use technologies means that Europe's capability to counter security threats may in the future rely on the innovation capability of the ERA making a strong ERA critical to the security of the EU citizen. From the science and technology policy perspective, interest in demand-side innovation policy has caused some to begin to consider the potential role of security and defence R&D and procurement as a public engine of innovation. At the same time, greater connectivity between defence and civil science and technology may allow Europe to generate some of the competitiveness benefits that appear to have accrued to the US as a result of its spending on defence R&D and procurement in the past.

There are others, however, who worry about what they fear may be the potentially dangerous consequences of the emergence of a security and defence dimension to European science and technology policy. There have long been concerns that defence R&D may distort scientific priorities and the course of scientific development. The Framework Programme has historically been a consciously civilian project albeit one that has funded dual-use technologies. Including defence R&D of any kind in the Eighth Framework programme would raise important questions not least what would it mean for the character and priorities of European science and technology and the ERA? At the same time, the desire of the security community to control the circulation of "dangerous" knowledge and to control the transfer of certain technologies to some third countries appear to be in tension with the ERA vision of free circulation of knowledge within a global scientific community.

Despite the obvious importance of these issues, we observe that policy development for the ERA and policy development for security and defence research and innovation is taking place in separate "silos" with surprisingly little overlap between policy communities. The policy communities are by and large separate. Each has its own discrete set of policy concerns, stakeholders and policy networks despite the fact that developments in one policy field may have direct or indirect implications for the other policy field.

Indeed, we can see that policy making at the European level is effectively taking place in "silos". At the European level, it appears that the two policy communities (security-related community on the one hand and the ERA community on the other) remain more or less isolated from one another: members of

each community are not involved in the activities of the other community. To be sure, there is an intense *inter-governmental* organizational collaboration in security and defence matters in Europe, as described in the Knowledge Dynamics and Security Dynamics Scoping Papers. However, this is very weakly linked to ERA dynamics or instruments as such and the EU as a corporate actor is not involved in many of the inter-governmental activities. On the contrary, for the purpose of defence research and development co-operation governments have over the last two decades developed a dedicated set of forums, rules, and funding mechanisms that are separate from the ERA.

We can go further and argue that they represent different epistemic communities. The policy communities each have their own policy “challenges”, their own policy responses and their own organisational and institutional settings. Each policy community has its own set of shared symbols and references, mutual expectations and mutual predictability of intention.⁷ This creates “world views” that shape the behaviour of each policy community and delineates a cognitive framework for problem framing and problem solutions.

The extent of boundary crossing between the policy communities remains limited and when the boundaries are crossed the policy communities find it challenging to identify common “world views”. Security policy “frames” policy issues as “security” issues and thus “securitises” science and technology, characterising some aspects of knowledge as “dangerous” and seeking to regulate and control its practice and diffusion. The contrast with the world view of the ERA policy community is stark.

At the same time, an important caveat should be added to this discussion namely that the notion of a single ERA “policy community” is problematic. The ERA is different things to different people, it is at the same time a new ‘concept’ for thinking about European intervention, a new policy and a new set of practices and instruments, and new relations with member states organisations dealing with research and innovation policies and their implementation). Moreover, the definition of ERA and its goals are not widely shared among all stakeholders, in fact even the problem definition underlying ERA is contested.

Similarly, there is not and never has been a single “military-industrial-scientific complex”. Instead, there has been a variety of stakeholders with different perspectives and interests. Today, there is no “security and defence” policy community as such. The culture, interests and perspectives of police and fire service first responders is dramatically different from that of the armed forces and within the “military complex” there remain significant differences of interest between the different branches of the armed forces and between the military and the defence industry.

Critics of the security research theme express concerns about the role of policy networks, with one arguing that: “there are real issues about the extent to which hand-picked expert groups are making security policy with little or no democratic oversight and without the inclusion of critical voices”.⁸ The emergence of the security research theme as evidence of the growing influence of the “military industrial complex” on European policy has also been raised by European non-governmental organisations.⁹

⁷ John Gerard Ruggie, 'International Responses to Technology: Concepts and Trends', *International Organization*, 29/3 (1975), 569f.

⁸ Jocelyn Mawdsley (2008), “The European Union and Security Research: advocacy, framing and accountability”, conference paper presented at UACES 2008 Annual Conference, University of Edinburgh, September 2008.

⁹ *NeoConOpticon: The EU Security Industrial Complex*, Transnational Institute and StateWatch, 2009.

Indeed, the FORESEC study and final conference has raised the problem that European security foresight exercises rely almost exclusively on a community of security “experts”. By omission or commission, the broader European scientific community and civil society has been effectively excluded from these policy processes.

What are the aims of SANDERA?

Accordingly, the aim of SANDERA is to examine how future developments in European security and defence policies combined with technological change and the evolution of European science and technology policies could interact in intended and unintended ways to affect the pace and character of the move towards the ERA as well as priorities for the 8th Framework Programme. Specifically, SANDERA has four objectives:

- To identify drivers of change in the relationship between European security and defence policies and the ERA
- To develop exploratory scenarios of alternative futures of the relationship between security policy and the ERA
- To analyse the policy implications of the scenarios and develop indicators of change
- To stimulate dialogue and promote stronger networking between the security policy and science and technology policy communities

Methodological challenges and approach

Project SANDERA is a scenario based study. We are using an exploratory foresight approach to develop scenarios of the relationship between policies for the European Research Area and European research and innovation policies defence and security in the year 2030. Our objective is to develop scenarios that will enable policy makers, stakeholders and the scientific community to explore the consequences of future developments at the interface between security policy and science and technology policy. In this way, policy makers will be able to make better informed choices in the present and to be better able to apprehend and comprehend future developments as they unfold.¹⁰

To address these questions, the SANDERA project team is having to develop a new scenario based approach to characterise the complex policy interrelationships between the three policy domains (ERA; security; and defence). This has presented several challenges, as follows:

- *How to work across epistemic boundaries* – We have noted that at the heart of SANDERA is the view that each policy community has its own “world view” that shapes its behaviour and delineates a cognitive framework for problem framing and problem solutions. Our project team

¹⁰ We assume that *policy makers* may be at the European Union level (either within the Commission, the Council or intergovernmental bodies such as the European Defence Agency) or at Member State level. We also assume that policy makers may be those who are responsible for science and technology policy or may equally be those responsible for the various aspects of defence and security policy. We define *stakeholders* broadly and include (amongst others) research providers (universities or research and technology organisations), the defence, security and related industries including SMEs, representatives of learned scientific societies (such as the Royal Society in the UK) and so forth. We also define *the scientific community* in broad terms to include scientists, engineers and technologists as individuals or as disciplinary groups.

comprises experts on European science and technology policy/the ERA; security and defence policy/international security; innovation dynamics; and foresight methodology. Developing a common and agreed language and understanding of the “problem” has presented a challenge both within the project team and in our engagement with those policy communities. We will not discuss this problem in depth here but simply to say that the challenge has been considerable and has required us to structure our project organization around the creation of multi-disciplinary groups, frequently meetings (physical and virtual) and the conscious use of non-technical language in all our communications.

- *How to conceptualise the interaction between policy areas – SANDERA is concerned with the interaction between three policy areas. However, we have soon come to realize that policy areas do not have “relationships” with one another per se but that the “relationships” are more complex. Thus, we have had to find a means of characterising the relationship between policy areas in a multi-dimensional framework which we will go on to describe in the next section.*
- *How to characterize drivers of change – we have also had to consider how to characterize drivers of change. Whilst there are some common drivers of change (not least those associated with technological change, economics and the future character of EU integration)), each policy area also has its own specific drivers that are likely to drive change in the particular policy area. Thus, we are having to find a means of characterizing both drivers and the interaction of drivers within our multi-dimensional framework.*
- *How to characterize the blurring of the boundary between defence and security - Today and in general terms, “defence” and “security” are separate policy fields with different policy goals, different organisational actors and different policy communities. True, there is growing overlap (or blurring) in some aspects (the “Comprehensive Approach” favoured by the European Union and many Member States means that military forces may find themselves working alongside civilian police and NGOs such as aid agencies – witness Afghanistan for example). However, this “blurring” is only emerging and may be regarded even as a driver of change in our study.*

Characterising the relationships between policy domains

Let us explain how we are seeking to conceptualise the relationship between policy areas. SANDERA is concerned with the relationships between three policy areas. However, as we have come to understand, policy areas do not have “relationships” between one another. The relationship between, for instance, “ERA policy” and “EU security research and innovation policies” is about relationships between:

- Policy goals
- Resource allocations
- Formal and informal regulation
- Organisational actors
- Policy communities

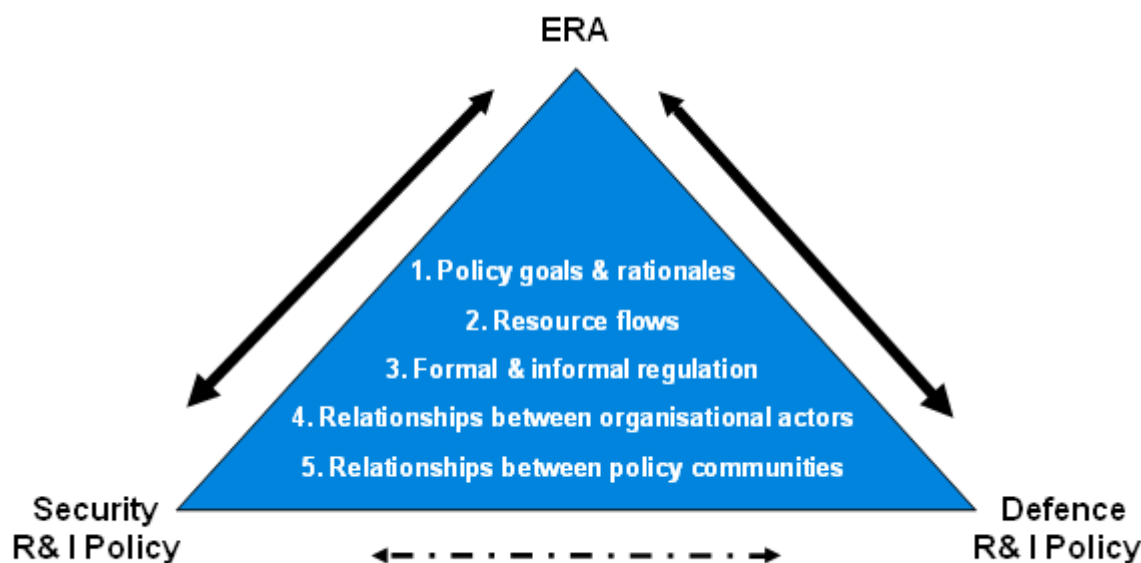


Figure 1. Target variables, to be explained of SANDERA.

Relationships between policy goals

Graphically the focus of SANDERA can be presented as in Figure 1. We begin by arguing that there can be relationships between the policy goals of different policy areas. *We define policy goals as meaning the aims and objectives of a policy area.*

We have already noted the policy goals of three policy areas but for completeness they will be repeated here beginning with the *ERA policy goals* which are as follows:

- Establishing large scale, longer term research projects within the Framework Programme to enable self-governed integrative structures in Europe.
- Supporting the networking of firms and research organisations beyond concrete research projects (technology platforms).
- Tighter co-ordination and cooperation among national research policies and programmes, through the establishment of indicators, benchmarking exercises and mutual learning schemes. ¹¹
- Renewed rationales for research in Europe such as the freedom of mobility of knowledge (the “fifth freedom”), functional integration, and the creation of European added value.
- Grand Challenges

By *European defence research and innovation policy goals* we mean the goals as expressed in the EDA’s Framework for a European Defence Research & Technology Strategy, namely:

¹¹ One key element of coordination was the famous 3% goal, whereby all countries in the EU should aspire to spend 3% of the GDP on research.

- a. (“Investing more...”) substantiate the level of spending required to fulfil the needs of pMS, reflected in the targeted EDTIB characteristics which apply to a large extent to the defence technology base, namely: capability driven, competent and competitive;
- b. (“Investing better...”) help to focus Defence R&T investment at European level on areas not already covered by civil investment, and therefore influence the convergence and alignment of national policies; it should also promote best practice, improving efficiency in collaborative Defence R&T;
- c. (“Investing more together...”) help to make European R&T activities more transparent, supporting a step change in R&T collaboration, identifying where interdependencies among the pMS would aid the development of the required capabilities and the strengthening of the EDTIB”

By *European security research and innovation policy goals* we mean the goals as expressed in FP7 security research programme, namely:

“To develop the technologies and knowledge for building capabilities needed to ensure the security of citizens from threats such as terrorism, natural disasters, and crime, while respecting fundamental human rights including privacy; to ensure optimal and concerted use of available technologies to the benefit of civil European security, to stimulate the cooperation of providers and users for civil security solutions, improving the competitiveness of the European security industry and delivering mission-oriented research results to reduce security gaps”.¹²

Resource flows

Another important type of relationship between the policy areas that we can observe from the three Scoping Papers is through resource flows between those policy areas. *We define resource flows as movements of financial and human resources between policy areas.*

The main sources of financial resources under the ERA are:

- The Framework Programme
- Joint programming (ERANet and JTI)
- European Space Agency

For EU security, the main sources of funding for research and technology are:

- The Security Research theme of the Framework Programme managed by DG ENTR
- The Specific Programme for Prevention, Preparedness and Consequence Management of Terrorism and other Security-related risks managed by DG JLS

For EU defence, the main sources of funding for research and technology are:

- Funds from Member States managed on their behalf by the European Defence Agency

¹² DECISION No 1982/2006/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)

Relationships between regulatory frameworks

We also propose that there can be relationships between the regulatory frameworks that underpin each policy area. *We define regulatory frameworks as the formal contracts, laws and standards and the informal rules of behaviour such as norms, routines, common habits and established practices that regulate “appropriate” behaviour by actors.*¹³

The regulatory frameworks that are important to the ERA include certain formal contracts, laws and standards such as those that govern intellectual property ownership/patents. The rules that govern the selection of projects under the Framework Programme and the ownership of resulting intellectual property are another example of formal regulatory frameworks. Equally, there are certain *informal* rules of behaviour such as the ERA’s emphasis on scientific excellence and openness.

In the case of defence, the Knowledge Dynamics Scoping Paper emphasizes how, during the Cold War, the closed defence innovation system used a culture of secrecy as a means of limiting knowledge diffusion. In turn, this was supported through formal processes including laws governing access to sensitive facilities and the nationality of those who were able to work within the military-industrial-scientific complex. Arms export regulations were put in place by individual governments and international conventions and treaties were agreed to limit the development and production of certain technologies underpinning WMD such as the Nuclear Non-Proliferation Treaty (NPT) and the Biological and Toxin Weapons Convention (BTWC).

In the case of security, one example of the regulatory frameworks that are important is provided in our Background Paper on *Defence and Security R&D in Europe*. This noted how the sensitive nature of some security technologies and the issues surrounding operational security policies and vulnerabilities place an emphasis on secrecy rather than openness. In turn, this means that the Security Research theme of FP7 has some distinctive features that sets its governance apart from other elements of the Seventh Framework Programme.

Relationships between organisational actors

We have also recognized that there can be relationships between organizational actors from different policy areas. *By organizational actors, we mean those organizations who are responsible for a policy area. Organizations can have a facilitative, enabling, or operational role in the relationship between policy areas, depending on how many of the three following tasks are done by the organization: planning; decision-making; and implementation.*

Organisational actors in the ERA include:

- DG RTD
- DG ENTR
- Member States

¹³ Krasner, S. D., *International regimes*, Ithaca ; London, Cornell University Press, 1983; North, 1991; Edquist and Johnson, 1997; Nelson, 2008

Organisational actors in EU security policy include:

- DG ENTR
- DG Justice Freedom and Security
- External Action Service
- High Representative/Vice President of the Commission
- FRONTEX
- EUROPOL
- European Maritime Security Agency
- European Space Agency
- Member States

EU defence policy organisations include:

- High Representative/Vice President of the Commission
- European Defence Agency
- European Military Staff
- Member States

Relationships between policy communities

Finally, we might foresee relationships between policy communities. *By policy communities, we have in mind the milieu of elected politicians, government officials, experts and expert bodies, industrial companies and associations and non-governmental organisations (including civil society) that actively influence the policy making process in a particular field.*

The ERA policy community (i.e. those who actively influence the policy making process) includes:

- EU Institutions (for every subject): EU Parliament, EU Committee of the Regions and the EU Economic and Social Committee
- (quasi) institutional groupings linked to EU policies: COST / also EUREKA / ESFRI platform (for infrastructures) / all Technology platforms
- European representations of stakeholders: EUA for universities (but also parallel elitist groupings such as LERU), EUROHORCS for heads of research organisations and research councils (and on a secondary level now ESF), EARTO for research and technology organisations, EARMA for research managers and administrators, EURODOC for PhD students, EASAC for the national academies of science, and the Confederation of European Business (CEB)
- European representations of different industries: maritime, aeronautics, rail, chemistry, iron and steel, digital technologies, software industries
- Non Governmental Organisations representing a diverse body of interests.

The defence policy community includes:

- The European Commission (as policy advocate)
- The European Parliament

- Defence companies and their industrial association (ASD)
- Defence-related research organisations
- Think tanks and the academic community
- Member States

The security policy community includes:

- The European Commission (as policy advocate)
- The European Parliament
- Companies with an interest in the security sector (in some cases there is an overlap with defence companies but there are also security-focused companies)
- Industrial associations for the security sector
- The network of organizations that came together as ESRIF (European Security Research and Innovation Forum) and may soon receive funding as an ERA-Net
- Security-related research organizations (again there are some overlaps with defence)
- Think tanks and the academic community
- Member States

Identifying drivers of change and building scenarios

The core task for SANDERA is to identify drivers of change and develop scenarios as a base for policy analysis and recommendations. We are using a three step process: (1) developing ideal type “tones” for relationships; (2) identifying drivers of change that might influence a move in the direction of one of those “tones”; and, (3) developing scenarios.

Ideal-type “tones” for relationships

Four ideal-type “tones” for relationships have been identified and agreed. The four tones are:

- *Indifference* - The relationship between the different properties of policy areas could be one of “indifference” where the developments of the properties in each policy area are perceived to be independent of one another or are perceived to have little impact upon one another.¹⁴
- *Competition* - Alternatively, the relationship between the different properties of policy areas could be one of competition where developments in one policy area are perceived to be in competition or actively antagonistic to one another. The relationship between the policy areas may be one of “competition” where the majority of properties of the policy areas are competing (or in conflict with one another).¹⁵
- *Cooperation* - Under a situation of cooperation, there is a recognition by policy actors that working together may generate mutual benefits, identifying many common interests while re-

¹⁴ Note there are possible scenarios where one of the subsystems is very interested in the work, resources, etc. of the other, but the latter is fairly indifferent to the former and seeks to continue with its existing goals and activities.

¹⁵ For the time being we agreed to stick to the slightly less confrontational term competition rather than conflict.

taining their distinctive goals, regulations and rules, and largely working with separate funding mechanisms.

- *Integration* - Finally, the relationship between the different properties of policy areas could be characterised as one of “integration”. The major properties of formerly distinct policy areas would grow together at European level. Under a situation of integration, the policy areas give up some aspects of their separate identities and processes in favour of shared goals and processes in some discrete and well defined aspects of policy.

Drivers of change

Our next step is to consider the drivers of change that might influence a move in the direction of one of those “tones”.

This task has presented some challenges. Whilst there are some common drivers of change (not least those associated with technological change, economics and the future character of EU integration), each policy area also has its own specific drivers that are likely to drive change in the particular policy area. We are charactering those drivers as follows:

- *Contextual drivers* - common drivers of change that act on all policy areas (although they may act to different degrees and in different ways). For example, these contextual drivers might include those associated with technological change, economics and the future character of EU integration.
- *Drivers specific to a policy area* – there are likely to be drivers that are specific to a policy area. These drivers promote changes in the policy area that in turn may have an impact on the tone of the relationship between that policy area and other policy areas. For example, new tasks for the military such as peace keeping are requiring a new understanding of the causes of conflict and means of conflict resolution short of armed conflict. This is causing the military to pay more attention to the social and behavioural sciences and in turn is a driver from the defence side for closer linkages to non-defence sources of expertise residing in the ERA.
- *Drivers that act directly on the relationship between two policy areas* – there are likely to be drivers that act directly on the relationship between two policy areas. For example, political pressures for closer linkages between defence and security research and innovation policy.

We are in the process of identifying drivers of change based on a combination of desk based research and face-to-face interviews. Our desk based research has been undertaken by three multi-disciplinary groups comprising members of the SANDERA consortium only that have looked at: security dynamics; ERA dynamics; and technology dynamics. Each analytical Task Group has collated and analyzed public domain material drawn from secondary sources including government reports, academic studies and reports produced by think tanks and expert bodies. They have also identified and reviewed the results of foresight exercises that are relevant to SANDERA. There is a growing body of reports from foresight ex-

ercises that focus in whole or in part on security-related issues.¹⁶ Equally, there are a number of European Commission-sponsored foresight studies on the future of the ERA.¹⁷

We are (as of May 2010) just beginning our face-to-face interviews. These interviews will be conducted with a variety of experts across the European Union including policy makers, stakeholders, scientists in key disciplines and experts located in universities and think tanks. We are conducting interviews across four groups: ERA policy; security research and innovation policy; defence research and innovation policy; and a fourth group comprising independent analysts, civil society and those we have characterized as “dissenting voices” (i.e. who have expressed critical perspectives on current developments).

We are also seeking to draw on other Commission funded studies as a source of drivers. In particular, “wild cards” derived from the iKNOW project and on evolving security threats from the FESTOS project.

Scenario building

Drawing on the drivers, the next stage of our methodology will be a driver-based scenario building exercise leading to scenarios on the future role of defence and security policies in the ERA. The core of the scenario building exercise will involve a workshop involving approximately 20 experts drawn from policy makers, stakeholders and the scientific community. The scenarios will focus on how each relationship “tone” could emerge by 2030.

Conclusion

In this paper we have introduced Project SANDERA which focuses on the future relationship between three critical European policy domains: namely, the EU science and technology policy strategy to move towards the European Research Area and those EU policies focused on the security of the European citizen in the world both through EU defence policies and EU security policies. We have considered some of the methodological challenges of using scenarios to characterise complex policy interrelationships and we have reported on some aspects of the methodological approach being adopted. The project remains a work-in-progress and we would welcome comments and suggestions which we ask you to send to Andrew.James@mbs.ac.uk

¹⁶ We have already noted the foresight studies undertaken by the United Nations, European Defence Agency and NATO amongst others.

¹⁷ See for instance, *The Future of Key Research Actors in Europe*. DG Research, 2007. This and other studies are available at <http://cordis.europa.eu/foresight/>