

A NEW DEAL FOR EUROPEAN DEFENCE

TOWARDS A MORE
COMPETITIVE AND
EFFICIENT DEFENCE AND
SECURITY SECTOR

JULY 2013



Foreword

Europe is tackling the worst economic challenges it has faced for many years, which have adversely affected many sectors of our economy, defence included. Unless Europe takes collective action to tackle these challenges we will witness the steady erosion of our industry and the European defence technological and industrial base.

Today, Member States have fewer resources available to invest in new research programmes. Between 2005 and 2010 there was a 14% decrease in research and technological development (RTD) spending at EU level. The gap between US and European RTD spending has further increased, resulting in US spending being seven times larger. This puts in question Europe's capability to produce the next generation of military capabilities. By 2015 it is estimated that our competitors from the BRIC countries (Brazil, Russia, India and China) will be investing 2.5 times more in defence RTD than the EU. In the long run, this will have important negative effects on the competitiveness of Europe's industry.

But defence industry is not only about military capability we need for ensuring this autonomy. It is also a vital component of Europe's industrial landscape. The industry, with a turnover of €96 billion, is a major industrial sector, generating innovation and centred on high-end engineering and technologies. Its cutting-edge research has created important spill-over effects in other sectors, such as electronics, space and civil aviation and provides growth and thousands of highly skilled jobs. It is, therefore, a sector that is essential to retain if Europe is to remain a world-leading centre for manufacturing and innovation.

The challenge is to find a way of maintaining a strong industrial base able to develop future capabilities at competitive prices. This can only be achieved through European co-operation and a co-ordinated approach steering the on-going change in Europe's industrial landscape.

So what needs to be done? We need to tackle the fragmented nature of Europe's defence market. We need to support continued investment in defence RTD. We need to maximise the synergies between European civil and military programmes to ensure the most efficient use of resources.

Member States are fully aware of this and, in December 2013, the European Council will meet to discuss ways of strengthening European defence co-operation, military capabilities and Europe's defence industry. In preparation for this meeting the Commission, on 24th July, adopted a Communication which sets out a blueprint for substantive and long-term contribution from the Commission in support of Europe's defence and security sector. This Communication and an accompanying Staff Working Document have been brought together in this publication.

As you will see, the Commission has sought to draw upon its experience and a wide range of its policies that could be of benefit to European defence. The Commission will now look to work closely with Member States and our partners in the European Defence Agency, European External Action Service and other interested stakeholders to turn a crisis into an opportunity.

More information, including the Communication in all the official languages of the EU, is available at:

http://ec.europa.eu/enterprise/sectors/defence/defence-industrial-policy/index_en.htm

Antonio Tajani

Vice-President of the European Commission



TOWARDS A MORE COMPETITIVE AND EFFICIENT DEFENCE AND SECURITY SECTOR

**Communication from
the Commission to the European Parliament, the Council,
the European Economic and Social Committee
and the Committee of the Regions**

COM (2013) 542 final

1.

European Commission's contribution to strengthening Europe's defence and security sector

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The world needs a Europe that is capable of deploying military missions to help stabilise the situation in crisis areas.... We need to reinforce our Common Foreign and Security Policy and a common approach to defence matters because together we have the power, and the scale to shape the world into a fairer, rules based and human rights' abiding place.

President Barroso, State of the Union Speech September 2012

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The Council reiterates its call to retain and further develop military capabilities for sustaining and enhancing the CSDP. They underpin the EU's ability to act as a security provider, in the context of a wider comprehensive approach (and) the need for a strong and less fragmented European defence industry to sustain and enhance Europe's military capabilities and the EU's autonomous action.

Foreign Affairs Council, 19 November 2012, Conclusions

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This Communication builds on the work of the Commission's Defence Task Force established in 2011 with the objective to strengthen the defence sector by mobilising all relevant EU policies. The EEAS and EDA have been fully associated to the work of the Task Force and in the preparation of this Communication.

1.1. Introduction

The strategic and geopolitical environment is rapidly and constantly evolving. The world's balance of power is shifting as new centres of gravity are emerging and the US is rebalancing its strategic focus towards Asia. In this situation, Europe has to assume greater responsibilities for its security at home and abroad. To punch its weight, the EU needs to develop a credible CSDP. This evolution must be fully compatible with NATO and its principles.

The security challenges we are facing today are numerous, complex, interrelated and difficult to foresee: regional crises can occur and turn violent, new technologies can emerge and bring new vulnerabilities and threats, environmental changes and scarcity of natural resources can provoke political and military conflicts. At the same time, many threats and risks spread easily across national borders, blurring the traditional dividing line between internal and external security.

These security challenges can only be tackled in a comprehensive approach combining different policies and instruments, short and long-term measures. This approach must be underpinned by a large range of civil and military capabilities. It is increasingly unlikely that Member States can bear this burden in isolation.

This is the case in particular for defence, where new equipment is often technologically complex and expensive. Today, Member States encounter difficulties to equip their armed forces adequately. Recent operations in Libya have highlighted important European shortfalls in key military capabilities.

The crisis in public spending induces cuts in defence budgets which exacerbates the situation, in particular, because they are neither co-ordinated nor implemented with regard to common strategic objectives. From 2001 to 2010 EU defence spending declined from €251 billion to €194 billion. These budget cuts are also having a serious impact on the industries that develop equipment for our armed forces with cutbacks in existing and planned programmes. They affect in particular the investment in defence R&D that is crucial for developing capabilities of the future. Between 2005 and 2010 there was a 14% decrease in European R&D budgets down to €9 billion; and the US alone spends today seven times more on defence R&D than all 27 EU Member States together.

Defence budgets are falling, and the cost of modern capabilities is rising. These cost increases come from the long-term trend of growing technological complexity of defence equipment, but also from the reduction of production volumes which are due to the reorganisation and downsizing of European armed forces since the end of the Cold War. These factors will continue to shape defence markets in Europe regardless of budget levels.

This situation has knock-on effects for an industry that plays a crucial role in the wider European economy. With a turnover of €96 billion in 2012 alone, it is a major industrial sector, generating innovation and centred on high-end engineering and technologies. Its cutting-edge research has created important indirect effects in other sectors, such as electronics, space and civil aviation and provides growth and thousands of highly skilled jobs.

Defence industry in Europe directly employs about 400,000 people and generates up to another 960,000 indirect jobs. It is, therefore, a sector that is essential to retain if Europe is to remain a world-leading centre for manufacturing and innovation. This is why action to strengthen the competitiveness of the defence industry is a key part of the Europe 2020 Strategy for smart, sustainable and inclusive growth.

At the same time, the importance of this industry cannot be measured only in jobs and turnover. The European Defence Technological and Industrial Base (EDTIB) constitutes a key element for Europe's capacity to ensure the security of its citizens and to protect its values and interests. Europe must be able to assume its responsibilities for its own security and for international peace and stability in general. This necessitates a certain degree of strategic autonomy: to be a credible and reliable partner, Europe must be able to decide and to act without depending on the capabilities of third parties. Security of supply, access to critical technologies and operational sovereignty are therefore crucial.

Currently defence companies are surviving on the benefits of R&D investment of the past and have been able to successfully replace falling national orders with exports. However, this often comes at the price of transfers of technology, IPRs and production outside the EU. This in turn has serious implications for the long-term competitiveness of the EDTIB.

The problem of shrinking defence budgets is aggravated by the persisting fragmentation of European markets which leads to unnecessary duplication of capabilities, organisations and expenditures. Cooperation and EU-wide competition still remains the exception, with more than 80% of investment in defence equipment being spent nationally. As a result, Europe risks losing critical expertise and autonomy in key capability areas.

This situation necessitates a reorientation of priorities. If spending more is difficult spending better is a necessity. There is significant scope to do so. In spite of cuts, in 2011 EU Member States together still spent more on defence than China, Russia and Japan together¹. Budgetary constraints must therefore be compensated by greater cooperation and more efficient use of resources. This can be done via supporting clusters, role specialisation, joint research and procurement, a new, more dynamic approach to civil-military synergies and more market integration.

1.2. The Commission's strategy

Defence is still at the heart of national sovereignty and decisions on military capabilities remain with Member States. However, the EU does have a significant contribution to make. It has policies and instruments to implement structural change and it is the best framework for Member States to maintain collectively an appropriate level of strategic autonomy. With Member States having amongst themselves around 1.6 million soldiers and annual defence budgets of €194 billion the EU has the capacity to be a strategic actor on the international stage, in line with its values.

The European Council, in its Conclusions of 14 December 2012, therefore called upon "... the High Representative, notably through the European External Action Service and the European Defence Agency, as well as the Commission, (...) to develop further proposals and actions to strengthen CSDP and improve the availability of the required civilian and military capabilities...".

The ultimate objective is to strengthen European defence to meet the challenges of the 21st century. Member States will be in lead on many of the necessary reforms. The European Defence Agency (EDA) has as its mission to support them in their effort to improve the Union's defence capabilities for the CSDP. The Commission can also make an important contribution, and it has already started to do so. As President Barroso has stressed: "The Commission is playing its part: we are working towards a single defence market. We are using our competences provided under the Treaty with a view to developing a European defence industrial base."

With these objectives in mind, the Commission has put forward the two Directives on defence and sensitive security procurement (2009/81) and transfers (2009/43), which constitute today the cornerstone of the European defence market. Moreover, it has developed industrial policies and specific research and innovation programmes for security and

space. The Commission has also developed policies and instruments supporting both internal and external security in areas such as protection of external borders, maritime surveillance, civil protection, or crisis management, which have numerous technological, industrial, conceptual and operational similarities and links with defence.

The present Communication consolidates this acquis and develops it further within the scope of its competencies as defined in the Treaty of Lisbon. It tries, in particular, to exploit possible synergies and cross-fertilisation which come from the blurring of the dividing line between defence and security and between civil and military.

To achieve these objectives, the Commission intends to take action in the following strands:

- Further deepen the internal market for defence and security. This means first of all to ensure the full application of the two existing Directives. Based on this acquis, the Commission will also tackle market distortions and contribute to improving security of supply between Member States;
- Strengthen the competitiveness of the EDTIB. To this end, the Commission will develop a defence industrial policy based on two key strands:
 - Support for competitiveness – including developing ‘hybrid standards’ to benefit security and defence markets and examining the ways to develop a European certification system for military airworthiness.
 - Support for SMEs – including development of a European Strategic Cluster Partnership to provide links with other clusters and support defence-related SMEs in global competition.
- Exploit civilian military synergies to the maximum extent possible in order to ensure the most efficient use of European tax payers’ resources. In particular by:
 - concentrating its efforts on possible cross-fertilisation between civil and

military research and the dual-use potential of space;

- helping armed forces reduce their energy consumption and thereby contribute to the Union’s 20/20/20 targets.
- In addition, the Commission suggests actions which aim at exploring new avenues, driving the strategic debate in Europe forward and preparing the ground for more and deeper European cooperation. In particular by:
 - Assessing the possibility of EU-owned dual-use capabilities, which may in certain security areas complement national capabilities and become effective and cost-efficient force multipliers;
 - Considering launching a preparatory action for CSDP-related research focusing on those areas where EU defence capabilities are most needed.

The Commission invites Heads of State and Government to discuss this Communication at the European Council in December 2013, together with the report prepared by the High Representative of the Union for Foreign Affairs and Security Policy.



2. Any envisaged action in this Action Plan is coherent and compatible with the relevant financial instruments established under the Multi-annual Financial Framework.

Action Plan²

2.

Strengthening the Internal Market for Defence

2.1. Ensure market efficiency

With the Defence and Security Procurement Directive 2009/81 being fully transposed in all Member States, the regulatory backbone of a European Defence Market is in place. For the first time specific Internal Market rules are applicable in this sector to enhance fair and EU-wide competition. However, defence remains a specific market with a longstanding tradition of national fragmentation. The Commission will therefore take specific measures to ensure that the Directive is correctly applied and fulfils its objective.

Action:

The Commission will monitor the openness of Member States' defence markets and regularly assess via the EU's Tenders Electronic Daily (TED) and other specialised sources how the new procurement rules are applied. It will coordinate its market monitoring activities with those of the EDA in order to exploit potential synergies and avoid unnecessary duplication of efforts.

In times of budget constraints, it is particularly important to spend financial resources efficiently. Pooling of demand is an effective way of achieving this objective. The Directive contains specific provisions on central purchasing bodies which enable Member States to use the new rules also for joint procurement, for example via the EDA. Member States should use this tool as much as possible to maximise economies of scale and take full benefit of EU-wide co-operation.

Certain contracts are excluded from the scope of the Directive, since the application of its rules would not be appropriate. This is particularly the case for cooperative programmes, which are an effective means to foster market consolidation and competitiveness.

However, other specific exclusions, namely those of government to government sales and of contract awards governed by international rules, might be interpreted in a way undermining the correct use of the Directive. This could jeopardize the level playing field in the internal market. The Commission will therefore ensure that these exclusions are interpreted strictly and that they are not abused to circumvent the Directive.

Action:

The Commission will clarify the limits of certain exclusions. To that end, it will provide, in consultation with Member States, specific guidance, notably on government to government sales and international agreements.

2.2. Tackle market distortions

In order to further develop the Internal Market for defence and work towards a level playing field for all European suppliers, the Commission will tackle persisting unfair and discriminatory practices and market distortions. It will in particular mobilise its policies against offsets, i.e. economic compensations required for defence purchases from non-national suppliers. Offset requirements are discriminatory measures which stand in contrast to both EU Treaty principles and effective procurement methods. They can therefore not be part of the internal market for defence.

Action:

The Commission will ensure the rapid phasing out of offsets. Since the adoption of the defence procurement directive, all Member States have withdrawn or revised their national offset legislation. The

Commission will verify that these revisions comply with EU law. It will also ensure that these changes in the legal framework lead to an effective change in Member States' procurement practice.

The Commission has extensively applied the merger control rules to the defence sector. Those cases allowed the Commission to guarantee effective competition control, contributing to an improved functioning of the market for defence. Concerning state aid, and in line with the Communication on the Modernisation of State Aid policy, public spending should become more efficient and better targeted. In that respect, state aid control has a fundamental role to play in defending and strengthening the internal market, also in the defence sector.

Member States have an obligation, under the Treaty, to notify to the Commission all state aid measures, including aid in the pure military sector. They may only derogate from that obligation if they can prove that non-notification is necessary for rea-

sons of essential security interests under Article 346 TFEU. Therefore, if a Member State intends to rely on Article 346, it must be able to demonstrate that the concrete measures in the military sector are necessary and proportionate for the protection of their essential security interests and that they do not go beyond what is strictly necessary for that purpose. The burden of proof that these conditions are fulfilled lies upon Member States.

Action:

The Commission will ensure that all necessary conditions are fulfilled when Article 346 TFEU is invoked to justify state aid measures.

2.3. Improve Security of Supply

Security of supply is crucial to ensure the functioning of the internal market for defence and the Europeanisation of industrial supply chains. Most security of supply problems are the responsibility of Member States. However, the Commission can develop instruments which enable Member States to improve the security of supply between them. Directive 2009/43 on intra-EU transfers is such an instrument, since it introduces a new licencing system which facilitates the movement of defence items within the internal market. Member States should now fully exploit the possibilities of this Directive to enhance security of supply within the Union.

Actions:

The Commission, together with the EDA, will launch a consultative process aimed at bringing about a political commitment by Member States to mutually assure the contracted or agreed supply of defence goods, materials or services for the end-use by Member States' armed forces.

The Commission will optimise the defence transfer regime by: a) supporting national authorities in their efforts to raise awareness of it with industry; b) establishing a central



register on general licences and promote their use; and c) promoting best practices in managing intra-EU transfers.

Security of supply depends also on the control and ownership of critical industrial and technological assets. Several Member States have national legislation for the control of foreign investment in defence industries. However, the more international industrial supply chains become, the more can a change of ownership of one company (also at lower tiers) have an impact on the security of supply of other Member States' armed forces and industries. It is also an issue affecting the extent of the autonomy Europe has, and wishes to retain, in the field of military capacity, as well as the general question of control of incoming foreign investment in that sector. A European approach may be needed to cope with this challenge.

Action:

The Commission will issue a Green Paper on the control of defence and sensitive security industrial capabilities. It will consult stakeholders on possible shortfalls of the current system, including the possible identification of European capacities, and explore options for the establishment of an EU-wide monitoring system, including mechanisms of notification and consultation between Member States.



3.

Promoting a more competitive defence industry

The creation of a genuine internal market for defence requires not only a robust legal framework but also a tailored European industrial policy. The future of the EDTIB lies in more co-operation and regional specialisation around and between networks of excellence. A further reinforcement of their civil-military dimension, can foster more competition and contribute to economic growth and regional development. Moreover, in an increasingly globalised defence market it is essential that European defence companies have a sound business environment in Europe to enhance their competitiveness worldwide.

3.1. Standardisation – developing the foundations for defence co-operation and competitiveness

Most standards used in EU defence are civilian. Where specific defence standards are required they are developed nationally, hindering co-operation and increasing costs for the industry. Therefore, the use of common defence standards would greatly enhance co-operation and interoperability between European armies and improve the competitiveness of Europe's industry in emerging technologies.

This highlights the need for creating incentives for the Member States to develop European civil-military standards. Clearly, these should remain voluntary and there must be no duplication with the standards-related work of NATO and other relevant bodies. However, much more could be done to develop standards where gaps and common needs are identified. This concerns particularly standards in emerging technologies, such as in Remotely Piloted Aircraft Systems (RPAS) and in established areas, such as in camp

protection, where markets are underdeveloped and there is a potential to enhance the industry's competitiveness.

Actions:

The Commission will promote the development of 'Hybrid Standards', for products which can have both military and civilian applications. It has already issued a standardisation request for such a "hybrid standard" in 2012 for Software Defined Radio. The next candidates for standardisation requests could deal with Chemical Biological Radiological Nuclear & Explosives (CBRNE) detection and sampling standards, RPAS, airworthiness requirements, data sharing standards, encryption and other critical information communication technologies.

The Commission will explore options with the EDA and European Standardisation Organisations for establishing a mechanism to draft specific European standards for military products and applications after agreement with Member States. The main purpose of this mechanism will be to develop standards to meet identified needs while handling sensitive information in an appropriate way.

The Commission will explore with the EDA new ways of promoting existing tools for selecting best practice standards in defence procurement.

3.2. Promoting a Common Approach to Certification – reducing costs and speeding up development

Certification, as with standards, is a key enabler for industrial competitiveness and European defence co-operation. The lack of a pan-European system of certification of defence products acts as a major bottleneck delaying the placing of products on the market and adds substantially



to costs throughout the life-cycle of the product. There is a need for better arrangements in the field of the certification so that certain tasks currently performed at national level should be carried out in common.

In particular, in military airworthiness, according to the EDA, this is adding 50% to the development time and 20% to the costs of development. Moreover, having a set of common and harmonised requirements reduces costs by enabling cross-national aircraft maintenance or training of maintenance personnel.

Ammunition is another example. The lack of a common certification for ground launched ammunition is estimated to cost Europe €1,5 billion each year (out of a total of €7,5 billion spent on ammunition each year).

Action:

Building on the civil experience of EASA, its experience gained by certifying the Airbus A-400M (in its civil configuration) and the work of the EDA in this area, the Commission will assess the different options for carrying out, on behalf of the Member States, the tasks related to the initial airworthiness of military products in the areas specified by the EDA.

3.3. Raw Materials – tackling supply risks for Europe’s defence industry

Various raw materials, such as rare earths elements, are indispensable in many defence applications, ranging from RPAS to precision guided munitions, from laser targeting to satellite communications. A number of these materials are subject to increased supply risks, which hamper the competitiveness of the defence sector. A key element of the EU overall raw materials strategy consists of a list of raw materials that are considered to be of critical importance to the EU economy. The current list of critical raw materials at EU level is expected to be revised by end

2013. Although these are often the same materials that are important for civil and defence purposes, there would be a clear value-added if this work would take into account the specific importance of raw materials to Europe’s defence sector.

Action:

The Commission will screen raw materials that are critical for the defence sector within the context of the EU’s overall raw materials strategy and prepare, if necessary, targeted policy actions.

3.4. SMEs – securing the heart of Europe’s defence innovation

The defence directives on procurement and transfers offer new opportunities for SMEs to participate in the establishment of a European defence market. This is the case in particular for the subcontracting provisions of the procurement directive which improves access to supply chains of non-national prime contractors. Member States should therefore actively use these provisions to foster opportunities for SMEs.

Further steps are necessary, in particular in the area of clusters. These are often driven by a prime company that works with smaller companies in a supply chain. Moreover, clusters are often part of networks of excellence bringing together prime contractors, SMEs, research institutes and other academic sectors.

Clusters are therefore particularly important for SMEs, as they offer them access to shared facilities, niches in which they can specialise, and opportunities to cooperate with other SMEs. In such clusters, companies can combine strengths and resources in order to diversify into, and create new markets and knowledge institutions. They can also develop new civilian products and applications based on technologies and materials initially developed for defence purposes (e.g. internet, GPS) or vice versa, which is an increasingly important trend.

Actions:

The Commission will explore with industry – taking a bottom-up approach – how to establish a European Strategic Cluster Partnership designed to support the emergence of new value chains and to tackle obstacles faced by defence-related SMEs in global competition. In this context, the Commission will use tools designed to support SMEs, including COSME, for the needs of defence-related SMEs. To this end the use of European Structural and Investment Funds may also be considered. This work will include clarifying eligibility rules for dual use projects.

The Commission will also use the Enterprise Europe Network (EEN) to guide defence-related SMEs towards networking and partnerships, internationalisation of their activities, technology transfers and funding business opportunities.

The Commission will promote regional networking with the objective of integrating defence industrial and research assets into regional smart specialisation strategies particularly through a European network of defence-related regions.

3.5. Skills – managing change and securing the future

The defence industry is experiencing profound change to which Member States and industry must adapt. As the European Council in December 2008 stated: “restructuring of the European defence technological and industrial base, in particular around centres of European excellence, avoiding duplication, in order to ensure its soundness and its competitiveness, is a strategic and economic necessity”.

The restructuring process is mainly the responsibility of industry but there is a complementary role for the Commission, national governments and local authorities. The Commission and Member States

have a range of European tools available that foster new skills and tackle the impacts of restructuring. These should be deployed with a clear understanding of the capabilities and technologies critical to the industry.

The Commission will encourage Member States to make use of labour flexibility schemes to support enterprises, including suppliers, that suffer from temporary slump in demand for their products and to promote an anticipative approach to restructuring. In this context, Member States can use the support that can be provided by the European Social Fund (ESF) and in certain cases of mass redundancies also by the European Globalisation Adjustment Fund. An important foundation of this work will be to map existing skills and identify skills needed for the future, possibly on the basis of a European Sector Skills Council for Defence under the leadership of the sectors’ representatives.

Actions:

The Commission will promote skills identified as essential to the future of the industry including through the “Sector Skills Alliances” and “Knowledge Alliances” programmes currently being trialled.

The Commission will encourage the use of the ESF for workers’ retraining and re-skilling, in particular for projects addressing skills needs, skills matching and anticipation of change.

The Commission will take into account the potential of the European Structural and Investment Funds to support regions adversely affected by defence industry restructuring, especially to help workers to adapt to the new situation and to promote economic reconversion.

4. Exploiting Dual-Use Potential of Research and Reinforcing Innovation

Since a range of technologies can be dual in nature, there is growing potential for synergies between civil and military research. In this context, there is an ongoing coordination between the Security Theme of the 7th Framework Programme for Research and Technological Development and European defence research activities. Work has so far concentrated on CBRNE and has recently also addressed cyber defence in the context of CSDP and its synergies with cyber security. A number of activities in this regard are announced in the EU's Cyber Security Strategy, designed to make the EU's on-line environment the safest in the world. Furthermore, the SESAR Joint Undertaking has launched research activities on cyber security in the field of Air Traffic Management.

Within Horizon 2020, the areas of "Leadership in Enabling and Industrial Technologies" including the "Key Enabling Technologies" (KETs) and "Secure Societies" (Societal Challenge), offer prospects of technological advances that can trigger innovation not only for civil applications, but also have a dual-use potential. While the research and innovation activities carried out under Horizon 2020 will have an exclusive focus on civil applications, the Commission will evaluate how the results in these areas could benefit also defence and security industrial capabilities. The Commission also intends to explore synergies in the development of dual-use applications with a clear security dimension or other dual-use technologies like, for example, those supporting the insertion of civil RPAS into the European aviation system to be carried out within the framework of the SESAR Joint Undertaking.

Defence research has created important knock-on effects in other sectors, such as electronics, space, civil aviation and deep sea exploitation. It is important to maintain such spill-over effects from defence to the civil world and to help defence research to continue feeding civilian innovation.

The Commission also sees the potential benefits of additional possibilities for CSDP-related research outside the scope of Horizon 2020. This could take the form of a Preparatory Action on defence capabilities critical for CSDP operations seeking synergies with national research programmes. The Commission will define content and modalities together with Member States, EEAS and the EDA. In parallel Member States should maintain an appropriate level of funding for defence research and do more of it co-operatively.

Actions:

The Commission intends to support a pre-commercial procurement scheme to procure prototypes. The first candidates for these could be: CBRNE detection, RPAS and communication equipment based on software defined radio technology.

The Commission will consider the possibility to support CSDP-related Research, such as through a Preparatory Action. The focus would be on those areas where EU defence capabilities would be most needed, seeking synergies with national research programmes where possible.



5.

Development of capabilities

The Commission is already working on non-military capability needs supporting both internal and external security policies, such as civil protection², crisis management, cyber security, protection of external borders and maritime surveillance. Up until now, these activities have been limited to co-funding and coordination of Member States' capabilities. The Commission intends to go one step further in order to ensure that Europe disposes of the full range of security capabilities it needs; that they are operated in the most cost-efficient way; and that interoperability between non-military and military capabilities is ensured in relevant areas.

Actions:

The Commission will continue to enhance interoperability of information service sharing between civilian and defence users as piloted by the Common Information Sharing Environment for Maritime Surveillance;

Building on existing EU networks, the Commission will explore together with Member States the establishment of a civil-military cooperation group in the areas of a) detection technologies, and b) methods to counter improvised explosive devices, man-portable air defence systems (MANPADs) and other relevant threats, such as CBRNE threats;

The Commission will work with the EEAS on a joint assessment of dual-use capability needs for EU security and defence policies. On the basis of this assessment, it will come up with a proposal for which capability needs, if any, could best be fulfilled by assets directly purchased, owned and operated by the Union.



2. In the case of civil protection the development of capabilities is set out in the Commission's proposal for a Decision of the European Parliament and of the Council on a Union Civil Protection Mechanism (COM (2011) 934 final)

6.

Space and Defence

Most space technologies, space infrastructures and space services can serve both civilian and defence objectives. However, contrary to all space-faring nations, in the EU there is no structural link between civil and military space activities. This divide has an economic and political cost that Europe can no longer afford. It is further exacerbated by European dependence on third country suppliers of certain critical technologies that are often subject to export restrictions.

Although some space capabilities have to remain under exclusive national and/or military control, a number of areas exist where increased synergies between civilian and defence activities will reduce costs and improve efficiency.

6.1. Protecting space infrastructures

Galileo and Copernicus are major European space infrastructures. Galileo belongs to the EU, and both Galileo and Copernicus will support key EU policies. These infrastructures are critical as they form the backbone for applications and services that are essential for our economy, our citizens' well-being and security. These infrastructures need to be protected.

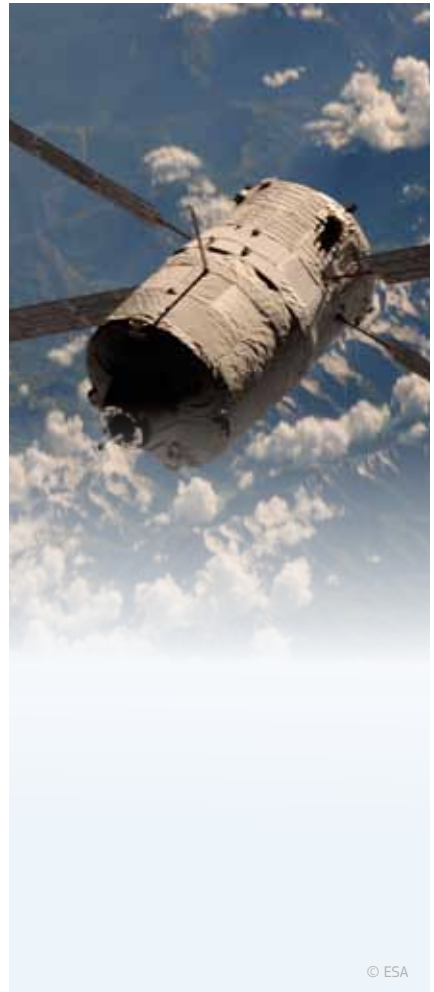
Space debris has become the most serious threat to the sustainability of our space activities. In order to mitigate the risk of collision it is necessary to identify and monitor satellites and space debris. This activity is known as space surveillance and tracking (SST), and is today mostly based on ground-based sensors such as telescopes and radars. At present there is no SST capability at European level; satellite and launch operators are dependent on US data for anti-collision alerts.

The EU is ready to support the emergence of a European SST service built on a network of existing SST assets owned

by Member States, possibly within a trans-Atlantic perspective. These services should be available to public, commercial, civilian, military operators and authorities. This will require the commitment of Member States owning relevant assets to cooperate and provide an anti-collision service at European level. The ultimate objective is to ensure the protection of European space infrastructures with a European capability.

Action:

The Commission has put forward a proposal for EU SST support programme in 2013. Building on this proposal, the Commission will assess how to ensure, in the long-term, a high level of efficiency of the SST service.



6.2. Satellite Communications

There is a growing dependence of military and civilian security actors on satellite communications (SATCOM). It is a unique capability which can ensure long-distance communications and broadcasting. It facilitates the use of mobile or deployable platforms as a substitute for ground-based communication infrastructures and to cater for the exchange of large quantities of data.

Commercial SATCOM is the most affordable and flexible solution to meet this growing need. Since the demand for security SATCOM is too fragmented pooling and sharing SATCOM acquisition could generate significant cost savings due to economies of scale and improved resilience.

Commercial SATCOMs cannot fully substitute core governmental/military satellite communications (MILSATCOM) which are developed individually by some EU Member States. However, these communications lack capacity to cater for the needs of smaller entities, most notably military aircraft or Special Forces in operation. Furthermore, by the end of this decade, current Member States' MILSATCOM will come to the end of their operational life. This key capability must be preserved.

Actions:

The Commission will act to overcome the fragmentation of demand for security SATCOM. In particular, building on the EDA's experience, the Commission will encourage the pooling of European military and security commercial SATCOM demand;

The Commission will explore the possibilities to facilitate, through existing programmes and facilities, Member States efforts to deploy government-owned telecommunications payloads on board satellites (including commercial) and develop the next generation of government-owned MILSATCOM capability at European level.



6.3. Building an EU satellite high resolution capability

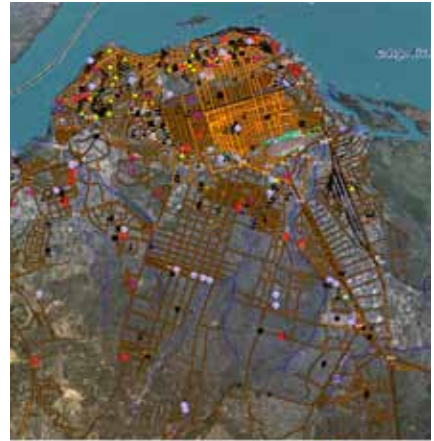
Satellite high resolution imagery is increasingly important to support security policies including CSDP and CFSP. EU access to these capacities is crucial to perform early warning, timely decision making, advanced planning and improved conduct of EU crisis response actions both in the civilian and military domains.

In this field several national defence programmes are being developed. Some Member States have also developed high resolution dual systems to complement defence-only national programmes. These dual systems have allowed new forms of collaboration among Member States to emerge for the exploitation of satellite imagery whereby the acquisition takes place either on the market or through bilateral agreements. This successful approach, combining civil and defence user requirements, should be pursued.

As the need for high resolution imagery continues to grow, in order to prepare the next generation of high resolution imagery satellites which should be deployed around 2025, a number of technologies must be explored and developed such as hyper-spectral, high resolution satellites in geostationary orbit or advanced ultra-high resolution satellites in combination with new sensor platforms such as RPAS.

Action:

The European Commission together with EEAS and EDA will explore the possibility to develop progressively new imaging capabilities to support CFSP and CSDP missions and operations. Also the European Commission will contribute to developing the necessary technologies for the future generations of high resolution imagery satellites.





7.

Application of EU Energy policies and support instruments in the defence sector

Armed forces are the biggest public consumers of energy in the EU. According to the EDA, their combined annual expenditures for electricity alone sum up to an estimated total of more than one billion euros. Moreover, fossil fuels remain the most important source to meet these energy needs. This implies sensitive dependencies and exposes defence budgets to risks of price increases. Therefore, to improve security of supply and reduce operational expenditures, armed forces have a strong interest in reducing their energy footprint.

At the same time, armed forces are also the largest public owner of free land and infrastructures, with an estimated total of 200 million square meters of buildings and 1% of Europe's total land surface. Exploiting this potential would enable armed forces to reduce their energy needs and cover a considerable part of these needs from their own low-emission and autonomous sources. This would reduce costs and dependences and contribute at the same time to accomplishing the Union's energy objectives.

In the research field, the Commission has developed the Strategic Energy Technology (SET) Plan to promote innovative and low-carbon energy technologies which have better efficiencies and are more sustainable than existing energy technologies. Given its important energy needs, the defence sector could be a frontrunner in the deployment of the emerging energy technologies of the SET-Plan.

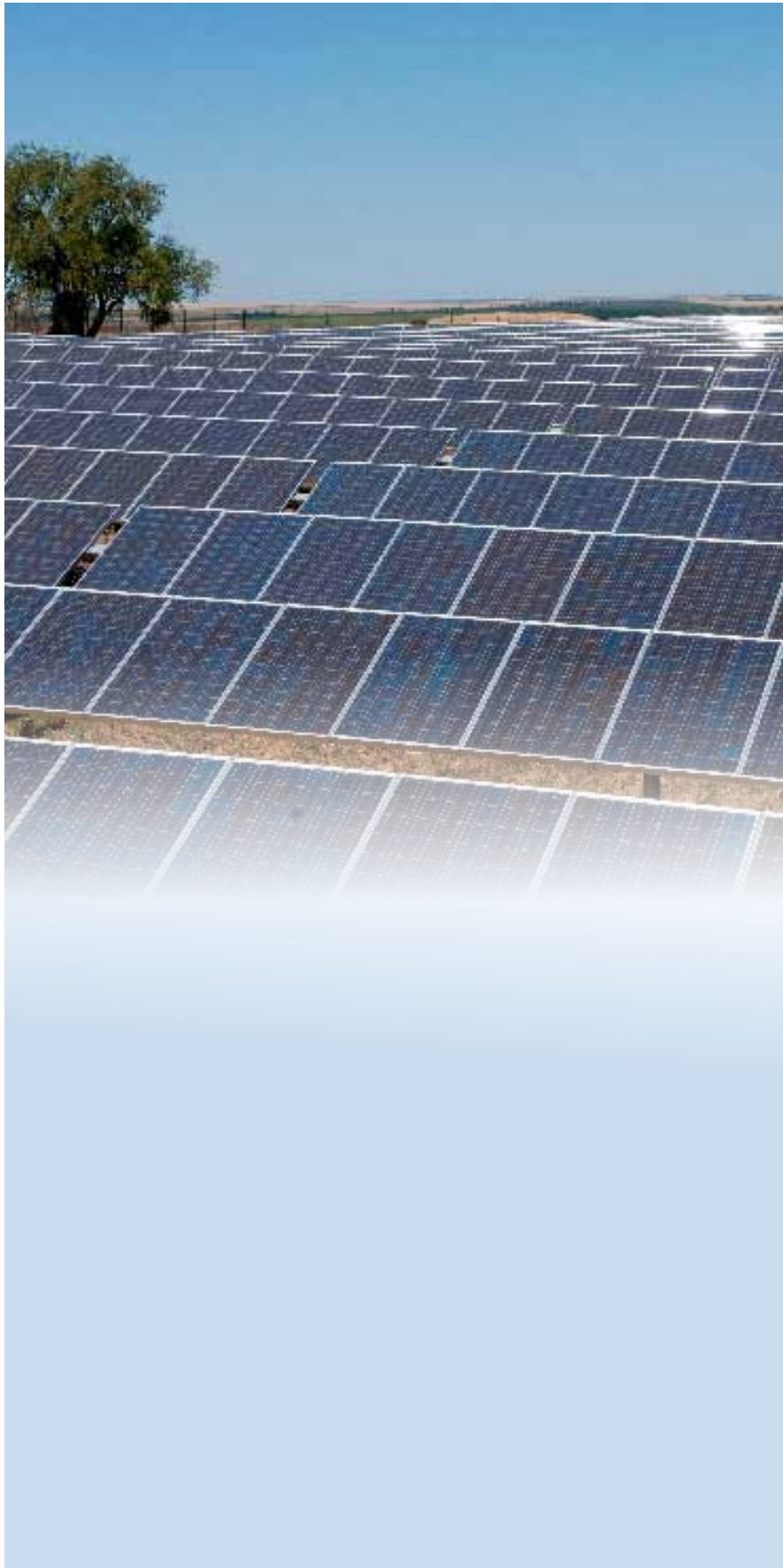
Actions:

The Commission will set up a specific consultation mechanism with Member States experts from the defence sector by mid-2014, based on the model of the existing Concerted Actions on renewables and energy efficiency. This mechanism will focus on a) energy efficiency, particularly in building sector; b) renewable energy and alternative fuels; c) energy infrastructure, including the use of smart grid technologies and will:

- *Examine the applicability of the existing EU energy concepts, legislation and support tools to the defence sector.*
- *Identify possible objectives and focus areas of action at EU level for a comprehensive energy concept for armed forces.*
- *Develop recommendations for a guidebook on renewable energies and energy efficiency in the defence sector with a focus on the implementation of the existing EU legislation, innovative technologies' deployment and the use of innovative financial instruments.*
- *Exchange information with the SET-Plan Steering Group on a regularly basis.*

The Commission will also consider developing a guidance document on implementation of Directive 2012/27/EU in the defence sector.

The Commission will support the European armed forces GO GREEN demonstration project on photovoltaic energy. Following its successful demonstration, the Commission will also help to develop GO GREEN further, involving more Member States and possibly expanding it to other renewable energy sources such as wind, biomass and hydro.





8.

Strengthening the International Dimension

With defence budgets shrinking in Europe, exports to third countries have become increasingly important for European industries to compensate for reduced demand on their home markets. Such exports should be authorised in accordance with the political principles laid down in Common Position 2008/944/CFSP, adopted on 8 December 2008, and in accordance with the Arms Trade Treaty adopted on 2 April 2013 by the General Assembly of the United Nations Organisation. At the same time, Europe has an economic and political interest to support its industries on world markets. Lastly Europe needs to ensure a coherent approach to the monitoring of incoming foreign investment (as set out in section 2.3 on ownership and security of supply).

8.1. Competitiveness on third markets

Whereas defence expenditure has decreased in Europe, it continues to increase in many other parts of the world. Access to these markets is often difficult, depending on political considerations, market access barriers, etc. The world's biggest defence market, the United States, is basically closed for imports from Europe. Other third countries are more open, but often require offsets which put a heavy burden on EU companies. Finally, on many third markets, several European suppliers compete with each other, which makes it difficult from a European perspective to support a specific EU supplier.

Action:

The Commission will establish a dialogue with stakeholders on how to support the European defence industry on third markets. With respect to offsets on third markets, this dialogue will explore ways of mitigating possible negative impacts of such offsets on the internal market and the European defence industrial base. It will also examine how EU institutions could promote European suppliers in situations where only one company from Europe is competing with suppliers from other parts of the world.

8.2. Dual Use Export Controls

Dual-use export controls closely complement arms trade controls and are key for EU security as well as for the competitiveness of many companies in the aerospace, defence and security sectors. The Commission has initiated a review of the EU export control policy and has conducted a broad public consultation, which conclusions are presented in a Commission Staff Working Document issued in January 2013. The reform process will be further advanced with the preparation of a Communication which will address remaining trade barriers that prevent EU companies to reap the full benefits of the internal market.

Action:

As part of the ongoing export control policy review, the Commission will present an impact assessment report on the implementation of Regulation (EC) 428/2009 and will follow up with a Communication outlining a long-term vision for EU strategic export controls and concrete policy initiatives to adapt export controls to rapidly changing technological, economic and political conditions. This may include proposals for legislative amendments to the EU export control system.

9.

Conclusions

Maintaining and developing defence capabilities to meet current and future challenges in spite of severe budget constraints will only be possible if far-reaching political and structural reforms are made. Time has come to take ambitious action.

9.1. A new framework for developing civil/military co-operation

Civil/military co-operation is a complex challenge with numerous operational, political, technological and industrial facets. This is particularly true in Europe, where distribution of competences and division of work adds another layer of complexity. This Communication provides a package of measures that can help to overcome these challenges and incentivise co-operation between Member States. In this context, our objective is to develop an integrated approach across the civ-mil dividing line, with a seamless transition throughout all phases of the capability life cycle i.e. from the definition of capability needs to their actual use on the ground.

As a first step towards this objective, the Commission will review its own internal way of dealing with security and defence matters. Based on the experience of the Defence Task Force, it will optimise its mechanisms for cooperation and coordination between its own services and with stakeholders.

9.2. A call to Member States

This Communication sets out an Action Plan for the Commission's contribution to strengthening the CSDP. The Commission invites the European Council to discuss this Action Plan in December 2013 together with the report prepared by the High Representative of the Union for Foreign Affairs and Security Policy on the basis of the following considerations:

- Decisions on investments and capabilities for security and defence should be based on a common understanding of threats and interests. Europe therefore needs to develop, in due course, a strategic approach covering all aspects of military and non-military security. In this context, a wider political debate on the implementation of relevant provisions of the Lisbon Treaty should be held;
- The Common Security and Defence Policy is a necessity. To become effective, it should be underpinned by a fully-fledged Common European Capabilities and Armaments Policy as mentioned in Article 42 of the TEU;
- To ensure coherence of efforts, CSDP must be closely coordinated with other relevant EU policies. This is particularly important in order to generate and exploit synergies between the development and use of defence and civil security capabilities;
- For CSDP to be credible, Europe needs a strong defence industrial and technological base. To achieve this objective, it is crucial to develop a European Defence Industrial Strategy based on a common understanding of the degree of autonomy Europe wants to maintain in critical technology areas;
- To maintain a competitive industry capable of producing at affordable prices the capabilities we need, it is essential to strengthen the internal market for defence and security and to create conditions which enable European companies to operate freely in all Member States;
- Facing severe budget constraints, it is particularly important to allocate and spend financial resources efficiently. This implies inter alia to cut back operational costs, pool demand and harmonise military requirements;
- To show real added value of the EU framework, what is needed is to identify a joint project in the area of key defence capabilities, where EU policies could fully be mobilized.

9.3. Next Steps

On the basis of the discussions with Heads of State and Government, the Commission will develop for the areas defined in this Communication a detailed roadmap with concrete actions and timelines.

For the preparation and implementation of this roadmap, the Commission will set up a specific consultation mechanism with national authorities. The mechanism can take different forms, depending on the policy area under discussion. The EDA and the External Action Service will be associated to this consultation mechanism.



COMMISSION STAFF WORKING DOCUMENT

ON DEFENCE

accompanying the document

COMMUNICATION

Towards a more competitive and efficient defence and security sector

SWD (2013) 279 final



Objective

This Staff Working Document accompanies the Communication on defence. Its objective is to provide some statistical background for EU defence industry and market and to better illustrate some of the points made in the Communication.

In particular, the Staff Working Document:

- *Highlights the economic importance of the defence industry and its contribution to growth and jobs and the challenges it is facing;*
- *Analyses the evolution of defence spending in Europe and its consequences for the EU defence industrial base;*
- *Presents the challenges facing the internal market for defence;*
- *Describes the status and progress in consolidation in the defence industry ;*
- *Analyses defence industrial supply chains and the role of SMEs in the sector;*
- *Describes new business strategies in the defence industry in an evolving global setting.*

1. ASD data

2. A 2011 study on the economic impact of BAE Systems on the UK economy in 2009 estimated that, for every 10 people employed by BAE another 19 were employed elsewhere (12 in the supply chain and 7 in the wider economy).

"The economic contribution of BAE Systems to the UK", Oxford Economics, April 2011

3. "Study on the Perspectives of the European Land armament sector", Industri-All, October 2012.

4. This document will refer to Research and Development (R&D) and to the sub-component Research & Technology (R&T).

Box 1: Case study – economic benefits of Eurofighter Typhoon¹

Eurofighter Typhoon is Europe's largest military aircraft programme. The programme currently supports around 100,000 jobs directly and indirectly in over 400 European companies, many of which being highly-skilled and high wage jobs. Many of the labour skills involved are highly transferable (e.g. to automobile and electronics industries). The programme has contributed to establishing world-class European companies in carbon fibre technology, sensor fusion and advanced glass fibre cables. Technology spin-offs were also identified, such as to civil aircraft, construction machining and mining equipment but also the automobile industries, including Formula 1 cars in Italy and UK. These spin-offs have been valued at €7.2 billion.

1. Defence industry strongly contributes to growth and jobs

With a turnover of €96¹ billion in 2012, the European defence industry brings a major contribution to the growth of the wider economy. It provides thousands of highly skilled jobs², as it directly employs about 400,000 people. Moreover, driven by a multiplier effect of between 2.2 and 2.4, it generates up to another 960,000 indirect jobs³.

The defence industry is a major industrial sector, generating innovation and centred on high-end engineering and technologies. Its cutting-edge research has created important knock-on effects in other sectors, such as electronics, space and civil aviation. Therefore, it is a sector that

is essential to retain if Europe is to remain a world-leading centre for manufacturing and innovation. Many of what have become everyday technologies in use have their roots in the defence industry. Microwave technology, satellite navigation and even the internet can trace their origin back to research carried out by the defence industry.

There are also many examples of technologies invented in the civilian sector, which were subsequently nurtured in the military sector, and eventually found a mass-

use in the civilian economy, such as jet engine propulsion and integrated circuits.

The defence sector has three main sub-sectors:

The **aeronautics** sector represents around 50% of Europe's defence, with a turnover of €46.7 billion in 2010 (43% of this is generated from exports), and employs around 200,000 people. The sector has considerable experience of international collaborative projects, which involves the sharing of total Research and Development⁴ (R&D) costs and the pooling of production orders between partner countries. Some of these collaborative programmes have led to the formation of European companies such as MBDA and Eurocopter. The degree of collaboration reflects the high, and rising, costs of modern aerospace projects.

The sector has the capability to produce world class products in most categories of aircraft and helicopters. Europe currently builds three types of advanced fighter jets: Rafale (France), Gripen (Sweden) & EuroFighter (Germany, Italy, Spain & UK) with a number of countries also taking part in the Joint Strike Fighter programme of the US. These programmes are characterised by high R&D intensity and many technology spin-offs. However, recent cuts in Member States' R&D investments are putting some important industrial capabilities and technologies at risk especially in the area of future combat aircraft and attack helicopters. Air power is an important element of national and European defence and Europe may rapidly reach the point where it will be dependent on other countries for critical technologies and capabilities in this respect.

Box 1: Case study – economic benefits of Eurofighter Typhoon⁵

In 2010 the **land defence sector** had a turnover of around €30 billion and employed 128,700 people⁶. It has the capability for delivering and sustaining key military capabilities in areas such as main battle tanks and armoured fighting vehicles, as well as for sustaining and upgrading platforms. Compared to military aeronautics, land defence is less technologically progressive and its systems are less R&D intensive with the exception of Unmanned Ground Vehicles, sensors,

precision-guided ammunition and Chemical, Biological, Radiological and Nuclear (CBRN) protection. The sector has developed joint ventures and collaborative research with third parties, but not European collaborative projects similar to the aerospace sector.

The European land defence sector companies are much more dependent on defence-related activities than companies in other sectors, around 80% of their sales are defence-related⁷. Whereas some of them have achieved notable export successes demonstrating its international competitiveness (e.g. German Leopard tank), there are reservations about the overall competitiveness of the sector. US firms tend to be 1.5 times larger on average than EU companies, achieving a larger output over fewer products (economies of scale) and are less dependent on defence.

The **naval sector** had a turnover of around €17 billion in 2010 and employed 83,200 people⁸. The sector provides full services across the entire life cycle of a complex warship from design and construction to integration of systems and support. European companies rank among the world top four suppliers of warships. There are 5 main European shipyards⁹ with many other smaller producers and support services spread across the EU. A comparison with the US underlines however that the EU naval sector has over-capacity operating at a relatively small scale. The EU has 12 major warship building companies versus two in the US, and US naval firms are on average 3.4 times larger than the EU. For EU companies this means less economies of scale and the need to spread R&D costs over small production runs. The naval sector has only limited experience with European collaboration compared to the aerospace sector as, until recently, pressures of R&D and unit production costs tended to be lower than in the aerospace sector.

Besides the three main sectors, other segments can be distinguished such as for example defence electronics and missiles. Defence electronics is a key enabler in the land, air and naval sectors. It plays a crucial role in modern weapon systems,

and there are a number of world class EU defence electronics firms. Nevertheless, this paper does not expand on these sectors, mainly due the lack of substantial data that would enable presenting them as separate entities, but also because they are to a certain degree already an integral part of the three main sectors.

In conclusion, despite an overall trend towards more consolidation in the defence sector, there is still a high level of fragmentation, in particular in the naval and land sectors, which in turn leads to overcapacities and duplication (see section 4). This is illustrated in the fact that platforms and systems in use and in production in the EU are more than 3 times as many as in the USA¹⁰.



5. "The industrial and economic benefits of Eurofighter Typhoon". Hartley. University of York. February 2008. "The economics of defence policy: a new perspective". Hartley. Routledge Studies. 2011.

6. "Facts and Figures", ASD. 2010

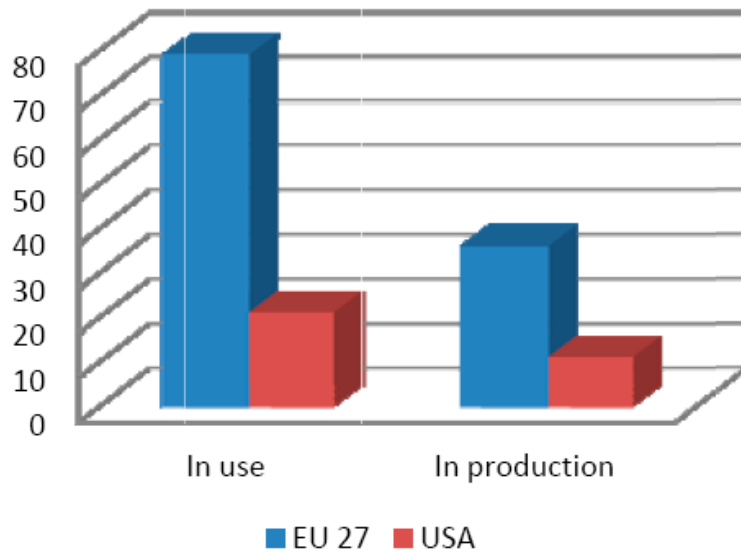
7. "Study on the Perspectives of the European Land armament sector", Industri-All, October 2012.

8. "Facts and Figures", ASD. 2010

9. BAE Systems (UK), DCNS (France), TKMS (Germany), Fincantieri (Italy) and Navantia (Spain).

10. "Armaments duplication in Europe: A quantitative assessment", Valerio Briani, CEPS Policy Brief, No 297, 16 July 2013.

Figure 1:
Platforms and systems in use and in production in the EU and USA, 2012



Source: CEPS Policy Brief No 297, July 2013



2.

EU defence spending is decreasing, with a negative outlook for the future

2.1 European defence spending has been dramatically declining over the last decade...

Between 2005 and 2010 European defence spending has declined by almost 10% in real terms. It is forecasted that spending between 2010 and 2013 will show a further decline of about 10%. This stands in striking contrast to global trends. World total defence spending is expected to grow by 6.8% between 2011 and 2015 as austerity in the West will be more than offset by accelerated defence spending in emerging markets. The US is expected to see severe cuts in defence spending by at least 10% over the period, while other regions such as China and Russia will up to double their defence spending. In 2012 Asian defence spending overtook Europe's defence spending for the first time¹¹. There is a risk that, by 2017, Europe will have lost 12% of its overall defence spending since the start of the economic crisis¹².

The budget cuts are not homogeneous at a national level. Most dramatic cuts of all are to be found amongst the smaller EU member states, with rates above 30%. The majority of middle-sized states implemented average cuts of 10% in their defence budgets. The situation seems to be different for the 6 countries¹³ which are the largest spenders in overall defence, procurement and R&D, representing 80% of total European defence and 75% of procurement spending in 2010.

At one end of the spectrum, there have been sizeable cuts in defence budgets in Germany, the UK and Spain. Between 2008 and 2011 Spain cut spending on defence equipment by more than 50%. In Sweden the core defence spending has remained flat between 2010 and 2011, and a supplement of €4.8 billion per annum has been adopted to cover modernisation expenses. At the other end of the spectrum, although France and Italy have been strongly affected by the economic crisis, their spending remained largely unchanged. Nevertheless, in the case of France this has been mainly due to standing commitments, as the commitments for new equipment have decreased for a third consecutive year, reaching only €6.4 billion in 2012 (€19.3 billion in 2009)¹⁴.

Collaborative spending on equipment expenditure increased from 16% (2005) to 22% (2010)¹⁵. Yet, this means that still a lion share of equipment expenditure is

11. International Institute for Strategic Studies (IISS)

12. Speech President Van Rompuy – "Defence in Europe – pragmatically forward", 21 March 2013.

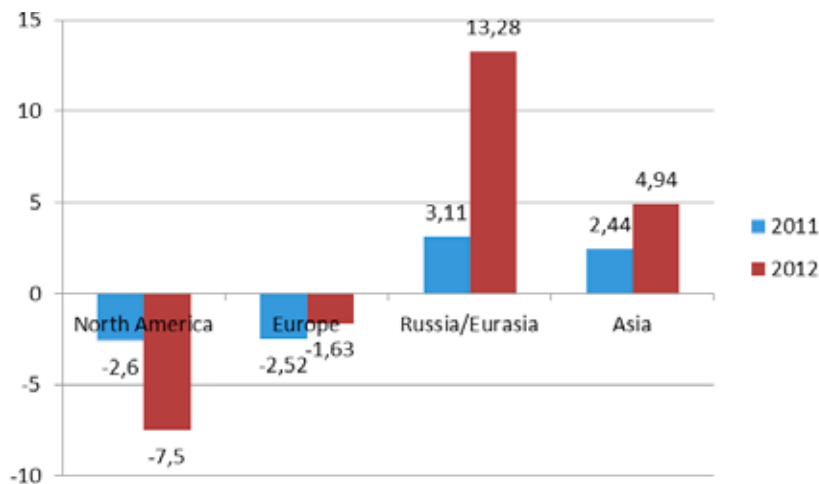
13. France, Germany, Italy, Spain, Sweden and UK

14. "Bilan d'activités 2012", DGA, French MoD

15. "European Defense Trends 2012". CSIS, December 2012.

Figure 2:

Regional Defence Spending fluctuation in %, 2011-2012



16. « A single European market for defence equipment : organisation and collaboration ». Prof. Hartley, University of York.

17. "The evolution of the European Defence Sector", RAND, January 2013

18. "Defence Data 2010", EDA

taking place at a national level without significant coordination between Member States thus contributing to the overcapacity, duplication and gaps in European critical capabilities.

Moreover, while defence budgets are declining, defence equipment costs have been steadily increasing over time, up to 10% per year in real terms, resulting in a doubling of weapons costs every 7.25 years¹⁶. As a result of these trends, defence capabilities in most European countries have already been significantly reduced. If this situation persists, the EU will have increasing difficulties in providing capacities to deal with future challenges. A key factor will be the impact of budget cuts on R&D spending which, in turn, is critical to the development of the current and future military capabilities Europe needs.

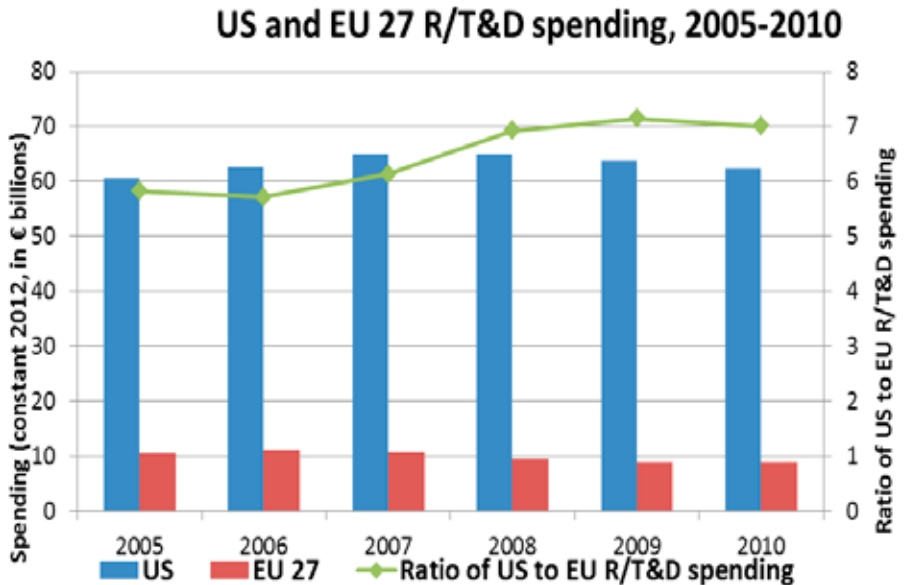
2.2 ... adversely affecting R&D spending in the defence sector

R&D spending in the defence sector declined by 14% between 2006 and 2010 while the overall budgets diminished by 3.5%. This results from the fact that as R&D cuts can be made with no short term reduction in military capability, R&D spending is often seen as 'discretionary'.

France and the UK are the largest R&D spenders, both in absolute terms and relative to overall defence spending, and represented 76% of European R&D spending in 2010¹⁷. If German R&D expenditure is added, the three countries account for the 93% of overall European R&D spending. From a global perspective the gap between European and US R&D defence budgets increased between 2005 and 2010, the US budget (€58 billion) being 7 times larger than the European one (€8.5 billion)¹⁸ in 2010.

Figure 3:

R&D defence spending in EU/US, 2005-2010

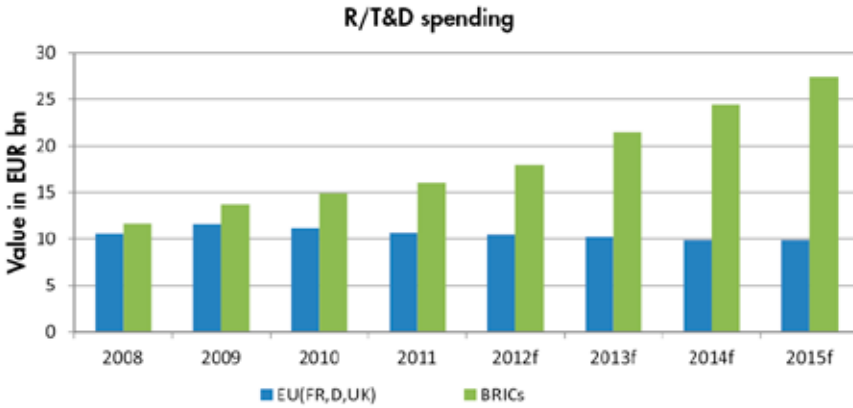


Source: RAND Europe analysis of HIS Jane's data

Moreover, the combined R&D spending of the BRIC countries (Brazil, Russia, India and China) is continuously growing and it is projected to be more than double than the combined R&D spending of the UK, France and Germany by 2013, whereas in 2008 it was almost equal.

Figure 4:

R&D defence spending forecasts (FR, D, UK vs BRIC)



Source: RAND Europe analysis of HIS Jane's data

Almost all R&D in the defence sector is carried out at a national level. Only 12% of total R&T public expenditure carried out by EU EDA participating Member States is done on a European collaborative basis¹⁹.

Box 2: Increasing defence R&D spending²⁰

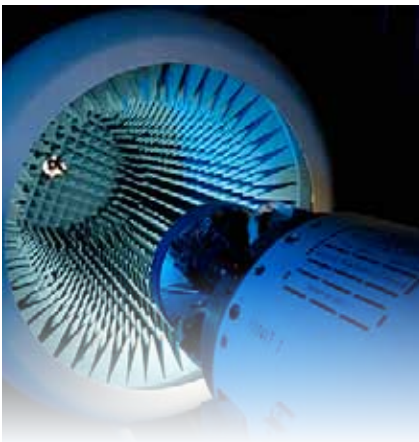
19. "Study on the Perspectives of the European Land armament sector", Industri-All, October 2012.

20. "The evolution of the European Defence Sector", RAND, January 2013



Box 2: Increasing defence R&D spending¹

A significant difference to the R&D spending can be made with a limited amount of money. If it were possible to rationalise spending on European land forces in line with stated military ambitions and reallocate the financial savings to R&D in the defence sector, this would contribute an additional 50% to aggregate R&D defence budget and lift it from 4.4% to 7.6% of overall 2010 defence spending.



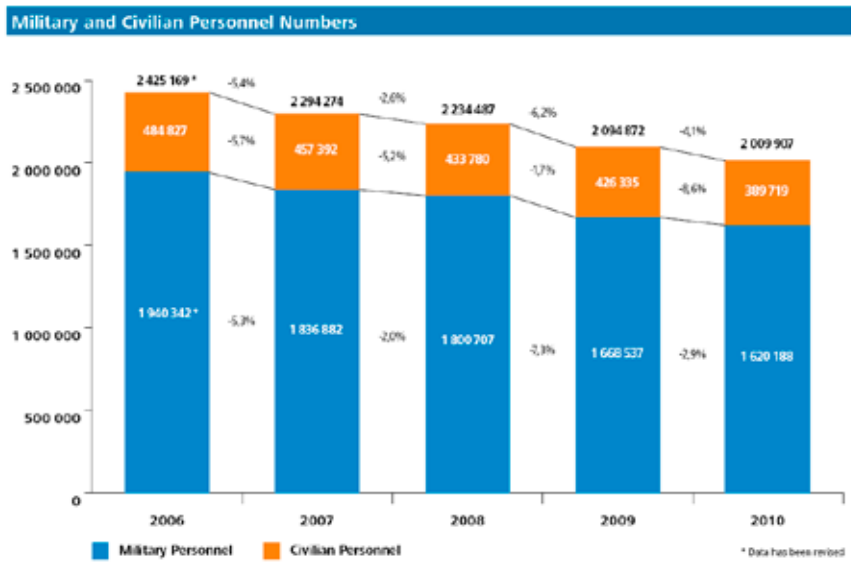
21. "Maintaining defence capabilities : European share", SAC/CEPI Policy Brief, February 2013.

2.3 At the same time European spending is dominated by personnel costs...

Between 2006 and 2010 European spending on personnel costs in the armed forces decreased by 17.5%. Cuts in personnel spending directly impacted the number of military and civilian personnel, bringing down the overall personnel number from 2.4 million in 2006 to just over 2 million in 2010.



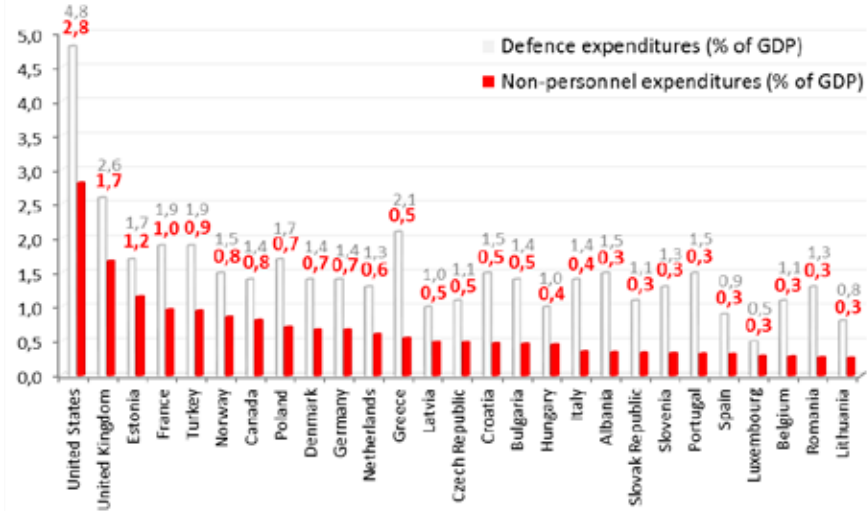
Figure 5: military and civilian personnel numbers, 2006-2010



Source: EDA

However, this does not change the general picture: a high share of the European defence budget remains devoted to personnel. Almost half of the EU Member States are spending more than 60% of their respective defence budgets on personnel. As a result Member States spend at best 0.5% of their GDP on defence after personnel expenses have been excluded²¹.

Figure 6:
Defence expenditures of NATO member countries (% of GDP)



Source: Slovak Atlantic Commission, 2012

Whereas the EU may still have 500,000 soldiers more than the US, there is a substantial difference in terms of investment in equipment and R&D per soldier: in 2010 this amounted to €110,998 in the US versus only €26,458 in the EU²². In the absence of further troop reductions, European spending per soldier is expected to follow the downward trend of total defence spending. This development is likely to result in smaller but progressively less capable European military forces, and will be further exacerbated should spending priorities continue to shift away from investment into equipment²³.

2.4 ... whilst the increase of procurement spending is slow to emerge

Given the reduction in defence budgets it is perhaps surprising to note that procurement spending at the European level actually increased by 17% between 2005 and 2010. This corresponds to an absolute increase of over €5 billion, reaching €35.5 billion of total procurement spending in 2010. However, this increase may be also explained by a low base, as the growth was below one percentage point per year (from 14% in 2005 to 18% in 2010). At the same time, the large proportion of procurement budgets, especially in larger Member States, is contractually com-

mitted on long-term programmes which reduce short term fluctuations. It may be noted that, at this pace, it would take another 30 years before the combined share of procurement and R&D would reach a level of about 40% (compared with the 41% that US defence budget has devoted to investment into equipment procurement and R&D in 2010).

In reality, almost all Member States are considering either delaying procurement programmes or reducing their size. Most importantly, while the existing programmes will continue for the next 2-3 years, few new programmes are being launched. Some medium-sized and small Member States have decided to postpone decisions on the modernisation of key conventional capabilities, whilst others have prioritised their modernisation rather than tendering for a new generation of capacities²⁴. This will result in the dramatic decline of new programmes beyond 2015 which in turn will endanger the future of European Defence Technological and Industrial Base (EDTIB).

From a global perspective, the combined European and North American procurement budgets are expected to decline from 64% to 45% of 2015 global procurement spending. In contrast, procurement spending in Russia is forecast to total \$58 billion and to climb by 33% from 2012 to 2016.²⁵

22. "Defence Data 2010", EDA
 23. "European Defense Trends 2012". CSIS, December 2012
 24. EP Study "The impact of the financial crisis on European defence", April 2011 / "Military Balance 2013", T&F Informa UK Ltd. 2013
 25. IHS Jane's Defence Weekly, 19/12/2012



3. Fragmentation of the European Defence Market

3.1 Openness and competition before the transposition of Directive 2009/81/EC

The consequences of defence budgets reductions are exacerbated in Europe by the fragmentation of defence markets. This fragmentation persists at all levels – demand, supply and regulatory framework – and has led, amongst others, to costly duplications and protectionist procurement practices.

According to EDA estimates, roughly 80% of defence procurement expenditure is spent nationally, i.e. outside cooperative projects. This does not mean that these

80% are exclusively spent for equipment from national suppliers. However, before the entrance into force of the new defence procurement Directive 2009/81/EC, the degree of openness to suppliers from other Member States was relatively low.

EU-wide publication of business opportunities is the first criterion for market openness. From 2008 to 2010 included, more than 1500 notices for defence contracts²⁶ of a value of roughly €4 billion were published on TED (Tenders Electronic Daily, the electronic platform of the EU's Official Journal). On top of that, notices for contracts of roughly €4.76 billion were published on the Electronic Bulletin Board (EBB) of the European Defence Agency. Whereas the first category of contracts was awarded according to the rules of Directive 2004/18/EC, the second was exempted from EU law on the basis of Article 346 TFEU, but in principle also open to competition from suppliers from other Member States.

26. Contracts for the purchase of arms, munitions and war material, plus related services and works.

Figure 7: Contracts notified on TED and EBB

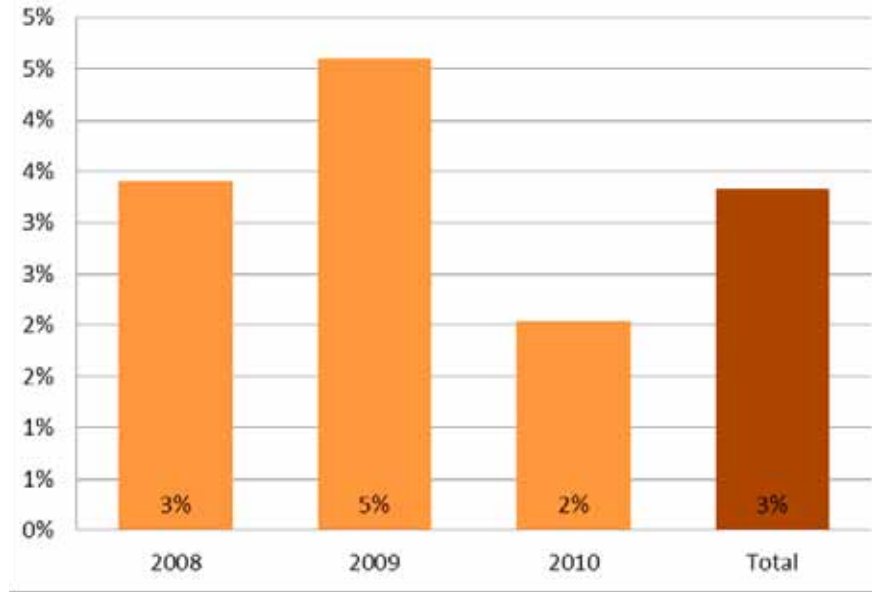
Publication source	Values, € million 2010 Prices				Number			
	2008	2009	2010	TOTAL	2008	2009	2010	TOTAL
TED	513	2,626	885	4,024	415	447	686	1,548
EBB	2,518	1,348	900	4,766	126	90	80	296
TOTAL	3,031	3,974	1,785	8,790	541	537	766	1,844



Hence, in the period 2008-2010, 1,844 defence contract notices were published EU-wide. The total value of these contracts was estimated to be €8.8 billion, which is equivalent to 3.3% of the EU's total defence procurement expenditure in the same period.

Figure 8:

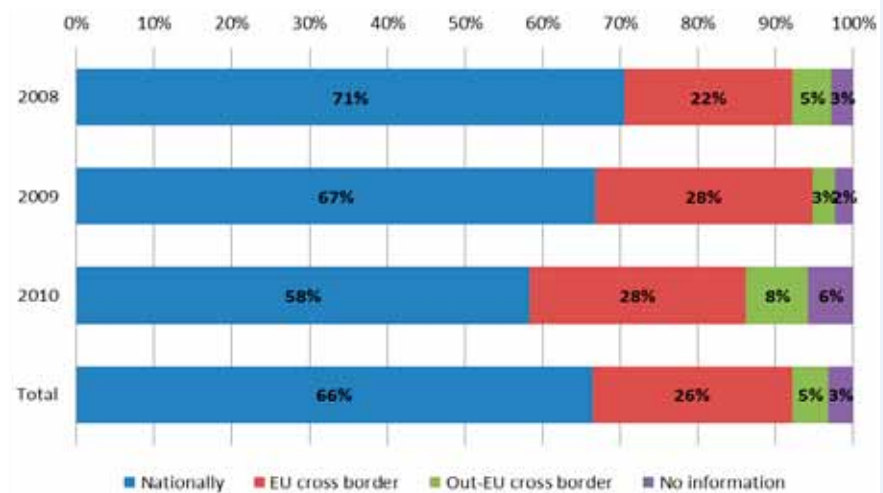
Contracts notified on TED and EBB in relation to defence procurement expenditure



Of the €8.8 billion contract value published on TED and the EBB, €5.8 billion was awarded to national suppliers (66%), €2.3 billion to operators established in other Member States (26%), €0.4 billion to operators from third countries (5%).

Figure 9:

Cross-border awards of contracts published on TED and EBB



Other defence contracts have been awarded to non-national suppliers without prior publication in TED or EBB. For the years 2008-2010, the SIPRI Arms Transfer Database reports of 63 such cross-border contracts with an estimated value of €3.9 billion, 32 of these contracts with a value of €2.2 billion were awarded in competition.

The total value of EU cross-border contracts awarded in competition was therefore €4.5 billion, which is 1.7% of total defence expenditure in the EU or 4.3% of the total defence equipment expenditure in the EU.

The total value of EU cross-border contracts – including those awarded without competition (e.g. follow-on contracts) – was €6.2 billion, equal to 5.9% of total EU defence equipment procurement or 2.3% of total EU defence procurement.

On top of that come contracts of a value of €0.4 billion which were awarded to suppliers from non-EU countries.

3.2 Openness and competition since the transposition of Directive 2009/81/EC

The new Directive 2009/81/EC applies to all defence procurement above a certain threshold and subject to Article 346 TFEU, which allows Member States to derogate from the rules of the Directive if this is necessary to protect their essential security interests.

Entering into force in 2009, the Directive had to be transposed by August 2011. However, transposition in all 27 Member States was accomplished in March 2013 only. It is therefore still too early to draw conclusions on the impact of the Directive on the openness of defence markets.

However, a first analysis of publication in TED gives some insights in Member States application of the Directive. The table below shows all notices published on TED by end of March 2013. It indicates in particular an important difference in numbers of published contract notices: up until now, a single Member State, France, has published alone 50% of all contract notices, whereas others (ES and

Figure 10:
Estimated value of EU cross-border defence contracts 2008-2010

Cross-border awards in competition	€ m / %
Reported by TED and the EBB	2,260
Estimated from SIPRI data	2,200
Total	4,460
Expressed as a ratio of total defence procurement	1.7%
Expressed as a ratio of total defence equipment procurement	4.3%
Total cross-border awards (competitive and non-competitive)	
Reported by TED and the EBB	2,260
Estimated from SIPRI data	3,890
Total	6,150
Expressed as a ratio of total defence procurement	2.3%
Expressed as a ratio of total defence equipment procurement	5.9%

NL) have not published a single one. Late transposition (alone) cannot explain these differences: Germany, which transposed late, has published a considerable number of contracts and ranks second behind France. The table shows also other specificities, such as the disproportion in Italy between contract notices and contract award notices. This indicates the frequent

use of negotiated procedure without publication or the use of other procedures not foreseen in the Directive. The high number of voluntary ex ante notices in UK and DK could point into a similar direction.



Figure 11:
Number of notices under Directive 2009/81/EC published on TED
(21-08-2011 until 31-03-2013)

COUNTRY	BUYER PROFILE	CONTRACT AWARD	VOLUNTARY EX ANTE INFO NOTICE	CONTRACT NOTICE	PRIOR INFORMATION NOTICE	TOTAL
AT		1		2	1	4
BE		2		8		10
BG		11	1	14	1	27
CY				3	1	4
CZ		10		36	36	82
DE	1	163		235	7	406
DK		26	59	42	3	130
EE		1		1		2
ES	1					1
FI		37	25	63		125
FR	1	132	44	515	3	695
HU	1	23		11		35
IT	2	194	11	23	82	312
LT		3	3	12		18
LV		2		3		5
NL		6				6
PL	2	3	2	7		14
RO		1		5		6
SE		4	1	17		22
SI				1		1
SK		5	3	6	3	17
UK		43	187	79	10	319
TOTAL	8	667	336	1083	147	2241

EU-wide publication does not necessarily lead to cross-border competition or cross-border award of contracts. The table below shows that even in Member States with high publication rates like France and Germany, very few contracts are awarded to non-national suppliers. However, this does not necessarily indicate a persisting “buy national” policy on the side of the

Member States. Also defence companies might be reluctant to operate outside their home markets (in particular if this would imply to compete with established national champions). In that case, a consistent practice of publication by Member States can be expected to change business practice over time, leading companies to be more active on other European markets.



Figure 12:

Number of Contracts awarded under Directive 2009/81/EC (21-08-2011 until 23-03-2013)

	TOTAL CONTRACTS	AWARDED CROSS-BORDER	AWARDED NATIONALLY	% CROSS BORDER
AT	1	0	1	0
BE	2	1	1	50
BG	19		19	0
CZ	46	10	36	22
DE	162	1	161	1
DK	26	11	15	42
FI	56	33	23	59
FR	216	0	216	0
HU	75	1	74	1
IT	196	3	193	2
LT	6	0	6	0
LV	2	2	0	100
NL	7	0	7	0
PL	3	0	3	0
RO	1		1	0
SE	4	0	4	0
SK	5	1	4	20
UK	45	7	38	16
TOTAL	872	70	802	8

Note:

For a significant number of contracts (83) the nationality of the contractor was not recorded. Based on the fact that the majority of contracts were awarded to national operators, we assume that this is the case for the contractors of which their nationality is unknown.

Figure 13:

Values of contracts in € million Directive 2009/81/EC (21-08-2011 until 23-03-2013)

	TOTAL AMOUNT	AMOUNT AWARDED CROSS-BORDER	AMOUNT AWARDED NATIONALLY	% CROSS BORDER
AT	0,6	0,0	0,6	0
BE	0,4	0,0	0,4	0
BG	46,0	0,0	46,0	0
CZ	20,3	0,0	20,2	0
DE	308,6	0,6	308,0	0
DK	40,2	3,4	36,8	8
FI	37,6	16,6	21,0	44
FR	129,8	0,0	129,8	0
HU	58,9	0,0	58,9	0
IT	277,4	20,5	256,9	7
LT	1,4	0,0	1,4	0
LV	1,4	1,4	0,0	100
NL	1,6	0,0	1,6	0
PL	4,4	0,0	4,4	0
RO	1,7	0,0	1,7	0
SE	1,1	0,0	1,1	0
SK	6,4	3,5	2,9	55
UK	839,1	6,9	832,2	1
Total	1776,8	53,0	1723,9	3

Note:

For a significant number of contract values (€ 720 million) the nationality of the contractor was not recorded. Given the fact that the majority of contracts went to national operators, we assume that this is the case as well for the contractors of which the nationality is unknown. Also, for roughly one out of six contracts the notices did not record the value of the contract.

Further monitoring and assessment over a longer period of time are necessary to measure the impact of the Directive on the European Defence Market. In this context, it will be important to analyse also:

- which equipment is procured under the Directive (the full spectrum of arms, munitions, war material, or only less sensitive and complex equipment);

- how are the Directive's provisions on subcontracting applied (do SMEs get better access to non-national supply chains and thereby to other Member States' defence markets);
- the use of the exclusions and of the negotiated procedure without publication.

Such an assessment would be more than a statistical exercise and goes beyond a quantitative approach. It necessitates for example a qualitative and detailed analysis of contract award notices, but also the use of other relevant sources, such as the specialised press.



4. Consolidation in the defence sector

4.1 Consolidation is taking place, but progress is slow

The EDTIB has experienced several waves of consolidation over the last decades.

Box 3: Major consolidation factors for the EDTIB

European demand decline:

The decreasing defence budgets in Europe after the end of the Cold War decreased the business opportunities in Europe and in many cases have driven companies to combine forces and merge structures in order to benefit from economies of scale and improve profitability.

International competition:

The increasing size and capabilities of international competitors have been a major driver for consolidation, especially in aerospace (Lockheed Martin and Boeing competition for EADS) and missiles (Raytheon for MBDA).

Technological complexity/R&D costs:

Consolidation has been less reluctantly met where the high technological complexity and the consequent R&D intensity and cost were not bearable for entities below a certain size. On the contrary, in areas of lower technological complexity EDTIB is still highly fragmented.

Integration of civil and defence industry:

It is observed that there is more fragmentation in areas where system providers share a common TIB with the civil sector (ICT, C4ISTAR, defence electronics etc). This could be explained by the increased profitability provided by the civilian activities and the common R&D base for sector specific military and civilian applications.

This process has led to the creation of “primes” such as EADS and MBDA. Driven by decreasing defence spending and increasing R&D costs, consolidation has also helped to reduce overcapacity and duplication across Member States; has created globally competitive companies; and has targeted R&D investments and programmes more effectively.

Box 3: Major consolidation factors for the EDTIB

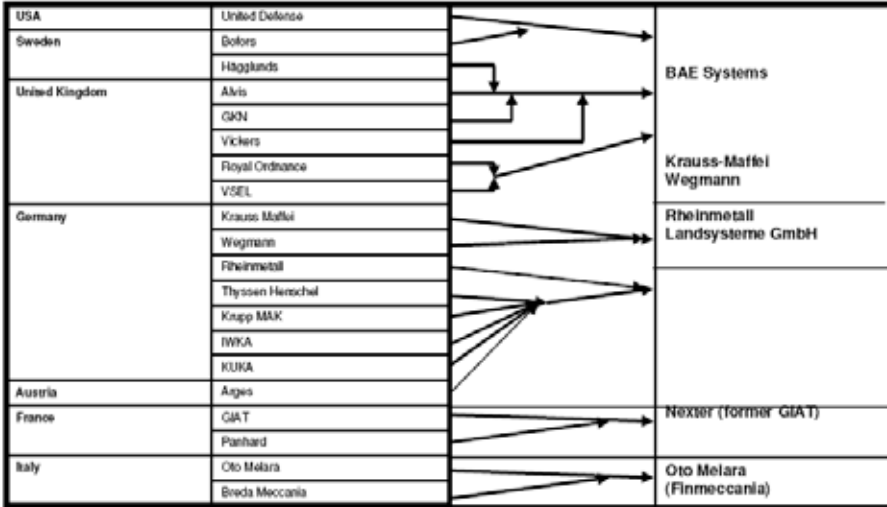
However, consolidation has not taken place to the same extent across sectors. This is especially the case in the naval and land sectors where fragmentation is not only observed at regional level, but also nationally. In the land sector, industrial capabilities are concentrated in a few countries (particularly France, Germany and UK), and the supply chains are complex.

The process of consolidation, for example in the area of armed vehicles (see figure 1.3), has largely taken place along nation-



al lines. Within the UK the armed vehicles sector has been reduced from 5 prime contractors to one, namely BAE Systems.

Figure 14:
Mergers and Acquisitions of the Armed Vehicles Sector in the EU



Source: "Anticipating restructuring in the European Defence industry". BIPE. 2008.

Despite some national restructuring around national champions in the UK, France, Italy and Germany, the naval sector remains fragmented with a large number of relatively small firms and excess capacity. The EU continues to have, for example, eleven suppliers of frigates versus only one US supplier.

In the aerospace sector, consolidation efforts have led to the creation of European companies like EADS and Thales. Joint military programmes have also resulted in new European entities such as MBDA (missiles) and Eurocopter (helicopters). Yet, the sector continues to be characterised by the presence of too many relatively small firms, a lack of efficiency (in comparison to US), overcapacity and capability gaps (e.g. strategic bombers). The average US aerospace company is some 22 times larger than the similar top EU aerospace firms, indicating that there are considerable opportunities for creating much larger EU aerospace companies²⁷.

Overall, the defence industrial production is concentrated in 6 European countries²⁸. The defence industry in these countries





















27. "Development of a European Defence Technological and Industrial Base". TNO. 2009

28. France, Germany, Italy, Spain, Sweden and UK.



Figure 15:

Highest ranked European defence companies in global top-100

World Ranking 2011	Company	Country	Arms sales (US\$ m.)	Arms sales share (%)	Total employment
3	BAE Systems		29 150	95	93 500
7	EADS		16 390	24	133 120
8	Finmeccanica		14 560	60	70 470
11	Thales		9 480	52	68 330
15	Safran		5 240	32	59 800
17	Rolls-Royce		4 670	26	40 400
s	MBDA (BAE Systems, UK/EADS, trans-European/Finmeccanica, Italy)		4 170	100	9 850
s	CASA (EADS, trans-European)		3 940	91	6 980
24	DCNS		3 610	100	12 830
s	Eurocopter Group (EADS, trans-European)		3 540	47	20 800
s	AgustaWestland (Finmeccanica)		3 440	63	13 300
25	Saab		3 080	85	13 070
26	Rheinmetall		2 980	48	21 520
30	Babcock International Group		2 850	58	25 140
s	EADS Astrium (EADS, trans-European)		2 350	34	16 600
43	CEA		2 300	40	15 770
s	MBDA France (MBDA, trans-European)		2 300	100	4 300
45	Serco		2 230	30	100 000
47	Cobham		2 160	73	9 330
49	ThyssenKrupp		2 080	3	180 050

Source: Based on SIPRI data. Note: an "s" in the first column denotes a subsidiary company.

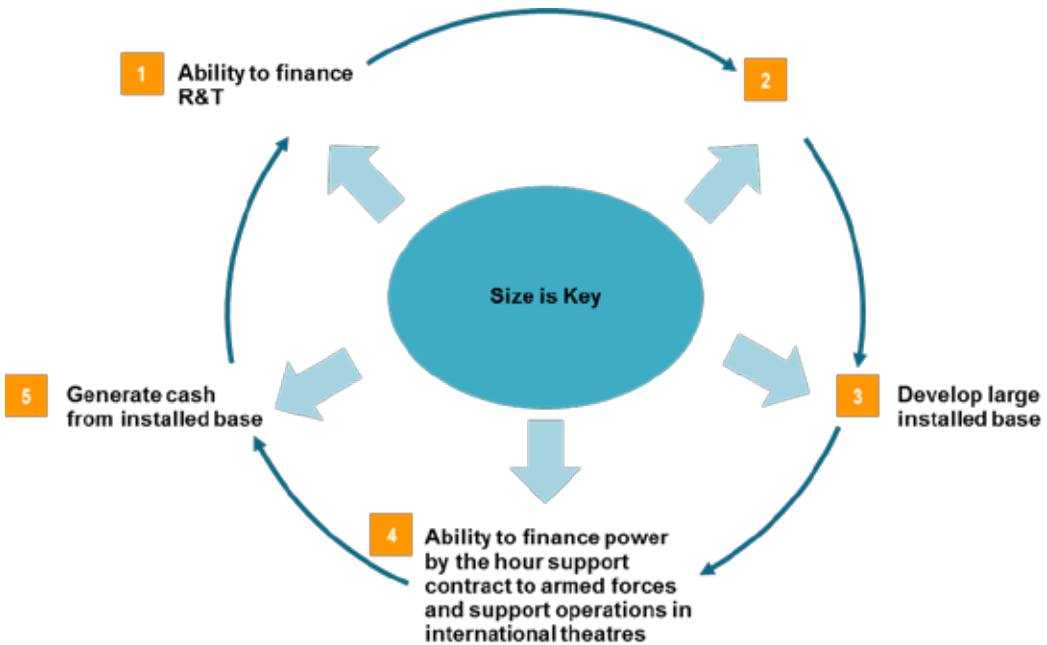


4.2 More consolidation is needed, but there are barriers to overcome

Defence companies need a critical size in order to be able to partially finance innovation (in particular in view of current cuts in EU defence budgets), operate globally and develop services.



Figure 16: Importance of reaching critical mass



Source: Roland Berger analysis

Yet few defence companies in Europe currently have this critical size, which implies constraints regarding their capabilities of self-financing future developments.

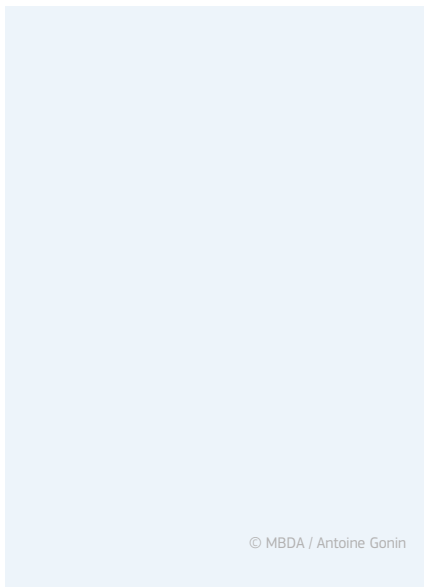
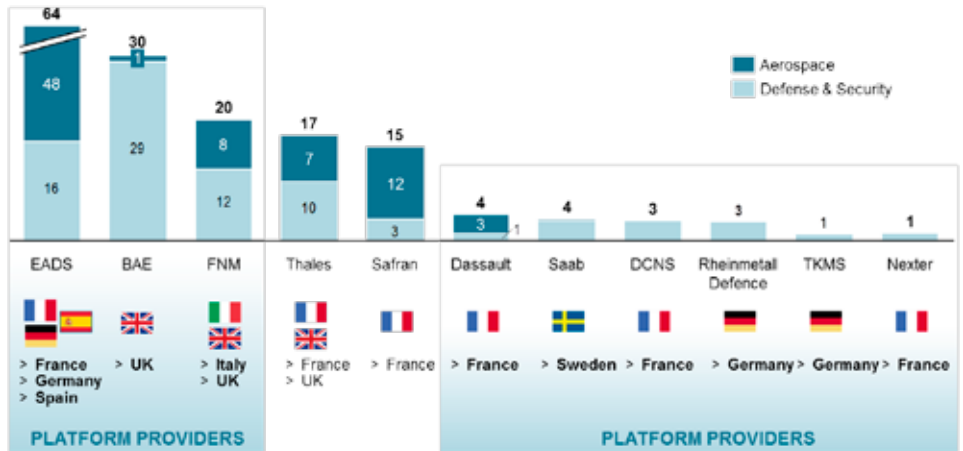


Figure 17:

Aerospace and Defence & Security landscape in Europe, turnover 2011, US\$ billion



Source: Companies 2011 annual report, Roland Berger analysis

From this perspective, the defence market could evolve to a more segmented profile, distinguishing more clearly between local and global players.

Figure 18:

Potential future scenario of the European Aerospace and Defence landscape



Source: Roland Berger

However, in order for European defence companies to reach a critical mass, different barriers towards further consolidation need to be tackled:

- Member States' preference to national producers over other European suppliers. In Europe some 80% of defence contracts are still awarded nationally²⁹.
- Misalignment of requirements and capabilities across Member States.
- State ownership, which is closely linked to restrictions on Mergers and Acquisitions, equity holdings by overseas investors and other forms of foreign investment.
- Impact of the "juste retour"²⁹ principle. This refers to the rule whereby in multinational state based armament projects instead of market mechanisms the national work share equals the national financial investments.



5. Defence industrial supply chains and the role of SMEs in the sector

5.1 The specific role of SMEs in the defence industrial value chain and the potential for increased clustering

The EU defence industries are characterised by multiple supply chains. Many suppliers work in several of these supply chains for different defence contractors on different projects.

The structure of the supply chain may differ depending on the sector. Aerospace and electronics industries tend to have more globalised supply chains, while the naval and land industries are defined to a greater extent along national boundaries. This corresponds to the differences in size and technological complexity of the programmes.

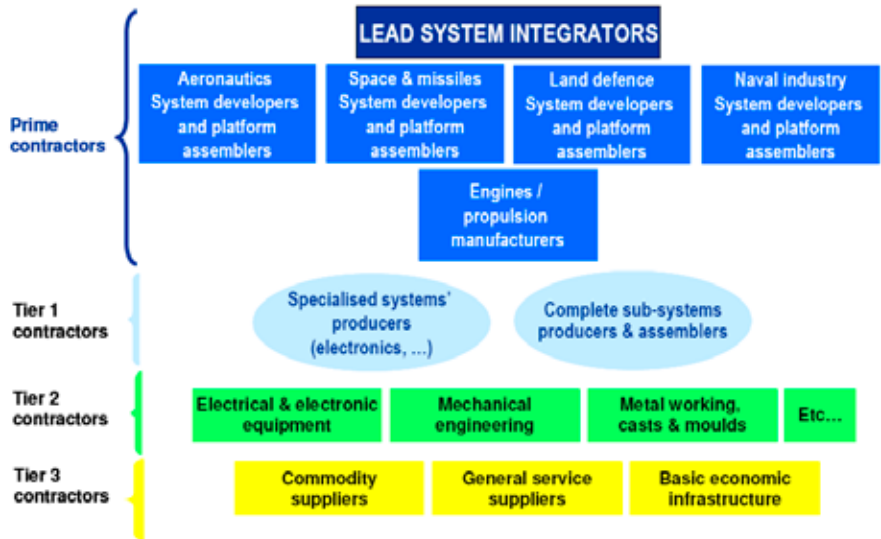
29. "European defence cooperation. Sovereignty and the capacity to act". Advisory Council on International Affairs. January 2012.



30. "The economic significance of SMEs in defence". Europe Economics. November 2009.

31. "Study on the Perspectives of the European Land armament sector". Industri-All, October 2012.

Figure 19:
Defence industrial supply chain



Source: BIPE

On top of the supply chains are the Prime Contractors (or 'primes'). These are typically large companies, and in many cases national champions, which interact with Member States defence procurement authorities, or procuring bodies such as OCCAR and NATO agencies. These Prime Contractors work together with lower-tier suppliers in complex supply chains to produce specific defence products. Such a supply chain may involve many hundreds of companies. For example, to produce the UK Warrior AFV, over 200 first tier suppliers could be identified, whereas the German Leopard II tank combines the efforts of about 1,500 supplying companies.

SMEs have an important role, either as subcontractors to larger companies or as specialised product suppliers operating in niche markets. It is estimated that the 1,320 EU defence-related SMEs account for between 11 and 17% share of the EU's sales of defence equipment. Whereas a number of strong clusters reinforce the concentration of EU defence equipment production with 6 Member States hosting 87% of the total production, these countries account for only 52% of defence-related SMEs³⁰.

Supply chains are characterised by various emerging trends³¹:

- National Ministries of Defence are increasingly using 'partnering contracts'. This means that they prefer to contract with one Prime Contractor who then takes full responsibility for the development and delivery of the equipment according to some previously defined time, costs and quality specifications.
- Subcontracting activities are increasingly based on the so-called 'risk-sharing partner' concept, whereby the development costs of new systems or equipment is distributed across the Prime Contractor and its partners. Under this concept, primes delegate the responsibility for conceptualising, designing, developing and producing a new system to lower-tier companies.
- European national authorities are increasingly open to outsourcing some of the logistical activities (i.e. transport, repair, health) to the private sector.

These trends are important factors in the evolution of the relationships and interaction between larger companies and SMEs in the supply chains. It entails a potential

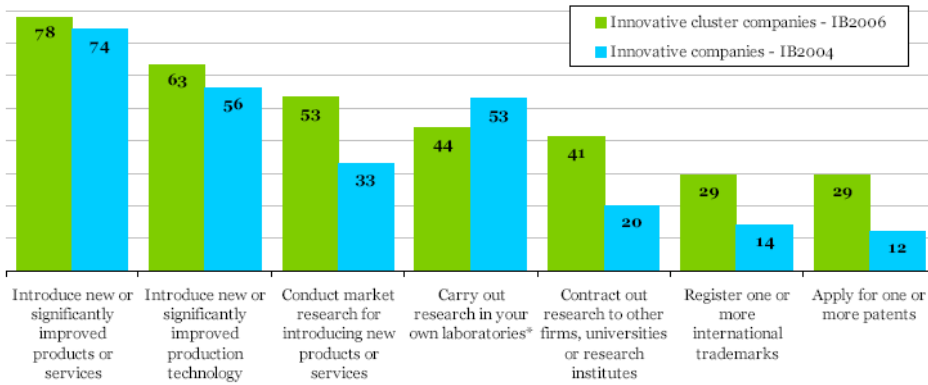
for increased risks and costs to be borne by the by default financially less resilient subcontractors, thereby reducing the competitiveness of SMEs vis-à-vis larger companies. Besides this issue, other factors challenging the competitiveness of defence-related SMEs are:

- Information problems, i.e. difficulties in obtaining information on future capability requirements and business opportunities but also a lack of visibility to large companies which results in a preference for existing suppliers or suppliers closely located to the contractor.
- Access to finance, particularly in Member States with less developed or efficient financial markets.
- Administrative burden and costs, such as for example the costs related to IPR protection.

current fragmented state of Europe's defence industry limits the potential for more cross-border networking and does not favour more international cooperation between such clusters.

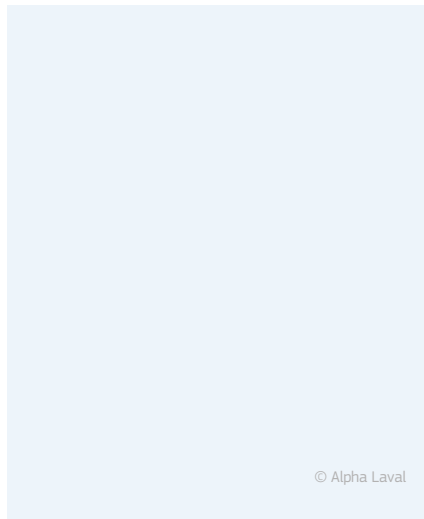


Figure 20: Comparison between clustered and non-clustered firms



Source: European Commission, Innobarometer 2006

Networks of excellence are important drivers of innovation in the EU defence industries. Together with clustering, they can allow SMEs to achieve a critical mass, increase their visibility on the EU market and their ability to compete on international markets. However, strategies that foster the development of regional clusters tend to be driven and funded by the regions, for which defence is not a straightforward priority. Moreover, the



6. New business models in an evolving global setting

6.1 Defence industry has a specific business model...

The European defence industry has the capacity to develop, produce and export a wide range of competitive military equipment. Most of its investments in new equipment and defence R&D are linked to important military programmes launched by Member States in the previous decades. The reason why governments have to bear the part of R&D costs is that the time lag between initial investment in research and development through to in-service military capability can be up to twenty years. Moreover, the national orders are relatively small, guided by national specifications that limit the export potential and are subject to export controls. Consequently, there are few incentives for private investment given the timing and unpredictability of financial returns – thus R&D into new technologies relies, to a large extent, on government investment.

In view of decreasing demand and the reduced investment into defence R&D, defence industry companies have embarked on developing new or adapting the existing business models.

6.2 Faced with lack of orders companies are increasingly turning to third markets...

Between 2001 and 2011, industry revenues have increased at a higher rate than European defence procurement spending and despite decreasing global defence spending. Revenues of the top 21 publicly traded companies operating in the defence market have increased by 58%, from €58 billion to €91 billion (2011€)³. However, between 2003 and 2011, European-based revenues of major EU de-

fence companies fell by 10%, while the reverse occurred for the North-American share of companies' revenues. This suggests that industry has adopted the following strategies to increase its resilience during the economic downturn, in particular internationalisation and diversification.

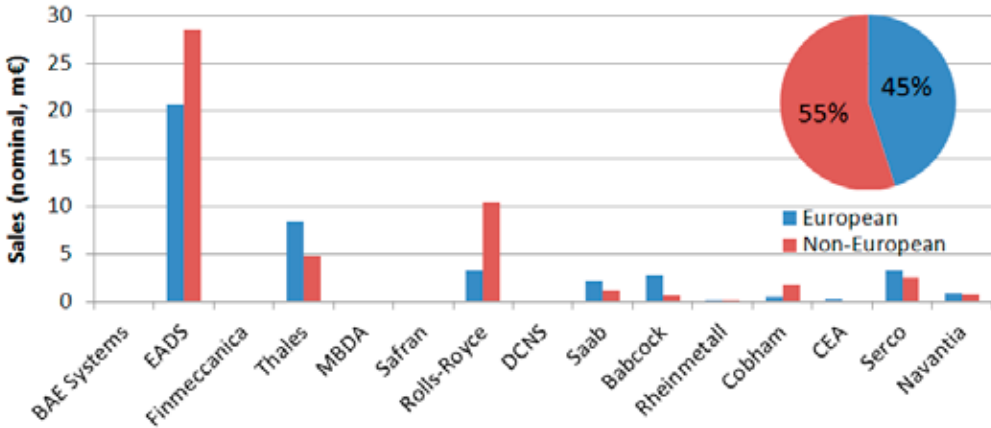
• Internationalisation

The export of European defence equipment and services to third countries has been an important factor compensating the reduction in new programmes in the EU.

The following graph shows how major European industrial players have embarked on a process of internationalising their client base. Over half of 2011 sales for the top 15 European industry suppliers were to non-European buyers. Defence companies are increasingly developing new business models that allow them to work more effectively across national borders. They make acquisitions in other non-European markets and build partnerships with non-European producers. For example, BAE Systems established a joint defence venture with Mahindra & Mahindra Ltd in India, and DCNS and its Brazilian partner established a joint venture (ICN) for the construction of 4 submarines and a naval base.



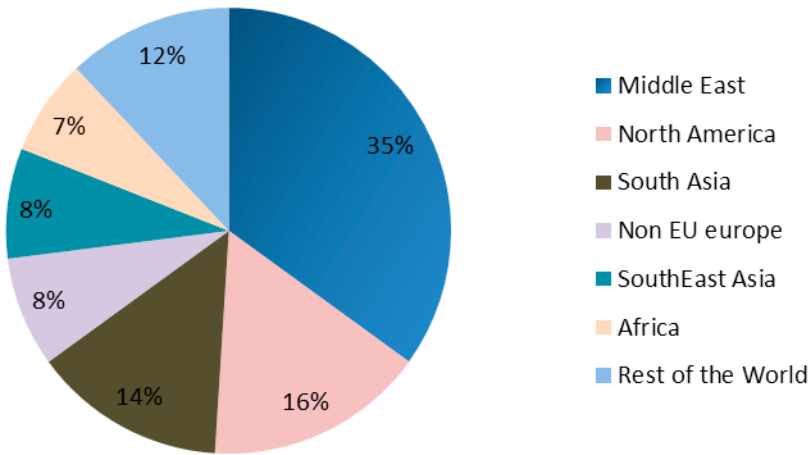
Figure 21:
Value of European and non-European sales for top 15 defence suppliers



Source: RAND Europe analysis, 2013

In 2011 the Middle East was the destination for around one third of the European exports, accounting for €8 billion of the total export value of €23 billion. Other main trading partners included North America, South Asia, Southeast Asia and Africa.

Figure 22:
European defence exports by destination, 2011

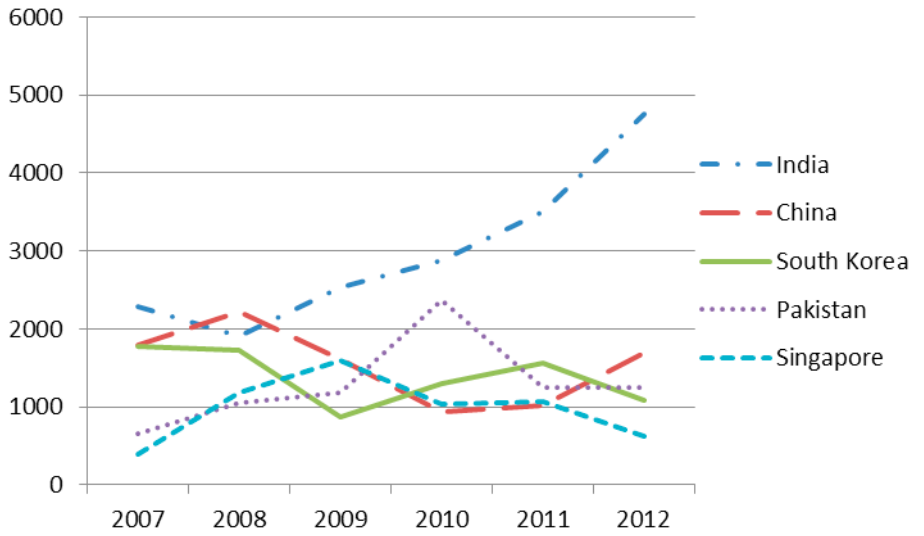


Source: European Council data

Looking ahead, the growth of markets in the Middle East, Asia and South America presents opportunities for European suppliers to offset the reductions in Member State demand.

Figure 23:

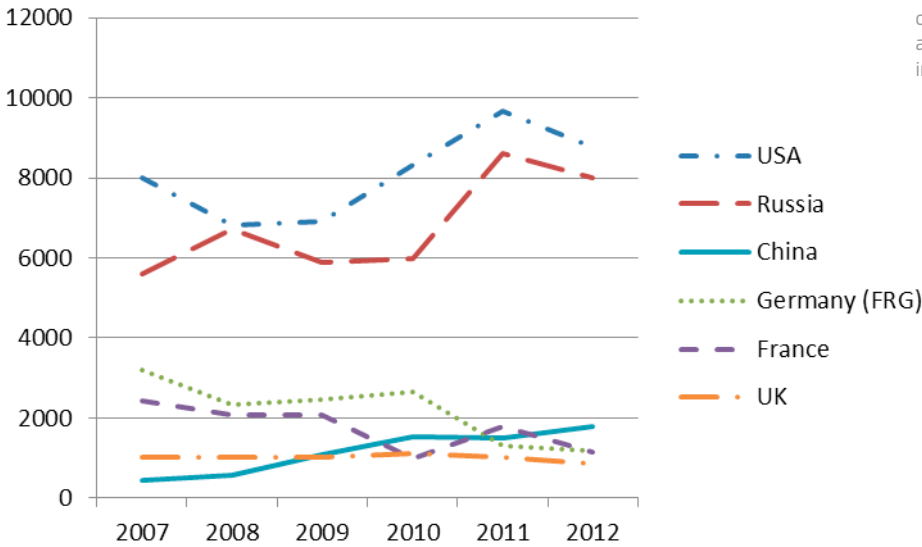
Top 5 world's arms importing countries 2007-2012 (\$ million)



Source: SIPRI data



Figure 24:
Top 6 world's arms exporting countries 2007-2012 (\$ million)



Source: SIPRI data

33. IHS Jane's Defence Weekly, 20/7/2012

34. Rand Europe analysis of defence companies annual reports and ASD information, 2013

However, in the near future the global market will become increasingly competitive, with new countries being able to offer a variety of systems and platforms. With the defence budgets at the Asia Pacific area expected to grow at a much greater rate than in the rest of the world³³, the transfer of technology and the investment to the defence industries of the region could add new companies to the list of competitors of the European defence industry.

Box 4: Emerging markets

• Diversification

Major industry suppliers are also diversifying their product portfolio to balance defence products with civilian activities in growth sectors. Civilian products represent a significant revenue share of the EDTIB. Based on 2011 data, around 39% of sales for the top 15 European industry suppliers were based on non-defence products. The equivalent distribution of revenues of the six major national defence industry associations indicates that 62% of revenues were from non-defence products³⁴. This suggests that the lower

tiers of the European defence supply chain engage in a more diversified set of products than systems integrators.

In parallel, many large companies are increasingly profiling themselves as service providers able to present through-life care for defence capabilities.

Box 4: Emerging markets

Besides the US and Russia which are already global players in the defence equipment markets, emerging economies can increase competition and seriously affect the exporting environment of the European defence industry. Countries such as China, Brazil, India and South Korea, combining strong economic growth, extensive and high-tech industrial capabilities, significant security and defence concerns, and aggressive industrial policies raise the challenge for European companies to sustain the current market share let alone to increase the exports' volume. Although it is unlikely - with the exception of China - that the industry of these countries could offer a comprehensive package of defence products, it is certain that the growing self-sufficiency will decrease the margin of manoeuvre in traditional export markets for European military equipment (Brazil, India). Furthermore, it is very likely that in specific market segments these countries will be increasingly presenting defence systems competitive to European ones.

35. "A comprehensive analysis of emerging competences and skill needs for optimal preparation and management of change in the European defence industry". Eurostrategies. 2009

36. "A comprehensive analysis of emerging competences and skill needs for optimal preparation and management of change in the European defence industry". Eurostrategies. 2009

37. "Study on the Perspectives of the European Land armament sector", Industri-All, October 2012.

Box 5: Dual use in ICT

Dual use, or even civil use, equipment is increasingly used in the armies worldwide. The constantly accelerating technological progress in the field of IT/ICT for the development of civil products and applications has made a broad variety of solutions and technical improvements available for military use. Over the last 20 years the armed forces have increasingly acquired and used equipment, electronic components and software, with or without modifications, originally developed for the civil sector in order to address emerging needs in a prompt and cost efficient way. A few years ago, USAF constructed a supercomputer running Linux out of 1760 Playstation3 processors. Today, aircrews use tablet PCs as electronic "flight bags" in military operations.

Box 6: Remotely Piloted Aircraft Systems

RPAS - commonly known as drones or Unmanned Aircraft Systems (UAS) - are used in a growing number of civil and military applications such as in agriculture, border surveillance, infrastructure inspection, communications and broadcast services, digital mapping etc. Beyond the manufacturers and system integrators, the RPAS industry includes a broad supply chain providing a large

6.3 ... but in a longer term this will result in the erosion of EU defence industrial base

European defence export agreements usually include transfers of technology and intellectual property rights and/or relocation of production, which entails risks to the longer-term competitiveness of the European defence industry especially if this coincides with declining R&D investment.

Moreover, despite efforts of EU defence companies to adapt to a changing business environment, the continuous decrease of national defence budgets is likely to weigh heavily on their profitability and competitiveness. The exports of today are often the result of R&D investments made 10 to 25 years ago. Therefore declining investment in

R&D presents a particular threat to the long term future of the European defence sector, both in terms of its skills base and its potential to deliver new capacities.

Technological progress is a major goal for the industry in order to maintain its competitiveness; it is also a key factor to achieve autonomy in essential capabilities. EU defence companies generally devote a share of their total sales to R&D that is well above the European manufacturing sector: land sector (6%), naval (10%), aerospace (12%)³⁴. Experts believe that in the near future the most revolutionary technological advances for military capabilities will come from R&D and inno-

vation in the civil sector, which is expected to further encourage convergence of civil and military R&D.

Box 5: Dual use in ICT

It is clearly important to co-ordinate and align dual use research and new programme investment to ensure long-term viability of key industrial capabilities. Action already taken at European level in certain technological areas could set the model for the years to come, such as for example in the area of Remotely Piloted Aircraft Systems.

Box 6: Remotely Piloted Aircraft Systems

Moreover, the defence sector has a both highly skilled and highly specialised workforce. However, companies are starting to experience skill shortages and this trend might aggravate in the future. For example, studies in the naval sector highlighted difficulties in finding and recruiting naval architects, electrical engineers, systems engineers and mechanical engineers³⁶.

The recruitment problems are particularly challenging for SMEs. An important reason why skills and competence deficits are developing relates to the fact that a significant percentage of the workforce is expected to retire in the coming 10 to 15 years. For example, in the manufacturing of weapons/ammunition sector, 16.6% of all workers are older than 55, in comparison to 12.4% in European manufacturing in general³⁵. The European defence industry has to retain its key skills in order to be able to deliver high-technology solutions in an increasingly competitive global market.

In conclusion, if not addressed by the Member States the declining investment into R&D, the lack of new procurement programmes, coupled with the risks linked to increasing internationalisation have the potential to significantly reduce the competitiveness of the EU defence industries in the longer term.



range of enabling technologies (flight control, communication, propulsion, energy, sensors, telemetry etc.). Thus the development of RPAS technologies is creating spin-offs with significant impact in many sectors with both civilian and military applications.

The European Commission has long identified the potential of this emerging technology and supported the market by investing in research and innovation relevant for RPAS through the Framework Programme for Research. A broad stakeholders' consultation has demonstrated the necessity for action at EU level, setting as priorities the further development of RPAS civil applications and the integration of the systems into the European air space as soon as possible. The consultation has also called upon the European Commission to support the development of a Roadmap for the safe integration of civil RPAS into European Aviation System (RPAS Roadmap).

The Roadmap identifies the regulatory and R&D activities necessary to achieve RPAS airspace integration. It will also take into account the data protection and privacy concerns associated with the civil use of RPAS in order to ensure that such use complies with the right to privacy and the right to protection of personal data, as guaranteed in the Charter of Fundamental Rights of the EU and in line with other instruments forming the EU data protection framework. It will contribute to allow the manufacturing industry to produce similar platforms for civil and military applications, by developing harmonized civil / military safety objectives and hybrid standards. Furthermore, it will facilitate the coordination of future R&D activities. In order to fly across the European airspace, military and civil RPAS require the development of similar technologies, like for instance the capacity to detect and avoid other aircrafts. The Roadmap initiative led by the Commission will facilitate the establishment of the necessary synergies between civil and military projects like those supported by the European Defence Agency.

