

Armaments duplication in Europe: A quantitative assessment

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Key points

European countries are not only hollowing out their militaries with insufficient defence spending, but are also failing to spend their existing budgets wisely, according to Ivo Daalder, former US Ambassador to NATO.¹ As a result, EU countries may not be able to meet impending security challenges.

A key issue in this regard is the duplication of platforms (i.e. vehicles bearing weapons) and systems in the land, air and sea domains. The analysis shows duplication of a ratio of 3 to 1 in European programmes/platforms, compared with the US.

Recent efforts to overcome duplication have so far been unsuccessful. The European Council of December 2013, which will be devoted to issues of security and defence, should therefore:

- provide clear guidelines to inscribe the future consolidation of the naval industry within a strategic framework to avoid the loss of key technologies and know-how and allow the development of necessary capabilities;
- stimulate the full exploitation of the many pooling and sharing opportunities in the sector, both existing and potential;
- encourage the use of existing institutional instruments such as the Structural Funds to minimise the social impact of the consolidation process.

¹ Ivo Daalder's last speech as US Ambassador to NATO, Carnegie Europe, 17 June 2013 (<http://nato.usmission.gov/sp-06172013.html>).

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1. Introduction

This paper presents the result of a quantitative analysis of the number of platforms and systems currently in use and in production in Europe,² with the goal of providing a precise assessment of the current level of duplication. Key segments of the land, air and sea domains are taken into account. The results are compared with the corresponding data from the US, which are used as terms of reference. As a federal state, the US can in fact be considered as a paradigm and example of what could be achieved by Europe in terms of a rationalisation of defence equipment production.

The military planning of European forces today is still largely a national exercise, and most European countries are keen to protect, even insulate, their own military industrial bases by implementing formal or informal 'buy national' procurement policies. The resulting duplication of capabilities and of platforms and systems is a long-standing obstacle to the deepening and rationalisation of defence cooperation.

Back in 1995, Pierre De Vestel showed that Europeans were producing a number of platforms three times higher than the corresponding US programs,³ and warned that the economic costs of such duplication were soon to become unsustainable. At the turn of the century, duplication of platforms was the norm, with joint efforts being the exception. Almost 20 years after De Vestel's warning, how has the situation changed?

The research shows mixed levels of duplication between the three domains of land, sea and air. In particular, there is an extremely high level of duplication in the land and naval sectors, which in the latter case has resulted in market

saturation. Accordingly, the findings generally reinforce the consensus towards rationalising the demand side of the EU defence market through pooling and sharing agreements. At the same time, findings suggest that low R&D and production costs typical of the land sector would hinder effective pooling and sharing, whereas in the naval sector rationalisation is more likely to occur.

2. Why duplication matters

The number of platforms and systems currently in production is significant because it gives a rough indication of the number of production lines currently open – all producing a similar piece of equipment in that specific sector. In order to simplify the discussion, 'production line' is used here to indicate the entire industrial infrastructure involved in the production of a single platform or system. An unmotivated multiplication of production lines is a source of economic loss for Europe as a whole, both strategically and from an industrial point of view.

Different lines imply that development activities are unnecessarily fragmented. Each platform or system therefore receives only a fraction of the R&D funds that a common effort could have provided, which has an obvious impact on its technological content. Each country pays a higher amount of R&D funds than it could have paid for a shared project, which leaves it with less money to develop necessary capabilities in other areas. Moreover, having different production lines also implies a diminished industrial output, which in turn means smaller economies of scale and a much slower rate of production learning; a direct function of the output. Unit production costs, therefore, increase. The final result of the multiplication of production lines is that European countries become less technologically advanced; more expensive platforms and systems obtain a narrower range of military capabilities in a less productive and innovative industry.

The total number of platforms currently in use in European armed forces, even if not still in production, is also relevant from the budgetary point of view. In fact, a wide range of platforms

² The quantitative analysis was performed in the framework of a broader research project carried out by the author with the Centro Studi sul Federalismo di Turin. The full report, *I costi della non-Europa della difesa*, CSF, April 2013, (http://www.csfederalismo.it/images/pdf/csf-iai_noneuropadifesa_aprile2013.pdf) is currently being translated into English.

³ P. De Vestel, *Defence markets and industries in Europe: time for political decisions?* EU ISS Chaillot papers No. 21, November 1995.

in use at the continental level imposes an additional burden on defence budgets because of higher maintenance and operational costs. Different platforms do not allow for common production and acquisition of spare parts, which would lower the cost of maintenance. Common maintenance facilities are not feasible. Finally, duplications also force each country to train its own crews, operators and mechanics, rather than share training courses.

From the operational point of view, having different platforms inflicts supplementary logistical costs on military operations abroad. It imposes a turnover of both troops and equipment, as contingents from different European countries are not able to use each other's vehicles and equipment. European commands are therefore obliged to bring both men and vehicles back and forth, as they are not able to leave the vehicles in theatre to be used by an entering European contingent.

3. How much duplication is there in Europe?

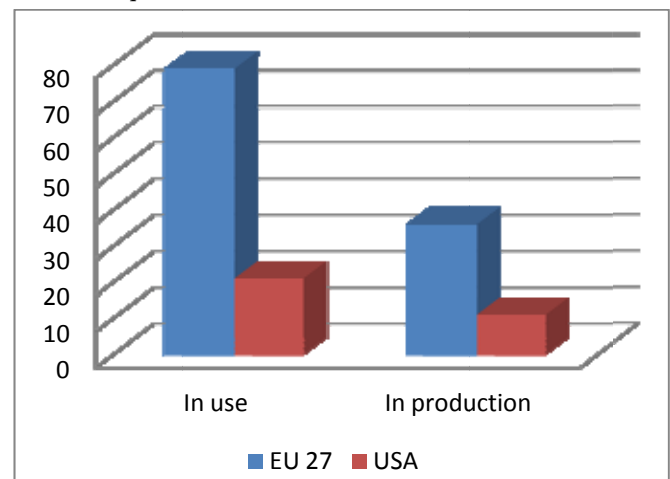
The quantitative analysis of platforms and systems currently in use and in production in European armed forces is based on contemporary orders of battle, and takes into account the various platforms used in different segments of the land, sea and air domains. The segments encompassed in the analysis mostly mirror those in the De Vestel study,⁴ even though that study did not take into account the platforms in use but only those in production at the time. The segments chosen are representative of the main platforms and systems of each domain. The data are compared with corresponding US numbers.

The results of our analysis are presented in the figures below.⁵

The relationship between European and American open production lines in all domains, represented in Figure 1 below, is 3 to 1, with a

total of 36 open lines in Europe and 11 in the US. This data, however, is of limited use as it puts together such different kinds of equipment as to be almost an 'apple-and-oranges' comparison, but it is useful to get a general sense of the problem. More significant is the total number of platforms in use in Europe and the US, which is obviously higher. There are in fact a total of 79 different platforms and systems in use in Europe in the segments considered, while the corresponding US data is 21, which gives a wider relation of 3.7 to 1. It should be emphasised that this data only refers to locally-made platforms and systems in use: that is, we include only European-made goods in the list of platforms in use in European forces. If we also consider the foreign-made equipment currently deployed in Europe the relation would be even higher, especially in the air segment.

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



Source for all figures: IISS's *The Military Balance*, plus national and industry sources.

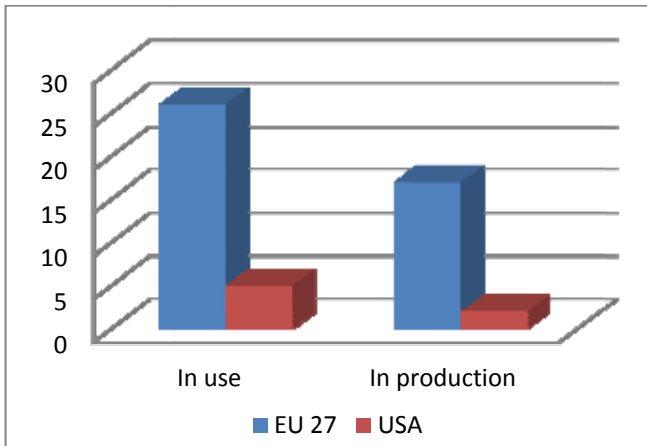
In the 'land' segment, duplication is significant. This segment includes main battle tanks, armoured infantry fighting vehicles and personnel carriers, and 155mm self-propelled howitzers. Here there are currently 17 production lines active in Europe, against a mere two active in the US (Abrahams MBT and Stryker AFV). This difference is mainly due to the high number of armoured infantry vehicles and personnel carriers produced in Europe (11). We decided not to include the several models of Mine Resistant Ambush Protected (MRAPs) vehicles in this count because these were

⁴ For the sake of clarity this research does not take into account minor items such as assault rifles.

⁵ The complete list of platforms and systems for each single segment can be found in Briani, op. cit., Annex II.

procured due to the urgent operational requirements related to US engagements in Iraq and Afghanistan. It is noteworthy that the European countries are still producing four different kinds of heavy 155mm self-propelled howitzers, while the US opted to maintain its ageing M109s in service until a replacement could be found in the framework of the GCV Infantry Fighting Vehicle, which is also supposed to supplant other US infantry vehicles.

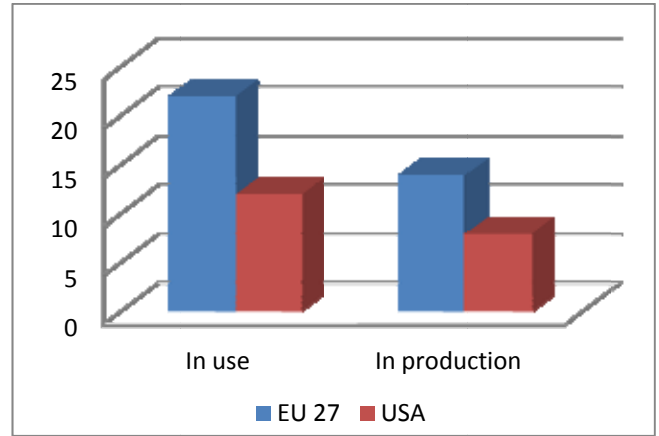
Figure 2. Land platforms and systems in use and in production



In the 'air' segment the general relation between the number of European and American platforms in use is much more balanced, at 1.8 to 1. The segment includes multirole fighter/ground attack planes, attack helicopters, and anti-ship and air-to-air missiles. There are currently 9 fighter/ground attack planes in use in Europe against the 4 used by USAF and USN; a relation of 1 to 2.25. If we consider the planes in use regardless of their origins, however, the relation would be much higher, given the high numbers of US and even Russian exports to Europe in this segment, while the only foreign plane flown by American forces is the British AV8 (which, incidentally, was redesigned by Boeing and built in the US). The number of fighters currently in production in Europe and the US, however, is equal, at three, even if F15s and F16s are being produced for export only. The ratio is similarly balanced in the attack helicopters segment, with two European platforms used against the three in use in the US, and two in production in Europe to one in the US. Also, in the air-to-air missile category the

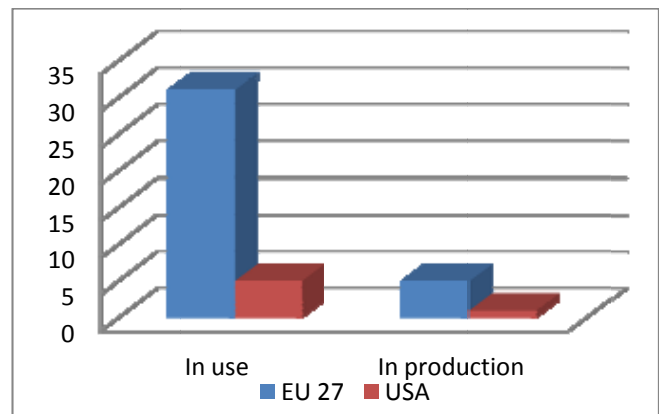
difference is very slim. Interestingly, however, in the anti-ship missile segment the difference is huge, with France, Italy, the UK, Norway and Sweden each producing their own models.

Figure 3. Air platforms and systems in use and in production



Finally, the 'sea' segment includes frigates, diesel-electric and nuclear submarines. In this segment the difference between the number of platforms and systems is the greatest, with a ratio between production lines of 5 to 1 and that for platforms in current use being 6 to 1. The main difference is in the prominent number of frigates (16) and diesel-electric submarines (11) classes operated by European navies, compared to the single class of frigates (Perry) of the US Navy, which does not currently deploy any diesel-electric subs. Nuclear submarine classes in use are more or less similar in number; five in Europe and four in the US, with only one class now in production on both sides of the Atlantic (Astute class in the UK and Virginia in the US).

Figure 4. Sea platforms and systems in use and in production



4. Towards a less fragmented market?

The figures above show the effect of uncoordinated European defence and industrial policies over the last 20 years. To paraphrase Bill Clinton's foreign relations mantra: "national when possible, multinational when necessary".

The data clearly show that an acceptable level of platforms duplication has only been reached in some selected segments: either where R&D and maintenance costs are so high as to be financially unfeasible for a single nation to bear, or where European industry is still not competitive compared to import products. Accordingly, equality with the US in terms of production lines is reached only in the fighter/ground attack plane segment, although even here the number of platforms in use in Europe is twice that of the US - not counting imported types. This is also true of market segments traditionally dominated by US producers, such as the air-to-air missile segments.

In the land and sea domains the amount of duplication compared to the United States is staggering. European forces field as many as 15 different kinds of infantry vehicles, 11 of which are still in production; 7 models of heavy self-propelled howitzers, 4 of which are still being produced; and 16 classes of frigates, only 2 of which are still in production. Furthermore, these figures are incomplete as they do not take into account intervening factors, for instance the substantial dissimilarity between national versions of multinationally-developed supposedly 'common' platforms, such as the Italian-French FREMM frigates.

What the data clearly show, in other words, is that cooperation in Europe is still driven strictly by economic necessity and not by political goals. Developing costs for an armoured personnel carrier runs into millions of euro: developing naval vessels costs dozens of millions: fighter jet development costs runs into billions. Therefore, relatively cheap items such as personnel carriers are developed nationally throughout Europe: expensive platforms such as fighter jets are developed mostly on a multinational basis. While there has been a considerable political drive towards rationalising and consolidating defence demand, the raw numbers tell us that

this drive hasn't yet translated into a major factor shaping procurement decisions. Political considerations on the effectiveness of European armed forces or on the efficiency of European and national defence spending are still secondary compared to the support of national industrial bases. This is understandable, given the major repercussions that rationalisation would have on a strategic and research-intensive industry. Moreover, closing down factories would damage on occupational levels, especially in a moment of economic crisis. However, how sustainable this approach really is should be questioned.

The number of open lines of production may be a significant indicator of the future sustainability of the 'national first' approach. The very low number of open lines in segments characterised by high duplications could be considered a sign either of market saturation or of the inability of national budgets to provide funds for that area. From the industry point of view, the two options are equally negative as they both imply that there is no market for their products. This is more clearly observable in the sea domain: 16 different classes of frigates are deployed by European navies, but only 2 classes are still in production. Similarly, only 2 of the 10 classes of diesel-electric subs are still being produced. On the contrary, the land sector still seems to be able to absorb national production: 11 lines are still open in the AFV/APC segment, and also a counterintuitively high number of 4 lines of different 155mm self-propelled howitzers.

As a result, the next industrial sector to experience a massive restructuring will most likely be the naval industry. This is confirmed by the precarious financial situation of large shipbuilders such as Fincantieri in Italy or Navantia in Spain. Moreover, the defence naval sector is highly dependent on defence-related sales, with Fincantieri being the only major player with a significant share of civilian sales,⁶ which makes the industry even more vulnerable in the current budgetary environment. While R&D, operational and maintenance costs seem to be still bearable in the land sector, shipbuilding

⁶ Cf. V. Briani, A. Marrone, C. Moelling and T. Valasek, *The development of a European Defence Technological and Industrial Base*, European Parliament, forthcoming 2013.

may have become too expensive. Less competitive or less supported shipyards could be forced to cease activity, and industrial capabilities in this sector could be lost.

The EU could leave this process to unfold freely, driven only by market forces and, more probably, by the uncoordinated choices of national governments that are often major stakeholders in the industry. This 'do-nothing' approach could prove to be a big mistake. In fact, it is likely that the restructuring will result in the loss of important niche capabilities at EU level, with each country being keen to save what it perceives to be crucial assets, regardless of the European industrial landscape and of what capabilities need to be maintained at the EU level.

The EU should therefore be resolute and able to inscribe the restructuring of the European naval industry into a strategic framework, turning the current crisis into an opportunity to rationalise and consolidate the sector. The reduction of current industrial overcapacity in some segments would allow the industry to retain key capabilities while allocating funds to develop future capabilities, thereby consolidating both the sector and European security. In this regard, the EDA is currently performing three studies that could be the basis of a capability-driven consolidation of the EU naval sector. They provide, respectively, an assessment of current and future maritime operations; a vision of the most important naval technological issues to address in the following 10-15 years; and, finally an examination of the capacity of the European industry to support European naval capability requirements.

Secondly, EU member states (MS) should fully exploit the pooling and sharing potential in the naval sector, which is high. Countries with a significant naval industry such as France, Italy, Spain and the UK should be involved, as well as other MS planning to renew their fleets. Generally speaking, EU fleets are in fact ageing and there is a need for the development of new projects both in low and high capability segments, despite the dire financial situation. Considering the existing needs and tightening defence budgets, the high-end segment of the

market would be an ideal area for R&T and R&D cooperation, while other pooling and sharing arrangements could be devised for better management of current assets and of future low-end products. EDA is already active in this field with a specific Strategic Research Agenda on "Naval Systems & their Environment". Fragmentation from the demand side of the market also means that there is a lot of work to be done to set common priorities, harmonise requirements, and on standardisation, etc. These areas should be addressed as well.

Finally, the European Council in December should be prepared to deal with the consequences of defence industrial restructuring in times of crisis. This would be in the interest of all countries that own a significant naval industrial base, including in the civilian sector, and could therefore be a point of wide convergence. Specifically, the Council should address the implications of the social ills caused by major dismissals of workers, as well as the loss of precious skills and know-how. This could be done by exploiting synergies between existing strategies, policies and instruments. Useful tools, in this sense, would be the Structural Funds and the "LeaderSHIP 2020" strategy,⁷ presented in February 2013 by the European Commission. The strategy aims to sustain the future of shipbuilding through actions in the fields of employment and skills, market access and conditions, access to finance and R&D and innovation. A synergetic use of these tools should be clearly advocated by the Council.

Effectively addressing the issue of duplication will require a considerable amount of political will and, more importantly, a far-sighted vision of the way to go. Difficult choices will have to be made, and EU MS will have to invest in a complex exercise of coordination of defence and industrial policies and planning. However, the efficient management of EU defence budgets and the maintenance of a viable industrial base demand such efforts. As underlined by Ambassador Daalder, what is at stake is the EU's ability to guarantee its own security.

⁷ Available from: (http://ec.europa.eu/enterprise/sectors/maritime/files/shipbuilding/leadership2020-final-report_en.pdf).