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Research Report

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SWP Comment, No. 6/2023

Provided in Cooperation with:

Stiftung Wissenschaft und Politik (SWP), German Institute for International and Security Affairs,
Berlin

Suggested Citation: Arnold, Sven; Arnold, Torben (2023) : Germany's fragile leadership role in European air defence: The need for adjustments at all levels of the European Sky Shield Initiative, SWP Comment, No. 6/2023, Stiftung Wissenschaft und Politik (SWP), Berlin, <https://doi.org/10.18449/2023C06>

This Version is available at:

<https://hdl.handle.net/10419/268775>

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SWP Comment

NO. 6 FEBRUARY 2023

Germany's Fragile Leadership Role in European Air Defence

The need for adjustments at all levels of the European Sky Shield Initiative

Sven Arnold and Torben Arnold

With the European Sky Shield Initiative (ESSI), Germany has made its claim as the leader in European air defence. Taking a joint approach to defence is a good step forward, but difficult to implement. Important European partners, above all France and Italy, are currently unwilling to follow Germany's lead. The lack of political unity shows that Germany's proposal does not take European security interests sufficiently into account, has failed to convince partners, and leaves many questions unanswered on the strategic, military, industrial, and economic levels. If the ESSI is to noticeably improve Europe's air defence protection, Berlin must provide answers about strategic balance, the development of the European defence industry, and militarily effective solutions. The acquisition of individual military capabilities will not produce a European Sky Shield.

In his Prague speech on 29 August 2022, Chancellor Olaf Scholz stated that Germany intends to invest heavily in its air defence capabilities. He sees Germany as taking a leading role. All European partners are invited to get involved as well. Six weeks later, on the fringes of the NATO meeting in Brussels, the former Defence Minister Christine Lambrecht concretised this leadership role and signed a declaration of intent with 14 partners entitled the European Sky Shield Initiative. The goal is to better protect Europe against threats from the air. At present, all European armed forces have a capability gap in combating ballistic missiles that fly at the highest interception layer and have a range of more than 1,000

km. Germany's attempt to close this gap is to be welcomed, as only by working together can Europe's protection be noticeably improved. Although the idea is not new, the will to act is now there due to the changed threat perception vis-à-vis Russia. At the moment, however, not all partners are interested in cooperating.

Capabilities and the gap

Before the Russian invasion of Ukraine, efforts to build a better air defence system in Germany had made little progress. They failed due to years of austerity measures and a lack of will to prioritise and invest in



this area. Armaments cooperation in the development of the Medium Extended Air Defense System (MEADS) and the Tactical Air Defence System (TLVS – Taktisches Luftverteidigungssystem) based on it were terminated without procurement agreements. The main reason was the exorbitant cost.

Despite the aforementioned deficits, the Bundeswehr has various capabilities when it comes to air defence. The Air Force protects German and, to some extent, European airspace around the clock, the Navy has three air defence frigates, and extensive work is currently being undertaken to protect against small and medium-sized drones. In air defence, a distinction is made between several interception layers: the close and intermediate ranges (up to 6 km) as well as the medium and upper interception layers (up to and above 35 km, respectively). In addition, a differentiation can be made between the ranges below and above 100 km.

For the close and intermediate ranges, the Bundeswehr currently still relies on the Ozelot system, which is supposed to ensure protection against unmanned aerial systems and helicopters when its own troops are on the move. But Ozelot is outdated and is not available in sufficient quantities to provide adequate protection of German forces during land-based operations in the event of war. Its successor is to be the Close Air Defence System, which is currently going through the Bundeswehr's procurement process.

The MANTIS Air Defence System can protect military and civilian facilities from rocket, artillery, and mortar fire. But it takes time to set up and is costly to deploy. Since only two systems are available, only two objects can be protected at the same time. Protecting mobile operations is not possible.

The US Patriot system is used for ranges of up to 100 km, as it has a reach of around 70 km. Technically, it is state-of-the-art, but the Bundeswehr only has 12 of the former 36 squadrons, one of which is to be delivered to Ukraine. In 1990, anti-aircraft missile units comprised 10,970 service posts;

today there are only about 2,300. This means that the German contribution to the common air defence of Europe within NATO has been greatly reduced. German capabilities could only protect an area roughly the size of the city of Berlin.

At present, Germany has partly outdated and too few systems to guarantee sufficient protection. In addition, the capability gap at particularly high altitudes must be closed quickly. To this end, Germany intends to procure the Arrow 3 system, which is manufactured in Israel. It has promising performance parameters, appears to be reliable, and is ready for deployment.

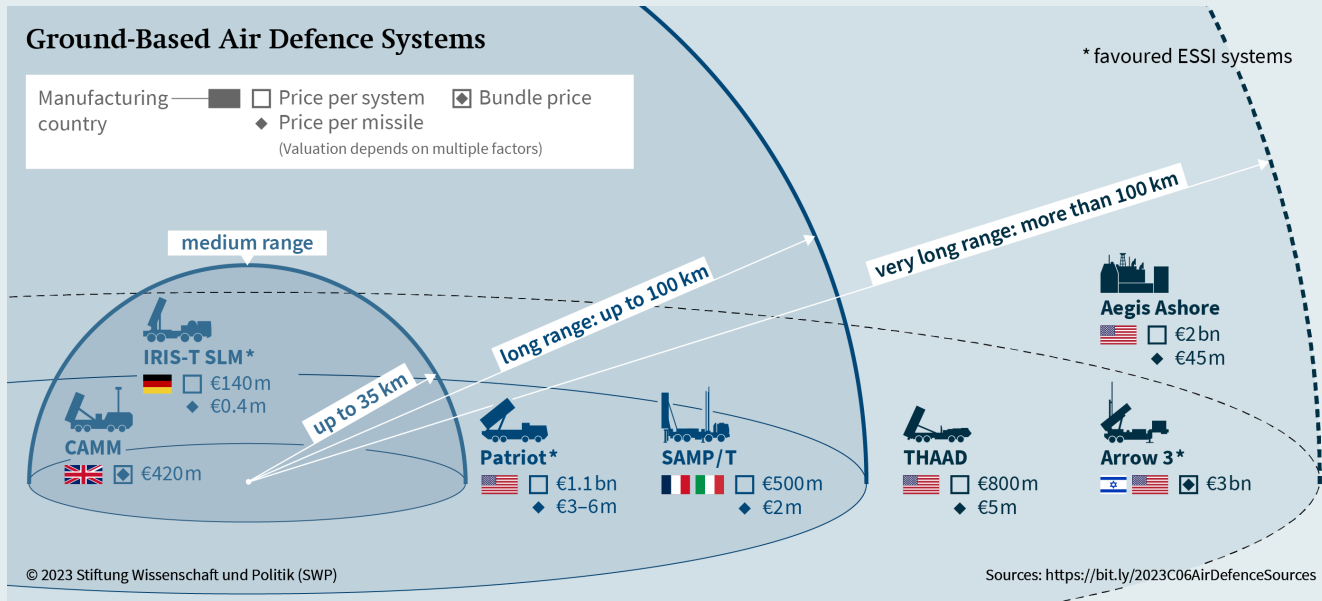
Various air defence systems are currently in use in Europe's armies. The IRIS-T SLM (Infra-Red Imaging System-Tail/Surface Launched Medium Range) system, developed and produced in Germany, covers short to medium ranges. Germany recently delivered several of these to Ukraine. There are different guided missiles for IRIS-T, namely the variants SLS for short ranges and SLM for medium ranges. For long ranges, the SLX variant is to be developed.

Poland has ordered the British Common Anti-air Modular Missile (CAMM) system, in which Italy would also be interested. CAMM has comparable characteristics to IRIS-T SLS.

As far as long ranges above 35 km are concerned, six other European allies besides Germany use the Patriot system. In a European armaments cooperation, France and Italy developed the SAMP/T system (Sol-Air Moyenne Portée/Terrestre, i.e., medium-range surface-to-air missile system) with the Aster missile. SAMP/T has similar parameters to the Patriot system and is currently being further developed into SAMP/T NG (New Generation). This is to be equipped with more modern technology: a new Aster missile, a new multifunction AESA radar (Active Electronically Scanned Array), new software for the C2 module (guidance and control), and a new, improved launcher for the missiles. It is expected to be operational by 2025.

In the area of ballistic missile defence, that is, very long ranges over 100 km, the United States operates the Aegis Ashore sys-

Figure 1



Sources: <https://bit.ly/2023C06AirDefenceSources>

tem in Romania and, from 2023, in Poland as part of the NATO Ballistic Missile Defence (BMD) mission. The systems are directed against new threats from the Near and Middle East, especially Iran. In addition to the Aegis system, originally developed for the US Navy, the United States deploys the ground-to-air system THAAD (Terminal High Altitude Area Defense). However, this system has not been procured by any European country.

Since 2019, some European Union (EU) member states have been developing the Twister project (Timely Warning and Interception with Space-based Theater Surveillance) under French leadership as part of the Permanent Structured Cooperation (PESCO). The aim is to create a European multi-purpose defence system with space-based surveillance – targeting emerging threats including hypersonic missiles – that is to be operational by 2030.

Effective air defence

Air defence must be thought of holistically. It is technically very demanding because there are many interconnecting factors. In order to minimise dangers, the entire pro-

cess must therefore be perfectly linked, from the reconnaissance of a threat with radar or satellites via a C2 structure to the combat units. This process must be efficient and fast, because in missile defence sometimes only minutes pass between the launch and the target being reached. The Russian Iskander missiles stationed in Kaliningrad are just one example. It would only take them a few minutes to reach Berlin.

Integrated air defence means that all military dimensions are taken into account: land, air, sea, cyberspace, and space. Different systems are deployed: fighter jets, unmanned systems, ground systems, air defence frigates, IT systems, and satellites. All these systems are set up in such a way as to create mutually overlapping layers and domains. This is to make it as difficult as possible for the enemy to overcome the defences. In order to be able to react immediately to a threat, air defence must be prepared around the clock to repel enemy aircraft, drones, or missiles at varying ranges and altitudes.

These capabilities are intended to thwart successful attacks by the enemy and not allow them to overwhelm the defence systems – neither technically nor through saturation, that is, quantitative superiority.

Complete security cannot be achieved anyway, because no system in the world can guarantee 100 per cent protection. Technical failures can occur in the overall chain of action just as much as human error.

Utilising the potential of the ESSI

Germany has long been striving to close the missile defence capability gap through co-operation. This was first formulated in 2014 in the Framework Nations Concept (FNC), the aim of which is to promote voluntary cooperation between European nations – not just EU or NATO members – in order to “develop military capabilities jointly and multinationally”. To this end, the three framework nations – Germany, the United Kingdom, and Italy – provide all support services such as logistics, command facilities, and concepts for various projects so that smaller nations can obtain military capabilities at low cost. It is striking that, with the exception of the framework nation the United Kingdom, all ESSI participants have already been integrated into the FNC, which is led by Germany. However, this has not yet been implemented, so there is still room for improvement.

This need is now to be met by the European Sky Shield Initiative, which is at a critical juncture. On the one hand, Germany could involve other European partners and present an overall concept for European air defence so that capabilities are bundled and deployed in the best possible way. On the other hand, it is conceivable that the ESSI could become a pure procurement organisation. This option, however, would be a sign of Germany’s failure as a leading nation in European air defence. Instead, Germany should actively develop its desired leadership role. In concrete terms, this would mean increasing the interoperability of the different systems through good IT and software solutions, sensibly coordinating the expansion of capabilities, and advancing and effectively integrating the planned system developments within the framework of PESCO. But

if Germany does not play this role, the ESSI will only serve to save money. This would be a small step forward, but not a breakthrough in the sense of a common European air defence. It would help to a small extent to make more of the same kinds of systems available in Europe, but the goal of integrated European air defence (IELV – integrierte europäische Luftverteidigung), as envisaged by the then defence minister, would not be achieved. However, the advantages of coordinated air defence at all levels would be immense. The interconnection of all radar systems would produce extremely helpful situational awareness. Having more information that is transmitted more quickly also leads to better decisions.

A Europe that is united on air defence could conduct targeted and effective armaments research, and thus further strengthen European independence from non-European armaments in the future. Promising developments such as Twister and IRIS-T SLM/SLS/SLX are good examples of European solutions. What is important here is that the European systems have equivalent or better performance characteristics and are not favoured merely due to lobbying and political preferences.

Moreover, the establishment of an IELV would have a political signalling effect. In this way, Europe would be demonstrating its will to protect itself more effectively.

Conflict potential at five levels

An initiative such as the ESSI generates challenges at the political, strategic, military, industrial, and economic levels. However, as these challenges do not seem to have been analysed in detail, difficulties or unanswered questions emerge at all five levels.

Political level

Important European partners do not want to participate in the ESSI for different reasons. It can be concluded from this that Germany’s clout alone is not sufficient for

it to become a leader in Europe. In a context in which Berlin is being accused from many sides of going it alone, a number of partners have major reservations about Germany's idea.

France and Italy criticise the choice of systems and the lack of consideration of European alternatives, especially the SAMP/T. Both also fear that the ESSI threatens the PESCO Twister project. As coordinator of this project, France attaches great importance to making it a success.

Other states prefer bilateral action. Poland, for example, is currently developing bilateral air defence programmes with the United States (medium- to long-range) and the United Kingdom (short-range). For the modernisation or procurement of Patriot systems, Spain and Greece also seem to prefer a bilateral framework with the United States.

Turkey would like to join the ESSI but is said to not have been invited, presumably because it has bought Russian S-400 systems. Apparently, this has made constructive cooperation impossible.

Germany has not (yet) succeeded in allaying the concerns of important partners with regard to its leadership role. The political framework of the initiative has not been defined clearly enough so far. However, this is necessary if all European nations are to understand the intent and unite in the process of shaping air defence. The ESSI is based outside the EU and NATO, but it is intended to protect all Europeans and be interoperable or compatible with NATO systems and procedures. All systems are also to be integrated into the NATO command structure. Countries with different political affiliations are currently involved in the ESSI. The United Kingdom and Norway, for example, are in NATO, but not in the EU. Finland is a member state of the EU, but not yet a ratified member of NATO. The latter also applies to Sweden, which declared its intention to join the initiative at the beginning of January 2023. The justified wishes to have specific interests taken into account complicate Germany's leadership work immensely.

Strategic level

Although it is an ad hoc, multinational initiative, Germany wants to anchor the ESSI in NATO's Integrated Air and Missile Defence (IAMD). The IAMD is an important component of the Alliance's deterrence-and-defence strategy. The communiqué of the 2021 Brussels Summit described the IAMD as a mission "conducted in a 360-degree approach" and tailored to "counter all air and missile threats from all strategic directions". Threats from Russia are implicitly included. Yet few capabilities have actually been dedicated to this task so far. The inclusion of the Arrow 3 system would not only be a capacity development, but also an extension of the capability spectrum in terms of range, thereby sending a strong signal. Moscow could interpret this as another attempt by the West to diminish Russia's deterrent potential.

The NATO BMD mission, located within the IAMD, was officially designed to counter threats from "outside the Euro-Atlantic area" (Iran). In order to avoid escalation, however, it is explicitly "not directed against Russia" and will not "undermine Russia's strategic deterrent". There is no doubt, however, that the ESSI is directed against a threat from Russia. Even if this does not violate the political goal of the IAMD, a question arises as to the coherence and compatibility of the initiative with the NATO BMD mission. The ESSI could thus counteract the Alliance's efforts to maintain the strategic balance. This could favour an escalation. It seems that on the German side, such an effect has either not been analysed or anticipated, or it is simply accepted.

Military level

There were only six weeks between Chancellor Scholz's speech in Prague on 29 August and the signing of the Memorandum of Understanding on 13 October. This period was too short to hold an in-depth debate with partners and allies on the threat analysis and possible solutions. The

Figure 2

Participants in the European Sky Shield Initiative



operational needs — that is, the answers to the questions about which offensive weapons threaten Europe and which defensive weapons can best be used against them — could not be precisely defined. It seems, therefore, that there has been a rush to commit to certain systems because they were available on the market, instead of being guided by operational needs and other relevant factors.

Another challenge is the interoperability of Arrow 3 with NATO systems and its potential integration into the NATO command structure. The system must be approved by NATO's Interoperability Board, on which each ally is represented. This is not a foregone conclusion. For example, Turkey could block the authorisation with reference to the fact that NATO did not agree with Ankara's purchase of Russian S-400 systems.

If Arrow 3 is approved, it would be a challenge to adapt the software to the needs of the European armed forces and to integrate the system into the existing air defence structures of Europe and NATO.

Industrial level

The choice of systems, which also contains an important political dimension, raises the question of European sovereignty. Patriot and Arrow 3, the two most expensive systems to be jointly procured, do not come from Europe. The rejection of European alternatives is at odds with the goal of strengthening Europe's industrial and technological defence base. Yet this goal has been strongly affirmed both in the EU's Strategic Compass and in German strategic documents, such as the 2016 White Paper. The choice of systems is therefore crucial and will have long-term consequences for Europe's industrial and technological defence base. It is a question of preserving or reducing jobs and competencies as well as greater or lesser dependence in key areas.

The upcoming procurements and subsequent developments under the ESSI should also be compatible with the efforts of the EU Commission and the European Defence Agency. They are working diligently on the introduction of two financial instruments: The European Defence Industry Reinforcement through Common Procurement Act (EDIRPA) is intended to form the basis for

financing the joint procurement of the most urgent critical defence equipment in the short term. In the longer term, the European Defence Investment Programme (EDIP) is to serve “as a pivot for future joint development and procurement projects of high common interest”.

Care must be taken, however, not to jeopardise the development of future European capabilities. Short-term purchasing decisions will have long-term consequences for in-house product development, because money spent on the procurement of non-European weapon systems is not being spent on European research and development. Therefore, the added value of European products must be proven. They will only be bought if they are competitive or better than comparable non-European systems.

Economic level

In order to convince the other ESSI members to procure systems, not only Arrow 3, financial aspects must also play a central role. Systems that are available on the market can be procured at a lower price if several interested parties act together as buyers. However, these are very expensive systems, especially those covering long ranges.

Too high a price for the procurement of the systems and the corresponding missiles can have a dissuasive effect. Even if all European countries increase their defence spending, many are still unable to participate in the procurement of complex and expensive weapon systems. Once procured, there are further substantial costs to be factored in for training, maintenance, and possibly longer-term modernisation. The costs for air and missile defence are far greater than for offensive capabilities. All of this must be reflected with full transparency in the financial planning.

It is the task of the federal government to find a suitable balance between the five levels and, if necessary, to create a hierarchy among them.

Outlook

For the ESSI to be a success, the German government should promptly present an implementable concept for European air defence and credibly clarify how it intends to realise this politically. First, a comprehensive critical inventory of European capabilities should be drawn up. Maximum effort is needed to close the capability gap described above. In order to better integrate new and old systems, intelligent software solutions – in consultation with industry – are a practical first approach. It would also be conceivable for the Bundeswehr to have its own software development laboratory, which would work closely with engineers from industry.

As coordinator of the ESSI, Germany must set a good example in financing Europe’s air defence. With around €5 billion being allocated from the €100 billion German special fund, a first step has been taken in this direction. In addition, funds from the regular defence budget will need to be consistently channelled into research and development, the technical improvement of existing systems, as well as new acquisitions. The latter will also incur high costs for operation, exercises, and maintenance. This has not yet been taken into account in the Bundeswehr’s financial planning. The Bundeswehr will also have to create more posts for air defence, because only with well-trained personnel can these ambitious plans be implemented in a sustainable manner in the long term. It would also be helpful to define the political and strategic framework of the initiative more clearly.

To convince partners of the economic added value of the ESSI, Germany will have to add a comprehensive cost model to its concept for European air defence. Here, inflation, price increases for defence equipment of around 5 per cent per year, and other factors must be realistically included.

Finally, the actual military performance of the new capabilities and operations must be demonstrated. These could be tested within the framework of an annual NATO

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ISSN (Print) 1861-1761
ISSN (Online) 2747-5107
DOI: 10.18449/2023C06

(Updated English version of
SWP-Aktuell 2/2023)

certification exercise. The most important thing here is to be critical of oneself, not to accept shortcomings or coordination problems, and to work with complete dedication towards improving one's own capabilities.

The overall equation to be solved is that the capability gap must be closed as quickly as possible without weakening or even jeopardising European development programmes; the balance between political, strategic, industrial, military, and economic requirements must be carefully balanced. Moreover, the participation of France and Italy is indispensable for the success of the initiative. The lack of agreement between Berlin and Paris has caused intense irritation in France and contributed to the postponement of the Franco-German Ministerial Council at short notice. This is only the latest example of a lack of involvement between the respective partners. President Emmanuel Macron's push for a European Political Community was seen in Berlin as going it alone. Paris, in turn, directed the same accusation at the German government because of the ESSI and the gas and electricity price caps. This pattern should be rectified as soon as possible in order to comply with the commitment made in the 2019 Aachen Treaty to "consult each other with a view to establishing common positions on all important decisions affecting their common interests and to act jointly whenever possible". Beyond these Franco-German disagreements due to the high-handed approaches on both sides, there are fundamental concerns in Paris and Rome that Germany should take to heart. A compromise must be found that takes into account both Germany's core interests, that is, the rapid implementation of the ESSI, and those of France and Italy, namely European sovereignty and the preservation of the strategic balance. The first step by Germany towards such a compromise could be to involve European industry more closely in the ESSI and to reaffirm at the highest political level the ambition to successfully complete the Twister project.

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