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Making the Most of the European Sky Shield Initiative

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Sean Monaghan
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A Report of the CSIS Europe, Russia, and Eurasia Program

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Executive Summary

European nations have provided a wide range of air and missile defense systems to help Ukraine defend against indiscriminate missile and drone strikes by Russia. Russia's aggression and tactics have also prompted them to focus on European air and missile defenses—which are in a parlous state after years of underinvestment. This report finds that European air and missile defense faces big challenges, with serious gaps in ground-based air defense, command and control, and defense against emerging advanced threats.

The German-led European Sky Shield Initiative, launched in October 2022, has the potential to address these problems and fill the gaps. However, Sky Shield is already under severe political pressure and faces an uphill battle given the many challenges of European defense cooperation. Yet given critical shortfalls in air and missile defense, European nations have little choice but to make Sky Shield a success.

To help overcome these challenges, this report offers 15 recommendations for the Sky Shield initiative across five categories: leadership, capability and concept, cooperation, division of labor, and delivery. These recommendations are based on an extensive assessment of Europe's air and missile defenses, followed by a detailed analysis of how to overcome the challenges Sky Shield faces based on previous reports, past examples of cooperation, and the wider literature.

LEADERSHIP

1. Create strong German leadership based on a clear vision and direction for Sky Shield that all members agree on.

2. Balance multiple goals and manage competing objectives.
3. Develop a Sky Shield brand, champion success, and maintain a constant drumbeat of activity.

CAPABILITY AND CONCEPT

4. Focus Sky Shield on addressing the serious capability gaps in very short- to medium-range ground-based air defense (GBAD).
5. Agree on a Sky Shield concept of operations for regional air and missile defense, including developing new and novel concepts.
6. Expand information-sharing networks.
7. Improve air and missile defense exercises.

DIVISION OF LABOR

8. Design Sky Shield around the smaller groups that already exist between members while maintaining focus on commonality and integration.
9. Agree on work-share guidance between nations.

COOPERATION

10. Make cooperation a political priority for Sky Shield (e.g., through coproduction, codevelopment, integration, and joint units).
11. Use existing NATO and EU instruments to incentivize cooperation.
12. Use coproduction to manage work share and incentivize codevelopment to advance technology transfer.

DELIVERY

13. Design the right cooperation format(s) for Sky Shield, which may be a mixture of coproduction, codevelopment, integration, and joint air defense units.
14. Establish a dedicated organization to coordinate and manage the delivery of Sky Shield.
15. Develop lower-cost systems and streamline export controls.

If Sky Shield can overcome the many challenges to successful cooperation, it could be game changing for European air and missile defense and for wider efforts to transform European defense.

Introduction

Vladimir Putin's war of conquest in Ukraine has not gone according to plan. One year on from Russia's attempt to take Kyiv and remove the elected Ukrainian government, fierce Ukrainian resistance has limited Russian forces' gains to the far east and south of the country.[1] As a consequence, Russia has resorted to raining down indiscriminate terror with missile and drone strikes against civilian targets. In March 2023, a barrage of over 80 strikes in one day left 40 percent of Kyiv's population without power. The strikes included Kh-47 Kinzhal hypersonic missiles, Kh-22 antiship missiles, S-300 antiaircraft missiles, Kalibr cruise missiles, and Iranian-made Shahed remotely piloted aircraft (RPA).[2]

European nations have responded to Russia's tactics by providing Ukraine with a wide range of air and missile defense systems.[3] But the situation has also prompted them to focus on their own air and missile defenses. However, these are in a perilous state given the lack of investment in European defense (particularly high-end operations) since the end of the Cold War and the proliferation of new threats such as RPA and high-velocity missiles. As a result, European nations have serious shortfalls in short-, medium-, and long-range GBAD systems and against advanced emerging threats. As Chancellor Scholz put it in a speech in Prague in August 2022, "We have a lot of catching up to do in Europe when it comes to defence against airborne and space-based threats."[4]

Chancellor Scholz's answer to Europe's air and missile defense woes is a German-led, "jointly developed air defence system in Europe," now known as the European Sky Shield Initiative (herein "Sky Shield").[5] The initiative, his brainchild, was launched on October 13, 2022, when defense ministers from 14 North Atlantic Treaty Organization (NATO) allies and Finland signed a letter of intent.[6]

Yet no sooner was Sky Shield announced than it came under pressure. Poland was conspicuously absent from the list of 15 northern and eastern European nations that signed up, and Germany's reluctance to approve the export of Leopard 2 main battle tanks to Ukraine invited questions about its leadership.[7] On the same day Scholz explained his initiative to the Munich Security Conference, French president Emmanuel Macron announced his own initiative for European air defense, which seemed to be in direct competition with Scholz's.[8] Although the Sky Shield club has grown to 17 members, no multinational cooperation has ever succeeded with so many participants, as successful projects typically have fewer than five members.[9]

One assessment of Sky Shield puts it bluntly:

> 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.[10]

This report examines the state of air and missile defense in Europe and offers a closer examination of Sky Shield's prospects and how to improve them. The report is organized in three chapters:

- **Chapter 1** examines the state of European air and missile defense at the national level based on an analysis of existing capabilities and planned procurement across Europe, as well as existing NATO and EU multinational initiatives.
- **Chapter 2** assesses the prospects for the Sky Shield initiative in terms of potential benefits, challenges, and factors for success.
- **Chapter 3** proposes 15 recommendations for making the most of Sky Shield based on insights from collective action theory, best practices, and types of defense cooperation.

Results of a survey of experts in European air and missile defense are displayed at relevant points throughout the report.[11] Appendix A contains the detailed results of the capability survey in Chapter 1.

1

The State of European Air and Missile Defense

During the Cold War, GBAD played a secondary role to air power given NATO's focus on achieving air superiority over Warsaw Pact forces.[12] Since then, Europe's air defenses have atrophied given their focus on expeditionary and counterterrorism operations in a permissive air operating environment.[13] A recent assessment by CSIS suggests, "European states will likely continue to lack sufficient ground-based air-defense capabilities to counter Russian cruise and ballistic missiles," as "European missile defense capabilities are lagging" and NATO's ballistic missile defense (BMD) program is unlikely to be fully operational before 2030.[14] Others have confirmed this assessment, which is compounded by concerns about the inability of European high-end air power to secure the air superiority needed.[15] The ever-present threat posed by Russian missile forces based in the Kaliningrad Oblast—including nuclear-capable Iskander missiles and antiship missiles—is also an important factor given their short flight time to European capitals.[16]

This section assesses the true state of European air and missile defense in two parts: national capabilities and multinational initiatives. It concludes that despite recent focus on and investment in missile defense, Europe relies on a very small number of modern missile defense systems. Most of its GBAD consists of older Soviet-built short-range systems. When combined with gaps in defense against emerging advanced threats—such as RPA, guided and unguided missiles, and hypersonic glide vehicles—and in C2 for NATO's Integrated Air and Missile Defense (IAMD) mission, this assessment suggests Europe's piecemeal approach to air and missile defense is no longer sustainable.

The National Picture: European Nations' Air and Missile Defense Capabilities

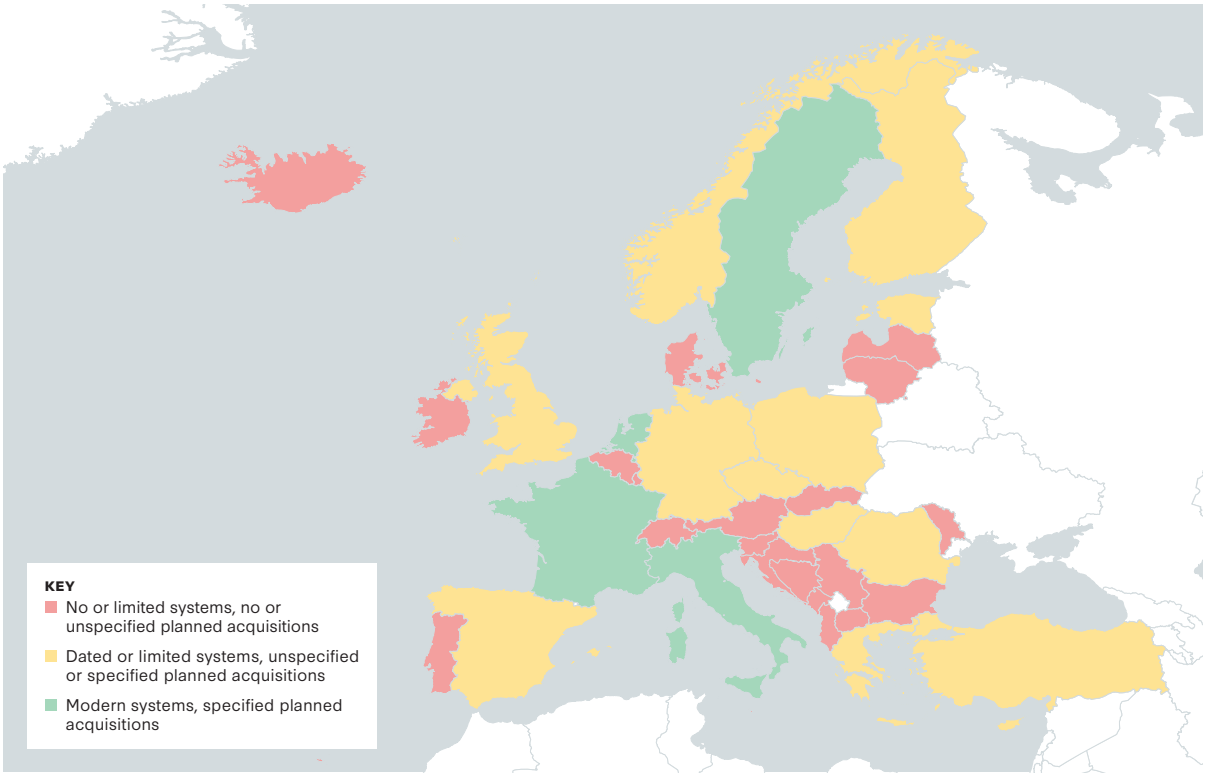
Russia's 2014 annexation of Crimea and conflict in the Donbas region of Ukraine triggered a renewed focus in NATO and Europe on air and missile defense, but progress has been patchy. While the 2016 NATO Warsaw summit acknowledged Russian missile strike capabilities as a threat, it made little headway in moving beyond the existing IAMD architecture built around an Iranian threat.[17] Moreover, European air and missile defense acquisition has been piecemeal.[18]

Modernization efforts have focused on speed of acquisition and national requirements over a coordinated European approach, resulting in serious shortfalls across NATO's eastern front, from the Baltic Sea to the Black Sea. According to one analysis:

> This translates into a highly diverse landscape of air and missile defences across the [NATO] Alliance's members. None of the countries analysed currently has a fully integrated, multi-layered system to ensure their adequate saturation with defence assets. The entire area needs huge amounts of funding for very short-, short- and medium-range systems.[19]

The current state of European missile defense capabilities is shown in Figure 1. It is based on a comprehensive survey of Europe's existing capabilities and planned acquisitions (see Appendix A).

Figure 1: European Ground-Based Air and Missile Defense Capabilities



Note: This assessment is based on 2022 data and may not include recent announcements or acquisitions.

Source: Authors' own analysis based on Appendix A data; countries are categorized according to their closest match to the above categories.

Another way of looking at the problem is from the threat perspective. Table 1 shows how Europe's air and missile defense posture—based on capability (types of systems) and capacity (quantity of systems and military units)—deals with a variety of threats. Given Russia's increased use of drone attacks in Ukraine against military and civilian targets, some nations are considering buying Israeli air defense systems that have proven successful against these threats.[20]

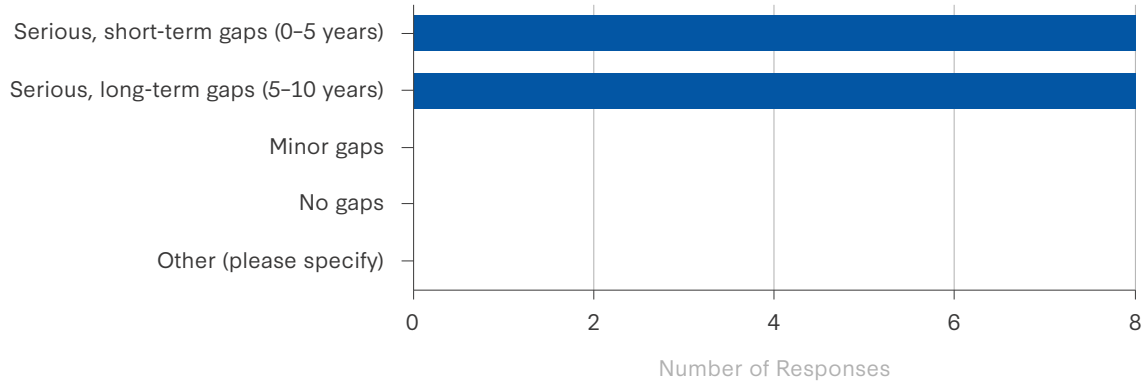
Table 1: Gaps in European Air and Missile Defense

Threat	No Gap	Moderate Gap *(risks mission delays and increased losses)*	Significant Gap *(risks mission failure)*
Fast-moving fighter/strike aircraft	X		
Slow-moving aircraft/attack helicopter	X		
Small unmanned aerial vehicles (UAVs)		X	
Guided missile threats			X
Unguided missile threats			X
Hypersonics			X

Source: Survey results and authors' own analysis (see Appendix A).

According to the authors' survey, there are serious short- and long-term gaps in European air and missile defense:

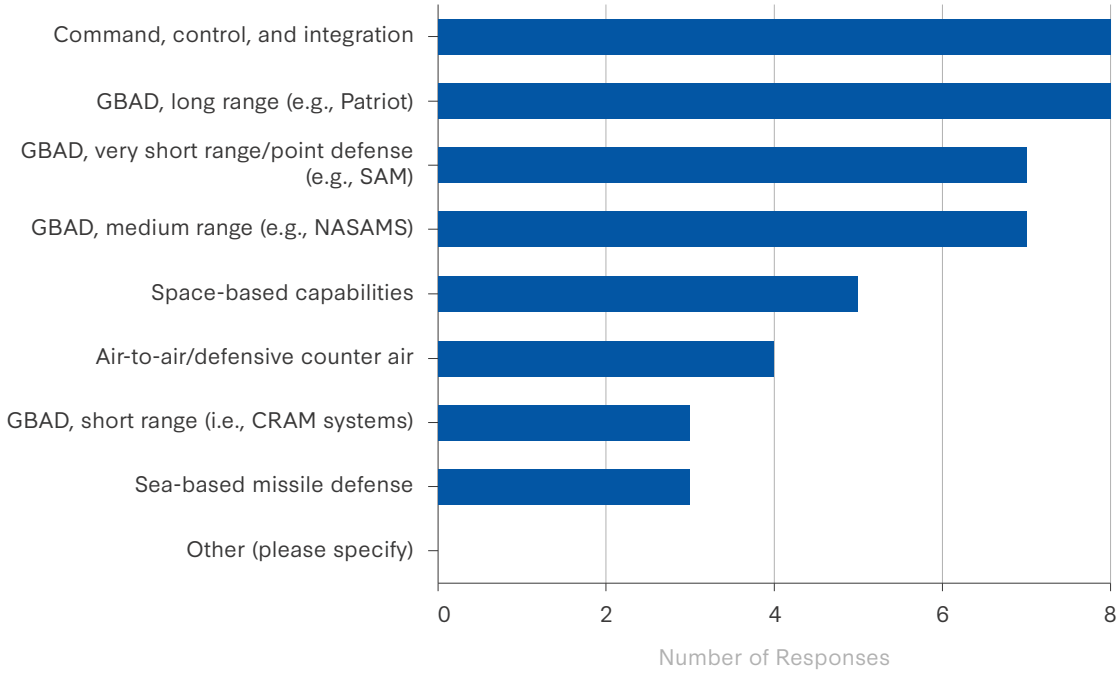
Q1: How do you assess the state of Europe's air and missile defense capabilities over the next decade? (Pick one)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

These gaps are spread across the full range of air and missile defense capabilities:

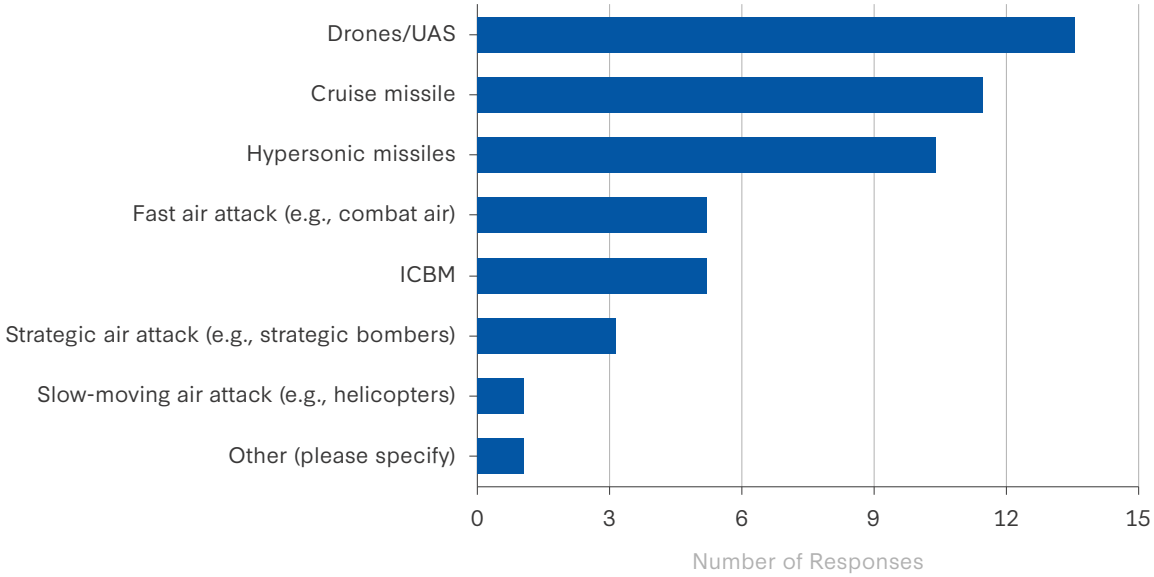
Q2: If there are gaps, where are the most serious? (Pick one)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

Europe needs to prioritize solutions for RPA, cruise missiles, and hypersonic missiles:

Q3: And against which threats? (Pick up to three)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

The Multinational Picture: Cooperation on Air and Missile Defense in Europe

To address the growing gap between threats and capabilities, NATO and the European Union have prioritized multinational cooperation to strengthen European air and missile defense in recent years.

Established in the early Cold War period, NATO's collective air defense mission is based on two permanent tasks: IAMD and BMD. Air and missile defense has also emerged as a priority for NATO capability development in recent years, with three of twenty-one High Visibility Projects (HVPs) dedicated to GBAD; counter rockets, artillery, and mortars (C-RAM); and tactical C2 (see Table 2 for more detail).[21]

Unlike NATO, the European Union does not have standing tasks such as BMD or IAMD across Europe.[22] Air and missile defense has therefore not been a priority for EU capability development.[23] But this is changing fast: recent assessments point to air and missile defense as an urgent priority to reinforce in the short term, a priority to upgrade in the short to medium term, and a "high-impact capability goal" to help "win the future" in the long term through high-end air defense systems that defend against threats such as hypersonic missiles and unmanned aerial systems.[24] The European Union's 2022 Strategic Compass plans for EU forces to deploy in "nonpermissive" environments, which include a range of threats from the air, from missiles to RPA. It therefore identifies the need to develop modern air and missile defense systems, included in one of six "capability focus areas."[25] Table 3 shows key NATO and EU initiatives on air and missile defense.

Table 2: NATO and EU Multinational Air and Missile Defense Initiatives

NATO	European Union
IAMD (permanent task) ▪ Air policing mission (est. 1961) ▪ Air shielding mission (est. 2022) ▪ NATO Integrated Air Defense System (est. 1950s) ▪ IAMD Center of Excellence (est. 2021)	**Timely Warning and Interception with Space-Based Theatre Surveillance (TWISTER)** ▪ PESCO project ▪ Est. 2019; 2030 aim (in service) ▪ France (lead–MBDA prime), Finland, Germany, Italy, Netherlands, Spain ▪ Space-based early warning and intercept of high-velocity threats ▪ Contribution to NATO BMD
BMD (permanent task) ▪ Est. 2010; initial operational capability, 2016 ▪ Command Center, Ramstein ▪ Aegis land/sea (in Turkey, Romania, Poland, and Spain) plus SAMP/T, Patriot, and national assets.	**European Hypersonic Defence Interceptor (HYDEF)** ▪ Est. 2021; 2035 or later target ▪ Funded by European Defence Fund (EDF) ▪ €110 million; SENER (Spain led) ▪ Concept for European interceptor for high-velocity threats
Modular GBAD (HVP) ▪ Est. 2020; procurement commences 2024 or later ▪ 14 nations ▪ Very short- to medium-range GBAD (up to 50 km) ▪ Scalable, modular, common C2 (Fire Direction Center)	
Rapidly Deployable Mobile C-RAM (HVP) ▪ Est. 2020; procurement commences 2028 or later ▪ Germany, Greece, Hungary, Norway, Poland, United Kingdom, United States ▪ Deployable/mobile C-RAM (e.g., directed energy weapon [DEW])	
Surface-Based Air and Missile Defense (SBAMD) C2 Layer (HVP) ▪ Est. 2021 ▪ Denmark, Italy, Portugal, Spain, United Kingdom, United States ▪ Battalion/brigade-level GBAD open architecture for air defense management system	

Source: Authors' research based on multiple sources.[26]

In summary, this analysis of the national and multinational picture suggests the following about the state of Europe's air and missile defenses:

- Although European nations have plenty of **short- to medium-range** air defense systems, much of this inventory is dated and (in eastern Europe) Soviet-era technology.[27] Despite renewed focus and several planned acquisitions and development, this gap is likely to persist.
- European nations have relatively few defenses against **long-range** guided and unguided missiles, relying on small numbers of high-end Patriot and SAMP/T systems and lacking any high-altitude systems (e.g., Terminal High Altitude Area Defense [THAAD], Arrow 3).
- Extensive gaps among European nations are emerging against **advanced threats**, such as RPA, and longer-range threats from high-velocity missiles and hypersonic glide vehicles.
- The current state of **IAMD C2** is a moderate gap until NATO can deploy a common operating system to the numerous disparate C2 nodes.
- There are several **capability development** initiatives within NATO and the European Union to address air and missile defense gaps, but these are relatively immature in their scope and delivery plans.

Given this assessment, despite recent attention and capability initiatives in NATO and the European Union, Europe's piecemeal approach to air and missile defense at the national level is no longer a sustainable strategy.

2

The European Sky Shield Initiative

Introducing Sky Shield

Sky Shield was launched on October 13, 2022, in the margins of a NATO Ministers of Defence meeting.[28] Given the state of European air and missile defense capabilities and the limited scope of the multinational NATO and EU initiatives designed to address the gaps, Sky Shield may have arrived just in time.

The immediate origins of Sky Shield can be traced to a speech made by Chancellor Scholz at the Charles University in Prague on August 29, 2022—six weeks before the formal announcement of Sky Shield:[29]

> We have a lot of catching up to do in Europe when it comes to defence against airborne and space-based threats. That is why we in Germany will be investing very significantly in our air defence over the years ahead. All of those capabilities will be deployable within the framework of NATO. At the same time, Germany will, from the very start, design that future air defence in such a way that our European neighbours can be involved if desired—such as the Poles, Balts, Netherlanders, Czechs, Slovaks or our Scandinavian partners. Not only would a jointly developed air defence system in Europe be more efficient and cost-effective than if each of us built our own costly and highly complex systems; it would also be a security gain for Europe as a whole, and an outstanding example of what we mean when we talk about strengthening the European pillar within NATO.

This initiative came six months after another important speech by Chancellor Scholz: the so-called Zeitenwende speech to the German Bundestag in the days following Russia's full-scale invasion of Ukraine. This speech promised a watershed moment in German defense and security policy, accompanied by a special fund of €100 billion to finance it.[30]

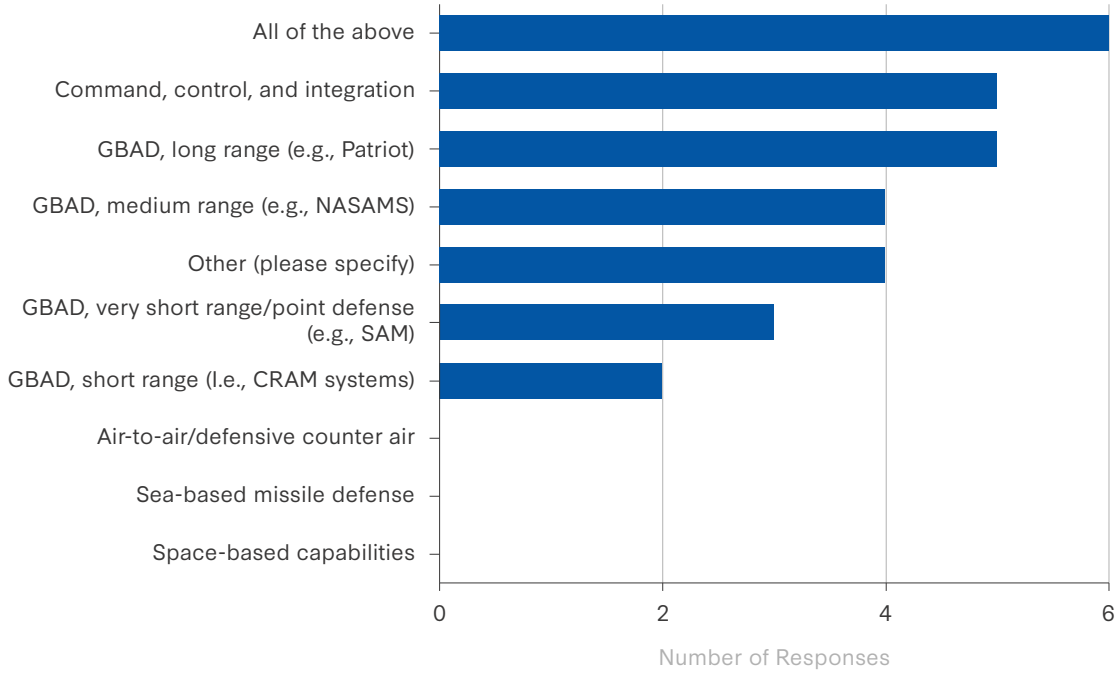
Six months into the Zeitenwende, Sky Shield now presents Germany with an opportunity to demonstrate what its new era of leadership on defense and security looks like in practice. It also gives Germany a chance to build on extensive previous efforts to develop European air defense systems through the failed Medium Extended Air Defense System (MEADS) and Threshold Limit Values (TLVs) programs (intended to compete with the U.S. Patriot system) and the successful Infra Red Imaging System Tail/Thrust Vector-Controlled (IRIS-T) system, recently deployed in Ukraine.[31]

Yet despite the potential of Sky Shield and the fanfare around the launch of the initiative, the goals and content of the initiative remain unclear. So far, they include the following:

- A **common**, **interoperable**, and even **integrated** system or network[32]
- **Common or joint acquisition** of existing off-the-shelf air and missile defense systems[33]
- Individual **national acquisitions**[34]
- **Flexible and scalable** solutions for different nations[35]
- **Joint development** of new air and missile defense capabilities[36]
- Development of the **European technology and industry base**[37]
- A focus on **cost savings and efficiency**[38]
- A **NATO-first** initiative[39]
- **Europe-wide scope** but focused on **northern and eastern European nations**[40]

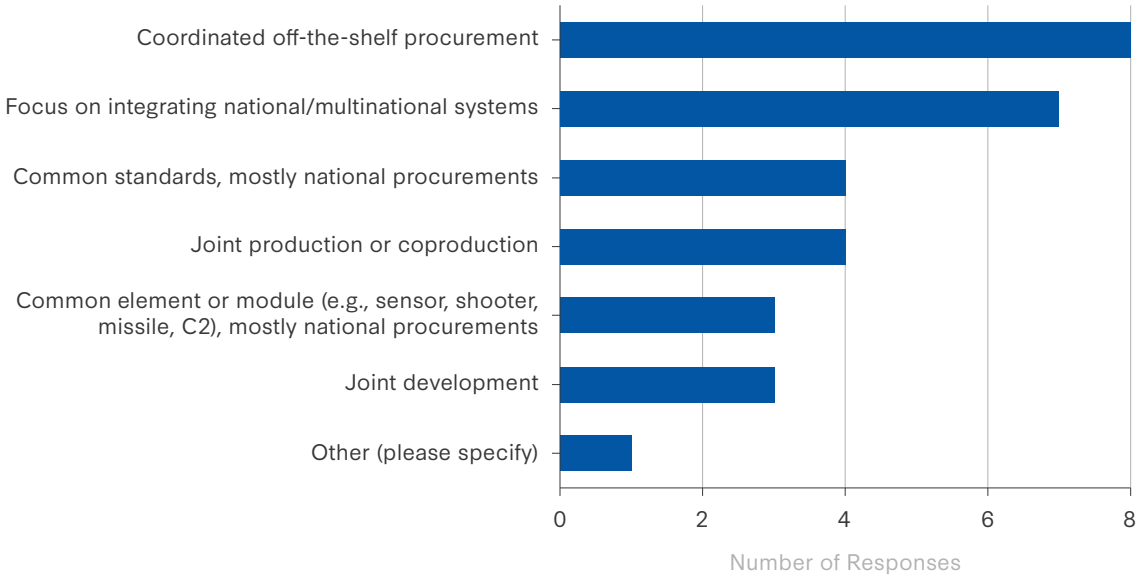
The research survey corroborated this picture, as those surveyed had no clear idea what the focus of Sky Shield was or what form it would take:

Q4: In your understanding, what is the focus of the German-led European Sky Shield Initiative (ESSI)? (Pick one or multiple answers)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

Q5: What is your understanding of the proposed model for delivering ESSI capability? (Pick one or multiple answers)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

The easiest question to answer about Sky Shield is which nations have joined it. When it was launched, there were 15 nations. Denmark and Sweden joined in February 2023 to take the total to 17. As Figure 2 shows, this group of nations is focused exclusively on north, east, and central Europe—or NATO's eastern front.

Figure 2: Participants in the European Sky Shield Initiative

Note: Finland joined the NATO alliance on April 4, 2023. This graphic does not include Denmark, whose participation in Sky Shield was announced in February 2023.

Source: Reprinted with permission from Sven Arnold and Torben Arnold, "Germany's Fragile Leadership Role in European Air Defence," Stiftung Wissenschaft und Politik, February 2, 2023, https://www.swp-berlin.org/en/publication/germanys-fragile-leadership-role-in-european-air-defence.

Assessing the Prospects for Sky Shield

Although Sky Shield is in its infancy, it has potential to address Europe's air and missile defense gaps given its high political profile and the number of members it has already gathered. The key question is, will it be successful?

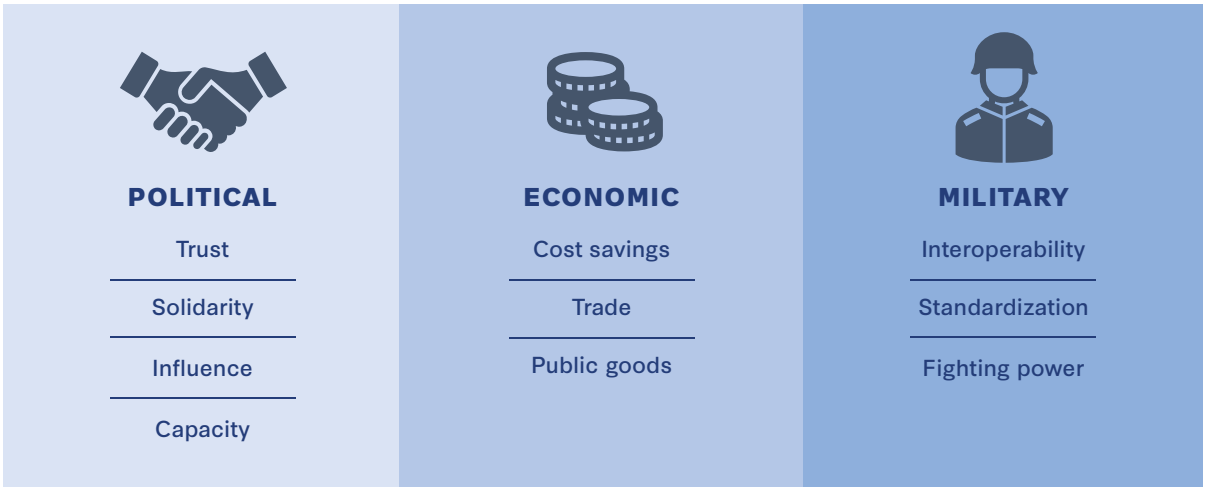
To help answer this question, this section assesses Sky Shield's prospects. It uses an existing framework to consider potential benefits, challenges, and success factors and concludes that the political, economic, and military challenges inherent to defense cooperation, combined with other contingent factors—such as lack of clear goals and focus, the large number of participants, past failures, emerging political differences over the best path forward for European air defense, and the rapidly evolving threat environment—will make it difficult to realize the benefits of Sky Shield in practice.[41]

POTENTIAL BENEFITS OF SKY SHIELD

Multinational defense cooperation offers three types of benefits: political, economic, and military (see Figure 3).[42] Sky Shield offers potential benefits across all three.

- The **political benefits** of Sky Shield include promoting solidarity, cohesion, and trust between its members; burden sharing; and enhanced capacity for action. The latter is an important driver of cooperation for Europe, which faces political incentives to seek relative autonomy from—and insure against—shifting U.S. priorities.[43]
- The **economic benefits** of Sky Shield could make air and missile defense cheaper by bundling national demand to achieve economies of scale and learning by avoiding duplication of costly research and development through increased trade and competition and provision of public goods (e.g., deterrence or missile defense).[44]
- Sky Shield could yield three main **military benefits**: capability and fighting power, enhanced interoperability, and efficiencies through standardization of equipment and systems.[45]

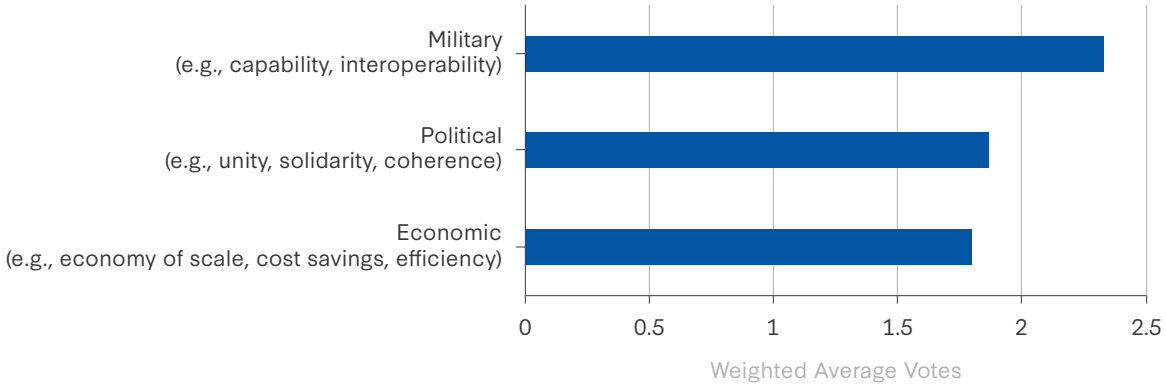
Figure 3: Benefits of Defense Cooperation



Source: Sean Monaghan, "Solving Europe's Defense Dilemma: Overcoming the Challenges to European Defense Cooperation," CSIS, *CSIS Briefs*, March 1, 2023, https://www.csis.org/analysis/solving-europes-defense-dilemma-overcoming-challenges-european-defense-cooperation

According to those surveyed, the potential benefits of Sky Shield are evenly spread across political, economic, and military dimensions:

Q7: In your view, what are the most important benefits of ESSI? (Rank the following)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

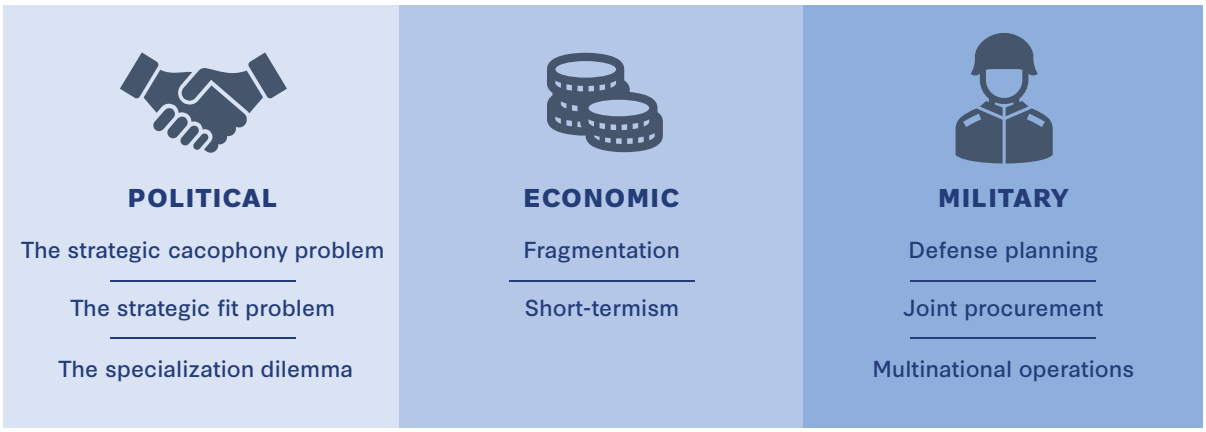
More specifically, multinational cooperation on air and missile defense has become vital given the proliferation of advanced air and missile threats.[46] According to one analysis, there are five types of air and missile defense cooperation, all of which Sky Shield could exploit:[47]

- **Sales and purchasing** of air and missile defense systems between nations, which can signal commitment to allies, strengthen overall defenses, and reduce the U.S. security burden of individual nations.
- **Cooperative research and development**, which helps to share costs and promote specialization in niche technology areas.[48]
- **Hosting air and missile defense units and facilities**, which can enhance overall defense and deterrence, reassure allies, and strengthen political ties.[49]
- **Sharing information** before launch (e.g., development and testing of adversary systems) and after launch (e.g., missile launch, cueing, and tracking data).
- **Exercises and training**, which allow European militaries to test and hone their systems, personnel, interoperability, and doctrine in a realistic joint environment.

CHALLENGES

The challenges to multinational cooperation are significant.[50] Using the same three categories, some of the most significant challenges Sky Shield is likely to face are highlighted in Figure 4.

Figure 4: The Collective Action Problem in European Defense Cooperation



Source: Monaghan, "Solving Europe's Defense Dilemma."

There are three **political challenges** that could affect the Sky Shield initiative:[51]

- The **strategic cacophony problem** occurs when domestic imperatives to develop national forces and defense industries work against cooperation. One example is Poland's conspicuous absence from Sky Shield following a difficult period between Warsaw and Berlin, including a public spat over deployment of German Patriot systems to Poland, given Warsaw has recently committed to developing its own short- and medium-range GBAD systems in cooperation with the United Kingdom.[52]
- The **strategic fit problem** relates to overcoming deep national differences in strategic culture, priorities, and so on. For Sky Shield, navigating both problems among 17 members will require strong leadership and creative solutions. An example is the potential for a competing French-led initiative on Europe's air defense announced by President Macron at the Munich Security Conference.[53] This could be due to concerns about a north-south divide in European air defense, especially given the industrial expertise in southern European nations such as France, Spain, and Italy, or the sputtering "Franco-German engine."[54] As one assessment of Sky Shield puts the political challenge bluntly: "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."[55]
- The **specialization dilemma** undermines reliance on others to deliver shared capability. For Sky Shield, specialization is unavoidable because not every nation in Europe can afford to develop and field an independent air defense system. For example, smaller nations that cannot afford to procure or operate complex systems must rely on others for coverage against long-range missile threats. Conveniently, some specialization already exists through NATO's Air Policing and Air Shielding missions.

There are two main **economic challenges** to defense cooperation: fragmentation and short-termism.

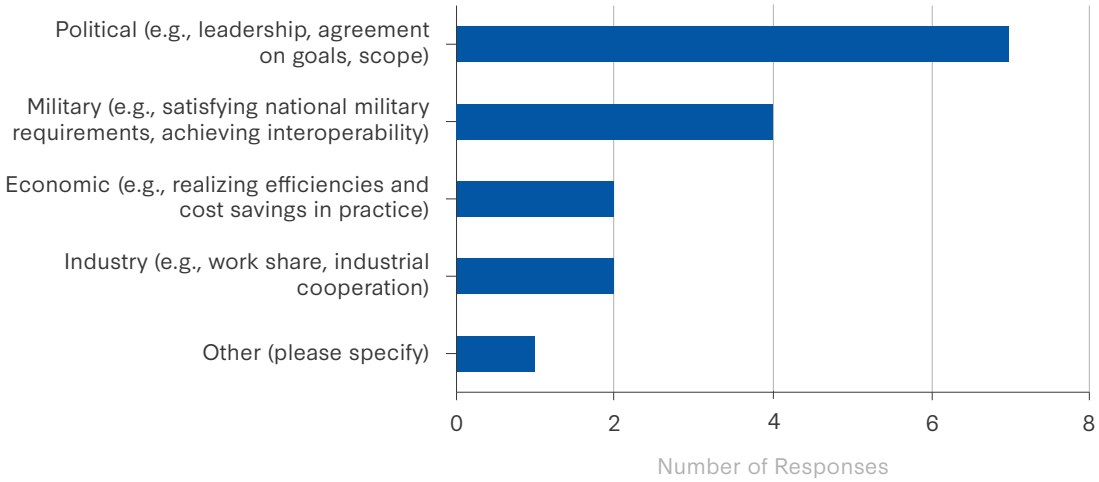
- For Sky Shield, fragmented preferences, demand (e.g., national requirements), and supply (e.g., the national defense industry) across 17 members will be difficult to avoid and must be carefully managed to minimize friction.
- Short-termism in Sky Shield could emerge as a preference for buying off-the-shelf and non-European systems.[56] While this would address short-term capability gaps, it may undermine the competitiveness and sustainability of Europe's defense technology and industrial base in the long run.[57]

There are three main **military challenges** for Sky Shield:

- The first and second—multinational defense planning and joint procurement—are related. While NATO and the European Union have multinational defense planning processes that can help align multinational requirements and conduct joint procurement, they are not detailed enough for Sky Shield, which will have to create its own planning process and joint procurement mechanisms.
- The third is interoperability between nations. This is especially demanding for integrated air and missile defense, which requires a common air picture that is extremely accurate and complex operating doctrine that requires high levels of training. This is why the Latvian state secretary Jānis Garisons suggested interoperability "might be the big challenge" for Sky Shield.[58]

According to the experts who responded to the authors' research survey, the main challenges to Sky Shield are political, followed by military:

Q8: In your view, what will be the main challenge to realizing the benefits of ESSI? (Pick one)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

SUCCESS FACTORS

A previous assessment looked at past examples of cooperation to identify key factors for success.[59] Table 3 uses these factors to assess the prospects for Sky Shield at this early stage.

Table 3: Assessment of the Prospects for Sky Shield against Known Success Factors for Multinational Cooperation

Success Factor	Assessment	Rating *(high/medium/low prospects for success)*
ENDOGENOUS FACTORS		
Core Factors		
Trust and solidarity	Difficult to maintain among 17 members. German leadership already questioned by some (e.g., Leopard 2 debate). Poland conspicuously absent.	Low
Shared strategic culture and like-mindedness	Competing French air defense initiative. Sky Shield suggests emerging north-south divide in European air and missile defense.	Medium
Clear goals and serious intent	Varied goals at this stage. German political backing (e.g., Scholz's speech, tied to Zeitenwende) but appears to be a "politics-first" initiative.	Low
Military-strategic symmetry	A wide range among the 17, but this (a) is not a decisive factor and (b) could be a virtue if pursuing a subgroup or plug-and-play model.	Medium
Enabling Factors		
Level playing field for defense industry	Some suspicion that the initiative is designed to benefit the German defense industry, though two of the three systems identified at this stage are not German (U.S. Patriot and Israeli Arrow).	Medium
The role of institutions	Sky Shield could bolster NATO IAMD and EU initiatives, but some risk of overlap or fratricide needs managing (e.g., with NATO GBAD, EU hypersonics, France air defense conference).	Medium
Cost savings	Part of the Sky Shield rationale but requires clear goals and agreement which is currently lacking. Previous air defense cooperation failures (e.g., MEADS and TLVs) were due in large part to high costs.	Low
EXOGENOUS FACTORS*		
Threat environment	Unpredictable and dynamic Russian future threat, emerging novel threats (e.g., RPA, hypersonics).	–
Other allies' policies	Poland absent, France proposing a separate initiative, U.S. policy is to export U.S. systems rather than support "European" solutions.	–
Industrial base	Advanced industrial air defense nations involved (e.g., Norway, United Kingdom, Germany—if not Poland, France, Spain, and Italy). Previous failures delivering MEADS and TLVs.	–
Emerging technologies	Fast moving and unpredictable (e.g., hypersonics, space, RPA, artificial intelligence).	–

* Note: Exogenous factors are included in this table for reference but are not rated due to high variability.

Source: Author's analysis based on workshop discussions and the success factors for multinational defense cooperation identified in Sean Monaghan, "Solving Europe's Defense Dilemma."

In summary, the political, economic, and military challenges inherent to defense cooperation, combined with other factors such as lack of clear goals and focus, the large number of participants, past failures, emerging political differences over the best path forward for European air defense, and the rapidly evolving threat environment will make it difficult to realize the benefits of Sky Shield in practice.

3

Making the Most of Sky Shield

The previous section suggests the Sky Shield initiative faces an uphill battle. However, given critical shortfalls in air and missile defense, European nations have little choice but to make Sky Shield a success. This final section examines how to make the most of Sky Shield by applying collective action principles and best practices from other multinational initiatives and by designing the right cooperation model for Sky Shield. Recommendations for Sky Shield are outlined throughout this section and summarized at the end.

Overcoming the Challenges

Previous work conceptualized European defense cooperation as a collective action problem.[60] It used this framework to identify three principles for overcoming the collective action challenges to cooperation that can be applied to Sky Shield.

PRINCIPLE 1: USE THE POWER OF SMALL GROUPS

Small groups of actors (whether individuals or nations) can overcome collective action problems as they have more trust in each other and are less likely to defect or free ride. The potential for small groups of nations to advance Europe's air and missile defense is well known.[61] For example, high-profile joint projects such as the Future Combat Air System, European Patrol Corvette, Eurodrone, and multinational units like the European Air Transport Command show the promise of these formats (including for Franco-German cooperation).[62] However, the 17 nations of Sky Shield may be too numerous to take advantage of this principle, given successful defense cooperation typically involves fewer than five nations.[63] More participants introduce greater complexity and increased

inefficiency.[64] Sky Shield should therefore use the smaller groups that already exist among members to maximize existing cooperation mechanisms and synergies.

For example, the UK Joint Expeditionary Force (JEF), the Bucharest Nine, the Baltic Three, the Nordic Defence Cooperation (NORDEFCO), the Visegrad Four, and the Central European Defence Cooperation forum all feature Sky Shield members. Using existing groups takes advantage of the trust, relationships, and cooperation mechanisms already built.

PRINCIPLE 2: NORMALIZE COOPERATION

Three approaches could be applied within Sky Shield to overcome the collective action problem by normalizing cooperation:

- **Make cooperation a political priority for Sky Shield.** Without this focus, the initiative will fail to meet many of its goals.
- **Champion success and name and shame failure** through regular progress reports that highlight participants' cooperative and innovative solutions.
- **Emphasize strong German leadership.** The initiative should go beyond political pronouncements to forge agreements by bringing together national officials to agree on common goals, requirements, solutions, systems, and delivery models; invest resources and personnel to set up dedicated management and delivery structures; and solve the all-important integration problem.

PRINCIPLE 3: CONSOLIDATE DEMAND AND SUPPLY

Carrots and sticks can be used to consolidate demand and supply across Europe's fragmented air defense landscape. For Sky Shield, demand consolidation will require participants to agree on a common set of requirements for air and missile defense capability.

The analysis presented suggests Sky Shield should focus on addressing the serious capability (and capacity) gaps for very short- to medium-range GBAD. A focus on C2 and integration will also be crucial given the role of integration in effective joint air defense and existing shortfalls and the difficulties implementing NATO's BMD C2 and Air Command and Control System (ACCS).[65] A focus on BMD systems can be discounted given the complexity and costs and the fact that the U.S. Aegis system already provides this capability through NATO BMD.[66] Sky Shield could also address countering advanced threats such as RPA or hypersonic glide vehicles, but this capability is already a focus of two EU initiatives: TWISTER, through PESCO, and HYDEF, through the European Defence Fund.

However, common requirements must be based primarily on an agreed concept of operations for air and missile defense. During the Cold War, NATO focused on air superiority over air defense based on the logic that "the best defense is a good offense."[67] But with new technologies that make air defense cheaper and more effective, this logic may be shifting to favor defense and a focus on "air denial" and "volumetric defense," as demonstrated in Ukraine.[68] However, early lessons from Ukraine's air defense experience may not apply to a NATO-Russia war, which would look very different.[69]

Once a concept and requirements are established for Sky Shield, early guidance for work share between nations should be agreed to consolidate supply arrangements—a key ingredient for successful joint procurements.[70] Work share can be designed around a division of labor that maximizes benefits for each nation. As one assessment of international air and missile defense cooperation points out:

> Strategically coordinated investments, whether on a bilateral or regional basis, may also play a part [in success]. One country may focus on sensors while another invests in interceptors, but together they may allow both to contribute more effectively to a joint missile defense architecture according to their own ability.[71]

Supply friction can also be reduced through a dedicated organization to coordinate and manage delivery, such as the NATO agency that managed the MEADS program or the Organisation for Joint Armament Co-operation (OCCAR).[72] This could be based at Ramstein Air Base alongside the existing BMD command center. Finally, existing NATO and EU instruments should also be used to incentivize cooperative solutions, including financial incentives, regulations, and joint planning processes.[73]

Applying Best Practices

Three areas of best practice in multinational cooperation can be applied to Sky Shield to improve the chances for success: the NATO Framework Nations Concept, joint development programs, and existing cooperation in air and missile defense.

FRAMEWORK NATIONS CONCEPT

Previous work has identified several areas of best practice from the NATO Framework Nations Concept.[74] Based on these, the Sky Shield initiative should focus on the following recommendations:

- **Set a clear vision and direction.** The goals set out for Sky Shield so far are many and varied. What the initiative needs most is to publish a concise vision agreed by all participants. For example, the JEF has a clear vision of generating deployable forces to respond to hybrid threats, articulated in an online policy directive agreed to by all the member nations.[75]
- **Refine participation and scope based on a regional focus and existing foundations.** Rather than attempt to pursue a homogenous project among its 17 members, the Sky Shield initiative should use existing small groups to focus on regional solutions that are more likely to succeed while maintaining an overall focus on interoperability and integration.
- **Develop a Sky Shield brand and maintain a constant drumbeat of activity.** In order to succeed, the Sky Shield initiative should establish a distinctive, collective political identity among members that is reinforced and shared through a dedicated strategic communications campaign. The campaign includes regular leaders' summits and officials' meetings alongside media and social media campaigns. Coverage should focus on the unity, benefits, and progression of Sky Shield.
- **Emphasize leadership.** Berlin should invest more political capital and national resources in building Sky Shield. This should include dedicated structures and facilities (e.g., at Ramstein

Air Base) and by leading official meetings to agree on common goals, requirements, solutions, systems, and delivery models.

- **Be flexible and relevant.** Sky Shield should be relevant to the needs of members by pursuing a model that maximizes individual gain according to each nation's focus (e.g., on industry, capability, differing threats and platforms, and specialization) while maintaining unity (e.g., through common branding, agreed requirements, and a common network or architecture).

INTERNATIONAL JOINT DEVELOPMENT PROGRAMS

A previous CSIS study identifies four principles for designing international joint development programs that could be applied to Sky Shield:

- **Balance multiple goals.** Successful joint development programs achieve a balance between political, economic, and military goals to maximize the benefits to all participants: "Great ambitions in any one category typically come at the expense of the project's suitability for international joint development."[76] Each goal should be agreed by all members as early as possible, have a strong champion within the project, and possess few domestic opponents. While Sky Shield has several possible goals, it is unclear whether all members have agreed to them or whether each goal has a strong champion. Moreover, Chancellor Scholz, in personally launching and leading the initiative and tying it to his own Zeitenwende policy while lacking a clear military or economic narrative, has seemingly put Sky Shield's political goals far ahead of the economic or military benefits.[77]
- **Manage competing objectives.** While balancing multiple goals can yield benefits, it can also generate tensions that must be managed. The best method is a portfolio approach to work share that gives all participants the chance to lead or support according to their strengths and goals (e.g., industrial development, technology transfer, or capability gaps). While this is difficult for projects narrowly focused on one platform, Sky Shield is well suited to this approach given the range of capabilities and systems that fall under the banner of air and missile defense.
- **Use coproduction to manage work share.** Successful joint development programs often distribute work share among members based on "compartmentalized" elements of production (or development). This approach allows each member to specialize according to its domestic political and industrial needs while maintaining program coherence. Examples of this practice include the SM-3 Block IIA theater ballistic missile defense interceptor and the NATO Allied Ground Surveillance program.[78] The range of industry expertise across Sky Shield participants makes this approach feasible but requires designing for such a division of labor from the start and a strong integrator or prime.
- **Use codevelopment to advance technology transfer.** Joint development programs often fail when participants do not realize technology and industry spillover benefits due to demanding technology and export controls of more capable nations.[79] In contrast, successful programs maximize the number of participants that pursue codevelopment of technology and capability from the start. Sky Shield could take advantage of this finding by encouraging more members to agree to codevelop new or improved air and missile defense technology from the outset.

AIR AND MISSILE DEFENSE INTERNATIONAL COOPERATION

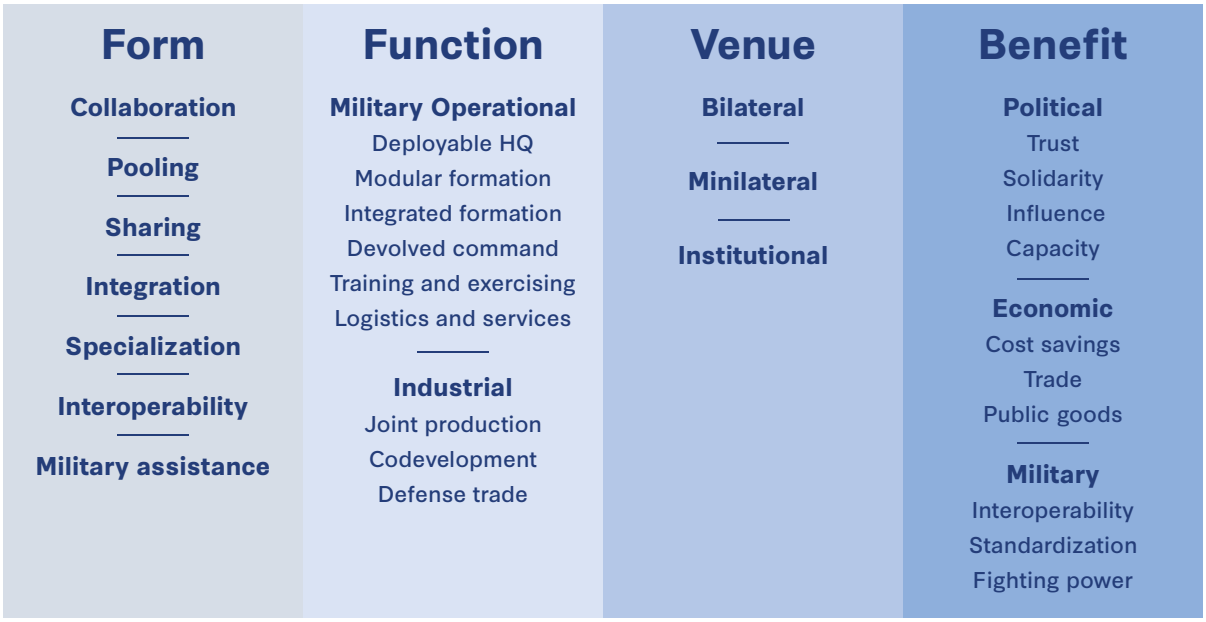
Another CSIS study of international cooperation in missile defense highlights six ways to improve cooperation that could be explored by the Sky Shield initiative:[80]

- **Develop lower-cost systems** that make air and missile defense a cheaper business. This may require trading off effectiveness or designing new and novel concepts, but doing so would allow more Sky Shield nations to contribute to and benefit from air and missile defense. This could range from emerging technology such as DEW systems to making kinetic systems cheaper (e.g., by trading effectiveness for cost) and thinking broader to develop passive defenses such as camouflage, concealment, and dispersal that could reduce the need for air and missile defenses.
- **Develop new concepts of operation**, such as by integrating offensive and defensive weapons or multinational operating concepts and units such as the German-Dutch air and missile defense task force that recently deployed Patriot systems to Slovakia.[81]
- **Streamline export controls** to increase access across Europe to existing off-the-shelf air and missile defense solutions (such as those produced by Germany, Norway, United States, Israel, and others).
- **Incentivize codevelopment** between domestic and foreign defense suppliers.[82]
- **Expand information-sharing networks**, from research and technology to real-time cueing data.[83]
- **Improve air and missile defense exercises**, focusing more on interoperability and defeating the most difficult threats.

Using the Right Defense Cooperation Models

A third avenue to improve the prospects for Sky Shield is to use the right cooperation format for Sky Shield. There are many different types of defense cooperation. Figure 5 shows a typology of defense cooperation.

Figure 5: Typology of Defense Cooperation Models



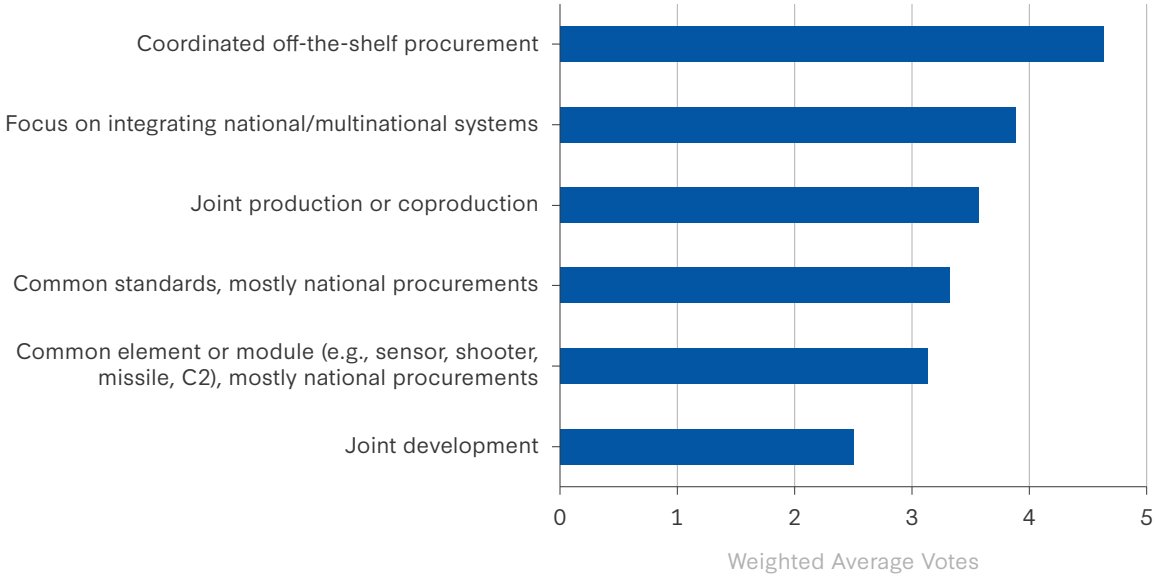
Source: Monaghan, "Solving Europe's Defense Dilemma."

Given the immaturity of Sky Shield, Figure 6 suggests four possible delivery models based on this typology. These models are not mutually exclusive: depending on the ultimate goals and scope of the initiative, Sky Shield could use all four models to achieve different objectives.

Figure 6: Four Possible Delivery Models for Sky Shield

According to the authors' research survey, several models are promising:

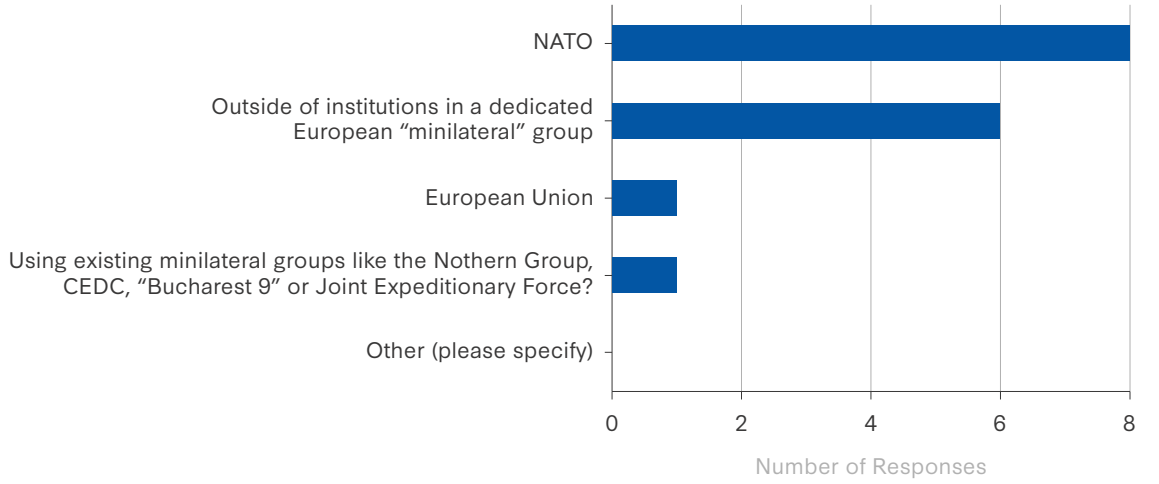
Q6: In your view, which model has the most promise for ESSI? (Rank the following)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

However, Sky Shield should be coordinated either outside of institutions in a dedicated minilateral group or through NATO:

Q10: What do you think the best forum for coordinating ESSI is? (Pick one)



Source: Authors' survey of 16 European defense experts conducted in February 2023.

Conclusion

European air and missile defense faces big challenges, with serious gaps in ground-based air defense, C2, and defense against emerging advanced threats. Sky Shield has the potential to address these problems and fill the gaps in European air and missile defense. However, it faces an uphill battle given the political, economic, and military challenges inherent to defense cooperation and other contingent factors, such as lack of clear goals and focus, the large number of participants, emerging political differences over European air defense, and the rapidly evolving threat environment.

Given critical shortfalls in air and missile defense, European nations have little choice but to make Sky Shield a success. To overcome these challenges the Sky Shield participants, led by Germany, should consider the following recommendations to improve their prospects. Based on the analysis in this paper, 15 recommendations are highlighted, grouped into five categories:

LEADERSHIP

1. Create strong German leadership based on a clear vision and direction for Sky Shield that all members agree on.
2. Balance multiple goals and manage competing objectives.
3. Develop a Sky Shield brand, champion success, and maintain a constant drumbeat of activity.

CAPABILITY AND CONCEPT

4. Focus Sky Shield on addressing the serious capability gaps in very short- to medium-range GBAD.

5. Agree on a Sky Shield concept of operations for regional air and missile defense, including developing new and novel concepts.
6. Expand information-sharing networks.
7. Improve air and missile defense exercises.

DIVISION OF LABOR

8. Design Sky Shield around the smaller groups that already exist between members while maintaining focus on commonality and integration.
9. Agree on work-share guidance between nations.

COOPERATION

10. Make cooperation a political priority for Sky Shield (e.g., through coproduction, codevelopment, integration, and joint units).
11. Use existing NATO and EU instruments to incentivize cooperation.
12. Use coproduction to manage work share and incentivize codevelopment to advance technology transfer.

DELIVERY

13. Design the right cooperation format(s) for Sky Shield, which may be a mixture of coproduction, codevelopment, integration, and joint air defense units.
14. Establish a dedicated organization to coordinate and manage the delivery of Sky Shield.
15. Develop lower-cost systems and streamline export controls.

Sky Shield will take many years to deliver on its goals (assuming they are agreed at some point). Germany is the right nation to lead this initiative for many reasons, including its role as a NATO Framework Nation leader, its military and industrial expertise, the fact it already hosts NATO's BMD command center at Ramstein Air Base, and the political capital expended by Chancellor Scholz so far through his Zeitenwende policy, but Berlin must be prepared to lead for the long haul. Success could be game changing, not just for European air and missile defense but for European defense cooperation writ large.[84]

About the Authors

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Appendix A

European Air and Missile Defense Capabilities

The table below shows the state of Europe's air and missile defense capabilities.

Key			
Existing capabilities	Modern systems	Dated systems (e.g., Soviet era)	No capability
Future capabilities	Specified acquisition	Unspecified acquisition or development	No acquisition planned

Country	**Capacity** *(no. of dedicated military air/ missile defense units)*	**Existing Capabilities** *Long-/ medium-range surface-to-air missile (SAM)*	*Short-range SAM*	*Very short-range SAM*	*Air Defense Artillery (ADA)*	**Future Capabilities**
Albania	–	None	None	None	None	–
Austria	2 battalions	None	None	Mistral	35 mm	–
Belgium	–	None	None	None	None	Sky Shield
Bosnia and Herzegovina	1 battalion	None	SA-6	SA-14, SA-16	40 mm	–

Country	Capacity *(no. of dedicated military air/ missile defense units)*	Existing Capabilities				Future Capabilities
		Long-/ medium-range surface-to-air missile (SAM)	*Short-range SAM*	*Very short-range SAM*	*Air Defense Artillery (ADA)*	
Bulgaria	2 battalions *(plus forces integrated with other units)*	SA-5, SA-10 *(both operational status unknown)*	None	SA-7, SA-8	23 mm, 57 mm	Sky Shield
Croatia	1 regiment *(plus forces integrated with other units)*	None	None	SA-9, SA-13, SA-14, SA-16	20 mm	–
Cyprus	Forces integrated with other units	SA-11	SA-15	Mistral	20 mm, 35 mm	Stated priority to acquire short-range systems
Czech Republic	1 regiment, 2 groups	None	None	SA-13, SA-7, RBS-70	None	SPYDER (short range), Sky Shield
Denmark	1 battalion, 1 group	None	None	Stinger	None	Sky Shield, unspecified short-range system
Estonia	1 battalion	None	None	Mistral	23 mm	Sky Shield, short-range (Piorun MANPADS) and unspecified medium-range GBAD (with Latvia)
Finland	1 regiment	HAWK *(training only)*	Crotale, NASAMS	ASRAD, Stinger, RBS-70	23 mm, 35 mm	Sky Shield, Unspecified medium-range system
France	1 regiment, 3 squadrons	SAMP/T	Crotale	Mistral, VAB ARLAD	None	SAMP/T New Generation (with Italy through OCCAR)
Germany	4 groups	Patriot	None	ASRAD, Stinger	35 mm	Sky Shield

Country	Capacity *(no. of dedicated military air/ missile defense units)*	Existing Capabilities				Future Capabilities
		Long-/ medium-range surface-to-air missile (SAM)	*Short-range SAM*	*Very short-range SAM*	*Air Defense Artillery (ADA)*	
Greece	3 battalions, 8 squadrons	Patriot, SA-20, I-HAWK	Crotale, SA-15, RIM-7M	SA-8, ASRAD, Stinger	20 mm, 23 mm, 30 mm, 35 mm	–
Hungary	1 regiment	None	SA-6	Mistral	None	NASAMS (short range), Sky Shield
Iceland	–	None	None	None	None	–
Ireland	Forces integrated with other units	None	None	RBS-70	None	–
Italy	3 regiments	SAMP/T	Aspide, SPADA	Stinger	None	SAMP/T New Generation (with France through OCCAR)
Latvia	1 battalion	None	None	Stinger, RBS-70	40 mm	Sky Shield, unspecified medium-range system (with Estonia)
Lithuania	1 battalion	None	NASAMS	GROM, Stinger, RBS-70	None	Sky Shield, unspecified short-range system
Luxembourg	–	None	None	None	None	–
Malta	Forces integrated with other units	None	None	None	14.5 mm	–
Moldova	1 regiment	None	SA-3	None	23 mm, 57 mm	–
Montenegro	–	None	None	None	None	–
Netherlands	1 squadron, 1 battery *(plus forces integrated with other units)*	Patriot	NASAMS	Stinger	None	Sky Shield

Country	Capacity (no. of dedicated military air/ missile defense units)	Existing Capabilities: Long-/ medium-range surface-to-air missile (SAM)	Existing Capabilities: Short-range SAM	Existing Capabilities: Very short-range SAM	Existing Capabilities: Air Defense Artillery (ADA)	Future Capabilities
North Macedonia	1 battalion	None	None	SA-13, SA-16	40 mm	–
Norway	2 battalions	None	NASAMS	None	None	Sky Shield, short-range Piorun MANPADS
Poland	3 regiments, 1 brigade	SA-5	SA-6, S-125, Narew	SA-8, GROM	23 mm	Patriot (long/ medium range), joint GBAD Future Common Missile with UK
Portugal	1 battalion	None	None	Chapparal, Stinger	20 mm	–
Romania	3 regiments, 1 brigade	Patriot, SA-2, HAWK	SA-6	SA-8, CA-95	14.5 mm, 35 mm, 57 mm	Additional Patriot (long/ medium range), Sky Shield
Serbia	4 battalions	None	SA-3, SA-6, SA-22	SA-7, SA-9, SA-16	40 mm	Unspecified equipment
Slovakia	1 brigade	SA-10	SA-6	SA-16	None	Sky Shield
Slovenia	2 battalions	None	None	SA-24	None	Sky Shield
Spain	3 regiments, 6 companies	Patriot, I-HAWK	NASAMS, Skyguard/ Aspide	Mistral	35 mm	–
Sweden	2 battalions	Patriot, I-HAWK	RBS-98, RBS-23	RBS-70	40 mm	Sky Shield
Switzerland	Forces integrated with other units	None	None	Stinger, Rapier	35 mm	–
Turkey	4 battalions, 6 squadrons	SA-21, HAWK	MIM-14, HISAR	Rapier, Stinger, Zipkin	20 mm, 35 mm, 40 mm	–

Country	Capacity (no. of dedicated military air/ missile defense units)	Existing Capabilities: Long-/ medium-range surface-to-air missile (SAM)	Existing Capabilities: Short-range SAM	Existing Capabilities: Very short-range SAM	Existing Capabilities: Air Defense Artillery (ADA)	Future Capabilities
United Kingdom	1 regiment	None	CAMM (Land Ceptor)	Rapier, Stormer (60) with Starstreak	None	Sky Shield, joint GBAD Future Common Missile with Poland; future counter-hypersonics (with Australia and the United States through AUKUS)

Source: Based on James Hackett, ed., *The Military Balance 2023* (London: IISS, 2023), 86–163; Jacek Tarociński, "Safe Skies? Air Defence on NATO's Northern, Eastern and South-eastern Flank," Centre for Eastern Studies, January 19, 2023, https://www.osw.waw.pl/en/publikacje/osw-commentary/2023-01-19/safe-skies-air-defence-natos-northern-eastern-and-south; and the authors' own analysis.

Endnotes

1 “Interactive Map: Russia’s Invasion of Ukraine,” Institute for the Study of War, https://www.understandingwar.org/interactive-map-russias-invasion-ukraine.

2 Henri Astier, “Ukraine War: Russia Fires Hypersonic Missiles in New Barrage,” BBC News, March 9, 2023, https://www.bbc.com/news/world-europe-64903202; and Roman Olearchyk, “Ukraine Reels from Massive Russian Missile Attack,” *Financial Times*, March 9, 2023, https://www.ft.com/content/b3f2a598-7bd5-4de7-a417-bb6fe2950473.

3 Jim Garamone, “U.S., Allies Work to Supply Ukraine Air Defense Needs,” DOD News, November 29, 2023, https://www.defense.gov/News/News-Stories/Article/Article/3231049/us-allies-work-to-supply-ukraine-air-defense-needs/.

4 “Speech by Federal Chancellor Olaf Scholz at the Charles University in Prague on Monday, 29 August 022,” Die Bundesregierung, August 29, 2022, https://www.bundesregierung.de/breg-de/impressum/scholz-speech-prague-charles-university-2080752.

5 Ibid.

6 “14 NATO Allies and Finland Agree to Boost European Air Defence Capabilities,” NATO, October 13, 2022, https://www.nato.int/cps/en/natohq/news_208103.htm.

7 Sven Arnold and Torben Arnold, “Germany’s Fragile Leadership Role in European Air Defence,” Stiftung Wissenschaft und Politik, February 2, 2023, https://www.swp-berlin.org/en/publication/germanys-fragile-leadership-role-in-european-air-defence.

8 Alexandra Brzozowski, “France Proposes Conference on ‘Europe’s Air Defence’,” Euractiv, February 17, 2023, https://www.euractiv.com/section/europe-s-east/news/france-proposes-conference-on-europes-air-defence/. For Scholz’s Munich speech, see “Speech by Chancellor Scholz at the Munich Security Conference on 17 February 2023 in Munich,” Die Bundesregierung, February 17, 2023, https://www.

bundesregierung.de/breg-en/search/speech-by-chancellor-scholz-at-the-munich-security-conference-on-17-february-2023-in-munich-2166536.

9 "European Sky Shield Initiative Gains Two More Participants," NATO, February 15, 2023, https://www.nato.int/cps/en/natohq/news_211687.htm.

10 Arnold and Arnold, "Germany's Fragile Leadership Role."

11 The survey was completed by 16 experts from European and American think tanks and universities who took part in a workshop on February 24, 2023.

12 Michael Tong, "The Challenge of Defending European Airspace," IISS, February 12, 2023, https://www.iiss.org/blogs/military-balance/2020/02/defending-european-airspace.

13 Rachel S. Cohen, "NATO Fortifies Eastern Europe's Defenses under New 'Air Shielding' Mission," Air Force Times, August 2, 2022, https://www.airforcetimes.com/flashpoints/2022/08/02/nato-fortifies-eastern-europes-defenses-under-new-air-shielding-mission/.

14 Seth G. Jones, Rachel Ellehuus, and Colin Wall, *Europe's High-End Military Challenges: The Future of European Capabilities and Missions* (Washington, DC: CSIS, November 2021), https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/211110_Jones_Europe_HighEndMilitaryChallenges.pdf.

15 See Tong, "The Challenge of Defending"; Alessandro Marrone and Karolina Muti, eds., *Europe's Missile Defence and Italy: Capabilities and Cooperation* (Rome: Istituto Affari Internazionali, April 2021), https://www.iai.it/sites/default/files/iai2105.pdf; Gen. Philip M. Breedlove, "Toward Effective Air Defense in Northern Europe," Atlantic Council, March 6, 2018, https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/toward-effective-air-defense-in-northern-europe/; Justin Bronk, "Regenerating Warfighting Credibility for European NATO Air Forces," RUSI, February 22, 2023, https://rusi.org/explore-our-research/publications/whitehall-reports/regenerating-warfighting-credibility-european-nato-air-forces; and Jones, Ellehuus, and Wall, *Europe's High-End Military Challenge*.

16 H. I. Sutton, "New Evidence Shows Russia Has Deployed Powerful Missiles to Kaliningrad Coast," Naval News, June 29, 2022, https://www.navalnews.com/naval-news/2022/06/russia-powerful-missiles-kaliningrad/.

17 "Looking East: European Air and Missile Defense after Warsaw," CSIS, *Commentary*, August 20, 2016, https://www.csis.org/analysis/looking-east-european-air-and-missile-defense-after-warsaw-0.

18 Several countries have chosen to invest further in the Patriot; some have chosen to invest in a new long-range system, such as SAMP/T; and others have purchased shorter-range systems such as the National Advanced Surface-to-Air Missile System (NASAMS).

19 Jacek Tarociński, "Safe Skies? Air Defence on NATO's Northern, Eastern and South-eastern Flank," Centre for Eastern Studies, January 19, 2023, https://www.osw.waw.pl/en/publikacje/osw-commentary/2023-01-19/safe-skies-air-defence-natos-northern-eastern-and-south.

20 See, for example, Arie Egozi, "European Nations Eyeing Rafael-Made Short-Range Ballistic Missile Defense Systems," Breaking Defense, January 6, 2023, https://breakingdefense.com/2023/01/european-nations-eyeing-rafael-made-short-range-ballistic-missile-defense-systems/.

21 "Multinational Capability Cooperation," NATO, https://www.nato.int/cps/en/natohq/topics_163289.htm.

22 For example, the new Rapid Deployment Capacity (RDC) of up to 5,000 troops, designed to replace the never-deployed EU battle groups, will be optimized for "operational scenarios that will initially focus on rescue and evacuation operations." These two scenarios were recently agreed by the EU Military Committee. Robert Brieger, "Message from the Chairman," *EU Military Forum*, no. 1 (2023), 3, https://

www.eeas.europa.eu/sites/default/files/documents/EUMC-Forum%231_23.pdf#page=3.

23 For example, the European Union's previous Capability Development Plan, released in 2018, mentions BMD only once. "Capability Development Plan," European Defence Agency, June 28, 2018, https://eda.europa.eu/docs/default-source/eda-factsheets/2018-06-28-factsheet_cdpb020b03fa4d264cfa776ff000087ef0f.

24 "Questions and Answers: Defence Investment Gaps and Measures to Address Them," European Commission, May 18, 2022, https://ec.europa.eu/commission/presscorner/detail/en/QANDA_22_3144; High Representative of the Union for Foreign Affairs and Security Policy, *Joint Communication to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: On the Defence Investment Gaps Analysis and Way Forward* (Brussels: European Commission, May 18, 2022), https://commission.europa.eu/system/files/2022-05/join_2022_24_2_en_act_part1_v3_1.pdf; and European Defence Agency, *2022 Coordinated Annual Review on Defence Report* (Brussels: European Defence Agency, November 2022), https://eda.europa.eu/docs/default-source/eda-publications/2022-card-report.pdf.

25 European Union, *A Strategic Compass for Security and Defence* (Maastricht, Netherlands: European Union, 2022), https://www.eeas.europa.eu/sites/default/files/documents/strategic_compass_en3_web.pdf.

26 Sources include NATO, *Modular Ground Based Air Defence (Modular GBAD)* (Brussels: NATO, February 2022), https://www.nato.int/nato_static_fl2014/assets/pdf/2021/10/pdf/2110-factsheet-m-gbad.pdf; NATO, *Rapidly Deployable Mobile Counter Rockets Artillery and Mortar (C-RAM)* (Brussels: NATO, February 2022), https://www.nato.int/nato_static_fl2014/assets/pdf/2021/10/pdf/2110-factsheet-c-ram.pdf; NATO, *Command and Control Capability for Surface Based Air and Missile Defence for the Battalion and Brigade Level (GBAD C2 Layer)* (Brussels: NATO, February 2022), https://www.nato.int/nato_static_fl2014/assets/pdf/2021/10/pdf/2110-factsheet-gbad-c2-layer.pdf; High Representative of the Union for Foreign Affairs and Security Policy, *Joint Communication*; "Timely Warning and Interception with Space-Based Theater Surveillance (TWISTER)," Permanent Structured Cooperation, https://www.pesco.europa.eu/project/timely-warning-and-interception-with-space-based-theater-surveillance-twister/; and European Defence Fund, *EU HYDEF: European Hypersonic Defence Interceptor* (Maastricht, Netherlands: European Union, 2022), https://defence-industry-space.ec.europa.eu/system/files/2022-07/Factsheet_EDF21_EU HYDEF.pdf.

27 Tong, "The Challenge of Defending."

28 "14 NATO Allies and Finland," NATO.

29 "Speech by Federal Chancellor Olaf Scholz at the Charles University," Die Bundesregierung.

30 "Policy statement by Olaf Scholz, Chancellor of the Federal Republic of Germany and Member of the German Bundestag, 27 February 2022 in Berlin," Die Bundesregierung, February 27, 2022, https://www.bundesregierung.de/breg-en/news/policy-statement-by-olaf-scholz-chancellor-of-the-federal-republic-of-germany-and-member-of-the-german-bundestag-27-february-2022-in-berlin-2008378.

31 For MEADS, see "Medium Extended Air Defense System (MEADS)," *Missile Threat*, CSIS, https://missilethreat.csis.org/defsys/meads/. For TLVs, see Sebastian Sprenger, "Germany Shelves New Anti-missile Weapon and Turns to Drone Defense," Defense News, March 23, 2021, https://www.defensenews.com/global/europe/2021/03/23/germany-shelves-new-anti-missile-weapon-and-turns-to-drone-defense/. For IRIS-T, see Ben Knight, "Explainer: Germany's IRIS-T Air Defense System," Deutsche Welle, December 10, 2022, https://www.dw.com/en/what-is-germanys-iris-t-air-defense-system/a-63414859; and "Germany Plans to Buy Eight IRIS-T Air Defence Systems for its Military–Document," Reuters, February 1, 2023, https://www.reuters.com/world/europe/germany-plans-buy-eight-iris-t-air-defence-systems-its-military-document-2023-02-01/.

32 According to NATO, Sky Shield should be "an air and missile defence system using interoperable, off-the-shelf solutions," in which "the new assets, fully interoperable and seamlessly integrated within the NATO air and missile defence, would significantly enhance [NATO's] ability to defend the Alliance from all air and missile threats." ("14 NATO Allies and Finland," NATO.) "Its intent is to standardize an air-defense network of short, medium and long-range missiles and radars." (John Ismay, "Fifteen Nations Join European Air-Defense Network Spurred by Russia's Missile Strikes in Ukraine," *New York Times*, October 13, 2022, https://www.nytimes.com/2022/10/14/world/europe/15-nations-join-european-air-defense-network-spurred-by-russias-missile-strikes-in-ukraine.html.) "Member nations are tasked with buying state-of-the-art missile defense systems and networking them to other nations' systems." (Paul McLeary, "NATO Rushing to Build Up Air Defenses for Ukraine—and itself," *Politico*, October 13, 2022, https://www.politico.com/news/2022/10/13/nato-rushing-to-build-air-defenses-for-ukraine-and-itself-00061697.)

33 According to German defense minister Christine Lambrecht, "We will work speedily on the first joint projects, the joint purchase of Patriot units is one of them as well as of the modern system IRIS-T." (McLeary, "NATO Rushing.") NATO has also stated Sky Shield will involve "common acquisition of air defence equipment and missiles by European nations," including "off-the-shelf solutions" ("14 NATO Allies and Finland," NATO) and "by facilitating the multinational acquisition and integration of a broad range of air defence capabilities by European countries." ("European Sky Shield Initiative Gains," NATO.)

34 According to retired lieutenant general Karl Müllner, former commander of the German air force, Germany intends to buy the Arrow 3 air defense system from Israel as part of Sky Shield. Christina Mackenzie, "Berlin Wants a Pan-European Air Defense Network, with Arrow 3 'Set' as First Step," Breaking Defense, September 13, 2022, https://breakingdefense.com/2022/09/berlin-wants-a-pan-european-air-defense-network-with-arrow-3-set-as-first-step/.

35 According to NATO, "This multinational and multifaceted approach offers a flexible and scalable way for nations to strengthen their deterrence and defence." "14 NATO Allies and Finland," NATO.

36 As NATO states, "The initiative will allow all participating nations to jointly develop an air and missile defence system." "14 NATO Allies and Finland," NATO.

37 According to the Netherlands Defense Minister Kajsa Ollongren, "We want industry also to do more and to be in front of the development of air defense systems." McLeary, "NATO Rushing."

38 As NATO has stated, "The initiative will allow all participating nations to jointly develop an air and missile defence system using interoperable, off-the-shelf solutions. This multinational and multifaceted approach offers a flexible and scalable way for nations to strengthen their deterrence and defence in an efficient and cost-effective way" ("14 NATO Allies and Finland," NATO.) The *New York Times* also reported one of the aims of Sky Shield is "to save money by purchasing the equipment together." (Ismay, "Fifteen Nations.")

39 The Sky Shield initiative was launched at a NATO Defense Minister's meeting, with NATO press material explaining the aim is to "strengthen NATO's Integrated Air and Missile Defence" ("14 NATO Allies and Finland," NATO) alongside existing NATO projects (such as NATO's Modular Ground-Based Air Defence High Visibility Project) and "leverag[e] already existing NATO cooperation frameworks." ("European Sky Shield Initiative Gains," NATO.)

40 As German Chancellor Olaf Scholz put it, "Germany will, from the very start, design that future air defense in such a way that our European neighbors can be involved if desired—such as the Poles, Balts, Netherlanders, Czechs, Slovaks or our Scandinavian partners." "Speech by Federal Chancellor Olaf Scholz," Die Bundesregierung.

41 For the existing framework, see Sean Monaghan, "Solving Europe's Defense Dilemma: Overcoming the Challenges to European Defense Cooperation," CSIS, *CSIS Briefs*, March 1, 2023, https://www.csis.org/analysis/solving-europes-defense-dilemma-overcoming-challenges-european-defense-cooperation.

42 For more on the benefits of cooperation and the following points, see Monaghan, "Solving Europe's Defense Dilemma."

43 Max Bergmann and Sophia Besch, "Why European Defense Still Depends on America," *Foreign Affairs*, March 7, 2023, https://www.foreignaffairs.com/ukraine/why-european-defense-still-depends-america; Danny Pronk, Dick Zandee, and Adája Stoetman, *Identity, Industry and Interoperability: The Drivers of European Armaments Collaboration* (The Hague, Netherlands: Clingendael, 2022), 9–11, https://docs.clingendael.org/sites/docs/files/2022-02/Drivers_European_Armamaments_Collaboration%28Jan%202022%29.pdf.

44 See also Keith Hartley, "The Future of European Defence Policy: An Economic Perspective," *Defence and Peace Economics* 14, no. 2 (2003): 111, https://doi.org/10.1080/10242690302921; Pronk, Zandee, and Stoetman, *Identity*, 12; Vesa Kanniainen and Juha-Matti Lehtonen, "Cooperative Procurement in Building National Defence: Why Are There So Few?" *Defence and Peace Economics* 31, no. 2 (2020): 201–19; and Christian Andreas Von Deimling, Andreas H. Glas, and Thomas Ekström, "Cooperative Purchasing in Defence: Analysis of NATO and EU Initiatives," in *Proceedings of the 22nd Annual IPSERA Conference, 24–27 March 2013, Nantes, France*, ed. M. Giannakis et al. (Enschede, Netherlands: IPSERA, 2013), 709–724, https://www.researchgate.net/publication/235995172_Cooperative_purchasing_in_defence_Analysis_of_NATO_and_EU_initiatives.

45 The military benefits of defense cooperation are such that it is rare for nations to fight alone. Tomas Valasek, *Surviving Austerity: The Case for a New Approach to EU Military Collaboration* (London: Centre for European Reform, 2011), 1, https://www.cer.org.uk/sites/default/files/publications/attachments/pdf/2011/rp_981-141.pdf. For five case studies on military-operational cooperation see Margriet Drent, Eric Wilms, and Dick Zandee, *Making Sense of European Defence* (The Hague, Netherlands: Clingendael, December 2017), 2, https://www.clingendael.org/sites/default/files/2017-12/Making_Sense_of_European_Defence.pdf. Where interoperability reduces friction in multinational operations, standardization opens up radical synergies in warfighting, logistics, training, procurement, resilience, and so on—with potential cost savings in the billions for Europe. See "Standardization," NATO, October 14, 2022, https://www.nato.int/cps/en/natohq/topics_69269.htm; and Pronk, Zandee, and Stoetman, *Identity*, 16–18.

46 Kevin Fashola, "Five Types of International Cooperation for Missile Defense," CSIS, *CSIS Briefs*, December 2020, 1, http://missilethreat.csis.org/wp-content/uploads/2020/12/201209_Fashola_Five_Types_Missile_Defense.pdf.

47 Ibid.

48 Examples include U.S. codevelopment of air and missile defense systems with Israel (Iron Dome, David's Sling, Arrow), Japan (Standard Missile 3 [SM-3] Block IIA interceptor), and Norway (NASAMS).

49 Examples include deployment of a UK Sky Sabre battery to Poland, U.S. Patriot systems in Poland and Slovakia, and U.S. European Phased Adaptive Approach missile defense facilities in Romania and Spain. "British Army Deploys Air Defence Assets to Poland and Ukraine," British Army News, March 23, 2022, https://www.army.mod.uk/news-and-events/news/2022/03/british-army-deploys-air-defence-assets-to-poland-and-ukraine/; and Fashola, "Five Types."

50 See Monaghan, "Solving Europe's Defense Dilemma."

51 Adapted from Monaghan, "Solving Europe's Defense Dilemma."

52 Poland possesses considerable military and industrial air defense expertise and occupies a front-row seat to Russian missile threats. Steven Erlanger, "Spat over Patriot Missiles Reveals Deepening Rifts in Europe over Ukraine," *New York Times*, December 10, 2023, https://www.nytimes.com/2022/12/10/world/europe/poland-germany-ukraine-patriots-missiles.html; Wojciech Kość, "Poland Plays Politics with German Patriot Missile Offer," Politico, December 1, 2022, https://www.politico.eu/article/poland-plays-politics-german-

patriot-missile-offer/; Andrew Chuter and Jaroslaw Adamowski, "UK, Poland to Pool Missile Development for Their Land, Naval Forces," Defense News, October 5, 2022, https://www.defensenews.com/global/europe/2022/10/05/uk-poland-to-pool-missile-development-for-their-land-naval-forces/; and "Landmark Agreements Strengthen UK-Poland Defence Relations," UK Ministry of Defence, October 4, 2022, https://www.gov.uk/government/news/landmark-agreements-strengthen-uk-poland-defence-relations.

53 See Brzozowski, "France Proposes."

54 Mathieu Droin, "Rebooting the Franco-German Engine," CSIS, *Commentary*, October 5, 2022, https://www.csis.org/analysis/rebooting-franco-german-engine.

55 Arnold and Arnold, "Germany's Fragile Leadership Role."

56 For example, two of the three systems cited by German defense minister Christine Lambrecht were non-European (the U.S.-made Patriot and Israeli Arrow 3). McLeary, "NATO Rushing."

57 Monaghan, "Solving Europe's Defense Dilemma."

58 Quoted in McLeary, "NATO Rushing."

59 Based on Monaghan, "Solving Europe's Defense Dilemma."

60 Monaghan, "Solving Europe's Defense Dilemma."

61 See, for example: Dick Zandee and Adaja Stoetman, *Specialising in European Defence: To Choose or Not to Choose?* (The Hague, Netherlands: Clingendael, July 2022), 1, https://www.clingendael.org/pub/2022/specialising-in-european-defence/; Sean Monaghan and Ed Arnold, "Indispensable: NATO's Framework Nations Concept beyond Madrid," CSIS, *CSIS Briefs*, June 27, 2022, https://www.csis.org/analysis/indispensable-natos-framework-nations-concept-beyond-madrid; David R. Scruggs et al., *European Defense Integration: Bridging the Gap between Strategy and Capabilities* (Washington, DC: CSIS, October 1, 2005), https://www.csis.org/analysis/european-defense-integration-bridging-gap-between-strategy-and-capabilities; and Bence Nemeth, "Bilateralism and Minilateralism Are Europe's Secret Strengths," War on the Rocks, June 3, 2022, https://warontherocks.com/2022/06/bilateralism-and-minilateralism-are-europes-secret-strengths/.

62 See Sabine Siebold and Michel Rose, "France, Germany, Spain Agree on Moving on with FCAS Warplane Development," Reuters, November 19, 2022, https://www.reuters.com/business/autos-transportation/france-germany-spain-agree-next-phase-fighter-jet-development-source-2022-11-18/; and "The EATC," European Air Transport Command, https://eatc-mil.com/en/who-we-are/the-eatc.

63 See, for example: Kanniainen and Lehtonen, "Cooperative Procurement," 204; Dick Zandee, Margriet Drent, and Rob Hendriks, *Defence Cooperation Models: Lessons Learned and Usability* (The Hague, Netherlands: Clingendael, October 2016), 57, https://www.clingendael.org/publication/defence-cooperation-models; Von Deimling, Glas, and Ekström, "Cooperative Purchasing," 719–21.

64 See Sanders and Hunter, *Designing and Managing*; and Leandro Bolzan de Rezende et al., "The Main Project Complexity Factors and Their Interdependencies in Defence Projects," *Project Leadership and Society* 3 (December 2022): 100050, https://www.sciencedirect.com/science/article/pii/S2666721522000102.

65 This point was raised during expert workshop discussions.

66 Tarociński, "Safe Skies?," 8–9.

67 Kenneth Schaffel, *The Emerging Shield: The Air Force and the Evolution of Continental Air Defense 1945–1960* (Washington, DC: Office of Air Force History, 1991), vii, https://media.defense.gov/2010/May/26/2001330263/-1/-1/0/AFD-100526-024.pdf.

68 Maximillian K. Bremer and Kelly A. Grieco, "Assumption Testing: Airpower Is Inherently Offensive," Stimson Center, January 25, 2023, https://www.stimson.org/2023/assumption-testing-is-airpower-inherently-offensive/.

69 See, for example, Maximilian K. Bremer and Kelly A. Grieco, "In Denial about Denial: Why Ukraine's Air Success Should Worry the West," War on the Rocks, June 15, 2022, https://warontherocks.com/2022/06/in-denial-about-denial-why-ukraines-air-success-should-worry-the-west/; and Kelly A. Grieco and Julia Siegel, "Airpower after Ukraine: The Future of Air Warfare," Atlantic Council, https://www.atlanticcouncil.org/programs/scowcroft-center-for-strategy-and-security/forward-defense/airpower-after-ukraine/

70 Sanders and Hunter, *Designing and Managing*.

71 Fashola, "Five Types," 9.

72 The NATO MEADS Management Agency (NAMEADSMA) managed the MEADS program. For OCCAR, see https://www.occar.int/.

73 Financial and regulatory incentives include NATO's Innovation Fund, the EDF, or the European Defence Industry Reinforcement through Common Procurement Act (EDIRPA). The overlap with NATO's HVPs and the European Union's EDF and PESCO air and missile defense projects should be exploited to gain access to such incentives.

74 Insights are based on analysis of the UK-led JEF, a 10-member group of like-minded nations focused on northern European security cooperation. See Monaghan and Arnold, "Indispensable"; and Sean Monaghan, "The Joint Expeditionary Force: Global Britain in Northern Europe?," CSIS, *Commentary*, March 25, 2022, https://www.csis.org/analysis/joint-expeditionary-force-global-britain-northern-europe.

75 "Joint Expeditionary Force (JEF)—Policy direction," UK Ministry of Defence, July 12, 2021, https://www.gov.uk/government/publications/joint-expeditionary-force-policy-direction-july-2021/joint-expeditionary-force-jef-policy-direction.

76 Sanders and Hunter, *Designing and Managing*, XI.

77 This point was also made in a project workshop by a former German official and expert familiar with the conception of the Sky Shield initiative.

78 Sanders and Hunter, *Designing and Managing*, XI-XII.

79 Ibid., XIII.

80 Fashola, "Five Types."

81 "German-Dutch Air and Missile Defence Task Force Deploy to Slovakia," NATO Allied Air Command, April 14, 2022, https://ac.nato.int/archive/2022/germandutch-air-missile-defence-task-force-deploy-to-slovakia.

82 On incentivizing supply consolidation in European defense, see Monaghan, "Solving Europe's Defense Dilemma."

83 Jen Judson, "Sharing Missile Defense Intel among US Allies Still a Challenge as Need for Joint Ops Grows," Defense News, August 8, 2018, https://www.defensenews.com/digital-show-dailies/smd/2018/08/08/missile-defense-info-sharing-with-allies-still-a-challenge-as-need-to-operate-together-grows/.

84 Monaghan, "Solving Europe's Defense Dilemma."

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